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In Sessional paper No. 8D, page 243 is incorrectly numbered page 343.

SESSIONAL PAPERS

VOLUME 6

SECOND SESSION OF THE EIGHTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1897



891028

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OF THE
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1. Report of the Auditor General, for the year ended 30th June, 1896. Presented 30th March, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

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2. Public Accounts of Canada, for the fiscal year ended 30th June, 1896. Presented 30th March, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*
- 2a. Estimates of sums required for the service of the Dominion, for the year ending on the 30th June, 1898. Presented 8th April, 1897, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.
- 2b. Supplementary Estimates for the year ending 30th June, 1897. (For the Militia attending the Queen's Jubilee.) Presented 20th May, 1897, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.
- 2c. Supplementary Estimates for the year ending 30th June, 1897. Presented 10th June, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*
- 2c.* Supplementary Estimate for the year ending 30th June, 1897. (Post Office Department.) Presented 14th June, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*
- 2d. Supplementary Estimates for the year ending 30th June, 1898. Presented 18th June, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*
- 2e. Further Supplementary Estimates for the year ending 30th June, 1898. (Intercolonial Railway extension to Montreal.) Presented 23rd June, 1897, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.
3. List of Shareholders of the Chartered Banks of Canada, as on the 31st December, 1896. Presented 5th April, 1897, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*
- 3a. Report of dividends remaining unpaid and unclaimed balances in the Chartered Banks of Canada, for five years and upwards, prior to 31st December, 1896.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 3.

- 4.** Report of the Superintendent of Insurance, for the year ending 31st December, 1896.
Printed for both distribution and sessional papers.
- 4a.** Preliminary statements of the business of Life Insurance Companies in Canada, for the year ending 31st December, 1896. Presented 29th June, 1897, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.
- 4b.** Abstract of Statements of Insurance Companies in Canada, for the year ended 31st December, 1896. Presented 5th April, 1897, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.

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- 5.** Report of the Department of Trade and Commerce, for the fiscal year ended 30th June, 1896. Presented 25th March, 1897, by Sir Richard Cartwright.
Printed for both distribution and sessional papers.
- 6.** Tables of the Trade and Navigation of Canada, for the fiscal year ended 30th June, 1896. Presented 30th March, 1897, by Hon. W. Paterson.....*Printed for both distribution and sessional papers.*

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- 7.** Inland Revenues of Canada. Excise, &c., for the fiscal year ended 30th June, 1896. Presented 26th March, 1897, by Sir Henri Joly de Lotbinière....*Printed for both distribution and sessional papers.*
- 7a.** Inspection of Weights, Measures, Gas and Electric Light, for the fiscal year ended 30th June, 1896. Presented 26th March, 1897, by Sir Henri Joly de Lotbinière.
Printed for both distribution and sessional papers.
- 7b.** Report on Adulteration of Food, for the fiscal year ended 30th June, 1896. Presented 26th March, 1897, by Sir Henri Joly de Lotbinière.....*Printed for both distribution and sessional papers.*
- 8.** Report of the Minister of Agriculture of Canada, for the calendar year 1896. Presented 23rd April, 1897, by Hon. W. Mulock.....*Printed for both distribution and sessional papers.*
- 8a.** Report on Canadian Archives, 1896. Presented 23rd April, 1897, by Hon. W. Mulock.
Printed for both distribution and sessional papers.

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- 8c.** Report of the Director and Officers of the Experimental Farms, for the year 1896.
Printed for both distribution and sessional papers.
- 8d.** Criminal Statistics for the year 1896.....*Printed for both distribution and sessional papers.*

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- 9.** Annual Report of the Minister of Public Works, for the fiscal year ended 30th June, 1896. Presented 9th April, 1897, by Hon. J. I. Tarte*Printed for both distribution and sessional papers.*
- 10.** Annual Report of the Department of Railways and Canals, for the fiscal year ended 30th June, 1896. Presented 5th April, 1897, by Hon. A. G. Blair...*Printed for both distribution and sessional papers.*

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- 11.** Annual Report of the Department of Marine and Fisheries (Marine), for the fiscal year ended 30th June, 1896. Presented 26th May, 1897, by Hon. L. H. Davies.
Printed for both distribution and sessional papers.
- 11a.** Annual Report of the Department of Marine and Fisheries (Fisheries), for the fiscal year ended 30th June, 1896. Presented 26th May, 1897, by Hon. L. H. Davies.
Printed for both distribution and sessional papers.

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- 11b.** Special reports containing notes on the natural history of the lobster, with special reference to the Canadian lobster industry. *Printed for both distribution and sessional papers.*
- 11c.** Discolouration in Canned Lobsters. *Printed for both distribution and sessional papers.*
- 11d.** Report of the joint commission relative to the preservation of the fisheries in waters contiguous to Canada and the United States. *Printed for both distribution and sessional papers.*

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- 11e.** Report of the Chairman of the Board of Steamboat Inspection, etc., for calendar year ended 31st December, 1896. *Printed for both distribution and sessional papers.*
- 12.** Report of the Postmaster General for the year ended 30th June, 1896. Presented 28th May, 1897, by Hon. W. Mulock. *Printed for both distribution and sessional papers.*
- 12a.** Supplement to the Report of the Postmaster General, for the year 1896, with reference to the letting of certain contracts for mail service. Presented 4th June, 1897, by Hon. W. Mulock. *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 10.

- 13.** Annual Report of the Department of the Interior, for the year 1896. Presented 12th May, 1897, by Hon. W. Mulock. *Printed for both distribution and sessional papers.*
- 13a.** Summary Report of the Geological Survey Department, for the year 1896. Presented 29th June, 1897, by Hon. S. A. Fisher. *Printed for both distribution and sessional papers.*
- 13b.** Report by Hon. T. Mayne Daly on his visit to Great Britain and Ireland in the interests of emigration to Canada, 1896. Presented 14th April, 1897, by Hon. C. Sifton. *Not printed.*

CONTENTS OF VOLUME 11.

- 14.** Annual Report of the Department of Indian Affairs, for the year ended 30th June, 1896. Presented 5th April, 1897, by Hon. C. Sifton. *Printed for both distribution and sessional papers.*
- 15.** Report of the Commissioner of the North-west Mounted Police Force, 1896. Presented 22nd April, 1897, by Hon. W. Laurier. *Printed for both distribution and sessional papers.*

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- 16.** Report of the Secretary of State of Canada, for the year ended 31st December, 1896. Presented 30th March, 1897, by Hon. S. A. Fisher. *Printed for both distribution and sessional papers.*
- 16a.** Civil Service List of Canada, 1896. Presented 30th March, 1897, by Hon. S. A. Fisher. *Printed for both distribution and sessional papers.*
- 16b.** Report of the Board of Civil Service Examiners, for the year ended 31st December, 1896. Presented 22nd April, 1897, by Hon. S. A. Fisher. *Printed for both distribution and sessional papers.*
- 16c.** Annual Report of the Department of Public Printing and Stationery, for the year ended 30th June, 1896, with a partial report for services during six months ending 31st December, 1896. Presented 29th June, 1897, by Hon. S. A. Fisher. *Printed for both distribution and sessional papers.*
- 17.** Report of the Joint Librarians of Parliament, for the period since the close of the session in October, 1896. Presented 25th March, 1897, by the Hon. The Speaker. *Printed for sessional papers only.*
- 18.** Report of the Minister of Justice as to Penitentiaries of Canada, for the year ended 30th June, 1896. Presented 9th June, 1897, by Hon. C. Fitzpatrick. *Printed for both distribution and sessional papers.*

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19. Report of the Department of Militia and Defence of Canada, for the year ended 31st December, 1896. Presented 8th April, 1897, by Sir Richard Cartwright.
Printed for both distribution and sessional papers.
20. Return to an Order of the House of Commons, dated 28th September, 1896, giving particulars in reference to the Eighth General Election for the House of Commons of Canada. Presented 29th April, 1897.—*Mr. Lavergne* *Printed for both distribution and sessional papers.*
21. Copy of an Order in Council relative to the issue of licenses to United States fishing vessels. Presented 26th March, 1897, by Hon. L. H. Davies *Not printed.*
22. Statement of Governor General's Warrants issued since last session of parliament, on account of fiscal year 1896-97. Presented 30th March, 1897, by Hon. W. S. Fielding *Not printed.*
23. Return of Treasury Board Over-Rulings on appeals from decisions of the Auditor General, between the sessions of 1896 and 1897. Presented 30th March, 1897, by Hon. W. S. Fielding.
Printed for sessional papers.
24. General Order of the Exchequer Court. Presented 30th March, 1897, by Hon. S. A. Fisher.
Not printed.
25. Return to an order of the House of Commons, dated 28th September, 1896, for a return of all papers and correspondence regarding the claims of Messrs. Penhallwick, of Edenwold, for destruction of machinery by Indians. Presented 5th April, 1897.—*Mr. Davin* *Not printed.*
26. Return to an address of the House of Commons to his excellency the Governor General, dated 14th September, 1896, for a copy of all correspondence in connection with all grants of land in the town of Revelstoke to J. A. Mara, ex-member for Yale and Cariboo, and the order in council under which the said grants were made. Presented 5th April, 1897. *Mr. Bostock* *Not printed.*
- 26a. Return to an address of the House of Commons to his excellency the Governor General, dated 14th September, 1896, for a copy of all correspondence and the order in council of the 11th July, 1890, by which a grant of land in the town of Revelstoke was made to the Kootenay Smelting and Trading Company. Presented 5th April, 1897.—*Mr. Bostock* *Not printed.*
27. Return to an address of the House of Commons to his excellency the Governor General, dated 14th September, 1896, for a copy of all correspondence in connection with grants of land within the railway belt in British Columbia made by the province subsequent to the date when the lands in the belt passed under control of the government of Canada, and of the orders in council of the 29th March, 1895, and the 6th December, 1895, setting forth the terms of the agreement between the government of Canada and the province of British Columbia, acting on behalf of the grantees. Presented 5th April, 1897.—*Mr. Bostock* *Not printed.*
28. Statement of expenditure on account of miscellaneous unforeseen expenses, from 1st July, 1896, to 24th March, 1897. Presented 5th April, 1897, by Hon. W. S. Fielding *Not printed.*
29. Statement of all superannuations and retiring allowances in the civil service during year ended 31st December, 1896, giving name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy filled by promotion or new appointment, and salary of any new appointee. Presented 5th April, 1897, by Hon. W. S. Fielding. *Not printed.*
30. Statement of the moneys expended in payment of bounties on iron and steel manufactured from Canadian ore, the persons to whom paid, the places at which the iron and steel was manufactured, together with copies of the regulations governing such payments, as required by the Act 57-58 Victoria, chapter 9. Presented 7th April, 1897, by Hon. W. Paterson. *Printed for sessional papers.*
31. Return furnished annually by the Canadian Pacific Railway Company under the provisions of section 8 of 49 Victoria, chapter 9, being a list of all lands sold by that company from 1st October, 1895, to the 1st October, 1896. Presented 13th April, 1897, by Hon. C. Sifton *Not printed.*
- 31a. Return under resolution of the 20th February, 1882, in so far as the same is furnished by the department of the interior, respecting the Canadian Pacific Railway Company. Presented 13th April, 1897, by Hon. C. Sifton *Not printed.*

 CONTENTS OF VOLUME 13—*Continued.*

32. Return of orders in council which have been published in the *Canada Gazette* and in the *British Columbia Gazette*, in accordance with the provisions of: (1st) Clause 91 of the Dominion Lands Act, chapter 54 of the Revised Statutes of Canada. (2nd) Subsection (d) of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. (3rd) Section 46 of the North-west Irrigation Act. Presented 13th April, 1897, by Hon. C. Sifton..... *Not printed.*
33. Return to an order of the House of Commons, dated 10th May, 1897, for a copy of the evidence taken by Inspector Fletcher when investigating charges made last November against the postmaster of Northfield, British Columbia. Presented 28th May, 1897.—*Mr. Davin*..... *Not printed.*
34. Statement of the affairs of the British Canadian Loan and Investment Company, as on the 31st December, 1896. Presented 20th April, 1897, by the Hon. The Speaker..... *Not printed.*
35. Return to an address of the House of Commons to his excellency the Governor General, dated 12th April, 1897, for copies of all orders in council, reports to council, petitions, memorials or other documents relating to the Manitoba School Question, not already submitted to this House. Presented 20th April, 1897.—*Mr. LaRivière*..... *Printed for both distribution and sessional papers.*
36. Statement of all bonds registered in the department of the secretary of state, since last return (1896) and submitted to parliament in accordance with section 23 of chapter 19, of the Revised Statutes of Canada. Presented 20th April, 1897, by Hon. S. A. Fisher. *Not printed.*
37. Return to an address of the House of Commons to his excellency the Governor General, dated 5th April, 1897, for copies of all correspondence relating to the retirement of Messrs. Bompas, Bischoff & Co., and the appointment of Mr. Charles Russell as solicitor for the Dominion government in London. Presented 22nd April, 1897.—*Mr. Foster*..... *Not printed.*
38. Return to an address of the House of Commons to his excellency the Governor General, dated 28th September, 1896, for copies of despatches, minutes of council, and correspondence relating to the formation of an international customs bureau for Brussels. Presented 26th April, 1897.—*Sir C. Hilbert Tupper*..... *Not printed.*
39. Tariff of fees and expenses for holding elections in the North-west Territories and British Columbia, fixed by the governor in council, under section 121 of the Dominion Elections Act, and amendments to the said tariff. Presented 26th April, 1897, by Hon. W. S. Fielding. . *Not printed.*
40. Return to an order of the House of Commons, dated 30th April, 1897, for copies of instructions to customs collectors *re* tariff resolutions and reciprocal tariff. Presented 30th April, 1897.—Hon. W. Paterson..... *Not printed.*
41. Return to an order of the House of Commons dated 5th April, 1897, for copies of all calls for tenders and specifications for the same and detailed answers thereto made since the last session of parliament in respect of the printing of government notes, stamps, etc., of all correspondence in connection therewith had with the government or any member thereof and with the minister of finance or the officers of his department, copies of all reports made thereon to the minister of finance and to council, together with all minutes to council passed in relation thereto, and a copy of the contract entered into between the government and the successful tenderer. Presented 3rd May, 1897.—*Mr. Foster*..... *Printed for distribution only.*
42. Return to an address of the House of Commons to his excellency the Governor General, dated 5th April, 1897, for a return showing how many convicts were liberated from the different penitentiaries in Canada since the month of July, 1896; giving their names and the dates when they were convicted, and showing why they were liberated, and the names of those who obtained their pardon for them; also the names of those whose sentences were commuted. Presented 5th May, 1897.—*Mr. Bergeron*..... *Not printed.*
43. Return to an order of the House of Commons, dated 28th September, 1896, for copies of all correspondence which has passed between the government and party or parties in reference to the "Montreal, Ottawa, Georgian Bay Canal" scheme; also all papers in connection with any application for financial aid towards this project. Presented 5th May, 1897.—*Mr. Poupore*.. *Not printed.*
44. Return to an order of the House of Commons, dated 28th September, 1896, for copy of all reports, valuations and all other papers relating to lands in the township of South Monagan, county of Peterboro', flooded by reason of the construction of a dam at Hastings, Ontario, and owned by Joseph Clarke and others. Presented 5th May, 1897.—*Mr. Kendry*..... *Not printed*

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45. Return to an order of the House of Commons, dated 2nd September, 1896, for copies of all memorials, reports, correspondence, plans and papers in relation to the construction of a bridge in front of Quebec, or in the vicinity, to connect the Intercolonial Railway with the Canadian Pacific Railway. Presented 5th May, 1897.—*Mr. Langelier* *Not printed.*
46. Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all correspondence between the department of Indian affairs at Ottawa and the officers of the Indian department at Regina and at Winnipeg, respecting the furnishing supplies to the St. Paul Industrial School; also the correspondence between the department at Ottawa and the Hudson Bay Company at Winnipeg. Presented 10th May, 1897.—*Mr. Davin* *Not printed.*
47. Return to an order of the House of Commons, dated 11th May, 1897, for a copy of the opinion of the minister of justice with respect to statutory increases. Presented 11th May, 1897.—*Hon. L. H. Davies* *Printed for sessional papers.*
48. Return to an order of the House of Commons, dated 21st April, 1897, for copies of all documents, correspondence, reports, etc., having reference to the appointment of Thomas E. Anderson to the position of collector of customs in the town of Napanee. Presented 11th May, 1897.—*Mr. Wilson* *Not printed.*
49. Report of the commissioners to examine into the affairs of the Kingston penitentiary. Presented 17th May, 1897, by Sir Richard Cartwright *Printed for distribution.*
50. Statement in pursuance of section 17 of the Civil Service Insurance Act, for the year ending 30th June, 1896. Presented 20th May, 1897, by Hon. W. S. Fielding *Not printed.*
51. Extract from a report of the committee of the honourable the privy council, approved by his excellency on the 23rd January, 1897, referring to the delimitation of the Alaskan boundary. Presented 26th May, 1897, by Hon. C. Sifton *See No. 77.*
52. Contract with Messrs. Petersen, Tate and Company, of Newcastle-on-Tyne, England, for a fast weekly steanship service between Canada and the United Kingdom. Presented 28th May, 1897, by Sir Richard Cartwright *See "Votes and Proceedings," page 393.*
53. Return to an address of the Senate to his excellency the Governor General, dated 13th May, 1897, for copies of all telegrams sent between the 15th and 27th of April last, by the minister of marine and fisheries, to Bernard D. McLellan, or any other person in West Prince, Prince Edward Island, promising grants for harbours, piers or breakwaters in that constituency, different from or in addition to, amounts stated in the Estimates now before Parliament. Presented 1st June, 1897.—*Hon. Mr. Ferguson* *Not printed.*
54. Return to an address of the Senate to his excellency the Governor General, dated 19th May, 1897, for a tabulated statement showing the effects which the commercial treaty between Canada and France has had upon the trade and revenue of the Dominion, as compared with the three years preceding the date upon which the treaty came into force, in so far as relates to the various articles covered by said treaty. Presented 1st June, 1897.—*Hon. Sir Mackenzie Bowell* *Printed for sessional papers.*
- 54a. Return to an address of the Senate to his excellency the Governor General, dated 9th June, 1897, for a detailed statement showing the character, quantity and value of the different articles exported from Canada to France, for the years ending 30th June, 1893, 1894, 1895 and 1896. Presented 17th June, 1897.—*Hon. Sir Mackenzie Bowell* *Printed for sessional papers.*
55. Return to an address of the Senate to his excellency the Governor General, dated 5th May, 1897, for a copy of the contract or charter by which the steamer "Petrel" has been employed for winter navigation between Prince Edward Island and the mainland during the present year, and all correspondence between the department of marine and fisheries, or any officer thereof, and the owners of the said steamer "Petrel" relative to the said contract or charter. Also a statement of all expenses incurred by the government of Canada, in the outfit, repair and maintenance of the said steamer, and in the payment of wages to her officers and men, giving the name of each employee, and the amount paid or to be paid each. Also a statement showing the number of round trips made by the said steamer, between Cape Tormentine and Cape Traverse, or any other port in Prince Edward Island, from the 1st of December, 1896, to the 1st of May of the present year, with the date of such trips. Also a statement of the number of passengers, and the quantity

• CONTENTS OF VOLUME 13—*Continued.*

- of freight carried by the said steamer between the ports aforesaid, and the amount received for carrying such freight and passengers, for the above-mentioned period. And also a statement of number of mails carried by the said steamer, during the same period. Presented 1st June, 1897.—*Hon. Mr. Ferguson*..... *Not printed.*
- 56.** Return to an address of the Senate to his excellency the Governor General, dated 5th May, 1897, for all correspondence which has taken place since the 13th July last between the government of the Dominion and the provincial government of Prince Edward Island regarding certain financial claims of that province upon the federal government.—Presented 1st June, 1897.—*Hon. Mr. Ferguson*..... *Printed for sessional papers.*
- 57.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all letters, papers, correspondence, petitions, etc., relating to the dismissal of J. Albert Verge, fishery officer for the river Restigouche and its tributaries and the waters of the Baie des Chaleurs, and the appointment of Charles Brown in his place. Presented 3rd June, 1897.—*Mr. McAlister*..... *Not printed.*
- 57a.** Return to an order of the House of Commons, dated 5th April, 1897, for copies of all correspondence, papers, petitions, &c., in connection with the dismissal of Angus McPhee as postmaster at Hopefield, in the province of Prince Edward Island. Presented 3rd June, 1897.—*Mr. Martin*..... *Not printed.*
- 57b.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all papers, letters, documents, petitions, etc., relating to the dismissal of A. J. McNeill as postmaster at Stanley Bridge, in Prince Edward Island. Presented 3rd June, 1897.—*Mr. Martin*..... *Not printed.*
- 57c.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all letters, telegrams and papers that have passed between the government and any person or persons in connection with the dismissal of Dr. George Duncan, late quarantine superintendent at Williams Head Station, B.C.—Presented 4th June, 1897.—*Hon. E. G. Prior*..... *Not printed.*
- 57d.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of all documents, reports, affidavits, declarations, papers and correspondence in relation to dismissal of F. X. Smith, late lighthouse keeper at Cape Gaspé. Presented 8th June, 1897.—*Mr. Casgrain*..... *Not printed.*
- 57e.** Return to an address of the House of Commons, to his excellency the Governor General, dated 14th September, 1896, for copies of all orders in council, reports and correspondence respecting the appointment and dismissal of the sub-agents of the department of marine and fisheries at the port of Pictou.—Presented 8th June, 1897.—*Sir C. Hibbert Tupper*..... *Not printed.*
- 57f.** Return to an order of the House of Commons, dated 3rd May, 1897, for a return showing the names of all persons dismissed from the service of the inland revenue department since the first day of July, 1896; also the names of all persons appointed to the service of said department since the first day of July, 1896. Presented 14th June, 1897.—*Mr. Wood (Brockville)*..... *Not printed.*
- 57g.** Return to an order of the House of Commons, dated 17th May, 1897, showing the names and offices or employment of all persons superannuated, dismissed or superceded in the service of the Canadian government under the present administration, giving the reason for superannuation, dismissal or supercession in each case, and the name and age of the officer or employee appointed to the vacancy in each case, and showing whether any inquiry or formal investigation took place in each case and the nature of it, and whether the party affected was given an opportunity of being heard before dismissal or supercession. Presented 15th June, 1897.—*Sir Charles Tupper*..... *See No. 57t.*
- 57h.** Return to an order of the House of Commons, dated 21st April, 1897, showing the names of all persons appointed to the department of customs since the first day of July, 1896, also the names of the offices respectively to which they were appointed and the salaries thereto attached; also the names of all persons in the service of the department of customs whose services have been dispensed with since the first day of July, 1896, with the names of the offices and the salaries attached thereto respectively. Presented 15th June, 1897.—*Mr. Wood (Brockville)*..... *Not printed.*
- 57i.** Supplementary return to 57g. Presented 16th June, 1897.—*Sir Charles Tupper*..... *See No. 57t.*
- 57j.** Return to an order of the House of Commons, dated 6th May, 1897, for copies of all letters and correspondence between the government or any members thereof referring in any way to the dismissal of Mr. W. D. Fairbrother as postmaster at Beamsville, with a copy of the charges and by whom such were made. Presented 18th June, 1897.—*Mr. McCleary*..... *Not printed.*

 CONTENTS OF VOLUME 13—*Continued.*

- 57k.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all letters, telegrams, petitions, reports and other communications with respect to the appointment and dismissal of David H. Price, postmaster of Aylmer West, and the appointment of his successor, Frederick Ashbaugh. Presented 18th June, 1897.—*Mr. Ingram*..... *Not printed.*
- 57l.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all correspondence, petitions and reports relative to the dismissal of T. P. Shields, postmaster of Upper Maugerville, and the appointment of Emery Sewel in his place, and in reference to any changes proposed in the location of said post office since 1891. Presented 18th June, 1897.—*Mr. Foster*..... *Not printed.*
- 57m.** Return to an order of the House of Commons, dated 12th April, 1897, for copies of all papers, correspondence, petitions, etc., connected with the dismissal of Alexis Doutre as postmaster at Beauharnois. Presented 18th June, 1897.—*Mr. Bergeron*..... *Not printed.*
- 57n.** Return to an order of the House of Commons, dated 5th April, 1897, for a return giving the names of all postmasters and other persons in the employ of the government in the counties of Kings and York, New Brunswick, who have been dismissed since July, 1896, and all correspondence in connection therewith. Presented 18th June, 1897.—*Mr. Foster*..... *Not printed.*
- 57o.** Return to an order of the House of Commons, dated 17th May, 1897, for a copy of the investigation held in connection with the postmaster's office in Valleyfield, by Mr. Wilfrid Mercier. Presented 18th June, 1897.—*Mr. Bergeron*..... *Not printed.*
- 57p.** Return to an order of the House of Commons, dated 17th May, 1897, for any reports or correspondence, not already brought down, and the reasons for the dismissal of Roderick McLeod and Robert McKay, bridge tenders on the Intercolonial Railway bridge, Pictou, Nova Scotia, and the appointment of Thomas Fraser and A. Thomas in their place and stead. Presented 24th June, 1897.—*Sir C. Hibbert Tupper*..... *Not printed.*
- 57q.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of all papers and documents connected with the dismissal of Mr. John L. Smith as fishery overseer for the district of New Carlisle, extending from Grand Cascapedia river to Paspebiac East; also any recommendations made to any member of the government by letter or otherwise for his dismissal and the recommendation in favour of his successor. Presented 25th June, 1897.—*Sir A. P. Caron*.
Not printed.
- 57r.** Return to an order of the House of Commons, dated 3rd May, 1897, giving all correspondence, evidence, reports and papers respecting the dismissal of the car inspector and car oiler at Stellarton, Nova Scotia, under instructions of the mechanical superintendent, Intercolonial Railway at Moncton, 5th February, 1897. Presented 25th June, 1897.—*Sir C. H. Tupper*..... *Not printed.*
- 57s.** Return to an order of the House of Commons, dated 21st April, 1897, for copies of all papers, petitions, evidence, reports and documents of every nature connected with the dismissal of Andrew Carmichael, postmaster, Spencerville, Ont. Presented 28th June, 1897.—*Mr. Reid*... *Not printed.*
- 57t.** A partial return to an address of the Senate to his excellency the Governor General, dated 9th April, 1897, for a statement showing for each department of the civil service, the names, ages, offices and salaries of such persons employed either in the inside or outside divisions thereof; and of such persons not in the civil service employed by the government in any department, who, since the 13th July, 1896, and in cases where no commission of investigation was appointed, have been removed from office by dismissal, superannuation or otherwise, specifying in each case the manner of, and grounds for such removal, and the length of notice given to the persons removed, and the amount of superannuation or gratuity granted, if any; also showing the name, age, office and salary or remuneration of any and every person appointed to the civil service in the place of, or as a consequence of any such removal. Presented 26th June, 1897.—*Hon. Mr. Kirchhoffer*.
Printed for sessional papers.
- 58.** Return to an order of House of Commons, dated 28th September, 1896, for copies of the contract awarded to Mr. Gédéon Beaulieu, contractor for the building of the post office at Rimouski, of all correspondence between the said contractor and the government, and all other documents in relation thereto. Presented 4th June, 1897.—*Mr. Fiset*..... *Not printed.*

 CONTENTS OF VOLUME 13—*Continued.*

59. Return to an order of the House of Commons, dated 17th May, 1897, for copies of the report made by Mr. Gourdeau, deputy minister of marine and fisheries, on the conference held last November between the steamship companies and shippers of cattle and horses. Presented 4th June, 1897. *Mr. Maclean*. *Printed for sessional papers.*
60. Return to an order of the House of Commons, dated 17th May, 1897, for copies of all correspondence since the 20th July last between the department of marine and fisheries at Ottawa and the officers thereof or others, respecting supplies and repairs of vessels and steamers under the control of that department which are in the habit of visiting the ports of Charlottetown, Georgetown and Pictou, or which are employed either in the protection of the coast fisheries or in the supervision and maintenance of lights, or in the winter steam service between Prince Edward Island and the mainland. Presented 4th June, 1897.—*Sir C. Hibbert Tupper*. *Not printed.*
61. Return to an order of the House of Commons, dated 21st April, 1897, for copies of all letters, petitions, memorials and suggestions received by the government, or any member thereof, since the 23rd June, 1896, to amend the North-west Territories Act with a view of enlarging the powers of the executive of the North-west Territories, and to increase the subsidy of the North-west Territories. Presented 4th June, 1897.—*Mr. Davin*. *Not printed.*
62. Return to an order of the House of Commons, dated 3rd May, 1897, for a copy of returns for Weller Bay while an outpost, *i.e.*, about eleven years: 1. The value of dutiable goods and duty collected. 2. Value of free goods. 3. Total number of vessels entered and cleared. 4. Total salary paid. Presented 8th June, 1897.—*Mr. Corby*. *Not printed.*
63. Return to an order of the House of Commons, dated 10th May, 1897, for a return of all correspondence between officers of the militia and others with the minister of militia and the major-general commanding relating to brevet promotion and General Order 73, 1896. Presented 8th June, 1897.—*Mr. Bain*. *Not printed.*
64. Return to an order of the House of Commons, dated 17th May, 1897, for copies of all correspondence, plans and reports of engineers having reference to making North Harbour, Aspy Bay, Victoria county, N.S., a harbour of refuge. Presented 9th June, 1897.—*Mr. Bethune*. *Not printed.*
65. Return to an address of the House of Commons to his excellency the Governor General, dated 3rd May, 1897, for copies of all papers relating to the release of Daniel Brien Sullivan, committed to jail at Toronto on the 18th November, 1896, including the reports of the police magistrate of the 21st and 27th November, 1896. Presented 9th June, 1897.—*Sir C. Hibbert Tupper*. *Not printed.*
66. Return to an order of the House of Commons, dated 28th September, 1896, for a statement showing the amount of money expended by the Dominion government since the 1st day of July, 1873, for constructing, equipping and subsidizing railways in Canada, with the number of acres of land granted as subsidies, and their estimate value. Also a statement showing separately the part of such expenditure made on railways in each province of the Dominion and the North-west Territory, deducting any sums that may have been charged against any of the provinces of the North-west Territory in their debt account with the Dominion. Presented 10th June, 1897.—*Mr. Martin*. *Printed for sessional papers.*
67. Return to an order of the House of Commons, dated 28th September, 1896, for copies of all letters, correspondence and tenders, the names of the parties tendering, the amounts of their tender, and the names of the parties awarded the contracts for the historical monuments at Lundy's Lane, Chrysler's Farm and Chateauguay. Presented 10th June, 1897.—*Mr. Gibson*. *Not printed.*
68. Return to an order of the House of Commons, dated 17th May, 1897, showing a comparative schedule of prices paid in connection with the military camp at Aldershot, King's county, Nova Scotia, for the seasons of 1895 and 1896 respectively; also all papers, correspondence and instructions respecting the securing of supplies for the said camp in 1897. Presented 10th June, 1897.—*Sir C. Hibbert Tupper*. *Not printed.*
69. Return to an order of the House of Commons, dated 17th May, 1897, for a return showing (under the announced change of organization at the Royal Military College of Canada): 1. A detail of the intended superior and subordinate staffs, their respective emoluments and the conditions of their engagements, inclusive of periods of service and duties to be performed by them respectively. 2. The intended number of classes of cadets in attendance at one time. 3. The allotment and distri-

CONTENTS OF VOLUME 13—*Continued.*

- bution of time to class instruction, drills, military and athletic exercises, meals, recreation, etc., specifying subjects and the professors and instructors respectively employed in the several subjects in each class. 4. The amount of deposit to be made by cadets to meet personal charges for a period of three years respectively under the reorganized system and the system hitherto in force. 5. The surplus revenue derived from fees from each cadet, after deduction of messing charges respectively under the reorganized system and the system hitherto in force. 6. A detail of items in the reorganized system and in that hitherto in force in the cases involving either increase or reduction, and the amounts of these differences. 7. The number of eligible applications made prior to the announcement of the reorganization to compete for entrance into the Royal Military College next September. Presented 10th June, 1897.—*Mr. Tyrwhitt* *Not printed.*
- 69a.** Supplementary return to No. 69. Presented 23rd June, 1897.—*Mr. Tyrwhitt* *Not printed.*
- 70.** Return to an address of the House of Commons to his excellency the Governor General, dated 28th September, 1896, for copies of despatches, minutes of council and correspondence relating to the London International Railway Congress, 1895. Presented 14th June, 1897.—*Sir C. Hibbert Tupper* *Not printed.*
- 70a.** Return to an address of the House of Commons to his excellency the Governor General, dated 28th September, 1896, for copies of despatches, minutes of council and other documents relating to the meeting of the International Railway Congress, St. Petersburg, with a copy of papers submitted by the high commissioner for Canada to that congress. Presented 14th June, 1897.—*Sir C. Hibbert Tupper* *Not printed.*
- 71.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of tenders opened the 16th day of March, 1897, for works on section 12 of the Soulanges canal, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 14th June, 1897.—*M. Clancy*.
Printed for sessional papers.
- 71a.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of tenders opened the 16th day of March, 1897, for works on sections 4, 5, 6 and 7 of the Soulanges canal, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 14th June, 1897.—*Mr. Clancy* *Printed for sessional papers.*
- 71b.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of tenders opened the 20th day of March for works on the Grenville canal enlargement, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 14th June, 1897.—*Mr. Clancy*.
Printed for sessional papers.
- 71c.** Return to an order of the House of Commons, dated 7th June, 1897, for a statement of all tenders opened the 7th day of May, 1897, for works on the north channel of St. Lawrence river, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 25th June, 1897.—*Mr. Clancy* *Printed for sessional papers.*
- 71d.** Return to an order of the House of Commons, dated 7th June, 1897, for a statement of all tenders opened the 30th day of April, 1897, for works on the Iroquois section, Galops canal, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 25th June, 1897.—*Mr. Clancy*.
Printed for sessional papers.
- 71e.** Return to an order of the House of Commons, dated 7th June, 1897, for a statement of all tenders opened the 24th day of April, 1897, for works on the Cardinal section, Galops canal, showing the prices of different tenderers for each item and the approximate quantities upon which the tenders were extended, also the lump sum of each tender. Presented 25th June, 1897.—*Mr. Clancy*.
Printed for sessional papers.
- 72.** Return to an order of the House of Commons, dated 9th September, 1896, for: 1. A copy of all reports of the engineers of the department of public works as to the conditions and requirements of the Port Albert harbour made within the last ten years. 2. A statement in detail, with dates, showing all amounts voted by parliament for the improvement of said harbour. 3. A statement showing how much of said sums were expended under contract, and how much otherwise and how; when expended and to whom paid.—Presented 15th June, 1897.—*Mr. Cameron* *Not printed.*

 CONTENTS OF VOLUME 13—*Continued.*

- 72a.** Return to an order of the House of Commons, dated 28th September, 1896, for: 1. Copy of all reports made by the engineers of the public works department since the 1st day of January, 1890, as to the condition and requirements of the Goderich harbour and of the North breakwater. 2. Statement in detail of all amounts voted for the construction and improvement of said harbour. 3. Statement showing how much has been expended on said harbour since the government of Canada undertook the work as a harbour of refuge. Presented 15th June, 1897.—*Mr. Cameron.*
Not printed.
- 72b.** Return to an order of the House of Commons, dated 17th May, 1897, for copies of all correspondence, telegrams, engineers' reports, etc., relating to the extension of the breakwater at Belle river, in Prince Edward Island. Presented 15th June, 1897.—*Mr. Martin.*..... *Not printed.*
- 73.** Return, in part (departments of the interior and Indian affairs), to an order of the House of Commons, dated 5th April, 1897, giving the names of all commissioners appointed by the government or any of the ministers to hear charges and make investigations into the conduct of civil servants and employees of the government or any of the departments since July, 1896, together with the rate of pay and allowances of each and the length of time each has been employed, and the full amount paid; also copies of all reports made by them to the government, or any member thereof, and copies of the authorization and instructions under which they acted. Presented 16th June, 1897.—*Mr. Foster.*..... *Not printed.*
- 73a.** Supplementary return to No. 73 (department of marine and fisheries). Presented 17th June, 1897.
Mr. Foster...... *Not printed.*
- 74.** Copies of contracts for cold storage accommodation on steamships from Montreal to Great Britain, between the minister of agriculture and various steamship companies. Presented 17th June, 1897, by Hon. S. A. Fisher..... *Not printed.*
- 75.** Return to an order of the House of Commons, dated 3rd May, 1897, for copies of all letters, papers and correspondence relating to the closing in March last of the post office at Oak Bay Mills, Quebec. Presented 18th June, 1897.—*Mr. McAlister.*..... *Not printed.*
- 76.** Return to an order of the House of Commons, dated 3rd May, 1897, for: 1. Copies of all correspondence and other documents relating to the creation of post office inspectorships at Stratford, Barrie and Kingston and the appointment of inspectors and other officials connected with such inspectorships. 2. The number of employees connected with each such office and the salaries paid, and all other expenses of each office. Presented 18th June, 1897.—*Mr. Cameron.*
Printed for sessional papers.
- 77.** Report of Major General Cameron on the proposed convention in reference to a portion of the Alaskan boundary, and memorandum thereon. Presented 19th June, 1897, by Hon. L. H. Davies.
Printed for sessional papers.
- 78.** Return to an address of the House of Commons to his excellency the Governor General, dated 7th June, 1897, showing the correspondence, if any, between this government and the government of the United States in reference to an equalization or readjustment of the coasting laws, rules and regulations in force in the two countries; and in reference to any arrangement or proposal for any arrangement under which Canadian vessels shall be granted by the American government and officials the same privileges as those accorded to American vessels by the Canadian authorities under the laws, rules and regulations now in force. Presented 25th June, 1897.—*Mr. Britton.*
Printed for sessional papers.
- 79.** Return to an order of the House of Commons, dated 7th June, 1897, for copies of all telegrams and letters between the Hon. Clifford Sifton, minister of the interior, and Mr. Charles B. Heyd, M.P., for South Brant, and Mr. Davis, of the county of Haldimand, relating to the appointment or otherwise of Mr. Daniel Lynch, of the village of Hagersville, or Dr. Stuart of the same place, as Indian agent in the room and stead of Dr. Jones of Hagersville. Presented 25th June, 1897.—*Mr. Clancy.*..... *Not printed.*
- 80.** Return to an order of the House of Commons, dated 10th May, 1897, for copies of all papers, correspondence and telegrams relating to charges made affecting the quality of British Columbia salmon sold in the British market. Presented 25th June, 1897.—*Mr. Maxwell.*..... *Not printed.*

 CONTENTS OF VOLUME 13—*Concluded.*

81. Return to an order of the House of Commons, dated 7th June, 1897, for a copy of the advertisement recently published calling for tenders for the carrying of the mail between Danville, in the county of Richmond and St. Camille, in the county of Wolfe, province of Quebec, and of all tenders sent in, giving the names of the tenderers and amount of the tender in each case, the name of the successful tenderer, and the amount at which the contract was let. Presented 28th June, 1897.—*Mr. Ives* *Not printed.*
- 81a. Return to an order of the House of Commons, dated 7th June, 1897, for copies of correspondence and papers cancelling the contract with S. E. Turner, for carrying the mail between Tottenham and Athlone, in the county of Simcoe, province of Ontario. Presented 28th June, 1897.—*Mr. Tyrwhitt* *Not printed.*
- 81b. Return to an order of the House of Commons, dated 17th May, 1897, showing the different mail routes and mail contracts now existing between the town of Annapolis Royal and the town of Liverpool, in the counties of Annapolis and Queen's respectively. The name of each contractor and his bondsmen. The length of each route. The contract price, and whether daily, semi-weekly or tri-weekly. Presented 28th June, 1897.—*Mr. Mills* *Not printed.*
82. Return to an address of the Senate to his excellency the Governor General, dated 21st May, 1897, for a copy of the resignation of S. I. Jones, Esquire, late judge of the county court of the county of Brant, together with all correspondence with any department of the government, in reference to, or in connection therewith; also a copy of all petitions sent to the government praying for the appointment of A. D. Hardy to the position made vacant by the resignation and superannuation of the said Judge Jones. Presented 2nd June, 1897.—*Hon. Sir Mackenzie Bowell* . . . *Not printed.*
83. Return to an address of the Senate to his excellency the Governor General, dated 20th May, 1897, showing the names of all persons who filed claims for fishery bounty, before Stanislaus F. Perry, acting inspector of fisheries for Prince Edward Island, up to the 20th day of April last; also the names of all persons who filed similar claims before James F. White, bounty officer, up to the same date, And also showing the names of all persons who received fishery bounty in the west riding of Prince county, in the months of March and April last. Presented 25th June, 1897.—*Hon. Mr. Ferguson* *Not printed.*

APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE

EXPERIMENTAL FARMS

REPORTS

OF THE

DIRECTOR	Wm. SAUNDERS, LL.D.
HORTICULTURIST	JOHN CRAIG
CHEMIST	F. T. SHUTT, M.A.
ENTOMOLOGIST and BOTANIST	JAS. FLETCHER, LL.D.
POULTRY MANAGER	A. G. GILBERT
SUPT. EXPERIMENTAL FARM, Nappan, N.S.	GEO. W. FORREST
HORTICULTURIST " " "	W. S. BLAIR
SUPT. EXPERIMENTAL FARM, Brandon, Manitoba	S. A. BEDFORD
" " Indian Head, N.W.T.	ANGUS MACKAY
" " Agassiz, B.C.	THOS. A. SHARPE

FOR

1896

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

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

1897

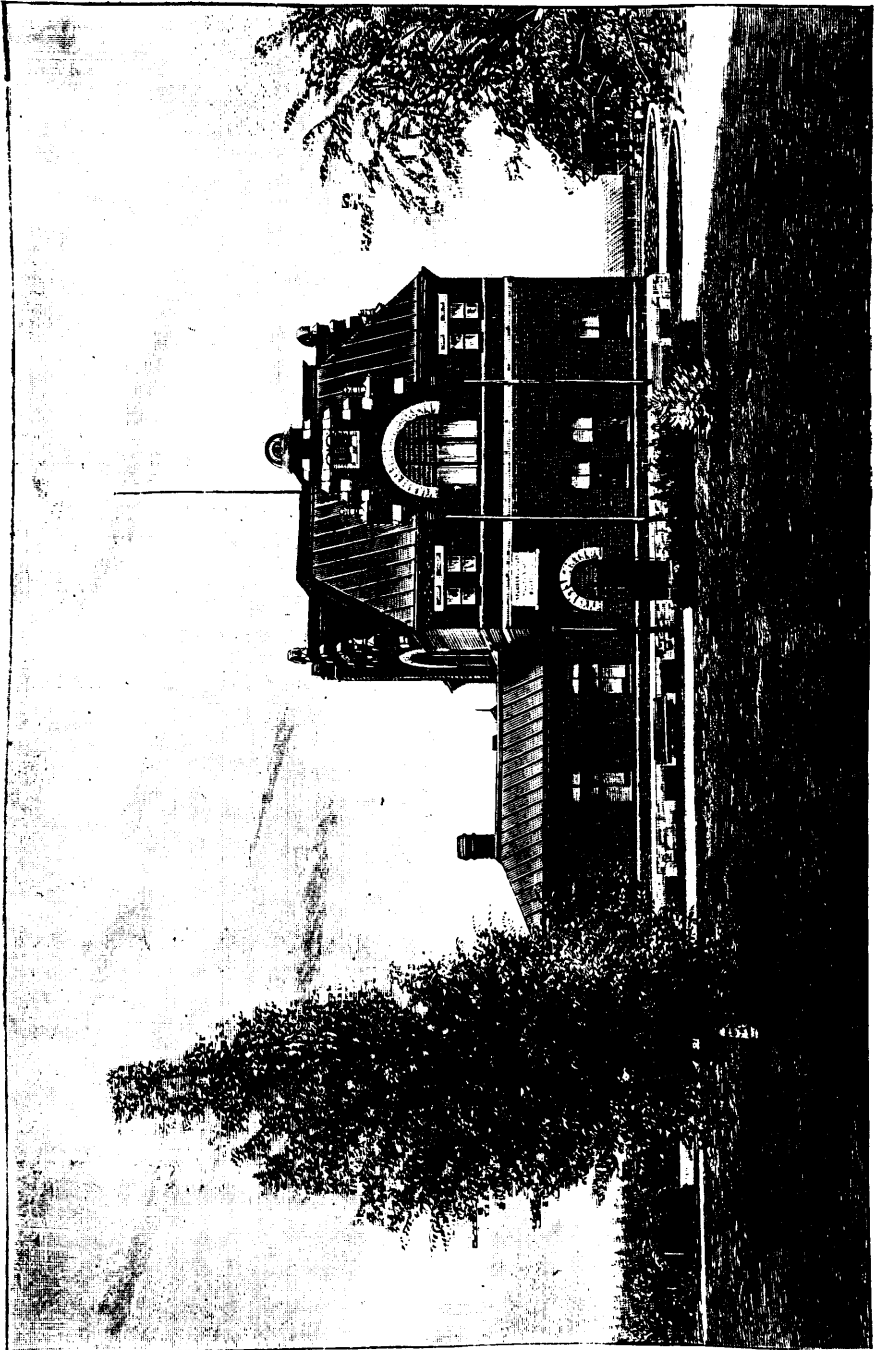


Fig. 1. OFFICE BUILDING, MUSEUM AND CHEMICAL LABORATORY OF THE CENTRAL EXPERIMENTAL FARM.

Experimental Farms.

APPENDIX

TO THE

REPORT OF THE MINISTER OF AGRICULTURE

ON

EXPERIMENTAL FARMS.

—o—

SIR,—I have the honour to submit to you herewith my tenth annual report of work done and in progress at the several experimental farms which have been established in different parts of the Dominion.

You will also find appended reports from the following officers of the Central Experimental Farm: From the Horticulturist Mr. John Craig; from the Chemist, Mr. Frank T. Shutt, and from the Entomologist and Botanist, Dr. James Fletcher. A report is also submitted from the Poultry Manager, Mr. A. G. Gilbert, and from the Foreman of Forestry, Mr. W. T. Macoun; the latter will be found included with the report of the Director.

From the branch experimental farms there are reports from Mr. Geo. W. Forrest, superintendent and from Mr. W. B. Blair, horticulturist of the experimental farm for the Maritime Provinces, at Nappan, Nova Scotia; from Mr. S. A. Bedford, superintendent of the experimental farm for Manitoba at Brandon; from Mr. Angus Mackay, superintendent of the experimental farm for the North-west Territories, at Indian Head; and from Mr. Thos. A. Sharpe, superintendent of the experimental farm for British Columbia, at Agassiz.

In these reports will be found the results of much carefully conducted experimental work relating to agriculture, horticulture and arboriculture, giving particulars of the outcome of much practical work in the fields, barns, dairy and poultry buildings, orchards and plantations; also of scientific investigation of chemical problems in the laboratory and the careful study of the life history and habits of injurious insects and noxious weeds with suggestions of measures for their destruction. Some details will also be found in the report of the Entomologist and Botanist of the experiments which have been carried on during the past year in connection with bee-keeping.

The large and constantly increasing demand among farmers for the annual reports and bulletins of the experimental farms is a gratifying evidence of the growing desire for information among this class of the community, and of the high esteem in which these records of the work are held. The facts brought together in the present issue will, it is hoped, be found of much practical value to the Canadian farmer and fruit grower and assist materially in the advancement of these industries in this country.

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

WM. SAUNDERS,
Director.

To the Honourable
The Minister of Agriculture,
Ottawa.

Experimental Farms.

ANNUAL REPORT

ON THE

EXPERIMENTAL FARMS.

REPORT OF THE DIRECTOR.

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In submitting the tenth Annual Report of the Experimental Farms it seems fitting that some particulars should be presented indicating the progress of the work for the carrying on of which these institutions have been established. The value of enterprises in every sphere of labour is usually estimated by the results obtained, and while in undertakings which are largely educational in their character it is not always possible to demonstrate fully their value from results manifested, enough has been accomplished which can be cited to show that the Experimental Farms have already proved of great service to the farmers of the Dominion.

When in October, 1886, the first step was taken towards the organization of Experimental Farms in Canada by the appointment of the Director, the first work undertaken was a careful study of the climatic and other conditions which influence agriculture in different parts of the country, and to find out where the several farms which it was proposed to establish could be placed so as to confer the greatest benefit on the farmers. The intention was that the sites chosen for these institutions should be so located as to cover the more important climatic conditions prevailing in this country and at the same time minister to the needs of the existing agricultural population. Notwithstanding the keenness of rivalry between different districts contending for the location of these farms in their midst, the fact that no adverse criticism worthy of attention has been attempted, is sufficient evidence that the sites chosen have commended themselves to the judgment of the community.

From the outset every endeavour has been made to help farmers who were striving to gain that experience which would enable them to cope with difficulties, and to carry on their work to better advantage and with increased profits. Of late years the obstacles in the way of profitable farming have been multiplied owing to the low prices for produce and ever increasing competition; amid such pressing difficulties it was imperative that the larger proportion of any work undertaken for the benefit of the farmers of this country should be directed on the practical lines of better methods of farming, and the testing and introduction of such vigorous, productive and early maturing varieties of the more important cereals as would be likely to result in increased crops and higher quality in the product. To attain the object first named practical information has been given in regard to the best methods of maintaining the fertility of the soil and of renewing the cropping capabilities of land which has been partially exhausted. The proper care of barn-yard manure has been discussed and the

effects of fertilizers on various crops demonstrated, also the best methods of preparing the soil to receive the seed, the most successful methods of sowing, the quantity of seed to be used and the depth in the soil to which it may be placed to the greatest advantage. Long courses of experiments have also been conducted to demonstrate the best time for sowing the more important crops in the different climates of the Dominion.

To accomplish the ends sought in the second line of work mentioned, suitable varieties of grain and other products have been sought for in every accessible country where climatic difficulties exist similar to our own. To add to the chances of success the art of cross-fertilizing has been practised with the object of combining the good qualities of existing varieties in the progeny thus produced. Although the time has been short a gratifying measure of success has attended the efforts which have been made, our farmers have been aroused to an intelligent interest in this work and new and more prolific strains of seed are fast taking the places of some of the less valuable sorts heretofore grown. A great impetus has been given to this special branch by the judicious and free distribution in sample lots of all the surplus grain of the best varieties produced at all the experimental farms.

The object lessons which have been given in the raising of fodder crops and the converting of these into ensilage, thus providing succulent food for cattle during the winter, have greatly stimulated the dairy industry, especially the manufacture of butter in winter, also the economical fattening of steers, thus affording more profitable employment for farm labour during the winter months. The experiments which have been conducted in reference to the economical production of butter of the highest quality and the best management of milk to secure the most complete separation of the butter fat have commanded much attention from those engaged in this special industry. The demonstrations which have been made by the feeding of swine with the coarser and inferior cereals and the otherwise waste products of the farm and converting these into pork has stimulated and enlarged the swine industry. The business in eggs and dressed fowls for the table has also been advanced by the publication of results obtained from experiments in the poultry branch of the experimental farm work.

The difficulties which settlers experience in the more remote portions of the Dominion where the climatic extremes are greater, have also been carefully considered and means devised for their benefit. Many experiments have been made in the treatment of the soil with the view of conserving moisture, also in the introduction of suitable fodder crops and grasses. To the experimental farms are due the credit of the introduction into the Canadian North-west of the Awnless Brome Grass (*Bromus inermis*) and of demonstrating its value both for hay and pasture, thus supplying a want which stood much in the way of successful cattle raising and dairying. The general cultivation of this useful grass which endures severe drought and intense cold with impunity, gives early and succulent green food and large crops of nutritious hay, is preparing the way for a vast extension of the cattle trade and also of the butter and cheese industries.

The instructive experiments which have been carried on in the testing of many varieties of large and small fruits have served to show where these can be grown to advantage and by skilful cross-fertilization on hardy wild forms new and improved sorts are being produced, some of which will, it is believed, prove useful as well as hardy enough to eventually furnish the settlers throughout the North-west country with some of those healthful and agreeable luxuries which nature has given with such a liberal hand to those who dwell in those portions of the country where the climate is more genial. The information which has been given on the cultivation of vegetables and the varieties best suited to the different climates of the country has proved of much value, while the encouragement given to the growing of trees for shelter and ornament, and the stimulus afforded by the example shown and by limited distributions of seeds and cuttings to those who desire to improve their surroundings by the planting of trees and shrubs has had the effect of making many a wilderness blossom and of converting bare and uninviting surroundings into attractive and sheltered homes.

The practical and much appreciated help which has been rendered by the officers who have special charge of the more scientific branches of the work has also been a

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source of satisfaction to the public. The information given as to the best remedies for the destruction of noxious insects and for resisting the inroads made by fungous diseases from which grain, fruit and other crops have suffered much in the past has been much appreciated and the good results obtained from the use of the measures recommended have been very satisfactory to farmers and fruit growers. The subject of noxious weeds has also received much consideration and the best measures pointed out for their subjugation.

Investigations have been made regarding the nutritious constituents in many fodder plants which have been analysed at different stages of their growth to determine the period when these plants may be cut to the greatest advantage. Much valuable information has thus been given to the farmers of Canada from which they have greatly profited. In other lines of chemical research many useful facts have been published, regarding the action of manures, the usefulness of mucks, muds and marls as fertilizing agents, also on the composition of soils in different parts of the Dominion. Much work has also been done by the chemist of the Experimental Farms in determining the quality of well waters used by farmers, and in many instances, existing impurities have been pointed out and thus the dangerous results which so often follow the use of polluted water have in large measure been prevented.

Much information is given each year by all the officers of the staff to the ever increasing number of correspondents, and a still larger circle of farmers receive the reports and bulletins published by the Experimental Farms containing the results obtained from the work in progress in all its branches. Judging from the commendatory letters received the aid thus rendered to the farming community is very much appreciated.

In this brief summary reference has only been made to some of the more prominent features of the work which has been done by the experimental farms during the few years which have elapsed since they were established. The attempt has been made and with much success to carry on useful lines of work in every important branch of agriculture, horticulture and arboriculture, and while the chief aim has been to advance the interests of farming and to make that noble occupation more profitable, other important objects have not been overlooked, encouragement has been given to the cultivation and dissemination of fruits and vines, as well as to the planting of trees, shrubs and flowers so that our people both in town and country might enjoy the healthful luxury of such fruits as our climate will afford and at the same time surround themselves with objects of beauty the study and observance of which will refine their minds and add quiet enjoyment to their lives.

EXPERIMENTS WITH OATS.

The oat is one of the most widely cultivated of cereals. It has been grown by man as food for himself and his domesticated animals for more than a thousand years. There are many species of wild oats found in different parts of the world, but from which of these the cultivated oat has been derived is still a matter of conjecture. De



FIG. 2.—Branching Oat, American Beauty—half natural size.

Candolle advances the opinion that our cultivated forms of this useful grain have probably been derived from some prehistoric form, a native of eastern temperate Europe and of Tartary.

Whatever may have been its source the great usefulness of the oat to man has led to its cultivation on a most extensive scale in almost every country. In Canada it covers a very wide acreage. In the province of Ontario alone 2,425,107 acres was devoted to this crop in 1896, and the total yield of grain was nearly 83 million bushels.

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The land occupied by oats in this province was nearly equal to the acreage devoted to all the other cereals combined. There are many varieties of oats in cultivation and some of them are much more vigorous and productive than others. One distinguishing feature is that of colour, some being black, others tawny or yellow, but the greater part are white. These are further distinguished by the way in which the heads or panicles are formed. Until recent years only the branching and sided varieties were known, but now there are intermediate forms. In figure 2, we have a representation of a branching



FIG. 3.—Half branching Oat, Oderbruch half natural size.



FIG. 4.—Sided or mane oat Giant Cluster—half natural size.

oat known as the American Beuty. Many of the most productive sorts belong to this class, viz., the Banner, Improved American, Holstein Prolific, Improved Ligowo, Golden Beauty, Columbus, Wallis, American Triumph and Bavarian. Figure 3 represents the Oderbruch, which is a half branching variety; the Early Gothland is another example of this class.

In figure 4 is shown a "Sided" or "Mane" variety, known as the Giant Cluster; other familiar examples of this form are the Golden Giant and the Black Tartarian. An intermediate form is seen in figure 5, which is known as half sided and represents

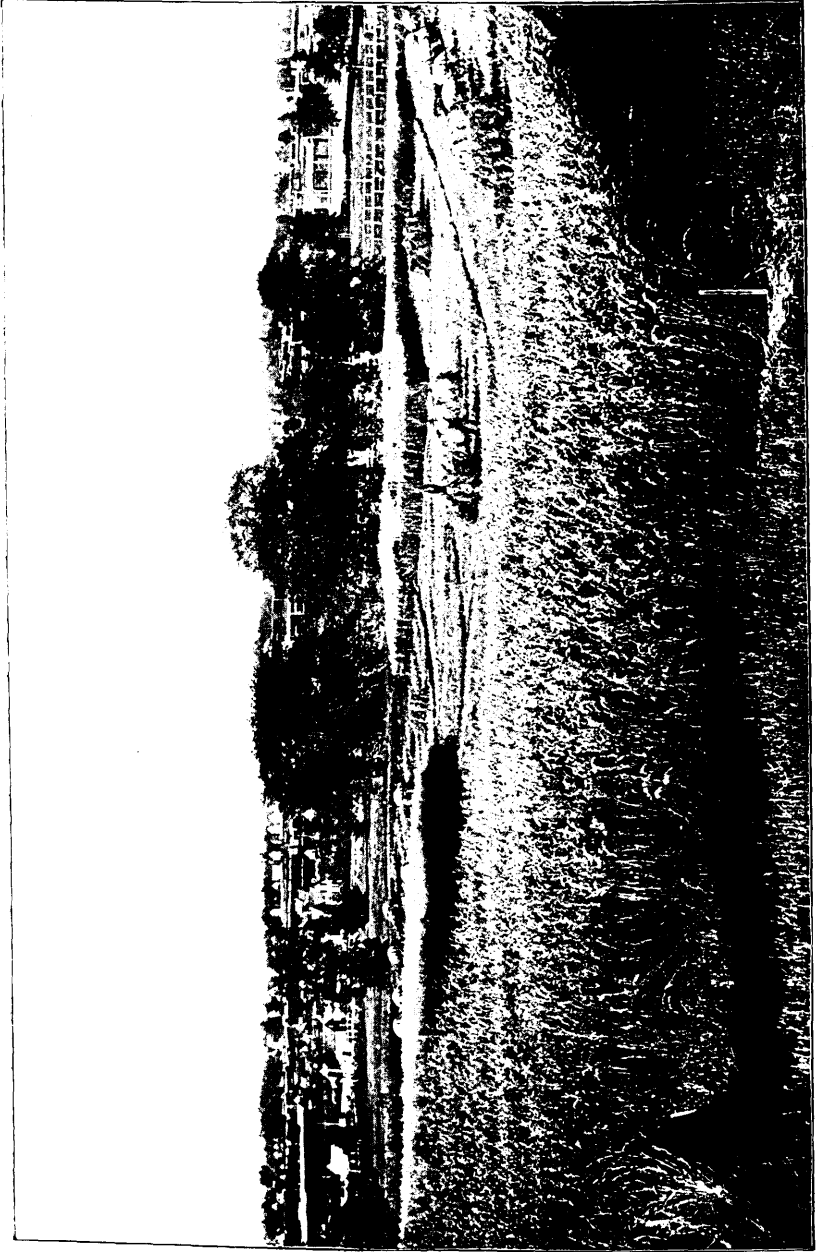
one of the new cross-bred varieties named Russell, which is a cross between the Prize Cluster, a branching variety and the Giant Cluster one of those with a sided head. Much the larger proportion of the more prolific sorts belong to the branching oats represented in figure 2.



FIG. 5.—Half sided Oat, Russell, half natural size.

UNIFORM TEST PLOTS OF OATS.

During the season of 1896, fifty-nine varieties of oats have been tested under fairly uniform conditions, to gain information regarding their relative yield, earliness and other qualities. They were all sown on the 30th April and 1st May, on plots of $\frac{1}{20}$ acre each. The soil was a clay loam of fair quality which was manured in the spring of 1891, with about 20 tons of barn-yard manure per acre. It also received an application of about 150 bushels of unleached wood ashes per acre, in the autumn of 1893. No fertilizers have been applied since. The previous crop was barley. The land was ploughed soon after harvest with the gang plough about two inches deep and harrowed with the smoothing harrow to cover and germinate weed seeds and shed grain, and later in the autumn it was ploughed about eight inches deep. In the spring of 1896, the land was disc-harrowed twice and harrowed with the smoothing harrow before sowing. In figure 6 a view is given of these uniform test plots at the time of harvest.



View of the uniform test plots of grain at the Central Experimental Farm, Ottawa.

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OATS—TEST OF VARIETIES.

Name of Variety.	Date of Ripening.	No. of days Maturing.	Length of		Kind of Head.	Yield per Acre.		Weight per bushel.	Rusted.
			Straw.	Head.		Bush.	lbs.		
			Inches.	Inches.		Bush.	lbs.	Lbs.	
Banner.....	Aug. 3..	94	48 to 51	8 to 10	Branching..	85	10	35½	Slightly.
Improved American.....	do 5..	97	51 to 60	9 to 11	do ..	83	18	35	Considerably.
Golden Beauty.....	do 2..	93	48 to 55	8 to 10	do ..	80	—	35½	Slightly.
American Triumph.....	do 4..	95	53 to 59	9 to 10	do ..	78	18	34½	Considerably.
Columbus.....	do 1..	92	44 to 54	8 to 10	do ..	77	2	35	Slightly.
White Russian.....	do 2..	94	55 to 63	8 to 10	do ..	76	6	34	Badly.
Holstein Prolific.....	July 31..	91	44 to 54	8 to 10	do ..	76	6	35	Considerably.
Menonite.....	Aug. 1..	92	48 to 54	8 to 10	do ..	75	30	34½	Slightly.
Golden Giant.....	do 10..	101	46 to 52	10 to 12	Sided.....	74	24	31½	Considerably.
Brandon.....	do 3..	94	55 to 63	10 to 12	Branching & half sided	73	28	38	do
Hazlett's Seizure.....	do 1..	93	51 to 60	9 to 11	Branching..	73	18	37½	Badly.
Bavarian.....	do 3..	94	48 to 57	9 to 10	do ..	72	22	34½	Slightly.
Abundance.....	do 1..	92	48 to 53	8 to 9½	do ..	72	12	36	do
Buckbee's Illinois.....	do 3..	94	45 to 58	9 to 11	do ..	72	12	36	do
Giant Cluster.....	do 10..	101	46 to 54	10 to 12	Sided.....	71	26	31½	Considerably.
Improved Ligowo.....	July 28..	89	36 to 48	8	Branching..	71	16	36½	Slightly.
Early Archangel.....	do 29..	89	48 to 56	9 to 11	do ..	71	16	41½	do
Doncaster Prize.....	Aug. 11..	102	48 to 60	9 to 10	do ..	71	6	36½	Badly.
Oderbruch.....	do 3..	95	46 to 58	.....	Hf branch'g	70	20	38	Considerably.
Russell.....	do 4..	95	56 to 63	.....	do ..	70	20	33½	do
American Beauty.....	do 1..	92	44 to 51	8 to 10	Branching..	69	14	35½	Slightly.
Rennie's Prize White.....	July 29..	89	58 to 64	9 to 11	do ..	68	8	39	do
Flying Scotchman.....	do 30..	90	48 to 57	8 to 10	do ..	68	8	36½	Considerably.
Early Gotthland.....	Aug. 3..	94	48 to 58	8 to 9½	Half sided..	68	8	39½	Slightly.
Cromwell.....	do 3..	94	53 to 60	10 to 12	Branching & half sided.	68	8	36½	do
White Schonen.....	do 1..	93	43 to 52	8 to 11	Branching..	66	6	35	do
Pense.....	do 5..	96	51 to 58	9 to 12	Sided & half sided.....	65	30	34½	Badly.
Lincoln.....	do 4..	95	48 to 58	8 to 10	Branching..	65	20	35½	Slightly.
Early Golden Prolific.....	do 5..	96	51 to 61	8 to 10	do ..	64	24	34	Considerably.
Wallis.....	do 1..	92	42 to 48	8 to 10	do ..	62	32	35	Slightly.
Welcome.....	July 28..	89	57 to 63	10 to 12	do ..	62	12	39½	do
Miller.....	Aug. 5..	96	41 to 48	7 to 10	do ..	62	12	35½	Considerably.
Cream Egyptian.....	do 3..	94	48 to 58	8 to 9½	Half sided..	61	26	39½	do
Abyssinia.....	do 3..	95	46 to 58	8 to 9½	do ..	61	6	39	do
Master.....	do 3..	94	48 to 60	10 to 12	Branching & half-sided.	61	6	35½	do
Joanette.....	do 5..	96	36 to 43	7 to 8	Branching..	60	30	35½	Slightly.
Early Etampes.....	do 5..	96	36 to 42	7 to 8	do ..	60	30	35½	do
Rosedale.....	do 3..	94	51 to 54	8 to 9½	Half-sided..	60	20	37	Considerably.
Victoria Prize.....	July 27..	88	58 to 63	10 to 11½	Branching..	60	.....	38½	do
Poland.....	do 31..	92	45 to 54	8 to 10	do ..	60	.....	37½	Slightly.
Scotch Hopetoun.....	Aug. 13..	105	42 to 56	9 to 10	do ..	60	.....	32½	Badly.
Bonanza.....	July 27..	88	56 to 63	10 to 11½	do ..	59	24	38½	Considerably.
Oxford.....	Aug. 4..	95	52 to 63	10 to 13	Branching & half-sided.	59	24	35½	do
Winter Grey.....	July 27..	88	48 to 60	9 to 11	Branching..	59	14	40	do
Prize Cluster.....	do 30..	101	57 to 66	9 to 11	do ..	58	28	40	Badly.
King.....	Aug. 8..	99	41 to 48	7 to 10	do ..	58	8	33½	Considerably.
Medal.....	do 3..	94	55 to 63	10 to 12	Branching & half-sided.	57	22	36½	do
Scottish Chief.....	July 27..	88	48 to 58	9 to 11	Branching..	56	11	38½	Slightly.
Imported Irish.....	do 27..	88	49 to 54	10 to 11½	do ..	56	6	41	do
White Wonder.....	do 28..	89	50 to 60	9 to 12	do ..	56	6	37½	Considerably.
Early Maine.....	Aug. 5..	96	46 to 56	9 to 11	do ..	55	10	33½	Badly.
Siberian.....	do 7..	98	48 to 56	9 to 10	Sided.....	55	.....	32½	Slightly.
Wide Awake.....	July 31..	92	42 to 54	8 to 9	Branching..	54	4	37	do
White Monarch.....	Aug. 10..	102	45 to 53	8 to 9	do ..	52	32	38	Badly.
Prolific Black Tartarian.....	do 5..	97	51 to 58	9 to 10	Sided.....	52	2	28½	do
Olive.....	do 7..	98	48 to 54	9 to 11	Sided & half-sided.....	49	14	35½	Considerably.
Coulommiers.....	do 13..	105	46 to 54	9 to 10	Branching..	47	32	33½	Badly.
Early Blossom (soil poor).....	do 5..	96	34 to 50	8 to 9	Half-sided..	45	30	36½	do
California Prolific Black.....	do 5..	96	48 to 58	8 to 9	Sided.....	45	10	33½	Considerably.

There are included in the preceding list ten of the new cross-bred sorts which have been produced at the experimental farms. The following are their names and parentage.

Brandon.....	Giant Cluster female,	with	Prize Cluster male.
Russell.....	Prize Cluster	do	“ Giant Cluster do
Cromwell.....	Prize Cluster	do	“ Giant Cluster do
Pense.....	Black Tartarian	do	“ Early Gothland do
Miller.....	Banner	do	“ Doncaster Prize do
Master.....	Prize Cluster	do	“ Giant Cluster do
Oxford.....	Giant Cluster	do	“ Prize Cluster do
King.....	Banner	do	“ Doncaster Prize do
Medal.....	Prize Cluster	do	“ Giant Cluster do
Olive.....	Black Tartarian	do	“ Early Gothland do

These are all the results of special work done in cross-fertilizing with the varieties named at Brandon in 1892, by Dr. A. P. Saunders. The single kernels thus obtained were sown in the spring of 1893 at the central farm and multiplied there until the spring of 1896, when they were first sent out for test at the branch farms.

There were several objects in view in making these crosses. One was to endeavour to start in this way new and vigorous strains of productive sorts, others were to ascertain the effect of crossing sided oats with branching, thin hulled oats with thick hulled, oats with long kernels with others with short kernels, yellow oats with white, and black oats with white. Many interesting results in the way of intermediate forms have been obtained, but some of these will need to be selected probably for several years to come before uniformity of character in the grain is secured.

SIBERIAN OATS.

It has for several years past been a matter of surprise that the Siberian oat grown by the experimentalist on the college Farm at Guelph, Ontario, has given uniformly much better crops than the oat grown under the same name at Ottawa. Through the kind courtesy of Mr. C. A. Zavitz, the Central Experimental Farm was supplied last season with enough of the seed of the Siberian oat grown at Guelph to sow a plot of 1-20th of an acre. As this seed was not received early enough to be included in the uniform test plots, it was sown separately, and proved to be very productive and gave a crop equal to 82 bush. 12 lbs. per acre, but it was a branching oat, whereas the Siberian which has been grown at Ottawa is a sided variety. The seed used at the central farm is from an importation made in 1888 from Haage & Schmidt, the well known seedsmen of Erfurt, Germany, while the Siberian oat grown at Guelph was supplied by an English seed firm. These oats are distinct varieties, and the Guelph seed has thus far been the most productive, but which of them is the true Siberian has not yet been determined.

TREATMENT OF OATS FOR SMUT.

Smut has occurred to a greater or less extent in some varieties of oats at the Central Farm for several years past, and in some instances the crops obtained from the experimental plots have been materially reduced from this cause. With the object of preventing the recurrence of such loss all the varieties, which had suffered in the past have been treated this year with a solution of potassium sulphide as follows:—

Dissolve 1½ lbs. of potassium sulphide in 25 gallons of cold water and soak the oats in this solution for 24 hours. Drain off the liquid and spread the oats thinly in some suitable place where they will dry quickly and sow the following day. If the seed thus treated is not dried quickly it is liable to sprout before sowing. In every instance where the seed was thus treated the grain was practically free from smut.

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The following varieties were sown with seed both treated and untreated, and the heads growing on 33 square feet were counted with the following results :—

Name of variety.	Treated.		Untreated.	
	No. of good heads.	No. of heads smutted.	No. of good heads.	No. of heads smutted.
Flying Scotchman.....	1,407	None.	1,424	167
Doncaster Prize.....	1,479	4	1,067	352
Rennie's Prize.....	1,516	4	1,656	138

FIELD CROPS OF OATS.

Abundance.— $4\frac{3}{4}$ acres. Sown on light sandy loam. The land was manured in the spring of 1893 with 18 to 20 tons of barn-yard manure per acre, and cropped in 1895, 3 acres with pease and $1\frac{3}{4}$ acres with potatoes. That part on which the pease were sown was ploughed in the autumn about 8 inches deep and disc-harrowed twice in the spring and harrowed with the smoothing harrow twice before sowing. That part on which the potatoes were grown in 1895 was manured in the spring of 1893 with 18 to 20 tons of barn-yard manure per acre. It was ploughed in the spring of 1896, about 6 inches deep and harrowed with the smoothing harrow twice before sowing. Sown 24th April: two bushels per acre; came up 4th May, and was ripe 31st July. The time to mature was 98 days. The yield per acre was 57 bushels 24 lbs.; weight per bushel, 35 lbs. Length of head, 8 to 11 inches, branching; length of straw, 40 to 55 inches. Made a fairly strong growth; all standing well; no smut; leaves and stems slightly rusted.

Wallis.—9 acres. Sown on light sandy loam which was manured in the spring of 1895, with 12 tons of barnyard manure per acre. The previous crop was corn. The land was ploughed in the autumn of 1895, about 8 inches deep and disc-harrowed twice and twice harrowed with the smoothing harrow before sowing. Sown 6th May; two bushels per acre; came up 11th May, and was ripe 8th August. The time to mature was 94 days. The yield per acre was 37 bushels 13 lbs.; weight per bushel $35\frac{3}{4}$ lbs. Length of head, 7 to 9 inches, branching; length of straw, 40 to 52 inches; all standing well; growth medium; rather uneven; no smut; leaves and stems slightly rusted. The crop was light owing to the poor quality of the soil.

Golden Beauty.—1 acre. Sown on heavy sandy loam. The land was manured in the spring of 1895 with about 10 tons of barn-yard manure per acre. The previous crop was corn and beans. It was ploughed late in the autumn of 1895 about 8 inches deep and disc-harrowed twice in the spring of 1896 and harrowed with the smoothing harrow twice before sowing. Sown 6th May; two bushels per acre; came up 13th May, and was ripe 6th August. The time to mature was 92 days. The yield per acre was 56 bushels 6 lbs.; weight per bushel $39\frac{3}{4}$ lbs. Length of head, 7 to 9 inches, branching; length of straw, 46 to 50 inches; all standing well; made a strong, even growth. There was some smut and the leaves and stems were slightly rusted.

The four following plots were sown adjoining Golden Beauty, on similar land, which had the same manuring and treatment :—

Columbus.— $\frac{3}{4}$ acre. Sown 6th May; two bushels per acre; came up 12th May, and was ripe 5th August. The time to mature was 91 days. Yield per acre, 67 bushels 30 lbs.; weight per bushel $35\frac{1}{4}$ lbs. Length of head, 7 to 9 inches, branching; length of straw 46 to 48 inches; all standing well; growth strong and even; no smut; leaves and stems slightly rusted.

American Beauty.— $\frac{3}{4}$ acre. Sown 6th May; two bushels per acre; came up 12th May, and was ripe 6th August. The time to mature was 92 days. Yield per acre, 74 bushels 11 lbs.; weight per bushel $38\frac{1}{2}$ lbs. Length of head, 7 to 9 inches, branch-

ing; length of straw, 41 to 48 inches; all standing well; growth strong and even; very little smut; leaves and stems very slightly rusted.

Improved Ligowo.— $\frac{3}{4}$ acre. Sown 6th May; two bushels per acre; came up 12th May, and was ripe 5th August. The time to mature was 91 days. Yield per acre, 70 bushels 15 lbs.; weight per bushel $39\frac{1}{2}$ lbs. Length of head, 8 to 10 inches, branching; length of straw, 46 to 52 inches; all standing well; growth very strong and even; no smut, and very slightly rusted.

Joanette.— $1\frac{1}{2}$ acres. Sown 6th May; one and three-quarter bushels per acre; came up 14th May, and was ripe 8th August. The time to mature was 94 days. Yield per acre, 62 bushels 22 lbs.; weight per bushel, $34\frac{1}{4}$ lbs. Length of head, 6 to 8 inches, branching; length of straw, 37 to 43 inches; all standing well; growth medium; no smut; leaves and stems very slightly rusted.

Early Gothland.—4 acres. Sown on heavy sandy loam. This land was in pasture since 1889 and has had no manure. It was ploughed in the spring of 1895 and cropped with corn and beans that year. It was ploughed in the autumn of 1895 about 8 inches deep and disc-harrowed twice the following spring and harrowed with the smoothing harrow twice before sowing. Sown 7th May; $1\frac{1}{2}$ bushels per acre; came up 12th May, and was ripe 7th August. The time to mature was 92 days. Yield per acre, 60 bushels 4 lbs.; weight per bushel 40 lbs. Length of head, 6 to 8 inches; half sided; length of straw, 46 to 56 inches; standing fairly well—a few spots lodged; growth very strong and even; a few heads of smut; leaves and stems very slightly rusted.

Banner.— $1\frac{3}{4}$ acres. Soil a heavy sandy loam. The land was manured during the winter of 1895-96 with about 12 tons of barn-yard manure per acre, placed in small heaps of about half a cart load each and spread and ploughed under in the spring; then harrowed with the smoothing harrow twice before sowing. Sown 9th May; 2 bushels per acre; came up 14th May, and was ripe 10th August. The time to mature was 93 days. Yield per acre, 64 bushels 13 lbs; weight per bushel 34 lbs. Length of head, 8 to 10 inches, branching; length of straw, 55 to 61 inches; growth very strong and even; standing fairly well, a few small spots lodged; no smut; leaves and stems slightly rusted.

Another field of the Banner was grown, measuring 10 acres. Soil a light sandy loam, which was manured with from 15 to 18 tons of barn-yard manure per acre, in the spring of 1894. It was ploughed late in the autumn of 1895 and disc-harrowed twice in the spring of 1896 and harrowed with the smoothing harrow twice before sowing. Sown 9th May; 2 bushels per acre; came up 16th May, and was ripe 12th August. The time to mature was 95 days. Yield per acre, 47 bushels 16 lbs.; weight per bushel 34 lbs. Length of head, 7 to 10 inches, branching; length of straw, 45 to 51 inches. Made a strong, even growth; standing well; very little smut; leaves and stems very slightly rusted.

Rosedale.—3 acres. This plot was almost adjoining the Banner, on similar light soil, which received the same manuring as the Banner, but the manure was applied during the winter of 1894-95, and ploughed under in the spring, after which the land was twice harrowed with the smoothing harrow before sowing. Sown 9th May; $1\frac{3}{4}$ bushels per acre; came up 15th May, and was ripe 10th August. The time to mature was 93 days. Yield per acre, 59 bushels 25 lbs.; weight per bushel, 38 lbs. Length of head, 7 to 10 inches; half sided; length of straw, 43 to 48 inches; all standing well; growth strong and even; no smut; leaves and stems considerably rusted.

Bavarian.—8 acres. Soil a light sandy loam, a small proportion of it peaty. The land was manured during the spring of 1895, the manure being placed out during the winter, in small piles of about half a cart load each; and spread in the spring; the previous crop was oats. It was ploughed in the autumn of 1895 about 8 inches deep and disc-harrowed twice in the spring of 1896 and harrowed with the smoothing harrow twice before sowing. Sown 9th May; $1\frac{3}{4}$ bushels per acre; came up 19th May, and was ripe 12th August. The time to mature was 95 days. Yield per acre, 46 bushels 17 lbs.; weight per bushel, $32\frac{3}{4}$ lbs. Length of head, 7 to 10 inches, branching; length of straw, 45 to 51 inches; growth strong and even; all standing well; no smut; leaves and stems very slightly rusted.

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Golden Giant Side.—5 acres. This plot was adjoining the Bavarian, and the soil, which was all light sandy loam, received the same manuring and treatment. Sown 12th May; 2 bushels per acre; came up 17th May, and was ripe 15th August. The time to mature was 95 days. Yield per acre, 48 bushels 2 lbs.; weight per bushel 36 lbs. Length of head, 7 to 9 inches; sided; length of straw, 43 to 51 inches; all standing well; growth strong and even; no smut; leaves and stems slightly rusted.

Winter Grey.—3½ acres.—This plot also adjoined the Bavarian oats, and received the same manuring and treatment, but the soil was all peaty. Sown 13th May; 1½ bushels per acre; came up 18th May, and was ripe 11th August. The time to mature was 90 days. Yield per acre, 29 bushels 25 lbs.; weight per bushel, 41 lbs.; length of head, 7 to 9 inches, branching; length of straw, 38 to 44 inches; standing fairly well; growth medium and even; no smut; leaves and stems slightly rusted. This soil being unsuitable for the crop, the yield was comparatively small.

The six varieties following were all sown on one-acre plots side by side. The land was all similar in quality, and the manuring and treatment was the same.

Oderbruch.—1 acre.—Sown on heavy sandy loam. The land was manured in the spring of 1895 with about eight tons of barn-yard manure per acre; previous crop was mixed grain. It was ploughed in the spring of 1896 about 6 inches deep and harrowed with the smoothing harrow before sowing. Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 15th August. The time to mature was 93 days. Yield per acre, 33 bushels 20 lbs.; weight per bushel, 31 lbs.; length of head, 7 to 9 inches, sided; length of straw, 41 to 49 inches; all standing well; growth strong and even; no smut; leaves and stems slightly rusted.

Siberian.—1 acre.—Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 15th August. The time to mature was 93 days. Yield per acre, 37 bushels 13 lbs.; weight per bushel, 35 lbs. Length of head, 8 to 10 inches, sided; length of straw, 44 to 51 inches; all standing well; growth strong and even; no smut; leaves and stems slightly rusted.

Victoria Prize.—1 acre. Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 8th August. The time to mature was 86 days. Yield per acre, 33 bushels 5 lbs.; weight per bushel, 33 lbs. Length of head, 8 to 10 inches, branching; length of straw, 45 to 49 inches; was somewhat broken just before harvesting; growth strong and even; a little smut; leaves and stems slightly rusted.

Flying Scotchman.—1 acre. Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 7th August. The time to mature was 85 days. Yield per acre, 34 bushels 3 lbs.; weight per bushel, 37½ lbs. Length of head, 7 to 9 inches, branching; length of straw, 41 to 47 inches; considerably lodged; growth strong and even; a little smut; leaves and stems slightly rusted.

Early Golden Prolific.—1 acre. Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 10th August. The time to mature was 90 days. Yield per acre, 44 bushels 3 lbs.; weight per bushel, 35½ lbs. Length of head, 7 to 9 inches, branching; length of straw, 41 to 47 inches; all standing well; growth strong and even; a little smut; leaves and stems slightly rusted.

Prize Cluster.—1 acre. Sown 14th May; 1½ bushels per acre; came up 21st May, and was ripe 10th August. The time to mature was 90 days. Yield per acre, 32 bushels 4 lbs.; weight per bushel, 38½ lbs.; length of head, 8 to 10 inches branching; length of straw, 44 to 49 inches; all standing well; growth strong and even; some smut; leaves and stems slightly rusted.

EXPERIMENTS WITH BARLEY.

Comparative tests have been made during 1896 with fifty-seven varieties of barley, twenty-eight of which were two-rowed sorts and twenty-nine were six-rowed. These were all sown in plots of $\frac{1}{20}$ acre each. The two-rowed varieties were all sown on the 5th of May, and the six-rowed on the 4th and 5th of May. The soil was a heavy sandy loam which was manured in the spring of 1896 with about twelve tons of barn-yard

manure per acre, the manure being placed on the land during the winter in small piles of about half a cartload each and spread in the spring. This manure was ploughed under in the spring about six inches deep and harrowed twice with the smoothing harrow before sowing. The land had received no manure or other fertilizer since the spring of 1892, the previous crop was horse beans.

TWO-ROWED BARLEY—TEST OF VARIETIES.

NAME OF VARIETY.	Date of ripening	No. of days maturing.	Length of Straw.	Character of Straw.	Length of Head.	Yield per acre.	Weight per bushel.	Rusted.
Bolton	Aug. 7.	91	48	Medium	3½ to 5	51 2	52	Slightly.
Newton	do 7.	94	48 to 52	Fair	3 to 3½	51 2	51	Very slightly.
Danish Chevalier	do 9.	96	42 to 54	Stiff	4 to 5	50 10	49	do
Canadian Thorpe	do 7.	94	48 to 55	Fair	3 to 3½	49 28	50½	do
Kinver Chevalier	do 8.	95	48 to 54	Weak	4½ to 5½	49 8	49½	do
Pacer	do 4.	91	48	Medium	3 to 4	48 6	52	Slightly.
Logan	do 1.	88	48 to 60	Stiff	2½ to 4½	47 44	51	Very slightly.
Victor	do 4.	91	48	Medium	3 to 4½	46 32	51½	do
Leslie	do 1.	88	48 to 52	Stiff	3 to 4	46 27	52	do
Douglas	do 7.	94	48 to 56	Medium	2½ to 4	46 12	46½	do
Sidney	do 3.	90	48 to 52	do	3 to 4½	46 12	50½	do
Dunham	do 1.	88	48 to 58	Fair	2½ to 4	46 7	50½	do
French Chevalier	do 10.	97	42 to 54	Weak	3½ to 5	45 40	48½	do
Nepean	do 4.	91	48 to 58	Fair	3 to 4½	45 30	52	do
Kirby	do 1.	88	42 to 48	Medium	3 to 4½	45 30	51	do
Jarvis	do 5.	92	48 to 56	Stiff	3 to 5	45 5	50½	do
Suffolk Coast Chevalier, No. 1	do 7.	94	48	Weak	3½ to 4½	44 38	48½	do
Thanet	do 8.	95	45 to 51	do	4 to 5	44 28	48	do
Beaver	do 7.	94	44 to 48	Fair	3 to 4	44 8	51½	do
Suffolk Coast Chevalier No. 2	do 7.	94	44 to 48	do	4 to 5	44 8	49½	do
Prize Prolific	do 8.	95	48 to 52	Weak	4 to 5	41 42	46½	do
Prolific (Wrinch)	do 7.	94	42 to 48	do	3½ to 4½	40 40	48½	do
Duck-bill	do 7.	94	48 to 54	Stiff	2½ to 3½	39 28	49½	do
California Prolific	do 7.	94	46 to 52	Fair	3 to 3½	39 28	51½	do
Gordon	do 1.	88	51 to 60	Stiff	2½ to 4½	38 36	52	do
Harvey	do 3.	90	52 to 60	Medium	2½ to 4½	38 31	50½	do
Monck	do 8.	95	51 to 55	do	3½ to 4½	36 42	51½	Slightly.
Rigid	do 8.	95	48 to 55	do	3 to 3½	34 38	50½	do

In the foregoing list of two-rowed varieties there are thirteen new hybrid sorts which have been produced at the experimental farms. The following are the names and parentage of these new forms :

- | | | | |
|--|--------|-----------------------------|------|
| 1. Bolton—Swedish (two-rowed) | Female | Baxters (six-rowed) | Male |
| 2. Pacer—Swedish (two-rowed) | do | Baxter's (six-rowed) | do |
| 3. Logan—Baxter's (six-rowed) | do | Duck-bill (two-rowed) | do |
| 4. Victor—Swedish (two-rowed) | do | Baxter's (six-rowed) | do |
| 5. Leslie—Rennie's Improved (six-rowed) | do | Duck-bill (two-rowed) | do |
| 6. Sidney—Swedish (two-rowed) | do | Baxter's (six-rowed) | do |
| 7. Dunham—Duck-bill (two-rowed) | do | Rennie's Imp. (six-rowed) | do |
| 8. Nepean—Swedish (two-rowed) | do | Baxter's (six-rowed) | do |
| 9. Kirby—Rennie's Improved (six-rowed) | do | Duck-bill (two-rowed) | do |
| 10. Jarvis—(four-rowed) | do | Canadian Thorpe (two rowed) | do |
| 11. Beaver—Swedish (two-rowed) | do | Baxter's (six-rowed) | do |
| 12. Gordon—Baxter's (six-rowed) | do | Duck-bill (two-rowed) | do |
| 13. Harvey—Rennie's Improved (six-rowed) | do | Duck-bill (two-rowed) | do |

Of these results in hybridising Nos. 1, 2, 4, 6, 8 and 11 were the work of the Director at the Central Farm in 1889, Nos. 3, 10 and 12 that of Mr. W. T. Macoun at

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the Central Farm in 1892, and Nos. 5, 7, 9 and 13 that of Dr. A. P. Saunders at the branch farm at Agassiz in 1892. All these have been carefully watched and selected ever since they were originated, all six-rowed sports have been rejected and the types of most of them are now fairly well fixed.

The chief objects in view in producing these hybrids of two-rowed and six-rowed barley were to endeavour to add to the list of vigorous and productive sorts, to bring about earlier ripening in the two-rowed varieties and longer heads with a greater propensity to stooling in the six-rowed sorts which would probably bring larger crops.

FIELD CROP OF TWO-ROWED BARLEY.

Canadian Thorpe.—Three acres. Sown on light sandy loam. The land received a light dressing of barn-yard manure—about 10 tons per acre—in the spring of 1896; was previously manured in the spring of 1895 with 8 tons of barn-yard manure per acre; the previous crop was corn. The land was ploughed in the spring of 1896 about 6 inches deep and harrowed with the smoothing harrow before sowing. Sown 5th May; 2 bushels per acre; came up 11th and 12th May, and was ripe 6th August. The time to mature was 93 days. Yield per acre, 30 bushels 6 lbs; weight per bushel, 52 $\frac{3}{4}$ lbs. Length of head 2 $\frac{1}{2}$ to 3 $\frac{1}{4}$ inches; two-rowed; length of straw, 33 to 38 inches; all standing well; growth medium and somewhat uneven; some smut; leaves and stems slightly rusted.

SIX-ROWED BARLEY—TEST OF VARIETIES.

Name of Variety.	Date of Ripening.	No. of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Yield per Acre.		Proportion Rusted.
						Bush. Lbs.	Lbs	
			Inches.		Inches.			
Odessa ..	July 29.	86	46 to 50	Fair	2 $\frac{1}{2}$ to 3	69	8	49 None.
Royal ..	do 29.	86	41 to 46	do	2 $\frac{3}{4}$ to 3	62	4	48 $\frac{1}{2}$ Slightly.
Champion ..	do 26.	82	50 to 54	do	2 $\frac{3}{4}$ to 3	61	12	42 $\frac{1}{2}$ None.
Mensury ..	do 30.	87	48 to 54	do	3 to 4	61	2	47 $\frac{1}{2}$ Very slightly.
Baxter's ..	do 26.	83	48 to 52	do	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	60		46 $\frac{1}{2}$ Slightly.
Trooper ..	do 29.	85	39 to 44	Stiff	2 to 3	58	46	49 $\frac{1}{2}$ do
Summit ..	do 29.	86	36 to 46	Fair	2 $\frac{1}{2}$ to 3	58	46	51 None.
Phoenix ..	do 25.	82	42 to 48	do	2 to 2 $\frac{3}{4}$	58	36	47 do
Excelsior ..	do 26.	82	48 to 53	do	2 $\frac{3}{4}$ to 3	57	24	44 do
Pioneer ..	Aug. 1.	89	42 to 48	do	2 $\frac{3}{4}$ to 3	56	32	51 Slightly.
Stella ..	July 26.	83	42 to 45	do	2 $\frac{3}{4}$ to 3 $\frac{1}{2}$	55		49 None.
Common ..	do 26.	83	40 to 46	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	54	38	48 $\frac{1}{2}$ do
Mansfield ..	Aug. 1.	88	43 to 52	do	2 $\frac{1}{2}$ to 3 $\frac{1}{4}$	53	36	47 $\frac{1}{2}$ do
Nugent ..	July 31.	88	42 to 48	do	2 $\frac{1}{2}$ to 3	50	10	47 $\frac{1}{2}$ Slightly.
Yale ..	do 31.	88	48 to 56	Stiff	2 $\frac{1}{2}$ to 3	49	23	47 $\frac{1}{2}$ Very slightly.
Albert ..	Aug. 3.	91	55 to 58	Fair	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	49	8	47 do
Brome ..	July 31.	88	44 to 48	do	2 $\frac{1}{2}$ to 3	48	36	48 $\frac{1}{2}$ Slightly.
Oderbruch ..	Aug. 1.	88	43 to 47	Stiff	2 $\frac{1}{2}$ to 3	48	26	49 $\frac{1}{2}$ None.
Empire ..	do 1.	89	48 to 54	Fair	2 $\frac{1}{2}$ to 3	47	14	50 Slightly.
Rennie's Improved ..	July 26.	83	42 to 49	Stiff	2 to 2 $\frac{3}{4}$	47	4	48 None.
Blue (long head) ..	Aug. 2.	89	42 to 46	Fair	2 $\frac{3}{4}$ to 3 $\frac{1}{4}$	47	4	43 $\frac{1}{2}$ Very slightly.
Claude ..	do 1.	88	36 to 45	do	2 $\frac{3}{4}$ to 4	46	32	45 $\frac{1}{2}$ Slightly.
Vanguard ..	July 24.	81	34 to 42	Stiff	2 $\frac{3}{4}$ to 3 $\frac{1}{4}$	46	32	47 None.
Petschora ..	do 23.	80	36 to 48	do	3 to 3 $\frac{1}{2}$	45	40	46 $\frac{1}{2}$ do
Blue (short head) ..	Aug. 8.	95	36 to 40	do	1 $\frac{3}{4}$ to 2	45	40	42 $\frac{1}{2}$ Slightly.
Garfield ..	July 31.	88	51 to 60	do	2 $\frac{1}{2}$ to 3	44	18	47 $\frac{1}{2}$ do
Success ..	do 24.	80	36 to 48	do	2 to 3	43	46	45 $\frac{1}{2}$ None.
Argyle ..	Aug. 3.	91	48 to 54	Fair	2 $\frac{3}{4}$ to 3 $\frac{1}{2}$	43	16	46 $\frac{1}{2}$ Slightly.
Surprise ..	do 1.	89	30 to 48	Stiff	2 to 2 $\frac{3}{4}$	41	2	50 $\frac{1}{2}$ do

The list of six-rowed barleys includes fifteen of the new hybrid sorts which have been produced at the experimental farms. The following are the names and parentage of these new six-rowed forms :—

1. Royal—Swedish (two-rowed)	Female	Baxter's (six-rowed)	Male
2. Trooper—Swedish (two-rowed)	do	Baxter's (six-rowed)	do
3. Summit—Swedish (two-rowed)	do	Baxter's (six-rowed)	do
4. Phenix—Baxter's (six-rowed)	do	Two-rowed (name lost)	do
5. Pioneer—Swedish (two-rowed)	do	Baxter's (six-rowed)	do
6. Stella—Swedish (two-rowed)	do	Baxter's (six-rowed)	do
7. Mansfield—Duck-bill (two-rowed)	do	Rennie's Imp. (six-rowed)	do
8. Nugent—Swedish (two-rowed)	do	Baxter's (six-rowed)	do
9. Yale—Duck-bill (two-rowed)	do	Rennie's Imp. (six-rowed)	do
10. Albert—(Four-rowed)	do	Can. Thorpe (two-rowed)	do
11. Brome—Rennie's Impd. (six-rowed)	do	Duck-bill (two-rowed)	do
12. Empire—Rennie's Impd. (six-rowed)	do	Duck-bill (two-rowed)	do
13. Claude—Duck-bill (two-rowed)	do	Common (six-rowed)	do
14. Garfield—Baxter's (six-rowed)	do	Duck-bill (two-rowed)	do
15. Argyle—Baxter's (six-rowed)	do	Duck-bill (two-rowed)	do

Nos. 1, 2, 3, 4, 5, 6 and 8, were the results of experiments carried on at the Central Farm by the Director and have nearly all been produced from sports from one cross, which have been carefully watched and selected by Mr. W. T. Macoun, and all sports not true to the type rejected. From Mr. Macoun's experiments at the Central Farm, Nos. 10, 14 and 15 have been produced, while Nos. 7, 9, 11 and 12 were originated at the branch farm at Agassiz by the experiments of Dr. A. P. Saunders, and No. 13 by Mr. Thos. A. Sharpe, also at Agassiz.

FIELD CROPS OF SIX-ROWED BARLEY.

Odessa.— $\frac{3}{4}$ acre. This was adjoining Canadian Thorpe, but on somewhat better land; the manuring and treatment were the same. Sown 5th May; $1\frac{3}{4}$ bushels per acre; came up 11th May, and was ripe 27th July. The time to mature was 83 days. Yield per acre 72 bushels 13 lbs.; weight per bushel, $50\frac{1}{2}$ lbs. Length of head, $2\frac{1}{2}$ to $3\frac{1}{4}$ inches; six-rowed, length of straw, 33 to 38 inches; all standing well; growth medium and fairly even, some smut but very little rust.

The following nine varieties were sown on one-acre plots adjoining each other. The land is clay loam for the first four plots, uniform in character, the next two plots are partly clay and partly sandy loam, and the remaining three are soil of much poorer quality, partly clay and partly peaty. This variation in quality is the chief cause of the lesser yields in the last named plots. This land was manured in the autumn of 1894 with about 18 tons of barn-yard manure per acre; the crop for 1895 was wheat. It was ploughed in 1895 with the gang-plough lightly, to cover weeds and start shed grain, immediately after harvest and ploughed late in the autumn about 8 inches deep. In the spring of 1896 it was gang-ploughed and harrowed with the smoothing harrow, before sowing.

Trooper.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre, came up 11th May, and was ripe 27th July. The time to mature was 84 days. Yield per acre, 40 bushels 27 lbs.; weight per bushel, $51\frac{1}{4}$ lbs. Length of head, $2\frac{1}{2}$ to $3\frac{1}{4}$ inches, six-rowed, length of straw, 32 to 36 inches; all standing well; growth medium and even; some smut, but no rust.

Royal.—1 acre. Sown 4th May, $1\frac{3}{4}$ bushels per acre, came up 11th May, and was ripe 24th July. The time to mature was 81 days. Yield per acre, 50 bushels 45 lbs.; weight per bushel, 53 lbs. Length of head, $2\frac{3}{4}$ to $3\frac{1}{2}$ inches, six-rowed, length of straw, 33 to 36 inches; all standing well, growth medium and even, some smut, but no rust.

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Mensury.—1 acre. Sown 4th May $1\frac{3}{4}$ bushels per acre, came up 11th May, and was ripe 25th July. The time to mature was 82 days. Yield per acre, 48 bushels 21 lbs., weight per bushel, 51 lbs. Length of head, 3 to $3\frac{1}{2}$ inches, six-rowed, length of straw, 35 to 38 inches; all standing well; growth medium to strong, very even; some smut, but no rust.

Oderbruch.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 11th May, and was ripe 25th July. The time to mature was 82 days. Yield per acre, 46 bushels 35 lbs.; weight per bushel, $53\frac{1}{4}$ lbs. Length of head, $2\frac{1}{2}$ to $3\frac{1}{2}$ inches; six-rowed; length of straw, 33 to 36 inches; all standing well; growth medium; very little smut; no rust.

Vanguard.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 11th May, and was ripe 25th July. The time to mature was 82 days. Yield per acre, 35 bushels, 45 lbs. Weight per bushel, $51\frac{1}{4}$ lbs. Length of head, 3 to $3\frac{1}{2}$ inches; six-rowed; length of straw, 33 to 36 inches; all standing well; growth medium and even; very little smut; no rust.

Stella.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 12th May, and was ripe 27th July. The time to mature was 84 days. Yield per acre, 36 bushels; weight per bushel, 51 lbs. Length of head, $2\frac{1}{2}$ to $3\frac{1}{2}$ inches; six-rowed; length of straw, 33 to 36 inches; all standing well; growth medium to weak; a considerable quantity of smut; no rust.

Success.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 11th and 12th May, and was ripe 24th July. The time to mature was 81 days. Yield per acre, 25 bushels, 9 lbs.; weight per bushel, $49\frac{1}{2}$ lbs. Length of head, $2\frac{1}{2}$ to 3 inches; six-rowed, length of straw; 28 to 32 inches; all standing well; no smut; stems very slightly rusted.

Petschora.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 11th and 12th May, and was ripe 28th July. The time to mature was 85 days. Yield per acre, 18 bushels 33 lbs.; weight per bushel, $48\frac{1}{2}$ lbs. Length of head, $2\frac{1}{4}$ to $3\frac{1}{2}$ inches; six-rowed; length of straw, 28 to 33 inches; all standing well; growth rather weak and uneven; some smut; leaves slightly rusted.

Nugent.—1 acre. Sown 4th May; $1\frac{3}{4}$ bushels per acre; came up 11th and 12th May, and was ripe 3rd August. The time to mature was 90 days. Yield per acre, 21 bushels 35 lbs.; weight per bushel, $50\frac{1}{4}$ lbs. Length of head, 3 to 4 inches; six-rowed; length of straw, 30 to 35 inches; all standing well; some smut; leaves and stems slightly rusted.

EXPERIMENTS WITH SPRING WHEAT.

Thirty-nine varieties of spring wheat were tested during the season of 1896, all sown on 30th April on plots of $\frac{1}{20}$ acre each. The land on which these wheats were grown was adjoining that used for the test of varieties of oats, the soil was similar and the treatment of the land the same. The previous crop was oats.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Yield per Acre.		Weight per Bushel.	Proportion Rusted.
							Bush.	Lbs.		
Hungarian	Aug. 4	96	47 to 51	Stiff.	3 to 3 $\frac{1}{2}$	Bearded.	24	20	63	Slightly.
Preston	do 3	95	39 to 51	do	3 to 4	do	24	20	62	do
Stanley	do 3	95	39 to 48	do	3 to 4	Beardless.	23	20	60 $\frac{1}{2}$	do
Alpha	do 3	95	46 to 55	do	3 to 4	do	22	50	60 $\frac{1}{2}$	do
White Russian	do 9	101	45 to 54	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	do	22	30	60 $\frac{1}{2}$	do
Monarch	do 8	100	48 to 54	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	do	22	10	60 $\frac{1}{2}$	do
Colorado	do 4	96	44 to 50	do	3 to 3 $\frac{1}{2}$	Bearded.	22	20	62 $\frac{1}{2}$	do
Golden Drop	do 4	96	40 to 48	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	Beardless.	21	40	61	do
Beauty	do 7	99	51 to 60	do	3 $\frac{1}{2}$ to 5	do	21	30	59 $\frac{1}{2}$	do
Rio Grande	do 9	101	50 to 55	do	3 $\frac{1}{2}$ to 5	Bearded.	21	20	63	do
Progress	do 3	95	48 to 58	do	3 to 4	Beardless.	21	10	60 $\frac{1}{2}$	do
Red Fife	do 8	100	40 to 48	do	3 to 4	do	20	40	61 $\frac{1}{2}$	Very slightly.
Beaudry	do 4	96	39 to 54	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	Bearded.	20	20	63 $\frac{1}{2}$	do
Goose	do 10	102	48 to 54	do	2 $\frac{1}{2}$ to 3	do	19	40	64 $\frac{1}{2}$	do
Dawn	July 30	91	42 to 48	do	3 to 4	Beardless.	19	40	61 $\frac{1}{2}$	Slightly.
Crown	Aug. 4	96	42 to 51	do	3 to 4	Bearded.	19	20	59	Very slightly.
Advance	do 4	96	42 to 56	do	3 to 4 $\frac{1}{2}$	do	19	20	60 $\frac{1}{2}$	do
Vernon	do 5	97	42 to 51	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	do	19	10	61 $\frac{1}{2}$	Slightly.
Huron	do 4	96	39 to 52	do	3 to 4 $\frac{1}{2}$	do	19	60 $\frac{1}{2}$	60 $\frac{1}{2}$	Very slightly.
Pringle's Champlain	do 8	100	51 to 60	do	3 $\frac{1}{2}$ to 5	do	19	60 $\frac{1}{2}$	60 $\frac{1}{2}$	do
Black Sea	July 31	92	42 to 48	do	3 to 4	do	17	40	59	Slightly.
Herisson Bearded	Aug. 5	97	38 to 48	do	1 $\frac{1}{2}$ to 2 $\frac{1}{2}$	do	17	30	64 $\frac{1}{2}$	Very slightly.
Percy	do 4	96	48 to 56	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	Beardless.	17	20	61	do
Percy White Chaff	do 4	96	44 to 54	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	do	16	50	60 $\frac{1}{2}$	do
Captor	do 5	97	48 to 57	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	do	16	40	59 $\frac{1}{2}$	Slightly.
Red Fern	do 8	100	48 to 59	do	4 to 5	Bearded.	16	40	62 $\frac{1}{2}$	Very slightly.
White Connell	do 10	102	44 to 52	do	3 to 3 $\frac{1}{2}$	Beardless.	16	40	60 $\frac{1}{2}$	Slightly.
Ladoga	July 30	91	36 to 48	do	3 to 4	Bearded.	16	20	59	do
Admiral	Aug. 5	97	46 to 53	do	3 to 4	Beardless.	16	10	59 $\frac{1}{2}$	do
Old Red River	do 9	101	42 to 48	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	do	15	40	61	do
Captor Red Chaff	do 7	99	48 to 57	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	do	15	10	58 $\frac{1}{2}$	Very slightly.
Dion's	do 8	100	46 to 56	do	4 to 5	Bearded.	15	60	62	do
Wellman's Fife	do 9	101	48 to 57	do	4 to 5	Beardless.	14	50	60 $\frac{1}{2}$	Slightly.
Emporium	do 8	100	48 to 54	do	3 $\frac{1}{2}$ to 4 $\frac{1}{2}$	Bearded.	14	40	63	Very slightly.
Campbell's White Chaff	do 5	97	41 to 48	do	2 $\frac{1}{2}$ to 3 $\frac{1}{2}$	Beardless.	14	40	59	Slightly.
White Fife	do 10	102	42 to 48	do	3 to 3 $\frac{1}{2}$	do	14	20	61	do
Blenheim	do 3	95	46 to 54	do	3 to 4	Bearded.	14	30	59 $\frac{1}{2}$	Very slightly.
Dufferin	do 2	94	45 to 52	do	3 to 4	do	13	30	58 $\frac{1}{2}$	Slightly.
Gehun	do 5	97	36 to 42	do	3 $\frac{1}{2}$ to 4	Beardless.	9	60	60	do

In the preceding list there are included fifteen of the new cross-bred sorts which have been originated at the experimental farms. The following is a list of their names with their parentage:—

- | | | | |
|----------------------|-------------|-------------------|-------|
| 1. Preston—Ladoga | Female with | Red Fife | Male. |
| 2. Stanley—Ladoga | do | Red Fife | do |
| 3. Alpha—Ladoga | do | White Fife | do |
| 4. Beauty—Red Fife | do | No. 1 Club Bombay | do |
| 5. Progress—Red Fife | do | Ladoga | do |
| 6. Dawn—Early Sonora | do | Red Fife | do |
| 7. Crown—Ladoga | do | White Fife | do |
| 8. Advance—Ladoga | do | White Fife | do |

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9. Vernon—Ladoga	Female with Early Sonora	Male.
10. Huron—Ladoga	do White Fife	do
11. Percy—Ladoga	do White Fife	do
12. Captor—Ladoga	do White Fife	do
13. Admiral—Campbell's White Chaff.	do Red Fife	do
14. Blenheim—Ladoga	do White Fife	do
15. Dufferin—Anglo-Canadian	do Indian Karachi	do

Of these results in cross-fertilizing seven are bearded varieties, and nine beardless. Seven of them were originated at the Central Farm by the Director—Nos. 1 and 2 in 1888; Nos. 6 and 9 in 1889; and Nos. 5, 13 and 15 in 1890. Seven were originated at the Central Farm by Dr. A. P. Saunders—Nos. 3, 7, 8, 10, 11, 12 and 14, all in 1888, and one by Mr. J. L. McMurray of the Experimental Farm staff, No. 4, at the Central Farm in 1890. The chief purposes in view in this work of cross-breeding were to add to the number of vigorous and productive sorts, and to produce early ripening varieties of high quality. In most of these crosses Red Fife or White Fife have been used as a basis for quality, vigour and productiveness, and Ladoga, Early Sonora, Indian Karachi, and No. 1 Club Bombay for earliness in ripening.

HOW VARIETIES OF CROSS-BRED AND HYBRID GRAIN ARE PRODUCED.

The production of new varieties of grain by cross-fertilizing and hybridizing is one of the most interesting and important branches of work carried on at the Experimental Farms.

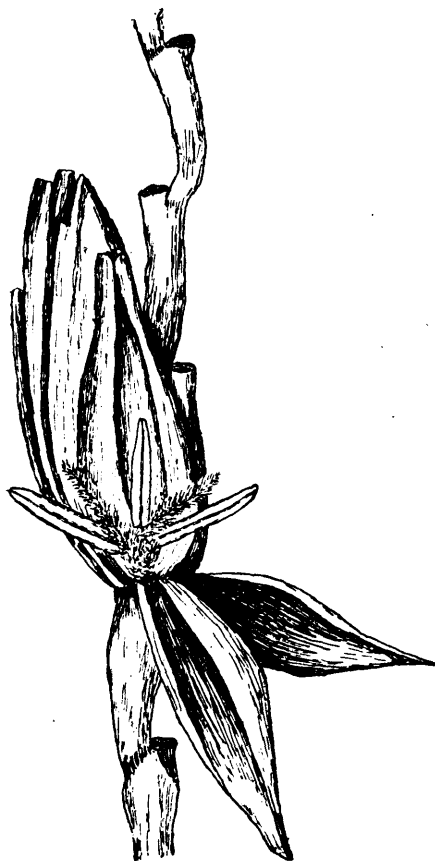


Fig. 7.

The term cross-bred is used when referring to the crosses produced between different varieties of the same species, and the word hybrid when referring to new forms produced by crossing plants which are classed by botanists as distinct species, such as two-rowed and six-rowed barley. The manner in which a cross is effected is as follows: Suppose the experiment to be carried on with wheat, an ear is selected soon after it has shot out from the sheath. This ear consists of a series of clusters called spikelets, which are arranged alternately on opposite sides of the stalk of straw; later, each spikelet, if well filled, will contain from three to five kernels of wheat, at present the kernels are not formed and the hollow centres which they are destined to fill are now occupied with the flowers of the grain. In Fig. 7 we have a portion of such a wheat ear with all the spikelets but one removed, and from one side of this in which is one of the floral chambers, the double sheathing of chaff—known as the glumes—have been turned down, and the flower of the wheat is exposed to view. In this figure, also in that which follows, the parts are magnified exactly four times the natural size. These were drawn from nature by Dr. C. E. Saunders. The flower is seen to consist of three stamens which are thread-like at the base and developed into an elongated sac above, called an anther which contains the fertilizing pollen, and a double branched feathery pistil. The stamens are spoken of as the male organs,

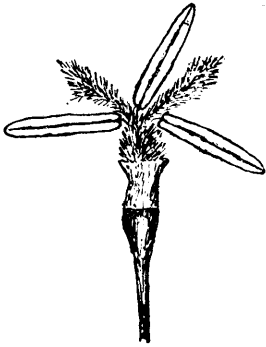


Fig. 8.

and the pistil as the female. The flower of the oat also magnified four diameters, which is shown detached from its sheath in Fig. 8, closely resembles that of the wheat, but here the stamens and pistil are more distinctly seen.

In nature, fertilization takes place within the tightly closed chaffy case, where, as the anthers mature, they burst open and the pollen they contain is shed on the delicate feathery pistil. Portions of this pollen remain attached to the surface of the pistil and from one or more of these minute microscopic bodies a small thread-like growth proceeds which gradually lengthens and piercing the soft tissues of the pistil soon extends to its base where it enters the ovary which is shown below the base of the pistil in Fig. 8. and fertilization takes place, resulting in the growth of a kernel. Where it is desired to effect a cross the outer glume or coating of chaff is torn off by the use of a pair of finely pointed forceps and the inner coating pulled back by seizing it at the upper end and bending it downwards thus exposing the flower. The anthers are now carefully examined usually with a magnifying lens and if their condition is sufficiently advanced to offer the possibility of any of the pollen having been shed, the spikelet is rejected and torn off and others examined until flowers are found where the stamens are green but almost mature. These are removed with great care as the slightest injury to the soft and delicate pistil will cause it to wither, and after the removal of the stamens from a sufficient number of selected flowers, all other portions of the head are torn off and rejected. Having previously collected heads of another variety which it is desired should serve as male, flowers are sought for which contain anthers mature and covered with pollen when the individual flowers to be fertilized are again opened in succession by bending down the glume, when the soft pistil is gently touched with one or more of the pollen bearing anthers from the other variety until a perceptible quantity of the fertilizing powder has been applied. The flower case is again carefully closed and when all the flowers prepared in the head have thus been operated on, the mutilated head is wrapped in thin manilla paper and so secured by tying as to prevent the possibility of access of other pollen either by wind or insects. To prevent accidents the covered head is now tied to a piece of stick or bamboo cane and remains untouched until harvest time when any kernels which have formed will be mature, and each one of these when sown the following season will form the starting point of a new variety.

The single plant grown the first year will produce heads all alike and may take after the female plant which has supplied the pistil and on which the kernel has grown, or they may resemble those on the plant from which the pollen has been gathered. In any case if the cross has been accomplished the grain from the plant of the first year, when sown the next season, will usually produce several different forms, some resembling one parent and some the other, while others again may be more or less intermediate in character. After selecting the most desirable type or types from a cross, all other forms are discarded and only those retained from year to year which are true to the types selected. After several seasons of careful selection the type usually becomes established and is then fairly permanent. Variations will however in many cases still occur occasionally, even after the variety is supposed to have become fixed; these variations are known as sports and must be separated whenever they appear or the new grain will not be preserved pure.

To accomplish such work as cross-breeding requires much care, and with all the skill which trained hands can bring to bear on it the ripened kernels are always few compared with the number of flowers operated on. A partial record of the crossing done on wheat at the experimental farms shows that from 1,650 flowers carefully crossed but 220 kernels were obtained which is about 1 in 8, nevertheless during the past six years more than 700 cross-bred and hybrid varieties of grain have been produced at the farms.

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EXPERIMENTS WITH PEASE.

During the past season thirty-six varieties of pease have been tested on uniform plots of one-twentieth acre each, the results of which are given in table No. 1. The soil on which these pease were sown was a light sandy loam and the previous crop was oats. The land was manured in the spring of 1894 with about 12 tons of barn-yard manure per acre. It was ploughed in the spring of 1896 about six inches deep, disc-harrowed once and harrowed twice with the smoothing harrow before sowing. The plots were all sown on 23rd April with the following results :—

PEASE—TEST OF VARIETIES—TABLE NO. 1.

Name of Variety.	Date of Ripening.	No. of days Maturing.	Character of Growth.	Length of Straw.	Length of Pod.	Size of Pea.	Yield per Acre.		Weight per Bushel.
				Inches.	Inches.		Bush.	Lbs.	
Creeper.....	Aug. 7..	106	Strong...	60 to 84	2 to 2½	Small....	45	50	63½
Victoria.....	do 16..	115	do.....	84 to 96	2½ to 3	do.....	44	40	63½
Canadian Beauty.....	do 12..	111	do.....	72 to 84	2½ to 3	Large....	44	20	63
Agnes.....	do 4..	103	Medium...	54 to 60	2½ to 3	do.....	44	20	62
Bruce.....	do 9..	108	Strong...	60.....	2½ to 3	do.....	44	..	62½
Mackay.....	do 8..	107	do.....	72 to 96	2½ to 3	do.....	44	..	62½
Prussian Blue.....	do 4..	103	do.....	84 to 96	2 to 2½	Medium...	43	20	63½
Kent.....	do 13..	112	do.....	84.....	2½ to 3	Large....	43	20	62
Vasey.....	do 14..	113	do.....	84 to 96	2½ to 3	do.....	43	..	62½
Black-eyed Marrowfat.....	do 8..	107	do.....	60.....	2½ to 3	do.....	42	..	62½
Duke.....	do 11..	110	do.....	72 to 84	2 to 2½	do.....	42	..	62
Tracey.....	do 12..	111	do.....	60 to 72	2½ to 3	Medium...	41	40	62½
Crown.....	do 6..	105	do.....	48 to 72	2 to 2½	Small....	41	30	64½
Golden Vine.....	do 5..	104	do.....	60.....	2 to 2½	do.....	40	40	64
New Potter.....	do 7..	106	do.....	60 to 72	2½ to 3	Large....	40	30	61½
Prince Albert.....	do 11..	110	do.....	60 to 72	2 to 2½	Small....	40	20	63½
Daniel O'Rourke.....	do 3..	102	Medium...	54 to 60	2½ to 2¾	do.....	40	20	62½
Mummy.....	July 29..	97	do.....	42 to 54	1¾ to 2½	Medium...	40	..	65½
Multiplier.....	Aug. 10..	109	Strong...	60.....	2 to 2½	Small....	39	40	63½
Prince.....	do 7..	106	Medium...	48 to 54	2½ to 3	Large....	39	40	62½
Luther.....	do 12..	111	Strong...	72 to 84	2½ to 2¾	do.....	39	30	63½
Paragon.....	do 8..	107	do.....	60 to 72	2½ to 3	Medium...	39	20	63½
Pride.....	July 28..	96	Medium...	24 to 30	2 to 2¾	Large....	38	30	65
Derby.....	Aug. 12..	111	do.....	54 to 60	2½ to 3	do.....	38	10	62
Fenton.....	do 11..	110	do.....	60.....	2½ to 3	do.....	37	30	61½
Elva.....	do 15..	114	Strong...	72 to 84	2½ to 3	Medium...	37	30	62½
Macoun.....	do 10..	109	do.....	60 to 72	2½ to 3	Large....	37	20	64
Archer.....	do 11..	110	do.....	72 to 84	1¾ to 2½	Medium...	37	20	63½
Arthur.....	do 4..	103	do.....	60.....	2 to 2½	do.....	37	20	63½
Trilby.....	do 10..	109	Medium...	48 to 60	2 to 3	do.....	37	..	62½
Centennial.....	do 12..	111	Strong...	84 to 96	2½ to 2¾	do.....	37	..	63½
Bedford.....	do 12..	111	do.....	72 to 84	1¾ to 2½	do.....	36	20	62½
Alma.....	do 13..	112	do.....	84.....	2 to 2½	Small....	36	20	63
Carleton.....	do 11..	110	do.....	72.....	2 to 2½	Medium...	35	..	64
Large White Marrowfat.....	do 5..	104	do.....	66 to 72	2 to 3	Large....	34	..	62½
Excelsior.....	do 13..	112	do.....	60 to 72	2½ to 2¾	Medium...	32	40	62½

Thirty-eight additional sorts were sown in smaller plots of one-fortieth of an acre each and the results are recorded in table No. 2. Soil, sandy loam of fair quality, the previous crop was horse-beans. This land received a dressing of barn-yard manure about 12 tons per acre during the winter of 1895-96. The manure was left in small heaps of about half a cart load each, distributed regularly and spread early in the spring. The manure was ploughed under about 6 inches deep, and the land harrowed twice with the smoothing harrow before sowing.

PEASE—TEST OF VARIETIES—TABLE NO. 2.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of days Maturing.	Character of Growth.	Length of Straw.	Length of Pod.	Size of Pea.	Yield per Acre.		Weight per Bushel.
								Bush. Lbs.	Lbs.	
					Inches.	Inches.				
Chancellor.	May 9	Aug. 11	94	Strong	84	2 $\frac{1}{2}$	Small	50	40	63 $\frac{3}{4}$
Picton	April 23	do 8	107	Medium	48 to 72	2 $\frac{1}{2}$ to 3	Medium	46	20	62 $\frac{1}{2}$
Hazen	do 23	do 9	108	Medium	48 to 54	2 $\frac{1}{2}$ to 3	do	45	20	61 $\frac{3}{4}$
King	do 23	do 10	109	Strong	60 to 72	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Large	44	20	62 $\frac{1}{2}$
White Wonder.	May 9	do 11	94	Medium	36 to 48	2 to 2 $\frac{3}{4}$	Medium	44	20	63 $\frac{1}{2}$
Vincent	April 23	do 4	103	do	54 to 60	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Large	42	40	62 $\frac{3}{4}$
Early Britain.	May 9	do 13	96	Strong	72	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	do	42	40	61 $\frac{1}{2}$
Nelson	April 23	do 3	102	Medium	54	1 $\frac{1}{2}$ to 2 $\frac{1}{2}$	Medium	42	20	63 $\frac{1}{2}$
Surrey	do 23	do 11	110	Strong	60 to 84	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Large	41	40	62
Perth	May 2	do 30	100	Medium	60	2 $\frac{1}{2}$ to 3	do	38	40	61 $\frac{1}{2}$
Bright	April 23	do 15	114	Strong	72 to 34	2 $\frac{1}{2}$ to 3	Medium	38	20	63
Lanark.	May 2	do 15	105	do	84	2 $\frac{1}{2}$ to 3	Medium	38	20	61 $\frac{3}{4}$
Moore.	do 2	do 10	100	do	89	2 $\frac{1}{2}$ to 3	do	37	40	61
Comet.	do 2	do 17	107	do	84 to 96	2 $\frac{1}{2}$ to 3	Medium	36	40	63
Forbes.	do 2	do 13	103	do	60 to 72	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	do	35	40	63
Grant	do 2	do 14	104	do	60 to 72	2 $\frac{1}{2}$ to 3	Large	35	20	62 $\frac{3}{4}$
Jackson	do 2	do 14	104	Medium	48 to 60	2 $\frac{1}{2}$ to 3	do	34	20	62 $\frac{1}{2}$
Leader	do 2	do 13	103	Strong	69 to 72	2 $\frac{1}{2}$ to 3	do	34	20	62
Cooper	do 2	do 13	103	do	72	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	do	34	20	62 $\frac{1}{2}$
Albion	do 2	do 15	105	do	84 to 96	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Medium	34	20	62 $\frac{3}{4}$
Dexter	do 2	do 17	107	do	60 to 72	2 $\frac{1}{2}$ to 3	Large	33	20	61 $\frac{3}{4}$
Elliott	do 2	do 16	106	do	60 to 72	2 $\frac{1}{2}$ to 3	Medium	33	20	61 $\frac{1}{2}$
Dixon	do 2	do 17	107	do	84 to 96	2 $\frac{1}{2}$ to 3	Large	33	20	61 $\frac{3}{4}$
Gregory	do 2	do 14	104	do	60 to 72	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Medium	32	40	63
Weston	do 2	do 19	109	do	108	2 $\frac{1}{2}$ to 3	do	32	40	63 $\frac{1}{2}$
Chelsea	do 2	do 16	106	do	72 to 84	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Large	31	40	63
Ogden	do 2	do 18	108	do	108	1 $\frac{1}{2}$ to 2 $\frac{1}{2}$	Small	31	20	62 $\frac{3}{4}$
Pearl	April 23	do 12	111	do	.....	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Large	30	20	62
Fergus	May 2	do 14	104	do	72	2 to 2 $\frac{1}{2}$	Small	30	20	62 $\frac{1}{2}$
Prospect	do 2	do 16	106	do	60 to 72	2 $\frac{1}{2}$ to 3	Large	30	20	62
Elder	do 2	do 16	106	do	72 to 84	1 $\frac{1}{2}$ to 2 $\frac{1}{2}$	Small	30	20	62 $\frac{1}{2}$
Lisgar	do 2	do 13	103	do	72 to 84	2 $\frac{1}{2}$ to 3	Large	30	20	61 $\frac{1}{2}$
Kerry	do 2	do 18	108	do	108	2 $\frac{1}{2}$ to 3	do	30	20	62 $\frac{1}{2}$
Nixon	do 2	do 15	105	do	60 to 72	2 $\frac{1}{2}$ to 3	Medium	28	20	61 $\frac{1}{2}$
Kingsford	do 2	do 17	107	do	96	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	Small	28	20	62 $\frac{1}{2}$
Herald	do 2	do 16	106	do	84 to 96	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	do	28	20	62
Dover	April 23	do 13	112	do	60 to 72	2 $\frac{1}{2}$ to 3	Medium	27	20	63
Clarke	May 2	do 18	108	do	96	2 to 2 $\frac{1}{2}$	Small	26	20	62 $\frac{3}{4}$

The two preceding tables contain no less than fifty-six of the new cross-bred sorts which have been originated at the experimental farms. The following is a list of their names with their parentage, the names are arranged in the order in which they appear on the lists:—

- | | | | | |
|----|------------------------------|---------|-----------------------|-------|
| 1 | Victoria—Mummy | Female. | Large White Marrowfat | male. |
| 2 | Agnes—Large White Marrowfat | do | Pride | do |
| 3 | Bruce—Black-eyed Marrowfat | do | Mummy | do |
| 4 | Mackay—Mummy | do | Black-eyed Marrowfat | do |
| 5 | Kent—Mummy | do | Black-eyed Marrowfat | do |
| 6 | Vasey—Black-eyed Marrowfat | do | Mummy | do |
| 7 | Duke—Mummy | do | Black-eyed Marrowfat | do |
| 8 | Tracey—Mummy | do | Large White Marrowfat | do |
| 9 | Prince—Mummy | do | Black-eyed Marrowfat | do |
| 10 | Luther—Mummy | do | Black-eyed Marrowfat | do |
| 11 | Paragon—Black-eyed Marrowfat | do | Mummy | do |
| 12 | Derby—Black-eyed Marrowfat | do | Mummy | do |

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13 Fenton—Pride	Female.	Black-eyed Marrowfat	male.
14 Elva—Mummy	do	Large White Marrowfat	do
15 Macoun—Mummy	do	Large White Marrowfat	do
16 Archer—Mummy	do	Multiplier	do
17 Arthur—Mummy	do	Multiplier	do
18 Trilby—Black-eyed Marrowfat	do	Mummy	do
19 Bedford—Mummy	do	Multiplier	do
20 Alma—Mummy	do	Multiplier	do
21 Carleton—Mummy	do	Multiplier	do
22 Picton—Mummy	do	Large White Marrowfat	do
23 Hazen—Mummy	do	Large White Marrowfat	do
24 King—Mummy	do	Lathyrus	do
25 Vincent—Large White Marrowfat	do	Pride	do
26 Nelson—Mummy	do	Multiplier	do
27 Surrey—Black-eyed Marrowfat	do	Mummy	do
28 Perth—Large White Marrowfat	do	Pride	do
29 Bright—Mummy	do	Large White Marrowfat	do
30 Lanark—Large White Marrowfat	do	Pride	do
31 Moore—Pride	do	Black-eyed Marrowfat	do
32 Comet—Mummy	do	Large White Marrowfat	do
33 Forbes—Large White Marrowfat	do	Lathyrus	do
34 Grant—Mummy	do	Black-eyed Marrowfat	do
35 Jackson—Large White Marrowfat	do	Mummy	do
36 Leader—Large White Marrowfat	do	Lathyrus	do
37 Cooper—Large White Marrowfat	do	Lathyrus	do
38 Albion—Mummy	do	Large White Marrowfat	do
39 Dexter—Black-eyed Marrowfat	do	Mummy	do
40 Elliot—Black-eyed Marrowfat	do	Mummy	do
41 Dixon—Large White Marrowfat	do	Lathyrus	do
42 Gregory—Mummy	do	Large White Marrowfat	do
43 Weston—Mummy	do	Large White Marrowfat	do
44 Chelsea—Mummy	do	Large White Marrowfat	do
45 Ogden—Mummy	do	Multiplier	do
46 Pearl—Mummy	do	Large White Marrowfat	do
47 Fergus—Mummy	do	Multiplier	do
48 Prospect—Mummy	do	Large White Marrowfat	do
49 Elder—Mummy	do	Multiplier	do
50 Lisgar—Black-eyed Marrowfat	do	Mummy	do
51 Kerry—Mummy	do	Large White Marrowfat	do
52 Nixon—Black-eyed Marrowfat	do	Mummy	do
53 Kingsford—Multiplier	do	Mummy	do
54 Herald—Mummy	do	Multiplier	do
55 Dover—Mummy	do	Large White Marrowfat	do
56 Clarke—Multiplier	do	Mummy	do

Of these 56 new varieties, eighteen were originated at the central farm in 1892 by Mr. W. T. Macoun, Nos. 1, 2, 3, 13, 14, 15, 25, 28, 29, 30, 31, 32, 38, 42, 43, 46, 51 and 55; four at the branch experimental farm at Brandon by Mr. S. A. Bedford, in 1892, Nos. 19, 20, 45 and 49; four at the branch farm at Agassiz, by Mr. Thos. A. Sharpe, in 1892, Nos. 33, 36, 37 and 41 and the remaining thirty by Dr. A. P. Saunders, all in 1892. Eight of these were the results of work done at the branch farm at Brandon, Nos. 16, 17, 21, 26, 47, 53, 54, and 56; sixteen at the branch farm at Indian Head, Nos. 3, 4, 5, 6, 7, 9, 10, 11, 12, 18, 27, 34, 39, 40, 50 and 52, and six at the branch farm at Agassiz, Nos. 22, 23, 24, 35, 44 and 48. The chief object in view in the cross-breeding of pease has been to obtain new varieties of good size with increased vigour and productiveness

FIELD CROPS OF PEASE.

Daniel O'Rourke.—2 acres. The soil was a sandy loam of fairly good quality which received a dressing of about 12 tons of barn-yard manure per acre, in the autumn of 1895 when it was ploughed under. In the spring of 1896 the land was disc-harrowed twice and harrowed twice with the smoothing harrow before sowing. Sown 1st May $2\frac{1}{2}$ bushels per acre, came up 11th May and was ripe 7th August. The time to mature was 99 days. Yield per acre 50 bush. 59 lbs. Weight per bushel $63\frac{1}{4}$ lbs. The growth was medium but the vines were well podded.

Pride.—1 acre. This was sown alongside of Daniel O'Rourke but the land was higher and lighter in character. The manuring and treatment was the same. Sown 1st May $2\frac{1}{2}$ bushels per acre, came up 11th May and was ripe 8th August. The time to mature was 100 days. Yield per acre 26 bush. 3 lbs., weight per bush. 64 lbs. The growth was medium and the vines were fairly well podded.

Six varieties of cross-bred pease were sown on sandy loam of fair quality, in plots of one-sixth acre each. The previous crop was oats. This land received a dressing of barn-yard manure in the spring of 1893 at the rate of about 10 tons per acre. It also received a coat of unleached ashes in the spring of 1896 of about 150 bushels per acre. The land was ploughed late in the autumn of 1895 about 8 inches deep and ploughed again from 5 to 6 inches deep early in the spring of 1896 and harrowed twice with the smoothing harrow before sowing.

Prince.—Sown 2nd May; 3 bushels per acre; up 10th May, and was ripe 14th August. The time to mature was 104 days. Yield per acre; 47 bushels 18 lbs.; weight per bushel 62 lbs. Length of pod $2\frac{1}{2}$ to 3 inches; length of vine 60 to 84 inches.

Paragon.—Sown 2nd May: 3 bushels per acre; up 10th May; and was ripe 12th August. The time to mature was 102 days. Yield per acre 47 bushels; weight per bushel $63\frac{1}{4}$ lbs. Length of pod $2\frac{1}{2}$ to 3 inches; length of vine 60 to 72 inches.

Alma.—Sown 2nd May; 2 bushels per acre; up 10th May, and was ripe 13th August. The time to mature was 103 days. Yield per acre 45 bushels 42 lbs.; weight per bushel 64 lbs. Length of pod $2\frac{1}{4}$ to $2\frac{3}{4}$ inches; length of vine 72 inches.

Vincent.—Sown 2nd May; 3 bushels per acre; up 10th May, and was ripe 8th August. The time to mature was 98 days. Yield per acre 45 bushels 30 lbs.; weight per bushel 63 lbs. Length of pod $2\frac{1}{2}$ to 3 inches. Length of vine 60 to 72 inches.

Fenton.—Sown 2nd May; 3 bushels per acre; up 10th May, and was ripe 13th August. The time to mature was 103 days. Yield per acre 41 bushels 24 lbs.; weight per bushel 62 lbs. Length of pod $2\frac{1}{2}$ to 3 inches. Length of vine 60 inches.

Tracey.—Sown 2nd May; $2\frac{1}{2}$ bushels per acre; up 10th May, and was ripe 15th August. The time to mature was 105 days. Yield per acre 37 bushels 30 lbs.; weight per bushel 62 lbs. Length of pod $2\frac{1}{4}$ to $2\frac{3}{4}$ in.; Length of vine 84 inches.

RESULTS OF EARLY MEDIUM AND LATE SOWING.

These tests were all conducted on similar land on $\frac{1}{10}$ acre plots, the plots adjoining each other. The soil was a sandy loam which received a light dressing of barn-yard manure, about 12 tons per acre in the autumn of 1895, when it was ploughed under. In the spring a sufficient quantity of the land for the first set of plots was disc-harrowed twice and harrowed with the smoothing harrow twice before sowing, the first sowing being made as soon as the land was in condition to receive the seed. The oats were sown at the rate of $2\frac{1}{4}$ bushels per acre, the barley 2 bushels, the spring wheat $1\frac{1}{2}$ bushels and the pease at the rate of $2\frac{1}{2}$ bushels per acre. A sufficient portion of the land set aside for the subsequent sowings was worked up from week to week in the manner described, as it was needed, and in this way any weeds which had started were killed and each series of plots were given the same chance at the start as far as condition of soil was concerned.

Experimental Farms.

OATS SOWN AT DIFFERENT DATES.

Name of Variety.	Date of Sowing.	Date of Harvesting.	No. of Days Maturing.	Length of Straw.	Weight of Straw per acre.		Yield of grain per acre.		Weight per Bushel.	Rusted.
					Inches.	Lbs.	Bush.	lbs.		
Abundance	April 20	Aug. 1	103	40 to 45	3,660	56	6	37½	Very slightly.	
“	do 27	do 2	97	44 to 48	2,900	75	..	37½	None.	
“	May 4	do 6	94	45 to 49	3,130	70	..	38	Very slightly.	
“	do 11	do 10	91	43 to 48	3,305	58	28	35	Slightly.	
“	do 18	do 14	88	43 to 47	3,510	49	24	31½	Considerably	
“	do 25	do 16	83	43 to 47	3,605	42	17	26½	“	
Banner	April 20	do 1	103	44 to 48	2,460	71	31	36½	Very slightly.	
“	do 27	do 2	97	45 to 50	4,050	80	10	37	“	
“	May 4	do 7	95	46 to 51	3,320	79	14	35½	“	
“	do 11	do 11	92	45 to 50	3,540	70	10	33½	“	
“	do 18	do 15	89	43 to 49	3,895	56	26	29	“	
“	do 25	do 18	85	43 to 49	3,410	51	6	24	Considerably.	

BARLEY SOWN AT DIFFERENT DATES.

Canadian Thorpe	April 20	July 31	102	33 to 44	2,710	38	16	53	Slightly.
“	do 27	Aug. 1	96	40 to 46	3,220	51	32	54	“
“	May 4	do 5	93	34 to 40	3,975	35	..	54	Very slightly.
“	do 11	do 8	89	36 to 40	3,775	34	23	52½	“
“	do 18	do 14	88	36 to 39	3,405	33	21	49	“
“	do 25	do 17	84	33 to 39	2,965	27	44	49	“
Odessa	April 20	July 24	95	34 to 38	3,825	51	42	50½	“
“	do 27	do 24	88	33 to 38	3,460	54	38	51½	“
“	May 4	do 25	82	33 to 36	3,205	50	5	52	None.
“	do 11	do 30	80	34 to 40	3,175	49	23	52½	“
“	do 18	Aug. 5	79	36 to 42	3,170	48	16	50½	Very slightly.
“	do 25	do 10	77	33 to 42	3,130	42	4	50½	“

SPRING WHEAT SOWN AT DIFFERENT DATES.

Stanley	April 20	Aug. 6	108	40 to 51	2,640	17	40	62	Very slightly.
“	do 27	do 7	102	46 to 52	3,060	21	30	62½	“
“	May 4	do 8	96	38 to 43	2,835	20	15	63	“
“	do 11	do 11	92	37 to 45	2,950	20	5	58½	“
“	do 18	do 15	89	36 to 43	2,730	14	30	59	“
“	do 25	do 21	87	33 to 41	2,470	10	30	59	Considerably.
Red Fife	April 20	do 9	111	43 to 49	2,275	19	35	61	Slightly.
“	do 27	do 10	105	48 to 53	4,345	26	45	63½	“
“	May 4	do 11	99	33 to 39	4,355	20	50	63	“
“	do 11	do 15	96	36 to 45	4,340	19	30	60	“
“	do 18	do 17	91	40 to 44	3,475	18	15	56½	Very slightly.
“	do 25	do 25	91	33 to 41	2,975	13	45	59½	Considerably.

PEASE SOWN AT DIFFERENT DATES.

Name of Variety.	Date of Sowing.	Date of Harvesting.	No. of days Maturing.	Length of Straw.	Weight of Straw per acre.	Yield of pease per acre.	Weight per bushel.
				Inches.	Lbs.	Bush. lbs.	Lbs.
Golden Vine	April 20..	Aug. 5..	107	45 to 54	3,325	24 40	65½
"	" 27..	" 8..	103	51 to 58	3,315	30 5	65½
"	May 4..	" 10..	98	50 to 64	3,465	36 30	66
"	" 11..	" 14..	95	50 to 60	3,530	34 30	65½
"	" 18..	" 17..	91	49 to 59	3,500	30 30	65½
"	" 25..	" 19..	89	49 to 52	3,200	29 40	65
Mummy	April 20..	" 6..	108	45 to 50	3,210	23 35	65½
"	" 27..	" 7..	102	50 to 56	4,520	37 50	65½
"	May 4..	" 9..	97	48 to 52	4,585	34 55	65½
"	" 11..	" 14..	95	43 to 49	4,860	34 ..	64½
"	" 18..	" 16..	90	47 to 51	4,470	30 40	64½
"	" 25..	" 18..	88	47 to 52	4,365	28 25	61½

SUMMARY OF RESULTS OF EARLY, MEDIUM AND LATE SOWING FOR THE WHOLE PERIOD.

The following are the averages for the whole of the tests which have been continued for seven years with the oats, barley and spring wheat, and two years with the pease :—

TESTS CONTINUED FOR SEVEN YEARS.						TESTS CONTINUED FOR TWO YEARS.	
Oats.	Average Yield per acre.	Barley.	Average Yield per acre.	Spring Wheat.	Average Yield per acre.	Pease.	Average Yield per acre.
	Bush. lbs.		Bush. lbs.		Bush. lbs.		Bush. lbs.
1st Sowing.....	54 28	1st sowing....	40 7	1st sowing....	18 26	1st sowing....	31 39
2nd "	58 ..	2nd "	40 19	2nd "	19 13	2nd "	34 37
3rd "	48 14	3rd "	31 38	3rd "	13 47	3rd "	37 10
4th "	42 15	4th "	28 8	4th "	12 8	4th "	30 41
5th "	38 12	5th "	24 47	5th "	10 46	5th "	27 47
6th "	28 7	6th "	22 21	6th "	9 15	6th "	25 39

EXPERIMENTS WITH INDIAN CORN.

Twenty-four varieties of Indian Corn were tested side by side in 1896, on light sandy loam. The previous crop was oats. This land received a dressing of barn-yard manure in the spring of 1893, about 10 tons per acre. It also received an application of unleached ashes in the spring of 1896 of about 150 bushels per acre. The land was ploughed late in the autumn about 8 inches deep and ploughed again from 5 to 6 inches deep early in the spring. Before planting the land was disc-harrowed and harrowed with the smoothing harrow twice.

The different varieties were all planted on the 23rd of May and cut 10th September.

Experimental Farms.

INDIAN CORN—TEST OF VARIETIES.

Name of Variety.	Character of Growth.	Description of Variety.	Height.	Leafiness.	When Tasselled.	In Silk.	Early Milk.	Condition when cut.	Weight per acre grown in rows, in hills.	Weight per acre grown in hills.
			Inches.					Sept. 10th.	Tons.	Tons.
Early Mastodon.	Very strong.	Red and yellow dent.	108 to 120	Leafy	Aug. 12	Aug. 15		Not yet in early milk.	24 932	18 465
Golden Dent.	do	do	114 to 126	do	do 14	do 23		do	21 1,850	16 743
Pride of the North.	do	do	114 to 126	do	do 13	do 16		do	20 1,672	19 42
Leaming.	do	do	120 to 132	do	do 12	do 16		do	20 1,527	19 72
Golden Beauty.	do	do	114 to 126	do	do 14	do 21		do	20 220	15 782
Cuban Giant.	do	White dent.	120 to 132	Fairly leafy.	do 13	do 19		do	19 1,349	16 380
Rural Thoroughbred	do	White flint.	108 to 120	Very leafy.	do 12	do 15		Nearly in early milk.	19 42	17 558
Flint.	do	White dent.	108 to 126	Leafy	do 14	do 22		Not yet in early milk.	18 736	16 1,106
Red Cob Ensilage.	do	do	108 to 114	Fairly leafy.	do 6	do 10		Early milk	17 775	15 1,363
Wisconsin White Dent.	do	do	90 to 102	Leafy	July 30	do 6	Aug. 27	do	16 670	12 1,410
Compton's Early.	Strong.	Yellow flint.	90 to 102	do	do 26	do 1	do 20	Late milk	16 525	13 1,984
Pearce's Prolific.	do	do	108 to 120	Fairly leafy.	Aug. 14	do 21		Not yet in early milk.	16 234	13 1,661
Giant Prolific Ensilage.	Very strong.	White dent.	108 to 120	Fairly leafy.	do 9	do 13		Early milk	15 1,944	14 750
Champion White Pearl	do	do	108 to 120	Leafy	do 9	do 13		Late milk	15 1,864	13 136
Longfellow.	Strong.	Yellow flint.	90 to 102	do	July 30	do 5	Aug. 23	do	15 1,073	12 1,410
Mammoth Eight-rowed Flint.	do	do	90 to 108	do	do 30	do 5	do 24	do	15 601	13 1,878
White Cap Yellow Dent.	Very strong.	Yellow and white dent.	108 to 132	do	Aug. 7	do 11		Early milk	15 274	12 539
Sanford	Strong.	White flint.	96 to 108	Very leafy.	July 26	do 2	Aug. 22	do	14 858	15 347
King of the Earliest.	do	Red and yellow dent.	102 to 114	Fairly leafy.	Aug. 12	do 16	do 21	Nearly in late milk	14 96	12 974
Early Huron Dent.	do	do	96 to 108	do	July 30	do 3	do 22	Late milk	14 24	10 1,490
Canada White Flint.	do	White flint.	96 to 108	Leafy	do 31	do 6	do 24	Early milk	13 1,443	10 1,344
Angel of Midnight.	do	Yellow flint.	73 to 90	do	do 30	do 5	do 24	do	10 1,853	9 1,021
Country Gentleman.	do	Wrinkled white dent.	60 to 72	Fairly leafy.	Aug. 10	do 13		Not yet in early milk	10 1,635	9 1,275
North Dakota.	Medium.	Pink and white flint.	60 to 72	Fairly leafy.	July 19	do 21	Aug. 12	Ripe	10 1,635	9 1,275
Mitchell's Extra Early.	do	White flint.	66 to 78	do	do 20	do 23	do 13	do	10 1,635	10 38

FIELD CROPS OF CORN.

Thirteen varieties of corn were sown on half acre plots all in the same field. The soil was a sandy loam of fair quality with a strip of peaty soil and another of clay loam running across it. The plots were so arranged as to give to each about the same variety of soil. The land was manured in the spring of 1896 with about 12 tons of barn-yard manure per acre. The previous crop was experimental plots of grain on the sandy loam and roots and horse beans on the other portions. It was ploughed late in the autumn about 8 inches deep, and the manure spread in the spring was ploughed under about 6 inches deep and harrowed with the smoothing harrow before planting. The corn was all planted in hills three feet apart each way on 22nd May, came up 4th to 6th June and was cut for silo on 25th September. The weight of crop from these varieties, and their condition when cut was as follows:—

	YIELD PER ACRE.	
	Tons.	Lbs.
Early Mastodon—Height 9 to 11 feet, well cobbled, grain formed but in a watery condition	15	1750
Pride of the North—Height 10 to 12 feet, well cobbled, grain formed but in a watery condition	16	910
Leaming—Height 9 to 11 feet, well cobbled, grain nearly in the early milk stage	17	1150
Cuban Giant—Height 9 to 12 feet, ears formed but in an immature watery condition	17	190
Red Cob Ensilage—Height 10 to 12 feet, well cobbled, but grain not formed	21	1830
Pearce's Prolific—Height 7 to 8 feet, well cobbled, in dough stage, beginning to ripen	13	370
Giant Prolific Ensilage—Height 10 to 12 feet, well cobbled, grain forming but in watery condition	17	120
Champion White Pearl—Height 9 to 11 feet, well cobbled, ears in early milk stage	19	338
White Cap Yellow Dent—Height 9 to 11 feet, well cobbled, grain in dough stage	15	1210
Sanford—Height 9 to 11 feet, well cobbled, grain in dough stage	12	1674
King of the Earliest—Height 8 to 10 feet, well cobbled, grain in dough stage	11	1012
Early Huron Dent—Height 8 to 10 feet, well cobbled, grain in dough stage	10	680
Canada White Flint—Height 8 to 10 feet, well cobbled, grain in dough stage	13	860

Rural Thoroughbred White Flint.—3½ acres.—This field was adjoining the thirteen half acre plots just referred to, and the soil and treatment was the same. It was sown 23rd May, came up 6th June and was cut 24th September. Height 8 to 10 feet, well cobbled, grain formed, but not yet in early milk. Yield per acre 14 tons 970 lbs.

Longfellow—3 acres.—Soil a sandy loam of fair quality which received a dressing of barn-yard manure about 18 tons per acre early in the spring of 1894. Has received no manure since. The previous crop was oats seeded with Mammoth Red clover 8 lbs. per acre. After the oat crop was harvested the clover was allowed to grow until the 25th of May following, by which time it had attained a height of 12 to 14 inches and had formed a heavy mat of foliage. This was ploughed under about 6 inches deep, disc harrowed twice and harrowed twice with the smoothing harrow which brought the land into good condition for planting. Planted in hills three feet apart each way 30th May, came up 9th June and was cut 21st September. Height 7 to 10 feet, well cobbled, grain well advanced in the dough stage. Yield per acre, 14 tons 615 lbs.

Experimental Farms.

Two other varieties of corn were planted in the same field as the Longfellow, on similar land which had similar treatment, as follows:—

Mammoth Eight-rowed Flint.— $3\frac{1}{4}$ acres. Planted in hills 3 feet apart each way on 30th May; came up 8th and 9th June, and was cut 19th September. Height, 7 to 10 feet well cobbied, grain in the dough stage. Yield per acre, 13 tons 1,205 lbs.

Angel of Midnight.— $3\frac{1}{2}$ acres. Planted in hills 3 feet apart each way on 30th May; came up 8th and 9th June, and was cut 18th September. Height, 7 to 10 feet, well cobbied, grain in the dough stage. Yield per acre, 15 tons 328 lbs.

EXPERIMENTS WITH TURNIPS.

Of turnips fourteen varieties were tested during the past season on plots all adjoining each other and all having similar treatment. The soil was a rather light sandy loam of good quality. The previous crop was experimental plots of grain. Soon after harvest, in 1895, the land was ploughed very shallow, about two inches deep and harrowed with a smoothing harrow to cover and start weed seeds and shed grain. It was manured in the autumn of 1895 with about 12 tons of barn-yard manure to the acre, which was ploughed under soon after spreading about 8 inches deep. In the spring the land was again ploughed about 8 inches deep, harrowed with the smoothing harrow made up in drills two feet apart and subsequently rolled with a heavy land roller which flattened the drills about one half leaving a firm seed bed. Two sowings were made of each sort of seed at the rate of 3 lbs. per acre, the first on 8th May, the second on 22nd May, and the roots on both sets of plots were pulled on the 15th of October. The yield per acre has been calculated from the weight of roots obtained from two rows each 99 feet long.

TURNIPS—TEST OF VARIETIES.

Name of Variety.	Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.		Yield per Acre. 2nd Plot.	
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.
Hartley's Bronze.....	45	90	1,501	30	30	1,710
Carter's Elephant.....	41	335	1,372	15	28	1,090
Purple Top Swede.....	40	1,180	1,353	30	29	740
Mammoth Clyde.....	37	250	1,237	30	25	215
Perfection.....	37	250	1,237	30	21	570
Giant King.....	36	600	1,210		25	1,535
Prize Purple Top.....	34	1,630	1,160	30	22	220
Marquis of Lorne.....	33	660	1,111		23	1,190
Jumbo or Monarch.....	33	330	1,105	30	21	1,615
Prize Winner.....	32	1,395	1,089	55	23	860
Selected Champion.....	32	1,010	1,083	30	20	1,910
East Lothian.....	31	425	1,040	25	21	1,230
Sutton's Champion.....	30	1,380	1,023		22	880
Skirving's.....	28	485	941	25	21	1,670

FIELD PLOTS OF TURNIPS.

The fourteen varieties of turnips which were sown in the uniform test plots were also sown in a field crop in plots of one-tenth acre each side by side. This land was a heavy sandy loam which was sown with oats in 1895 and at the same time seeded with Mammoth Red clover about 8 lbs. per acre. This made a good catch and grew rapidly after the oat crop was harvested. It was ploughed under on 25th May following by which time it had formed a fine mat of foliage from 12 to 14 inches high. The land was harrowed with the spade-harrow several times and subsequently with the smoothing harrow and in this way the soil was pulverized and brought into good condition for the turnip crop. Drills were made two feet apart and the drills subsequently rolled with a heavy land roller which flattened them about one half, leaving a firm seed bed. The

seed was sown on the 13th June, came up 18th June and the roots were pulled 23rd October. The yield obtained from each was as follows:—

Name of Variety.	Yield Per acre.	Name of Variety.	Yield Per acre.
	Tons. Lbs.		Tons. Lbs.
Hartley's Bronze.....	22 1,930	Marquis of Lorne.....	21 300
Carter's Elephant.....	20 1,392	Jumbo or Monarch.....	20 132
Purple Top Swede.....	20 81	Prize Winner.....	20 1,190
Mammoth Clyde.....	20 686	Selected Champion.....	21 249
Perfection.....	21 1,207	East Lothian.....	18 1,812
Giant King.....	17 687	Sutton's Champion.....	19 14
Prize Purple Top.....	19 720	Skirving's.....	18 1,712

The results of these tests all seem to point to the advantage of early sowing. The uniform test plots sown on the 8th of May, gave an average crop for the fourteen plots of 35 tons 572 lbs. per acre. The second sowing of the same, made on the 22nd of May yielded an average of 24 tons 338 lbs., while this third sowing under date of the 13th of June, a time for the sowing of turnips approved and practised by many excellent farmers the average crop was only 20 tons 294 lbs. per acre.

EXPERIMENTS WITH MANGELS.

Seventeen varieties of mangels were tested in 1896, side by side. The land on which they were grown was adjoining that used for the test of varieties of turnips, and the soil and treatment was the same. The previous crop was experimental plots of grain. The seed was sown on drills 2 feet apart in the proportion of 3 to 4 lbs. per acre. Two sowings were made of each sort, the first on the 8th May and the second on the 22nd May, and the roots from both were pulled on 15th October. The drills were all made and rolled with a heavy land roller at the time of first sowing, but before the second set of plots was sown the surface of the drills was worked with a hand wheel hoe to destroy any weeds which had germinated.

The earliest sown plots have again given the largest yields, the average of the first sowing 8 tons 557 lbs. more than those of the second sowing. The returns given have been calculated from the weight of roots obtained from two rows each 99 feet long.

MANGELS—TEST OF VARIETIES.

Name of Variety.	Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.	
	Tons. Lbs.	Bus. Lbs.	Tons. Lbs.	Bus. Lbs.
Mammoth Long Red (Evans).....	40 1,840	1,364	35 1,610	1,193 30
Gate Post.....	40 520	1,342	29 1,565	992 45
Golden Tankard.....	40 520	1,342	27 835	913 55
Giant Yellow Intermediate (Steele).....	39 1,255	1,320 55	31 370	1,039 30
Conquerer Prize Winner, yellow.....	38 615	1,276 55	24 1,170	819 30
Yellow Intermediate.....	38 285	1,271 25	35 1,995	1,199 55
Giant Yellow Intermediate (Pearce).....	37 635	1,243 55	24 1,555	1,089 55
Red Fleshed Globe.....	36 1,095	1,218 15	32 1,395	825 55
Warden Orange Globe.....	36 985	1,216 25	27 120	902
Red Fleshed Tankard.....	36 655	1,210 55	23 475	774 35
Giant Yellow Globe.....	35 950	1,182 30	29 1,400	990
Yellow Fleshed Tankard.....	34 1,960	1,166	24 1,170	819 30
Golden Fleshed Tankard.....	34 365	1,139 25	31 370	1,039 30
Mammoth Long Red (Webb).....	32 1,725	1,095 25	28 650	944 10
Champion Yellow Globe.....	31 975	1,049 35	28 1,420	957
Mammoth Long Red (Steele).....	30 5	1,000 5	19 1,985	666 25
Canadian Giant.....	25 1,480	858	20 1,910	698 30

Experimental Farms.

In these tests also, early sowing has been very advantageous. The first sowing of the 17 varieties on 8th May gave an average return of 35 tons, 1,756 lbs. per acre, while the average crop of the second sowing on 22nd May has given only 27 tons, 1,999 lbs. per acre.

FIELD CROPS OF MANGELS.

These were sown in the same field with the uniform test plots of turnips. The land was similar and the manuring and treatment the same. The results were as follows :—

Mammoth Long Red (Evans).—One acre sown 8th May, came up 15th May, and the roots were pulled 17th October. Yield per acre, 22 tons 1,185 lbs.

Canadian Giant.—One acre, sown 8th May, came up 15th May, and the roots were pulled 15th October. Yield per acre, 19 tons 419 lbs.

Champion Yellow Globe.— $\frac{1}{2}$ acre, sown 8th May, came up 15th May, and the roots were pulled 15th October. Yield per acre, 18 tons 1,110 lbs.

Giant Yellow Intermediate.— $\frac{1}{2}$ acre, sown 8th May, came up 15th May, and the roots were pulled 16th October. Yield per acre, 19 tons 1,960 lbs.

EXPERIMENTS WITH CARROTS.

Twenty varieties of carrots were sown side by side on plots adjoining those used for the test of varieties of turnips. The soil and treatment of the land was the same. The seed was sown on ridges 2 feet apart at the rate of 3 to 4 lbs. of seed per acre. Two sowings were made of each sort, the first on 8th May, the second on 22nd May, and the roots from both were pulled on 15th October. After the drills were made they were rolled with a heavy land roller at the time of the first sowing, but before the second set of plots was sown, the surface of the drills was worked with a hand wheel hoe to destroy any weeds which had germinated. The yield per acre has been calculated from the weight of roots gathered from two rows each 99 feet long.

The earliest sowing has again given the largest crops, the first sowing having exceeded the second by 4 tons 1,404 lbs. per acre. The 20 plots sown on the 8th May have given an average crop of 26 tons 458 lbs. per acre, while those sown on 22nd May have yielded an average of only 21 tons 1,054 lbs. per acre.

CARROTS—TEST OF VARIETIES.

Name of Variety.	Yield per Acre. 1st Plot.		Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.		Yield per Acre. 2nd Plot.	
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.
Short White Vosges	35	1,665	1,194	25	25	1,810	863	30
White Belgian	31	1,470	1,057	50	20	1,250	687	30
Carter's Orange Giant (Carter).....	29	1,070	984	30	22	275	737	55
White Green Top Orthe.....	29	80	968	..	22	880	748	..
Improved Short White.....	28	1,860	964	20	24	290	804	50
Iverson's Champion.....	28	1,090	951	30	24	510	808	30
Selected White Belgian	28	1,090	951	30	22	495	741	35
Half Long White	28	760	946	..	27	1,880	931	20
Giant Yellow Intermediate	27	505	908	25	20	260	671	..
Half Long Chantenay	27	110	918	30	22	1,870	764	30
New Giant Intermediate	26	1,845	897	25	21	1,890	731	30
Mammoth White Intermediate.....	26	1,790	896	30	24	1,555	825	55
Giant White Vosges.....	24	1,830	830	30	20	315	671	55
Early Gem	24	840	814	..	21	295	704	55
Guerrande or Ox-heart.....	24	565	809	25	22	1,870	764	30
Carter's Orange Giant (Pearce).....	24	180	808	..	18	685	611	25
Henderson's New York Market	23	585	776	25	18	960	616	..
Scarlet Intermediate.....	20	1,305	688	25	17	980	583	..
Long Orange or Surrey.....	17	650	577	30	15	1,350	522	30
Long Scarlet Altringham.....	16	1,880	564	40	16	1,660	561	..

FIELD PLOTS OF CARROTS.

The field plots of carrots were near the uniform test plots of turnips, the land was similar and the manuring and treatment were the same. Three lbs. of seed were sown per acre and the results were as follows:—

Mammoth White Intermediate, one acre.—Sown 8th May, came up 16th May and the roots were pulled 22nd October. Yield per acre, 32 tons 10 lbs.

Improved Short White, one acre.—Sown 8th May, came up 16th May and the roots were pulled 22nd October. Yield per acre, 28 tons 705 lbs.

White, Belgian, ½ acre.—Sown 8th May, came up 16th May and the roots were pulled 21st October. Yield per acre, 21 tons 1870 lbs.

Iverson's Champion, ½ acre.—Sown 8th May, came up 16th May and the roots were pulled 20th October. Yield per acre, 29 tons 780 lbs.

EXPERIMENTS WITH SUGAR BEETS.

Three varieties of these were sown in plots each measuring one-eighth of an acre. The soil on which they were sown was a sandy loam of fair quality which received a dressing of barn-yard manure about 12 tons per acre in the spring of 1896. The previous crop was barley. The land was ploughed late in the autumn of 1895, and after the manure was spread it was ploughed again in the spring about 6 inches deep, harrowed with the smoothing harrow and made up in drills two feet apart. The drills were subsequently rolled with a heavy land roller which pressed them down about one half and made a firm seed bed. About 5 lbs. of seed were sown per acre with the following results:—

Vilmorin's Improved.—Sown 13th May, came up 21st May and the roots were pulled 13th October. Yield per acre 7 tons 1470 lbs.

Austrian Electoral Wohanka.—Sown 13th May, came up 21st May and the roots were pulled 13th October. Yield per acre, 11 tons 204 lbs.

Lane's Improved.—Sown 13th May, came up 21st May and the roots were pulled 13th October. Yield per acre, 12 tons 651 lbs.

EXPERIMENTS WITH POTATOES.

Ninety-six varieties of potatoes have been under test during the past season, grown side by side for the purpose of gaining information as to their relative yield, quality and earliness. The soil in which they were planted was a sandy loam which was manured in the spring of 1893 with about 18 tons of barn-yard manure per acre. The previous crop was pease. The land was ploughed in the autumn of 1895 about 8 inches deep and disc-harrowed in the spring and harrowed with the smoothing harrow, after which it was drilled for planting.

The potatoes for seed were cut into pieces from two to three eyes in each and were planted in rows 2½ feet apart with the sets about a foot apart in the rows. They were all planted on the 21st and 22nd of May, and were dug from 29th September to 3rd October. The yield per acre has been calculated from the weight of tubers obtained from one row 132 feet long. There was no rot this season in any of the varieties tested.

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POTATOES—TEST OF VARIETIES.

Name of Variety.	Total Yield per Acre.		Yield per Acre of Marketable.		Yield per Acre of Unmarketable.		Form and Colour.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Late Puritan	455	24	431	12	24	12	White.
S. Sabeau, from	430	6	411	24	18	42	"
Holborn Abundance	404	48	383	54	20	54	"
I. X. L.	377	51	357	30	20	21	Pink and white.
Dreer's Standard	375	6	355	18	19	48	White.
Carman, No. 1	371	48	334	12	17	36	"
Clay Rose	355	18	342	6	13	12	Pink.
American Wonder	353	6	323	24	29	42	White.
Polaris	351	4	319		32	4	"
Everett	350	54	323	24	27	30	Pink.
Burnaby Seedling	346	30	320	6	26	24	Pink and white.
Empire State	344	18	319		25	18	White.
Ideal	341		330		11		Pink.
American Giant	341		308		33		White.
Irish Daisy	337	42	280	30	57	12	"
Early Harvest	337	42	310	12	27	30	"
State of Maine	336	36	331	6	5	30	"
Rochester Rose	327	48	300	18	27	30	Pink.
McKenzie	320	6	292	36	27	30	White.
Pride of the Table	317	54	280	30	37	24	Pink.
Seedling No. 230	316	48	294	48	22		White.
Rural Blush	316	48	297		19	48	Pink.
Brownell's Winner	312	24	300	18	12	6	Red.
Hale's Champion	311	18	270	36	40	42	White.
New Variety No. 1	309	6	288	12	20	54	"
Monroe County	308		284	54	23	6	Pink.
Seattle	305	48	278	18	27	30	White.
Chicago Market	304	42	268	24	36	18	Pink.
Flemish Beauty Seedling	304	42	261	48	42	54	Bright pink.
Troy Seedling	299	12	242		57	12	White.
Early Sunrise	294	48	269	52	24	56	Pink.
Daisy	293	42	265	6	28	36	Pink and white.
Orphans	289	13	266	12	23	6	White.
Pride of the Market	287	6	261	48	25	18	"
General Gordon	286		242		44		Pink.
Rural New Yorker, No. 2	284	54	261	48	23	6	White.
Brown's Rot Proof	283	48	266	12	17	36	Pink.
New Queen	282	42	250	48	31	54	Pink and White.
Crown Jewel	280	30	255	12	25	18	"
Money Maker	279	24	262	54	16	30	White.
Vick's Extra Early	279	24	242		37	24	Pink and white.
Peerless Junior	275		259	36	15	24	White.
Delaware	275		261	48	13	12	"
Vanier	275		245	18	29	42	Red.
Russell's Seedling	275		248	36	26	24	White.
Early Gem	269	30	211	12	58	18	Pink.
Stourbridge Glory	268	24	193	36	74	48	White.
Napoleon	267	18	250	48	16	30	Pink.
Early Rose	265	28	224	24	41	4	"
Pearce's Extra Early	265	6	224	24	40	42	"
Carman No. 3	265	6	243	6	22		White.
Satisfaction	264		240	54	23	6	"
Early Ohio	261	48	235	24	26	24	Pink.
Earliest of All	260	42	201	18	59	24	Pink and white.
Prize Taker	259	36	222	12	37	24	Pink.
From E. Lortie	257	24	228	48	28	36	Light pink.
Great Divide	256	18	234	18	22		White.
Northern Spy	255	12	228	48	26	24	Bright pink.
Seedling, No. 2, G. Edwards	254	6	235	24	18	42	White.
From J. N. Bergeron	254	6	242		12	6	Light pink.
Maggie Murphy	253		242		11		Bright pink.
Thorburn	249	42	214	30	35	12	Pink and white.
Early White Prize	247	52	225	52	22		White.
Early Six Weeks	247	30	213	24	34	6	Pink.

POTATOES—TEST OF VARIETIES—*Concluded.*

Name of Variety.	Total Yield per Acre.		Yield per Acre of Marketable.		Yield per Acre of Unmarketable.		Form and Colour.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Victor Rose.....	245	18	226	36	18	42	Pink.
Beauty of Hebron.....	245	18	204	36	40	42	Pink and white.
Blue Cup.....	244	12	235	24	8	48	Purple and white.
Early Norther.....	242		204	36	37	24	Pink.
Lee's Favourite.....	239	48	216	42	23	6	"
Green Mountain.....	235	24	226	36	8	48	White.
Chas. Downing.....	233	12	173	48	59	24	"
Sharpe's Seedling.....	231	44	203	52	27	52	Pink and white.
Reading Giant.....	231		162	48	68	12	Red and white.
Wonder of the World.....	229	54	187		42	54	Pink and white.
White Beauty.....	228	48	198		30	48	White.
Clarke's No. 1.....	227	20	170	8	57	12	Pink.
Dakota Red.....	224	24	204	36	19	48	Red.
London.....	221	6	188	6	33		Pink.
Queen of the Valley.....	217	48	212	18	5	30	Bright pink.
Seedling No. 7.....	209		193	36	15	24	"
Sutton's Abundance.....	206	48	171	36	35	12	White.
Seedling No. 214.....	206	48	140	48	66		"
Hopeful.....	204	36	189	12	15	24	"
Lizzie's Pride.....	203	30	183	42	19	48	Pink, red eye.
Early Puritan.....	201	18	160	36	40	42	White.
Freeman.....	199	6	158	24	40	42	"
Table King.....	198		180	24	17	36	"
Record.....	198		169	24	28	36	"
Burpee's Extra Early.....	195	48	144	6	51	42	Pink and white.
Sutton's Main Crop.....	191	24	165		26	24	White.
Early Thorburn.....	191	24	155	6	36	18	Pink and white.
World's Fair.....	189	12	170	8	19	4	White.
Algoma No. 1.....	181	30	169	24	12	6	Pink.
Harbinger.....	159	30	136	24	23	6	Pale pink.
Pearce's Prize Winner.....	159	30	118	48	40	42	Pink.
Martins.....	158	24	127	36	30	48	Purple.

FIELD PLOTS OF POTATOES.

Twelve varieties of potatoes were planted in larger field plots, covering in all about $3\frac{1}{2}$ acres. These were planted on sandy loam of fair quality, which received a coating of barn-yard manure, about 12 tons per acre in the spring of 1896. The previous crop was pease. This land was ploughed in the autumn about 8 inches deep, and again in the spring about 6 inches deep to cover the manure, then harrowed with the smoothing harrow and drilled for planting. The sets were planted about 14 inches apart in rows which were $2\frac{1}{2}$ feet apart. They were all planted on the 21st of May, excepting the last two in the list, which were planted on the 26th of May. They came up from the 6th to the 11th of June, and were dug from the 8th to 12th of October. The yields were as follows:—

Name of Variety.	Per Acre.		Name of Variety.	Per Acre.	
	Bush.	Lbs.		Bush.	Lbs.
Clarke's No. 1.....	223	47	Pearce's Extra Early.....	187	48
Early White Prize.....	252	9	London.....	156	5
Early Sunrise.....	193	53	Empire State.....	267	25
Early Rose.....	137	5	Chicago Market.....	159	54
Lee's Favourite.....	237	1	Vanier.....	184	57
Dakota Red.....	195	47	Northern Spy.....	175	51

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EXPERIMENTS WITH CLOVER.

In the annual report for 1895 the results were given of some experiments carried on that year in the sowing of clover with grain, to gain information on this very important question, can clover be grown to advantage with grain from year to year without materially lessening the crop? If this can be done, the clover will serve as an excellent catch crop, absorbing and appropriating the nitrogenous fertilizers brought down by the rain during the late summer and autumn months as well as absorbing nitrogen from the air and may be subsequently ploughed under with great advantage to the land. Further points on which information was sought were, what kinds of clover are best for this purpose, and what quantity of seed should be sown per acre.

These experiments, somewhat modified, have been continued. Last year there were eleven plots devoted to different quantities of Mammoth Red clover seed per acre from 2 lbs. to 16 lbs., including three check plots. This year seven plots were set aside for this purpose, using from $\frac{1}{2}$ lbs. to 14 lbs. per acre, with one check plot. In 1895 these plots were all sown with a variety of two-rowed barley, Canadian Thorpe. This year they were sown with a six-rowed sort, Odessa.

The soil chosen for these tests was a sandy loam of fair quality, which received a light dressing of barn-yard manure about 10 tons per acre in the spring of 1896. The previous crop was Indian corn. The manure was ploughed under about 6 inches deep immediately after spreading, and the land was then harrowed twice with the smoothing harrow before sowing. The size of the plots was $\frac{1}{10}$ acre each. They were all sown with the barley 5th May $1\frac{3}{4}$ bushels per acre; came up 11th May and were ripe 27th July. The time to mature was 83 days. The crops were as follows:

Variety of Barley sown—Odessa.	Weight of	Yield of	
	straw per acre.	Barley per acre.	
	Lbs.	Bush.	Lbs.
No. 1—4 lbs. Mamm. Red Clover per acre.....	3,245	56	27
2—Was a check plot, had no clover.....	3,205	50	5
3— 6 lbs. Mamm. Red Clover per acre.....	2,995	56	12
4— 8 lbs. “ “ “.....	2,730	55	10
5—10 lbs. “ “ “.....	2,690	52	4
6—12 lbs. “ “ “.....	2,665	48	11
7—14 lbs. “ “ “.....	2,535	47	14

From the slight variations in these crops above and below that given by the check plot it does not appear that the yield of barley was materially influenced by the sowing of clover with it; thus confirming the experience of last season. In 1895 all the plots were ploughed on the 4th of October, and a square block of about 6 x 6 inches of the turned furrow was taken from each plot washed clean of earth, and notes taken on the roots. This year the clover has been left to winter over. The following notes on the growth of the clover were taken at two different periods, on the 23rd of July and 14th October.

No. 1. 4 lbs. Mammoth Red Clover per acre. 23rd July, growth weak and thin but fairly even. 14th October, height 8 to 10 inches, growth uneven and patchy, not thick enough to make good meadow or for ploughing under with advantage—a few plants in bloom.

No. 3. 6 lbs. Mammoth Red Clover per acre. 23rd July, growth weak and thin, but fairly even. 14th October, height 8 to 10 inches, growth medium to strong, would be fairly good for meadow but not thick enough for ploughing under—a few plants in bloom.

No. 4. 8 lbs. Mammoth Red Clover per acre. 23rd July, growth medium and fairly even. 14th October, height 10 to 12 inches, growth strong and even, in good condition to leave for meadow and fairly good for ploughing under, a very few plants in bloom.

No. 5. 10 lbs. Mammoth Red Clover per acre. 23rd July, growth medium to strong and even. 14th October, height 10 to 12 inches, growth strong and even, too thick for meadow but a good stand for ploughing under, very few plants in bloom.

No. 6. 12 lbs. Mammoth Red Clover per acre. 23rd July, growth medium to strong and even. 14th October, height 10 to 12 inches, growth strong and even making a thick mat of foliage, too thick to leave for meadow but in excellent condition for ploughing under, very few plants in bloom.

No. 7. 14 lbs. Mammoth Red Clover per acre. 23rd July, growth strong and even. 14th October, height 10 to 12 inches, growth strong and even, making a thick mat of foliage, too thick for meadow, but in excellent condition for ploughing under, very few plants in bloom. No advantage could be detected in this plot over that where 12 lbs. of seed were used.

The following plots adjoining those last referred to, on similar soil, with like treatment, were also sown with Odessa barley on the same date and with the barley was sown the following different kinds and quantities of clover.

Variety of Barley Sown—Odessa.	Weight of	Yield of	
	straw per acre.	Barley per acre.	
	Lbs.	Bush.	Lbs.
No. 8. 24 lbs. Crimson Clover.....	3,140	55	
9. 14 lbs. Alfalfa.....	3,170	60	20
10. 6 lbs. Alsike.....	3,110	64	13
11. 10 lbs. Cow Grass (Perennial Red Clover).....	3,305	58	16
12. 10 lbs. Common Red Clover.....	3,250	55	40
13. 6 lbs. Alsike Clover with 14 lbs. Orchard Grass.....	2,800	46	42

There was no check plot in this series, that in the last set being near by, served for both. In plot No. 13, where the orchard grass was associated with the clover, the yield was less but this was probably due more to the variation in the soil than to the influence of the orchard grass the growth of which was quite small and weak up to the time of the cutting of the grain. The other plots do not vary enough in yield to lead to the belief that the differences are due to any material extent, to the clover. Notes were taken on the growth of the clover in these plots similar to those in the first series.

Plot No. 8. 24 lbs. Crimson Clover. 23rd July, growth fairly even, some plants in bloom. 14th October, height 6 to 8 inches, growth fairly even, not thick enough to make a good mat for ploughing under.

Plot No. 9. 14 lbs. Alfalfa per acre. 23rd July, growth weak, plants unhealthy looking with many of the leaves withered. 14th October, height 12 to 14 inches, growth fairly even, stalks rather woody, in good condition to leave for meadow but rather thin for ploughing under.

Plot No. 10. 6 lbs. Alsike per acre. 23rd July, growth very weak and feeble. 14th October, height 4 to 8 inches, growth uneven, too thin to make good meadow or for ploughing under to advantage.

Plot No. 11. 10 lbs. Cow Grass per acre (Perennial Red Clover). 23rd July, growth weak and uneven. 14th October, height 6 to 8 inches, growth uneven and patchy, may be thick enough to leave for meadow but not thick enough for ploughing under to advantage, a few plants in bloom.

Plot No. 12. 10 lbs. Common Red Clover per acre. 23rd July, growth weak but fairly even. 14th October, height 8 to 10 inches, growth even, thick enough to leave for meadow but not thick enough for ploughing under to advantage, a few plants in bloom.

Plot No. 13. 6 lbs. Alsike with 14 lbs. of Orchard Grass per acre. 23rd July, the alsike had made fair growth, and the growth of the orchard grass was medium and even. 14th October, alsike 6 to 8 inches high, growth medium and even, plants thick

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enough to make a good meadow but growth not heavy enough to be ploughed under to advantage. Many plants in bloom. The orchard grass was from 2 to 3 inches high with fairly even growth, a fine catch for meadow.

Another series of tests was made with clover by sowing it with different varieties of grain, each plot having a check plot of a similar size alongside of it. As Mammoth Red Clover has given at the Central Farm better results than any other variety, this was selected for these trial plots, and 10 lbs. per acre have been used in each case, this quantity having proved sufficient to give good results in the several tests in which it has been used in the past. The trial plots in this group were 20 in number, measuring one quarter of an acre each, and were planned for the purpose of ascertaining the results on clover growth when the seed is sown with different classes of grain, and to gain some information as to how far the quantity of the clover crop and its usefulness as a fertilizer is affected by the kind of grain with which it is grown, also to further test the question whether the sowing of clover with the grain affects the yield of the latter.

The soil in this case was a heavy sandy loam of fair quality which received a dressing of barn-yard manure about 12 tons per acre in the spring of 1896, which was ploughed under about 6 inches deep immediately after spreading. The land was then harrowed twice with the smoothing harrow before sowing. The previous crop was sun-flowers and corn. All the plots were sown on the same day, 1st May, the Red Fife and Preston wheats at $1\frac{1}{2}$ bushels per acre, the Odessa and Trooper barley at $1\frac{3}{4}$ bushels, the Sidney and Bolton barley at 2 bushels, the Banner and Abundance oats at $2\frac{1}{2}$ bushels and the Daniel O'Rourke and Prussian blue pease at $2\frac{1}{2}$ bushels per acre. The results were as follows :—

	PER ACRE.	
	Bushels.	Lbs.
Red Fife wheat, with 10 lbs. Mamm. Red clover per acre.	25	5
do without clover.	23	1
Preston wheat, with 10 lbs. Mamm. Red clover per acre.	19	17
do without clover.	22	55
Odessa barley, with 10 lbs. Mamm. Red clover per acre.	50	42
do without clover.	56	32
Trooper Barley, with 10 lbs. Mamm. Red clover per acre.	38	36
do without clover.	38	12
Sidney Barley, with 10 lbs. Mamm. Red clover per acre.	39	40
do without clover.	38	12
Bolton Barley, with 10 lbs. Mamm. Red clover per acre.	37	8
do without clover.	35	8
Banner Oats, with 10 lbs. Mamm. Red clover per acre.	60	33
do without clover.	72	..
Abundance Oats, with 10 lbs. Mamm. Red clover per acre.	68	32
do without clover.	65	4
Daniel O'Rourke pease, with 10 lbs. Mamm. Red clover per acre	38	4
do without clover.	35	..
Prussian Blue pease, with 10 lbs. Mamm. Red clover per acre	39	52
do without clover.	35	..

It will be seen that seven of the plots sown with clover have given the largest yield of grain and three of those sown without clover. The total number of bushels of excess in the three plots is a little larger than the total number in the other seven plots, but the difference is small and it does not appear from this test that the sowing of clover with grain has any material influence on that crop.

The Red Fife and the Preston wheat were both ripe 6th August, the Odessa and Trooper barley 25th July. Sidney barley 1st August, Bolton 29th July, Banner oats 6th August, Abundance 7th August, Daniel O'Rourke pease 5th August, and Prussian Blue 7th August. The growth of the clover on all the plots of wheat and barley was practically the same. On 5th October it was from 10 to 12 inches high, the growth was strong and even and had made a good mat of foliage suitable for ploughing under. That sown with the oats was not so uniform or heavy, although the height was about the

same, some of the young plants had evidently been killed by the heavy shade given by the vigorous growing crops of oats. This result was still more marked in the plots sown with pease, where the clover was very uneven and patchy, and more so in the plot of Prussian Blue, because that variety produces a longer and stronger growing vine than the Daniel O'Rourke.

CONCLUSIONS.

The evidence thus far afforded by these clover tests seems to show that the sowing of clover with grain does not materially affect the crop of grain. That in the climate of Ottawa the best variety of clover to sow for ploughing under is the Mammoth Red, and that 10 lbs. of seed per acre is sufficient to produce a heavy mat of growth by the first week in October, when, if desired, it can be ploughed under to assist in fertilizing the soil for the next crop.

ACRE PLOTS OF ODESSA BARLEY SOWN WITH ALFALFA AND BROMUS INERMIS.

These were on sandy loam of fair quality, which had received a dressing of barn-yard manure, about 12 tons per acre, in the spring of 1896, this was ploughed under about 6 inches deep, immediately after spreading, the land was then harrowed twice with the smoothing harrow before sowing. The barley was sown on both of these acre plots in the proportion of $1\frac{3}{4}$ bushels per acre.

One acre Odessa barley with 14 lbs. Alfalfa per acre, sown 5th May, came up 11th May, and was ripe 27th July. The time to ripen was 98 days, yield per acre 44 bushels 40 lbs. weight per bushel $50\frac{1}{2}$ lbs. By 23rd July the Alfalfa had made a medium and fairly even growth from 6 to 8 inches high, with many withered leaves, as if the plants had suffered from drought. On 14th October the Alfalfa had reached a height of 12 to 14 inches, the growth was medium and even, thick enough to make a good meadow, but not thick enough yet to plough under to advantage.

One acre Odessa barley, with 18 lbs. *Bromus inermis* (Awnless Brome grass) per acre, sown 5th May, came up 11th May, and was ripe 27th July. The time to mature was 98 days. Yield per acre 47 bushels 26 lbs., weight per bushel $50\frac{1}{4}$ lbs.

On 23rd July the Brome grass was well up and the growth fairly even. By 14th October this grass was from 2 to 3 inches high, and the growth as to vigour was medium and even. Although at this time it seemed to be somewhat thin on the ground, the rapid root growth for which this grass is noted, will no doubt soon produce a vigorous mat of foliage.

EXPERIMENTS WITH FLAX.

These experiments with flax were planned with several objects in view, namely to ascertain the quantity of flax fibre which could be produced by growing the plant in the different climates of the Dominion which prevail where the several experimental farms are located, and the quantity which could be obtained per acre when the seed was sown thinly, 40 lbs. per acre, or more thickly with 80 lbs. per acre. Also the best time for sowing in these several localities and the yield of seed per acre in each case.

A sufficient quantity of seed of the very best sort—grown one year in this country after importation from Russia—was obtained from J. Livingston, Esq., M.P., of Baden, Ont., a gentleman largely interested in the flax industry in Canada and each farm was supplied from this source. Instructions were sent with the seed to select enough land as uniform in character as possible, to provide for eight $\frac{1}{10}$ th acre plots. Two of these plots were to be sown early in the season, and two on the same day each week following for four sowings, thus making the sowing period cover three weeks. The quantity of seed to be sown on one set of these plots was 40 lbs. per acre and on the other 80 lbs. per acre. Directions were also given that when the flax had reached that degree of maturity that about one third of the seed was ripe the flax on one half of each plot was to be pulled, and tied in bundles and when cured in the field the weight of straw

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ascertained. On the other half of each plot the seed was to be allowed to ripen and then harvested and threshed to ascertain its yield. Arrangements were also made for packing and forwarding a bale of straw of 50 lbs. weight from each of the eight plots to Messrs. J. and J. Livingston, of Baden, Ont., to be retted and scutched and the quantity and quality of fibre in each case ascertained.

The soil selected at the Central Farm for these plots was a sandy loam of good quality, which received a dressing of barn-yard manure, about 12 tons per acre during the winter of 1895-96. The previous crop was English Horse Beans. The land was not ploughed in the autumn of 1895, but was ploughed in the spring of 1896 about 6 inches deep and harrowed with the smoothing harrow before sowing. The land for all the plots was ploughed the same date, but before each successive sowing that portion of the soil to be sown was disc-harrowed and harrowed with the smoothing harrow to destroy any weeds which might have germinated and to give each plot as to cultivation the same advantage at the start. The seed was sown broadcast and lightly harrowed to cover it and the land rolled.

The following are the results obtained at the Central Experimental Farm, the particulars of the information gained at the branch farms will be found in the reports of the superintendents.

FIRST SOWING.

Plot 1.—Forty lbs. of seed per acre, sown 7th May, came up 12th May, pulled one-half of plot for straw 28th July, when the seed was about one third ripe, height 36 to 45 inches. The other half of this plot was harvested for seed 14th August.

Weight of straw per acre.....	6,070 lbs.
Yield of seed per acre.....	12 bushels 28 lbs.

Plot 2.—Eighty lbs. of seed per acre, seed sown, flax pulled and seed harvested same dates as plot 1. Height of flax when pulled, 36 to 45 inches.

Weight of straw per acre.....	7,878 lbs.
Yield of seed per acre.....	11 bushels 20 lbs.

SECOND SOWING.

Plot 3.—Forty lbs. of seed per acre, sown 14th May, came up 19th May, pulled one-half of plot for straw, 3rd August, when the seed was about one-third ripe. Height 36 to 43 inches. The other half of this plot was harvested for seed, 14th August.

Weight of straw per acre.....	5,550 lbs.
Yield of seed per acre.....	17 bushels 8 lbs.

Plot 4.—Eighty lbs. of seed per acre, seed sown, flax pulled and seed harvested same dates as plot 3. Height of flax when pulled, 36 to 43 inches.

Weight of straw per acre.....	6,657 lbs.
Yield of seed per acre.....	15 bushels 15 lbs.

THIRD SOWING.

Plot 5.—Forty lbs. of seed per acre, sown 21st May, came up 27th May. Pulled one-half of plot for straw, 10th August, when seed was about one-third ripe. Height 33 to 39 inches. The other half of this plot was harvested for seed 16th August.

Weight of straw per acre.....	5,270 lbs.
Yield of seed per acre.....	13 bushels 2 lbs.

Plot 6.—Eighty lbs. of seed per acre. Seed sown, flax pulled and seed harvested same dates as plot 5. Height of flax when pulled, 36 to 43 inches.

Weight of straw per acre.....	5,420 lbs.
Yield of seed per acre.....	11 bushels 44 lbs.

FOURTH SOWING.

Plot 7.—Forty lbs. of seed per acre. Sown 29th May, came up 4th June. Pulled one-half of plot for straw, 17th August, when the seed was about one-third ripe. Height 31 to 37 inches. The other half of this plot was harvested for seed, 19th August.

Weight of straw per acre	5,570 lbs.
Yield of seed per acre	11 bushels 24 lbs.

Plot 8.—Eighty lbs. of seed per acre. Seed sown, flax pulled and seed harvested same dates as plot 7. Height of flax when pulled, 31 to 37 inches.

Weight of straw per acre	5,560 lbs.
Yield of seed per acre	10 bushels 20 lbs.

In each of these sowings, except the fourth, the plots which received the 80 lbs. of seed per acre gave the largest quantity of straw, while those which received the 40 lbs. gave the largest crop of seed. The plots first sown have given the heaviest weight of straw, and those sown second in the series the largest yield of seed. The particulars as to the quantity and quality of fibre from the straw on each plot will be given later.

EXPERIMENTS WITH HORSE BEANS.

Two field plots were sown with horse beans grown for ensilage including three acres in all. The land was part sandy loam and part peaty. The previous crop was barley. It was ploughed shallow after the barley was harvested and harrowed with the smoothing harrow to start weed seeds and shed grain, and later in the autumn it was ploughed about 8 inches deep. The land was manured in the spring of 1896 with about 12 tons of barn-yard manure per acre, ploughed under about 6 inches deep and harrowed with the smoothing harrow twice. The beans were then sown with the seed drill in rows 3 feet apart, using about 50 lbs. of seed per acre.

Plot 1.—Two acres sown with "tick" beans imported seed. Sown 9th May, came up 19th May and was cut for ensilage 22nd September when the plants were still green. The growth ranged from weak to medium, the vines were well podded and a few of the pods ripe. Height from 45 to 50 inches, most of the plants had their foliage partly blighted. Yield per acre 2 tons 437 lbs.

Plot 2.—One acre sown with "tick" beans ripened last year on the Central farm. Sown 9th May, came up 18th May and was cut 21st September. The growth was weak to medium, height 45 to 50 inches with much of the foliage blighted. Yield per acre 3 tons 1,400 lbs.

These small crops were no doubt mainly due to the prevalence of blight and the unsuitable character of the soil.

EXPERIMENTS WITH SUNFLOWERS.

Two field plots covering $1\frac{1}{2}$ acres in all were sown with this crop, with the object of securing a large number of seed heads to put into the silo with corn ensilage to add fatty matter to this food. The soil was a sandy loam and the previous crop was barley. The land was ploughed very shallow soon after harvest to cover and start weed seeds and shed grain and again ploughed late in the autumn about 8 inches deep. In the spring of 1896 it received a dressing of barn-yard manure about 12 tons per acre which was ploughed under about 6 inches deep, it was then harrowed with the smoothing harrow and rolled with a land roller before sowing. The seed was sown with a Planet Junior hand seed drill in rows three feet apart, and thinned out when the plants were about 3 inches high to from 16 to 18 inches apart in the rows. In growing this crop from Russian seed in former years part of the heads have given black seed and a part light coloured seeds, these were selected and sown separately during the past season.

Experimental Farms.

Plot 1. One acre Mammoth Russian Sunflowers, black seed. Sown 9th May, 4 lbs. per acre, came up 15th May and the heads were cut for the silo on 18th September. Weight of heads per acre, 8 tons 645 lbs.

Plot 2. Half acre Mammoth Russian Sunflowers, light coloured seed. Sown 9th May, came up 15th May and the heads were cut for the silo 23rd September. Weight of heads per acre 7 tons 1,000 lbs.

EXPERIMENTS WITH BUCKWHEAT.

Two plots of buckwheat were sown covering in all $2\frac{3}{4}$ acres. The variety used was the Silver Hull, and the soil on which it was sown was a sandy loam which received an application of unleached wood ashes about 150 bushels per acre during the winter of 1895-96. This land had been used as a nursery for young forest trees and had received no other fertilizer for ten years past. The land was ploughed in the autumn of 1895 about 8 inches deep and was ploughed again in the spring about 6 inches deep before the buckwheat was sown.

Plot No 1. One acre sown 20th June, 3 pecks of seed per acre, came up 27th June and was ripe 25th September. Yield per acre, 29 bushels 26 lbs.

Plot No 2. One and three-quarter acres. This was sown later, the same variety of seed being used. The land was adjoining plot 1, the soil partly sandy loam and part clay loam and the treatment and the preparation was the same. Sown 29th June, came up 5th July and was ripe 25th September. Yield per acre, 23 bushels 32 lbs.

TESTS OF THE ACTION OF FERTILIZERS ON SOME CROPS.

In the Annual Report of the Experimental Farm for 1893, details were given on pages 8 to 24 of the results of a series of tests which were carried on during the previous five or six years with the object of gaining information regarding the effects which follow the application of certain fertilizers and combinations of fertilizers on the more important crops. The particulars there given covered the results of six years' experience with crops of wheat and Indian corn, and five years' experience with crops of oats, barley, turnips and mangels. The results of similar tests conducted for three years with carrots and one year with sugar beets were also given.

These experiments have been continued; and as explanatory regarding the preparations made and the general plan, together with the way in which they have been carried on, the following paragraphs are quoted from the report of 1893:

“A piece of sandy loam, more or less mixed with clay, which was originally covered with heavy timber, chiefly white pine, was chosen for these tests. The timber was cut many years ago, and among the stumps still remaining when the land was purchased, there had sprung up a thick second growth of trees, chiefly poplar, birch and maple, few of which exceeded six inches in diameter at the base. Early in 1887, this land was cleared by rooting up the young trees and stumps and burning them in piles on the ground from which they were taken, the ashes being afterwards distributed over the soil as evenly as possible, and the land ploughed and thoroughly harrowed. Later in the season it was again ploughed and harrowed, and most of it got into fair condition for cropping.”

“The plots laid out for the experimental work with fertilizers were one tenth of an acre each, 21 of which were devoted to experiments with wheat, 21 to barley, 21 to oats, 21 to Indian corn or maize, and 21 to experiments with turnips and mangels. Owing to the difficulty and unavoidable delay attending the draining of some wet places, it was not practicable to undertake work on all the plots the first season. The tests were begun in 1888 with 20 plots of wheat and 16 of Indian corn; and in 1889 all the series were completed excepting six plots of roots, Nos. 16 to 21 inclusive, which were available for the work in 1890.” In all cases the plots in each series have been sown on the same day.

“In 1890 it was found that all the grain plots had become so weedy that the growth of the crops was much interfered with, and with the view of cleaning the land one-half of each of the wheat and oat plots was sown with carrots in 1891, and one-half of each of the barley plots with sugar beets. In 1892 the other half of each plot in each of these series was sown with carrots. In 1893 it was thought desirable to continue this cleaning process, and carrots were again sown on the half of the wheat and oat plots occupied with this crop in 1891, and also on the half of the barley plots cropped with sugar beets that year.” In 1894, 1895 and 1896 the one-half of the oat plots were sown again with carrots and the half of the plots devoted to wheat and barley were planted with potatoes.

“ TREATMENT OF SOIL.

“The treatment of the soil on all the grain plots has been to gang-plough soon after harvest, and after the shed grain and weeds have well started to plough again about 7 inches deep. In spring the plots have been disc-harrowed twice or gang-ploughed once before applying the fertilizers, and again harrowed with the toothed or smoothing harrow before sowing. On those plots where barn-yard manure has been used, the manure has been lightly ploughed under as soon as possible after it has been spread on the land and harrowed with the smoothing harrow before sowing. Wherever barn-yard manure is spoken of, it is understood to be a mixture of horse and cow manure in about equal proportions.”

It is proposed to give each year in the annual report a summary of these permanent fertilizer plots, taking the average yield of the whole of the previous period, adding the results of the current year, and then giving the average yield for the full time. The experience of each year will add materially to the value and reliability of the tests for the whole period.

WHEAT PLOTS.

The seed sown on each of these plots from the beginning has been in the proportion of $1\frac{1}{2}$ bushels per acre, excepting in 1894; and the varieties used were as follows. In 1888-89 and 1891 White Russian, and in 1892-93 Campbell's White Chaff. In 1894 the Rio Grande wheat was used, and shortly before sowing, it was tested as to vitality and found to be very deficient in germinating power, less than half the kernels sprouted. As it was not practicable then to secure better seed, double the usual quantity of seed was sown, namely: three bushels per acre, which gave a proportion of growth on each plot of about the usual thickness. In 1895 and 1896 the Red Fife wheat was used in the usual quantity of $1\frac{1}{2}$ bushels per acre. In 1896 the Red Fife was sown 2nd May, came up 9th May and was harvested 10th August, requiring from the date of sowing to maturity a period of 100 days.

The season of 1896 at Ottawa has been favourable for the growing of spring wheat, and has given crops considerably above the average. This year the plot on which the fresh manure was used has yielded 10 lbs. per acre more than that on which the rotted manure was used. This gain is not however sufficient to offset the gain of the rotted manure plot in 1895 and the rotted manure plot averages a little higher than any other plot in the series.

Experimental Farms

EXPERIMENTS with Fertilizers on Plots of Wheat $\frac{1}{20}$ acre each.

No. of Plot.	Fertilizers applied each Year.	AVERAGE YIELD FOR EIGHT YEARS.		9TH SEASON, 1896. VARIETY, RED FIFE.		AVERAGE YIELD FOR NINE YEARS.	
		Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.
		Per acre.	Per acre.	Per acre.	Per acre.	Per acre.	Per acre.
		Bush. lbs.	Lbs.	Bush. lbs.	Lbs.	Bush. lbs.	Lbs.
1	Barn-yard manure (mixed horse and cow manure) well rotted, 12 tons per acre in 1888; 15 tons per acre each year since..	18 41 $\frac{3}{4}$	3,466	27 ..	3,650	19 36 $\frac{3}{4}$	3,486
2	Barn-yard manure (mixed horse and cow manure) fresh, 12 tons per acre in 1888; 15 tons per acre each year since	18 31 $\frac{3}{4}$	3,457	27 10	4,100	19 29	3,528
3	Unmanured.....	9 57 $\frac{3}{4}$	1,853	14 ..	1,870	10 24 $\frac{1}{2}$	1,855
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre.....	10 4 $\frac{3}{4}$	1,789	13 ..	2,140	10 23 $\frac{3}{4}$	1,828
5	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs. per acre.....	12 6 $\frac{3}{4}$	2,886	14 30	2,570	12 22 $\frac{3}{4}$	2,851
6	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed, and allowed to heat for several days before using.....	16 1 $\frac{7}{8}$	2,954	26 30	3,430	17 11 $\frac{3}{4}$	3,007
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre.....	12 19 $\frac{3}{4}$	2,728	15 10	2,440	12 38 $\frac{3}{4}$	2,696
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	10 11 $\frac{7}{8}$	1,714	12 20	1,720	10 37 $\frac{3}{4}$	1,715
9	Mineral superphosphate, No. 1, 500 lbs. per acre.....	11 26 $\frac{7}{8}$	1,690	14 20	1,770	11 46 $\frac{1}{2}$	1,699
10	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre.....	12 21 $\frac{3}{4}$	2,956	17 10	2,700	12 53 $\frac{3}{4}$	2,928
11	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	12 27 $\frac{1}{4}$	2,500	18 50	3,430	13 10	2,603
12	Unmanured.....	9 27 $\frac{1}{4}$	1,575	14 30	2,260	10 11 $\frac{1}{2}$	1,651
13	Bone finely ground, 500 lbs. per acre.....	10 27 $\frac{3}{4}$	1,746	17 20	2,340	11 15 $\frac{3}{4}$	1,812
14	Bone finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	13 23 $\frac{1}{4}$	2,098	23 20	2,690	14 29 $\frac{1}{4}$	2,182
15	Nitrate of soda, 200 lbs. per acre.....	13 13 $\frac{1}{2}$	2,339	16 ..	2,130	13 31 $\frac{3}{4}$	2,316
16	Muriate of potash, 150 lbs. per acre.....	14 33 $\frac{3}{4}$	1,899	21 40	2,300	15 20 $\frac{3}{4}$	1,944
17	Sulphate of ammonia, 300 lbs. per acre.....	11 2 $\frac{3}{4}$	2,480	16 ..	1,250	11 35 $\frac{3}{4}$	2,343
18	Sulphate of iron, 60 lbs. per acre.....	11 59 $\frac{3}{4}$	1,930	14 50	1,760	12 18 $\frac{3}{4}$	1,911
19	Common salt (Sodium chloride) 300 lbs. per acre.....	11 38 $\frac{3}{4}$	1,662	19 10	1,940	12 28 $\frac{3}{4}$	1,693
20	Land plaster or gypsum (Calcium sulphate) 300 lbs. per acre.....	12 13 $\frac{3}{4}$	1,931	15 40	1,880	12 36 $\frac{3}{4}$	1,925
21	Unmanured in 1889, mineral superphosphate, No. 2, 500 lbs. per acre, each year since.....	12 28 $\frac{1}{4}$	1,813	10 ..	2,110	12 12	1,846

BARLEY PLOTS.

The quantity of seed sown per acre on the barley plots was 2 bushels in 1889, 1890 and 1891, $1\frac{1}{2}$ bushels in 1892 and 1893, and 2 bushels in 1894, 1895 and 1896. Two-rowed barley has been used for seed throughout the whole period. The varieties used were as follows: 1889, 1890 and 1891, Saale; 1892, Goldthorpe; 1893, Duck-bill; and

in 1894, 1895 and 1896 Canadian Thorpe, a selected form of the Duck-bill. In 1896 the Canadian Thorpe was sown 2nd May, came up 10th May and was harvested 10th August, requiring from the date of sowing to maturity a period of 100 days.

In 1896 the yield of all the barley plots was considerably higher than the average of past seasons. The plot fertilized with rotted barn-yard manure has given a better yield than the plot where the manure was used fresh; not enough, however, to offset the previous gains of the fresh manure plot, which still averages 1 bush. 7 lbs. higher than that of the rotted manure for the eight years these tests have been continued.

EXPERIMENTS with Fertilizers on Plots of Barley, $\frac{1}{16}$ th acre.

No. of Plot.	Fertilizers applied each Year.	AVERAGE YIELD FOR SEVEN YEARS.		8TH SEASON, 1896, VARIETY CANADIAN THORPE.		AVERAGE YIELD FOR EIGHT YEARS.	
		Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.
		Per acre.	Per acre	Per acre.	Per acre	Per acre.	Per acre
		Bush. lbs.	Lbs.	Bush. lbs.	Lbs.	Bush. lbs.	Lbs.
1	Barn-yard manure, well rotted, 15 tons per acre.....	30 39 $\frac{1}{2}$	2,909	46 12	3,270	32 36 $\frac{1}{2}$	2,954
2	Barn-yard manure, fresh, 15 tons per acre.....	32 17 $\frac{1}{2}$	3,212	44 28	4,130	33 43	3,252
3	Unmanured.....	13 36 $\frac{1}{2}$	1,548	17 4	1,900	14 8 $\frac{1}{2}$	1,592
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre.....	13 37 $\frac{1}{2}$	1,447	18 6	1,440	14 15 $\frac{1}{2}$	1,446
5	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs. per acre.....	18 47	2,254	21 32	1,750	19 15 $\frac{1}{2}$	2,191
6	Barn-yard manure, partly rotted, and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed and allowed to heat for several days before using.....	24 47 $\frac{1}{2}$	2,402	37 44	2,930	26 29 $\frac{1}{2}$	2,468
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre.....	20 44 $\frac{1}{2}$	2,462	30 20	2,540	22 5 $\frac{1}{2}$	2,472
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	16 42 $\frac{1}{2}$	1,699	30 ..	1,910	18 25 $\frac{1}{2}$	1,725
9	Mineral superphosphate No. 1, 500 lbs. per acre.....	19 36 $\frac{1}{2}$	2,043	30 40	1,880	21 7	2,023
10	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre.....	24 14	2,443	35 20	2,320	25 21 $\frac{1}{2}$	2,428
11	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	22 27 $\frac{1}{2}$	2,495	36 2	2,700	24 12 $\frac{1}{2}$	2,521
12	Unmanured.....	12 17 $\frac{1}{2}$	1,258	20 40	1,060	13 20 $\frac{1}{2}$	1,233
13	Bone, finely ground, 500 lbs. per acre.....	13 27 $\frac{1}{2}$	1,324	18 16	1,450	14 8	1,340
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	19 30 $\frac{1}{2}$	1,980	33 16	2,240	21 16 $\frac{1}{2}$	2,012
15	Nitrate of soda, 200 lbs. per acre.....	21 16 $\frac{1}{2}$	2,638	25 20	1,600	21 40 $\frac{1}{2}$	2,508
16	Muriate of potash, 150 lbs. per acre.....	21 17 $\frac{1}{2}$	2,042	27 4	1,660	22 4	1,994
17	Sulphate of ammonia, 300 lbs. per acre.....	17 31 $\frac{1}{2}$	2,215	20 ..	1,650	17 45 $\frac{1}{2}$	2,144
18	Sulphate of iron, 60 lbs. per acre.....	17 46 $\frac{1}{2}$	1,897	21 32	1,440	18 20 $\frac{1}{2}$	1,842
19	Common salt (Sodium chloride) 300 lbs. per acre.....	26 12	2,073	34 38	2,060	27 15 $\frac{1}{2}$	2,071
20	Land plaster or gypsum (Calcium sulphate), 300 lbs. per acre.....	20 17 $\frac{1}{2}$	1,842	20 20	1,390	20 18 $\frac{1}{2}$	1,786
21	Mineral superphosphate No. 2, 500 lbs. per acre.....	20 15 $\frac{1}{2}$	1,761	22 44	1,360	20 31 $\frac{1}{2}$	1,711

OAT PLOTS.

The quantity of seed sown per acre on the oat plots was 2 bushels in 1889 and 1890; 1 $\frac{1}{2}$ bushels in 1891, 1892 and 1893, and 2 bushels in 1894, 1895 and 1896. The varieties used were as follows: In 1889, Early English; 1890, 1891, 1892, 1893, Prize

Experimental Farms.

Cluster; and 1894, 1895 and 1896, Banner. In 1896 the Banner was sown 2nd May, came up the 10th May, and was harvested 8th August, requiring from the date of sowing to maturity a period of 90 days. In every instance this year, excepting that of plot No. 12, the yield of oats has been very much above the average of the previous seven years. The crop of plot 2 fertilized with fresh barn-yard manure has again exceeded that of plot 1, treated with rotted manure and the average of the former for eight years now stands 6 bushels 19 lbs. higher than that of the latter.

EXPERIMENTS with Fertilizers on plots of Oats, $\frac{1}{20}$ th acre.

No. of Plot.	Fertilizers applied each Year.	AVERAGE YIELD FOR SEVEN YEARS.		8TH SEASON, 1896. VARIETY BANNER.		AVERAGE YIELD FOR EIGHT YEARS.				
		Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.	Yield of Grain.	Yield of Straw.			
		Per acre.	Per acre	Per acre.	Per acre	Per acre.	Per acre			
		Bush. lbs.	Lbs.	Bush. lbs.	Lbs.	Bush. lbs.	Lbs.			
1	Barn-yard manure, well rotted, 15 tons per acre	37	29½	2,817	84	14	4,590	43	23	3,039
2	Barn-yard manure, fresh, 15 tons per acre.	44	2½	3,163	93	18	4,400	50	8½	3,318
3	Unmanured	27	2½	1,542	51	6	2,070	30	3½	1,608
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre.	27	3½	1,814	56	6	2,050	30	24½	1,843
5	Mineral phosphate, untreated, finely ground; 500 lbs., nitrate of soda, 200 lbs. per acre	43	10½	2,822	72	2	2,940	46	31	2,837
6	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed and allowed to heat for several days before using.	36	14½	2,561	71	26	3,430	40	28½	2,670
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre	38	11½	3,277	73	8	3,590	42	23½	3,316
8	Mineral phosphate, untreated, finely ground, 500 lbs., wood ashes, unleached, 1,500 lbs. per acre	33	10½	2,399	65	20	2,740	37	11½	2,442
9	Mineral superphosphate, No. 1, 500 lbs. per acre	30	7½	2,031	54	24	1,960	33	9½	2,022
10	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre	40	4½	2,951	65	30	2,870	43	11½	2,941
11	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre	33	11	2,561	47	32	1,060	35	5½	2,373
12	Unmanured	22	30½	1,675	20	10	1,330	22	19½	1,632
13	Bone, finely ground, 500 lbs. per acre	28	26½	2,018	52	22	2,060	31	26	2,023
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre	30	13½	2,072	69	24	3,390	35	10½	2,237
15	Nitrate of soda, 200 lbs. per acre	40	½	2,682	71	6	3,030	43	31½	2,725
16	Muriate of potash, 150 lbs. per acre	30	30	2,247	53	8	2,390	33	23	2,265
17	Sulphate of ammonia, 300 lbs. per acre	38	15½	3,251	66	6	2,560	41	30½	3,165
18	Sulphate of iron, 60 lbs. per acre	30	4½	2,169	64	24	2,500	34	15½	2,210
19	Common salt (Sodium chloride) 300 lbs. per acre	28	33½	2,034	65	..	1,960	33	16½	2,025
20	Land plaster or gypsum (Calcium sulphate) 300 lbs. per acre	29	5½	2,186	45	20	1,790	31	7½	2,137
21	Mineral superphosphate, No. 2, 500 lbs. per acre	26	31	1,920	52	12	1,950	30	3½	1,924

CORN PLOTS.

The experiments with the plots of Indian corn have been conducted with the object of obtaining the largest weight of well matured green fodder for the silo and to have the corn so far advanced when cut that the ears shall be in the late milk or glazed condition. Each plot has been divided from the outset into two equal parts, on one of which—known as No. 1—one of the stronger growing and somewhat later ripening sorts has been tried, and on the other, marked No. 2, one of the earlier maturing varieties. During the first four years one of the dent varieties was tested under No. 1. The Mammoth Southern Sweet was tried in 1888, 1889 and 1890. In 1891 the Red Cob Ensilage was used, and in 1892, 1893, 1894, 1895 and 1896 a free growing flint variety, the Rural Thoroughbred White Flint, was tested. On the other half of the plot (No. 2) the Canada Yellow Flint was used in 1888, 1889 and 1890, the Thoroughbred White Flint in 1891, Pearce's Prolific in 1892, 1893 and 1894, and the Mammoth Eight Rowed Flint in 1895 and 1896. For the first four years the No. 1 series was planted in drills three feet apart, using about 24 pounds of seed to the acre and thinning the plants, when up, to 6 or 8 inches apart, and the No. 2 in hills 3 feet apart each way and 4 or 5 kernels in a hill. During the past five years both sorts have been grown in hills. The corn in both series of plots was planted in 1896 on 20th May, and cut 16th September. In most instances the yield of fodder on these plots during the past season has been below the average of past years.

With Indian corn the rotted manure has given in both plots a larger return this year than the fresh manure, in plot 1 by 350 pounds per acre, and in plot 2, 980 pounds, but the average of nine years tests still shows the fresh manure in advance of the rotted in plot 1 by 2 tons, 567 pounds per acre, while in plot 2 the advantage is with the rotted manure by 932 pounds per acre.

EXPERIMENTS with Fertilizers, on plots of Indian Corn, $\frac{1}{10}$ acre each, cut green for Ensilage.

No. of Plot.	Fertilizers applied each year.	AVERAGE YIELD FOR EIGHT YEARS.		9TH SEASON, 1896.		AVERAGE YIELD FOR NINE YEARS.	
		$\frac{1}{2}$ Plot No. 1—weight of green fodder.	$\frac{1}{2}$ Plot No. 2—weight of green fodder.	$\frac{1}{2}$ Plot No. 1—Thoroughbred White Flint, weight of green fodder.	$\frac{1}{2}$ Plot No. 2—Mamm. 8 rowed, weight of green fodder.	$\frac{1}{2}$ Plot No. 1—weight of green fodder.	$\frac{1}{2}$ Plot No. 2—weight of green fodder.
		Per acre.	Per acre.	Per acre.	Per acre.	Per acre.	Per acre.
		Tons. lbs.	Tons lbs	Tons. lbs.	Tons lbs	Tons. lbs.	Tons lbs
1	Barn-yard manure, well rotted, 12 tons per acre.....	15 1,044	11 1,568	16 200	14 420	15 1,172	12 107
2	Barn-yard manure, fresh, 12 tons per acre..	18 225	11 642	15 1,850	13 1,440	17 1,739	11 1,175
3	Unmanured.....	9 551	6 622	3 1,800	4 1,020	8 1,356	5 1,866
4	Mineral phosphate untreated, finely ground, 500 lbs. per acre in 1888—800 lbs. per acre each year since.....	7 1,617	5 565	3 890	3 1,190	7 647	5 190
5	Mineral phosphate untreated, finely ground, 500 lbs. per acre in 1888—800 lbs. per acre each year since; nitrate of soda, 200 lbs. per acre.....	11 1,961	8 857	5 520	9 810	11 467	8 1,074
6	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre; composted together, intimately mixed and allowed to heat for several days before using.....	16 1,675	11 1,483	14 460	10 1,780	16 1,095	11 1,293
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre.....	15 1,245	10 1,198	12 1,080	11 920	15 560	10 1,389

Experimental Farms.

EXPERIMENTS with Fertilizers on plots of Indian Corn, $\frac{1}{10}$ th acre each, &c.—Continued.

No. of Plot.	Fertilizers applied each year.	AVERAGE YIELD FOR EIGHT YEARS.		9TH SEASON, 1896.		AVERAGE YIELD FOR NINE YEARS.							
		Plot No. 1— weight of green fodder.	Plot No. 2— weight of green fodder.	Plot No. 1— Thoroughbred White Flint, weight of green fodder.	Plot No. 2— Mammoth weight of green fodder.	Plot No. 1— weight of green fodder.	Plot No. 2— weight of green fodder.						
		Per acre.	Per acre.	Per acre.	Per acre.	Per acre.	Per acre.						
		Tons.	lbs.	Tons.	lbs.	Tons.	lbs.	Tons.	lbs.				
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.	12	383	8	1,111	9	660	7	1,950	11	1,747	8	982
9	Mineral superphosphate, No. 1, 500 lbs. per acre.	11	790	8	502	7	1,210	6	1,840	10	1,947	8	206
10	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre	14	515	10	1,156	10	1,740	10	120	13	1,762	10	1,040
11	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre.	16	749	12	790	13	1,500	12	400	16	165	12	746
12	Unmanured.	11	1,333	9	968	6	1,960	6	1,570	11	291	9	368
13	Bone, finely ground, 500 lbs. per acre	12	1	8	1,915	9	1,800	9	760	11	1,534	9	8
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre	12	651	8	1,712	11	350	8	640	12	284	8	1,592
15	Nitrate of soda, 200 lbs. per acre	13	1,601	10	732	7	1,920	7	1,340	13	303	10	132
16	Sulphate of ammonia, 300 lbs. per acre.	14	351	10	343	8	410	9	480	13	1,024	10	136
17	Mineral superphosphate No. 1, 600 lbs.; muriate of potash, 200 lbs.; sulphate of ammonia, 150 lbs. per acre.	13	216	9	586	12	300	9	1,640	13	3	9	703
18	Muriate of potash, 300 lbs. per acre.	9	1,171	5	1,927	7	200	6	520	9	618	5	1,992
19	Double sulphate of potash and magnesia, 300 lbs. per acre in 1889 and '90; (muriate of potash, 200 lbs., substituted each year since); dried blood, 300 lbs.; mineral superphosphate No. 1, 500 lbs. per acre	11	1,087	7	1,574	12	500	8	1,700	11	1,244	7	1,800
20	Wood ashes, unleached, 1,900 lbs. per acre.	10	850	6	1,716	8	810	8	1,020	10	401	7	83
21	Bone, finely ground, 500 lbs.; sulphate of ammonia, 200 lbs.; muriate of potash, 200 lbs. per acre.	13	735	8	1,596	12	1,830	11	1,630	13	634	9	266

PLOTS OF MANGELS AND TURNIPS.

In conducting these experiments the roots only have been taken from the land, the tops have always been cut off and left on the ground to be ploughed under so that the plant food they have taken from the soil may be returned to it. One-half of each one-tenth acre plot in the series has been devoted to the growth of mangels, and the other half to turnips. The preparation of the land has been the same for both these roots. It has been ploughed in the autumn after the crop is gathered, disc-harrowed or gang-ploughed once in the spring, harrowed with smoothing harrow once, then ridged, rolled and sown.

In 1889, the variety of mangel used was the Mammoth Long Red. In 1890, three varieties were sown: 15 rows of Mammoth Long Red, 6 of Mammoth Long Yellow, and 6 of Golden Intermediate on each plot. In 1891, each plot again had three varieties: 18 rows of Mammoth Long Red, 3 of Yellow Fleshed Tankard, and 6 of Golden Tankard. In 1892, 1893, 1894, 1895 and 1896 one variety only has been used, namely, the

Mammoth Long Red. From 4 to 6 lbs. of seed have been sown per acre, each year, in rows $2\frac{1}{2}$ feet apart. In 1896 the mangels were sown 11th May, came up 19th May, and were pulled 14th October.

Two varieties of turnips were sown on the half plots devoted to these roots in 1889: 25 rows of Carter's Prize Winner, and 2 rows of Carter's Queen of Swedes; and in 1890, a single variety: Carter's Elephant Swede. In 1891, six varieties were sown; 6 rows of Lord Derby Swede, 4 of New Giant King, 3 of Imperial Swede, 6 of Champion Swede, 4 of Purple Top Swede, and 4 of East Lothian Swede. In 1892, the Improved Purple Top Swede only was sown, in 1893 and 1894 the Prize Purple Top Swede, in 1895 the Imperial Swede, and in 1896 the Prize Purple Top Swede. The land used for the turnips, which are usually sown later than the mangels, is allowed to stand after disc-harrowing or gang-ploughing, then cultivated once and ridged and rolled immediately before sowing. In 1896, the turnips were sown 12th June, came up 17th June, and were pulled 17th October. The crops of turnips have been much larger during the past season than the average of previous years, while in the case of the mangels about one half of the plots have given a larger yield than the average of the past and the other half a less return. The rotted manure has averaged better results than the fresh manure with both mangels and turnips.

EXPERIMENTS with Fertilizers on Roots; Plots of Mangels and Turnips $\frac{1}{10}$ th acre each.

No. of Plot.	Fertilizers applied each Year.	AVERAGE YIELD FOR SEVEN YEARS.		8TH SEASON, 1896. VARIETIES.		AVERAGE YIELD FOR EIGHT YEARS.	
		Mangels, Weight of Roots.	Turnips, Weight of Roots.	East Half Plot.	West Half Plot.	Mangels, Weight, of Roots.	Turnips, Weight of Roots.
				Per Acre.	Per Acre.		
		Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.
1	Barn-yard manure, well rotted, 20 tons per acre.	21 1,586	12 137	26 1,300	24 1,320	22 800	13 1,285
2	Barn-yard manure, fresh, 20 tons p. ac.	21 683	13 153	24 1,970	23 1,840	21 1,594	14 864
3	Unmanured.	9 947	6 890	9 840	12 1,150	9 933	7 422
4	Mineral phosphate, untreated, finely ground, 1,000 lbs. per acre.	8 1,716	6 1,470	7 1,340	11 1,340	8 1,419	7 704
5	Mineral phosphate, untreated, finely ground, 1,000 lbs.; nitrate of soda, 250 lbs.; wood ashes, unleached, 1,000 lbs. per acre	13 1,090	7 462	11 1,430	18 720	13 632	8 1,244
6	Barn-yard manure, partly rotted and actively fermenting, 12 tons per acre; mineral phosphate, untreated, finely ground, 1,000 lbs. per acre, composted together, intimately mixed and allowed to heat for several days before using.	17 1,699	11 304	19 1,670	20 930	18 196	12 632
7	Mineral phosphate, untreated, finely ground, 1,000 lbs.; sulphate of potash, 200 lbs. in 1889 and 1890, (substituted by muriate of potash, 250 lbs. in 1891 and subsequent years;) nitrate of soda, 200 lbs. per acre.	10 507	7 1,831	6 1,800	14 1,160	9 1,668	8 1,497
8	Mineral superphosphate, No. 1, 500 lbs.; sulphate of potash, 200 lbs. in 1889 and 1890, (substituted by muriate of potash, 250 lbs. in 1891 and subsequent years;) nitrate of soda, 200 lbs. per acre.	14 1,407	11 287	15 1,180	15 160	14 1,628	11 1,271
9	Mineral superphosphate, No. 1, 500 lbs. per acre.	9 1,268	8 362	10 1,880	12 1,930	9 1,594	8 1,558

Experimental Farms

EXPERIMENTS with Fertilizers on Roots ; Plots of Mangels and Turnips—*Concluded.*

No. of Plot.	Fertilizers applied each Year.	AVERAGE YIELD FOR SEVEN YEARS.		8TH SEASON, 1896. VARIETIES.		AVERAGE YIELD FOR EIGHT YEARS.	
		Mangels, Weight of Roots.	Turnips, Weight of Roots.	East Plot.	West Half Plot.	Mangels, Weight of Roots.	Turnips, Weight of Roots.
				Mangels, Mammoth Long Red: Weight of Roots.	Turnips, Purple Top Swede: Weight of Roots.		
		Per Acre.	Per Acre.	Per Acre.	Per Acre.	Per Acre.	Per Acre.
		Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.	Tons. lbs.
10	Nitrate of soda, 300 lbs. per acre . . .	14 422	7 1,250	17 720	15 1,690	14 1,209	8 1,305
11	Sulphate of ammonia, 300 lbs. per ac.	11	8 1,674	15 1,450	18 780	11 1,181	10 62
12	Unmanured	7 877	6 1,226	9 830	9 1,170	7 1,377	6 1,968
13	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,000 lbs. per acre	10 673	7 217	11 1,620	14 1,800	10 1,041	8 165
14	Wood ashes, unleached, 2,000 lbs. p.ac	11 1,790	7 536	9 240	12 1,580	11 1,096	7 1,916
15	Common salt (Sodium chloride) 400 lbs. per acre	10 1,074	7 147	6 1,240	10 1,060	10 95	7 1,011
16	Mineral superphosphate, No. 1, 500 lbs.; nitrate of soda, 200 lbs. per ac.	13 1,822	10 181	12 1,960	14 700	13 1,589	10 1,226
17	Mineral superphosphate, No. 1, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre	12 1,367	8 1,688	12 1,750	15 130	12 1,415	9 1,243
18	Mineral superphosphate, No. 1, 500 lbs.; muriate of potash, 200 lbs. p.ac.	12 1,287	9 1,418	10 250	16 340	12 657	10 1,033
19	Double sulphate of potash and magnesia, 300 lbs. per acre in 1889 and 1890; (muriate of potash, 200 lbs., substituted each year since); dried blood, 250 lbs.; mineral superphosphate, No. 1, 500 lbs. per acre	14 961	10 458	12 1,220	19 1,320	14 493	11 816
20	Wood ashes, unleached, 1,500 lbs.; common salt (Sodium chloride) 300 lbs. per acre	14 1,935	9 1,405	12 1,980	16 580	14 1,440	10 1,052
21	Mineral superphosphate, No. 2, 500 lbs. per acre	15 1,555	9 1,398	13 300	19 680	15 898	10 1,808

CARROT PLOTS.

Carrots have been sown on alternate halves of the oat plots for the past six years, for the purpose of cleaning the land from weeds. This work was begun in 1891, and the plots have been sown each year with the variety known as the Improved Short White. In 1896, carrots occupied the west half of the plots. The seed was sown 5th May, came up 14th May, and the roots were pulled 19th October. The crop this year on all the plots excepting No. 1 was below the average of the preceding years.

EXPERIMENTS with Fertilizers on half plots (one-twentieth acre) of Carrots (Improved Short White), after Oats.

No. of Plot.	Fertilizers applied each year.	Average Yield for five years.		6th Season Improved Short White.		Average Yield for six years.	
		Weight of roots per acre.		Weight of roots per acre.		Weight of roots per acre.	
		Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.
1	Barn-yard manure, well rotted, 15 tons per acre.....	18	930	21	600	18	1,875
2	Barn-yard manure, fresh, 15 tons per acre.....	20	1,212	19	1,960	20	1,003
3	Unmanured	14	216	7	860	12	1,990
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre	13	1,552	10	1,310	13	511
5	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs. per acre.....	16	1,918	12	710	15	1,633
	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed, and allowed to heat for several days before using.....	19	756	17	590	19	61
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs., per acre.....	15	814	13	1,760	15	305
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	12	940	10	1,370	12	345
9	Mineral superphosphate, No. 1, 500 lbs. per acre.....	10	466	8	460	9	1,798
10	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre.....	12	950	9	1,740	12	81
11	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	16	864	11	640	15	1,160
12	Unmanured	12	1,604	3	1,230	11	541
13	Bone, finely ground, 500 lbs. per acre.....	13	856	5	820	12	183
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	18	740	15	80	17	1,630
15	Nitrate of soda, 200 lbs. per acre.....	16	1,035	8	980	15	359
16	Muriate of potash, 150 lbs. per acre.....	17	624	12	1,440	16	1,093
17	Sulphate of ammonia, 300 lbs. per acre.....	12	588	5	1,050	11	331
18	Sulphate of iron, 60 lbs. per acre.....	13	408	6	1,000	12	173
19	Common salt (Sodium chloride), 300 lbs. per acre.....	15	84	8	1,990	14	68
20	Land plaster or gypsum (Calcium sulphate) 300 lbs. per acre.....	14	1,886	11	1,000	14	738
21	Mineral superphosphate, No. 2, 500 lbs. per acre.....	12	1,246	7	920	11	1,525

POTATO PLOTS.

The alternate halves of the wheat and barley plots which were occupied by carrots and sugar beets in 1891, 1892 and 1893, were planted with potatoes in 1894, 1895 and 1896. These were planted in rows $2\frac{1}{2}$ feet apart, with the sets about 1 foot apart in the rows.

Those grown in 1896 after wheat were planted 12th May, came up 3rd June, and were dug 5th October. On each of these plots there were seven rows of Early Rose and five rows each of Queen of the Valley, Daisy, Early Sunrise, and May Queen Early.

Those grown after barley were planted 11th May, came up 2nd June, and were dug 30th September. On each of these plots there were seven rows of Burpee's Extra Early, and five rows each of Wonder of the World, Beauty of Hebron, Thorburn and Lee's Favourite. In the tables following the yield of each variety for each plot is given, also the crop in bushels per acre.

The weight of tubers dug of each variety per row as far as they have been tested, five of them for three years, four for two years, and one for one year, are here submitted, arranged in the order of their yield in 1896.

Experimental Farms.

VARIETIES of Potatoes.

Name of Variety.	1896.	1895.	1894.	Average for the whole period.
Early Sunrise	Lbs. 367	Lbs. 407	Lbs. . . .	Lbs. 387
Queen of the Valley	358	462	. . .	410
Thorburn	351	329	357	346
Beauty of Hebron	308	257	406	323
Lee's Favourite	295	284	333	304
Early Rose	294	426	235	318
Burpee's Extra Early	276	. . .	. . .	276
Daisy	268	376	. . .	322
May Queen Early	259	269	. . .	264
Wonder of the World	247	344	406	332

These variations in yield from year to year of the same variety grown under what appears to be precisely similar conditions of soil and treatment, serve to show the folly of forming hasty conclusions on the tests of a single year.

EXPERIMENTS with Fertilizers on half plots ($\frac{1}{2}$ acre) of Potatoes after Wheat.

No. of Plot.	Fertilizers Applied Each Year.	EAST HALF OF PLOTS.					Total Yield per Acre.	
		Yield of 7 rows Early Rose.	Yield of 5 rows Queen of the Valley.	Yield of 5 rows Daisy.	Yield of 5 rows Early Sunrise.	Yield of 5 rows May Queen Early.		
1	Barn-yard manure (mixed horse and cow manure) well rotted, 12 tons per acre in 1888; 15 tons per acre each year since.	Lbs. 238	Lbs. 185½	Lbs. 151½	Lbs. 179½	Lbs. 154	Bush. 302	Lbs. 50
2	Barn-yard manure (mixed horse and cow manure) fresh, 12 tons per acre in 1888; 15 tons per acre each year since.	213½	166	141	166½	123½	270	10
3	Unmanured	74	57½	44	51½	43	90	. . .
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre	61	47	33	65½	47½	84	40
5	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs. per acre.	67½	55½	50	61	48	94	. . .
6	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed, and allowed to heat for several days before using	195	154	155	136	129	256	20
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre.	144	102½	70	95	83½	165	. . .
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.	115½	85	63	84½	52½	133	50
9	Mineral superphosphate, No. 1, 500 lbs. per acre.	88	81½	72	95½	53	130	. . .
10	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre	83½	73½	61½	83	57	119	50
11	Mineral superphosphate, No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre	120	122	107	129½	68	182	30
12	Unmanured	45½	49	39½	65½	33½	77	40
13	Bone, finely ground, 500 lbs. per acre	66½	52	33½	67	37½	85	50
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.	139	119	69½	129½	72	176	. . .
15	Nitrate of soda, 200 lbs. per acre	66	78	36½	84½	51	105	30
16	Muriate of potash, 150 lbs. per acre	96	90½	58	83	67½	131	40
17	Sulphate of ammonia, 300 lbs. per acre	56½	54½	23½	41	33	69	50
18	Sulphate of iron, 60 lbs. per acre.	48½	58½	26½	43	30	69	10
19	Common salt (Sodium chloride), 300 lbs. per acre.	31	36	22	46	22½	52	50
20	Land plaster or gypsum (Calcium sulphate) 300 lbs. per acre	57½	55	39	58	39	83	10
21	Unmanured in 1889, mineral superphosphate, No. 2, 500 lbs. per acre each year since.	52	69	41	71½	53	95	50

EXPERIMENTS with Fertilizers on Half-Plots ($\frac{1}{20}$ acre) of Potatoes after Barley.

No. of Plot.	Fertilizers applied each Year.	WEST HALF OF PLOTS.					
		Yield of 5 rows Wonder of the World.	Yield of 5 rows Thor- burn.	Yield of 5 rows Beauty of Hebron.	Yield of 5 rows Lee's Favour- ite.	Yield of 5 rows Burpee's Extra Early.	Total Yield per acre.
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Bush. lbs.
1	Barn-yard manure, well rotted, 15 tons per acre.....	137 $\frac{1}{2}$	148 $\frac{1}{2}$	142	136	197 $\frac{1}{2}$	253 50
2	Barn-yard manure, fresh, 15 tons per acre.....	126 $\frac{1}{2}$	119 $\frac{1}{2}$	133	127 $\frac{1}{2}$	195 $\frac{1}{2}$	233 40
3	Unmanured.....	51 $\frac{1}{2}$	53 $\frac{1}{2}$	56 $\frac{1}{2}$	61	77	99 50
4	Mineral phosphate, untreated, finely ground, 500 lbs. per acre.....	58 $\frac{1}{2}$	64 $\frac{1}{2}$	66 $\frac{1}{2}$	59	46	98 10
5	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs. per acre.....	54	62 $\frac{1}{2}$	65	52 $\frac{1}{2}$	62 $\frac{1}{2}$	98 50
6	Barn-yard manure, partly rotted and actively fermenting, 6 tons per acre; mineral phosphate, untreated, finely ground, 500 lbs. per acre, composted together, intimately mixed and allowed to heat for several days before using.....	110 $\frac{1}{2}$	122	123 $\frac{1}{2}$	109	135	196 40
7	Mineral phosphate, untreated, finely ground, 500 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,000 lbs. per acre.....	49	87 $\frac{1}{2}$	82	83	104 $\frac{1}{2}$	135 20
8	Mineral phosphate, untreated, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	35	101	64 $\frac{1}{2}$	84	100 $\frac{1}{2}$	128 20
9	Mineral superphosphate, No. 1, 500 lbs. per acre.....	60 $\frac{1}{2}$	111	81	82	108 $\frac{1}{2}$	147 40
10	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs. per acre.....	41 $\frac{1}{2}$	66 $\frac{1}{2}$	44	67 $\frac{1}{2}$	80	99 50
11	Mineral superphosphate No. 1, 350 lbs.; nitrate of soda, 200 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	92	132	114	111	131 $\frac{1}{2}$	193 30
12	Unmanured.....	15 $\frac{1}{2}$	60 $\frac{1}{2}$	26	64	74	80
13	Bone, finely ground, 500 lbs. per acre.....	22 $\frac{1}{2}$	43	31 $\frac{1}{2}$	38	57	64
14	Bone, finely ground, 500 lbs.; wood ashes, unleached, 1,500 lbs. per acre.....	77	95 $\frac{1}{2}$	80 $\frac{1}{2}$	81	101	115
15	Nitrate of soda, 200 lbs. per acre.....	41 $\frac{1}{2}$	59	66	40	60	88 50
16	Muriate of potash, 150 lbs. per acre.....	62 $\frac{1}{2}$	91 $\frac{1}{2}$	74 $\frac{1}{2}$	60 $\frac{1}{2}$	68 $\frac{1}{2}$	119 10
17	Sulphate of ammonia, 300 lbs. per acre.....	27	31 $\frac{1}{2}$	27 $\frac{1}{2}$	25 $\frac{1}{2}$	53	54 50
18	Sulphate of iron, 60 lbs. per acre.....	26	61 $\frac{1}{2}$	35	35	58	71 50
19	Common salt (Sodium chloride) 300 lbs. per acre.....	45 $\frac{1}{2}$	87 $\frac{1}{2}$	66	55	73	109
20	Land plaster or gypsum (Calcium sulphate) 300 lbs. per acre.....	62 $\frac{1}{2}$	56	82	51	69 $\frac{1}{2}$	107
21	Mineral superphosphate No. 2, 500 lbs. per acre.....	38 $\frac{1}{2}$	102 $\frac{1}{2}$	81 $\frac{1}{2}$	55	80	119 16

Experimental Farms.

SUMMARY of Crops grown on the Central Experimental Farm during the year 1896.

	Tons.	Lbs.		Bushels.	Lbs.
Hay	134		Wheat	129	34
Indian corn cut for ensilage ..	322	865	Oats	3,019	26
Horse beans cut for ensilage ..	8	275	Barley	801	39
Sunflower heads cut for ensilage	12	145	Pease	198	51
Turnips	62	1,005	Potatoes	505	16
Carrots	105	1,590			
Mangels	95	1,229		4,654	46
Sugar beets	3	1,680			
	744	789			

DISTRIBUTION OF SEED GRAIN.

Another distribution of seed grain was made in the spring of 1896, consisting chiefly of samples of the most promising sorts which have been grown at the several experimental farms. These have been sent out to farmers on application, as a rule one sample only to each applicant, the object in view being to place within their reach pure samples and true to name of the best and most prolific varieties in cultivation. By the careful handling of these samples the farmer can soon produce sufficient seed for a large area and may thus be provided with the best of seed at no cost but that of his own labour. The appreciation of this work is shown by the demand for these samples which is increasing every year. Last year the number of applications received was about 40,000 and the available stock was sufficient to supply samples to about 35,000 applicants.

Preparations have been made for another distribution in 1897 which will consist as heretofore of promising sorts of oats, barley, wheat, pease, corn and potatoes. The several branch farms will also again distribute samples to farmers residing in the provinces and territories where these institutions have been established.

The samples sent out from the Central Experimental Farm at Ottawa during the early months of 1896 were distributed as follows:—

Kind of Grain.	Prince Edward Island.	Nova Scotia.	New Brunswick.	Quebec.	Ontario.	Manitoba.	North-west Territories.	British Columbia.
Oats	520	1,014	1,143	5,181	4,161	277	203	575
Barley	203	463	340	2,974	1,356	97	81	265
Wheat	326	484	468	2,173	1,750	123	93	262
Pease	180	364	395	917	1,267	72	90	203
Corn	100	153	198	446	393	17	8	34
Potatoes	117	384	211	1,209	934	85	110	26
Total number of samples sent.	1,446	2,862	2,755	12,900	9,861	671	585	1,365
Number of applicants supplied	1,411	2,843	2,751	12,765	9,810	668	580	1,352

The following list shows the number of three-pound packages of the different varieties which have been distributed.

OATS.		BARLEY, TWO-ROWED.	
Banner.....	3,289	Canadian Thorpe.....	939
Wallis.....	3,165		
Abundance.....	2,063	WHEAT.	
Bavarian.....	1,484	Red Fife.....	3,150
Early Gothland.....	1,030	White Connell.....	1,876
Golden Giant.....	486	White Fife.....	211
Winter Grey.....	327	Wellman's Fife.....	174
Oderbruch.....	276	Ladoga.....	167
Poland.....	253	Crown.....	101
Siberian.....	205		
Victoria Prize.....	195	Total.....	5,679
Golden Beauty.....	86		
Rennie's Prize.....	81	POTATOES.	
Flying Scotchman.....	134	Wonder of the World.....	512
Total.....	13,074	Daisy.....	334
		Everett.....	370
PEASE.		Early Sunrise.....	302
Mummy.....	1,241	Thorburn.....	295
Black-eyed Marrowfat.....	812	Dakota Red.....	255
Daniel O'Rourke.....	817	London.....	169
Prussian Blue.....	369	Lee's Favourite.....	138
Pride.....	133	Burpee's Extra Early.....	139
Canadian Beauty.....	116	May Queen Early.....	109
		Vanier.....	151
	3,488	Empire State.....	95
CORN.		Early Ohio.....	88
Mammoth Eight-rowed Flint.....	758	Rural Blush.....	74
Thoroughbred White Flint.....	391	Beauty of Hebron.....	45
Champion White Pearl.....	200		
	1,349		3,076
BARLEY, SIX-ROWED.			
Odessa.....	3,929		
Mensury.....	416		
Oderbruch.....	389		
Trooper.....	106		
Total.....	4,840		

Total number of samples distributed, 32,445.
Number of applicants supplied, 32,170.

Experimental Farms.

DISTRIBUTION OF CROSS-BRED AND HYBRID CEREALS.

A second distribution of some of the more promising of the cross-bred and hybrid cereals was made during the past season. Several of these were included to some extent in the general distribution in 3 lb. bags, but the larger number were sent out in 1 lb. bags for the reason that the quantities available were not sufficient for a more liberal distribution. The number of these packages which were sent to the several provinces was as follows:—

Kind of Grain.	Prince Edward Island.	New Brunswick.	Nova Scotia.	Quebec.	Ontario.	Manitoba.	North-west Territories.	British Columbia.
Cross-bred wheats.....	46	137	182	307	438	31	37	9
Hybrid barleys.....	54	176	204	308	535	22	38	10
Cross-bred pease.....	18	38	40	133	222	25	22	12
	118	351	426	748	1,195	78	97	31

This makes a total number of 3,044 samples.

The total number of samples distributed from the Central Experimental Farm for test during 1896 was 35,489.

DISTRIBUTION OF SAMPLES FROM BRANCH EXPERIMENTAL FARMS.

Samples were also distributed from the branch experimental farms as follows:—

Experimental Farm, Nappan, N.S.

Oats.....	133
Barley.....	67
Wheat.....	51
Pease.....	53
Rye.....	6
Potatoes.....	155
	465

Number of applicants supplied, 264.

Experimental Farm, Brandon, Man.

Grain of all kinds in 3-lb. bags.....	348
Potatoes.....	94
	442

Experimental Farm, Indian Head, N.W.T.

Oats	448
Barley	342
Wheat	267
Pease	93
Rye	25
Flax	12
Potatoes	463
	<hr/>
	1,650
	<hr/>

Experimental Farm, Agassiz, B.C.

Oats	71
Barley	75
Spring Wheat	41
Fall Wheat	24
Pease	84
Potatoes	38
	<hr/>
	333
	<hr/>

This makes a total of 2,890 samples sent out by the branch experimental farms which, added to the number distributed by the Central Farm, makes a total of 38,379 samples. This branch of the farm work is greatly appreciated, and through this means some of the better varieties are rapidly finding their way into general cultivation.

TEST OF THE VITALITY OF GRAIN AND OTHER SEEDS.

The number of samples of seed grain and other seeds which were tested for their germinating power during the season of 1896 was 1,793. The following figures show the variations in the average vitality of the more important cereals during the past four years :—

	1893.	1894.	1895.	1896.
Wheat.	81·8	90·5	88	87·7
Barley.	84·9	89	85·7	90·1
Oats.....	93	95·5	93·3	89·8

The appended results prove that there were samples of wheat, barley and oats included in these tests which showed so low a degree of vitality as to be utterly worthless for seed purposes, hence the desirability of having doubtful samples tested. A small quantity of the seed is all that is needed for this trial, and the tests of vitality can usually be completed and reported on within a fortnight after the grain is received. This work is done without charge and samples can be sent to the Central Experimental Farm at Ottawa free by mail.

Experimental Farms.

RESULTS of Tests of Seeds for vitality, 1895-96.

Kind of Seed.	Number of Tests.	Highest Percentage.	Lowest Percentage.	Percentage of Strong Growth.	Percentage of Weak Growth.	Average Vitality.
Wheat.....	477	100·0	3·0	81·0	6·7	87·7
Barley.....	305	100·0	7·0	80·1	10·0	90·1
Oats.....	501	100·0	1·0	84·7	5·1	89·8
Rye.....	1	81·0	81·0			81·0
Pease.....	102	92·0	8·0			64·0
Corn.....	17	100·0	16·0			81·3
Clover.....	6	87·0	54·0			73·1
Grass.....	16	100·0	23·0			67·9
Sunflowers.....	8	98·0	84·0			92·7
Turnips.....	29	98·0	3·0			70·2
Carrots.....	29	84·0	1·0			46·3
Mangels.....	20	74·0	18·0			44·9
Beet.....	16	84·0	32·0			61·6
Sugar beet.....	3	68·0	46·0			58·0
Lettuce.....	16	87·0	1·0			55·7
Onions.....	20	39·0	0·0			59·5
Leeks.....	6	87·0	34·0			57·1
Spinach.....	7	54·0	19·0			32·7
Cabbage.....	37	93·0	1·0			65·1
Cauliflower.....	6	90·0	33·0			53·5
Brussels sprouts.....	2	78·0	43·0			60·5
Kale.....	1	78·0	78·0			78·0
Radish.....	16	88·0	6·0			55·4
Sweet Pease.....	13	98·0	12·0			67·0
Celery.....	15	69·0	1·0			30·4
Parsnips.....	5	76·0	42·0			61·4
Tomatoes.....	23	91·0	13·0			53·0
Pepper.....	8	58·0	4·0			29·5
Cucumber.....	12	76·0	20·0			44·1
Melon.....	13	56·0	6·0			29·8
Water Melon.....	12	74·0	8·0			41·8
Squash.....	15	88·0	0·0			30·2
Parsley.....	3	53·0	13·0			29·3
Pumpkin.....	3	64·0	0·0			30·6
Tobacco.....	4	68·0	21·0			45·5
Horse Beans.....	2	86·0	34·0			60·0
Salsify.....	2	61·0	52·0			56·5
Endive.....	2	28·0	19·0			23·5
Cress.....	2	90·0	83·0			86·5
Chervil.....	2	35·0	31·0			33·0
Thyme.....	3	15·0	4·0			10·3
Summer Savory.....	2	39·0	37·0			38·0
Sweet Marjoram.....	2	22·0	11·0			16·5
Sage.....	1	5·0	5·0			5·0
Horehound.....	1	1·0	1·0			1·0
Canary Seed.....	1	56·0	56·0			56·0
Coriander.....	1	92·0	92·0			92·0
Mustard.....	1	95·0	95·0			95·0
Mignonette.....	1	23·0	23·0			23·0
Rhubarb.....	1	84·0	84·0			84·0
Tares.....	1	86·0	86·0			86·0
Flax.....	1	90·0	90·0			90·0
Total number of samples tested, highest and lowest percentage.	1,793	100·0	0·0			

TABLE showing Results of Grain Tests for each Province.

ONTARIO.

Kind of Seed.	Number of Tests.	Highest Per-centage.	Lowest Per-centage.	Per-centage of Strong Growth.	Per-centage of Weak Growth.	Average Vitality.
Wheat.....	146	100·0	0·0	71·1	9·0	80·1
Barley.....	89	100·0	0·0	77·1	12·6	89·7
Oats.....	133	100·0	86·0	95·4	2·3	97·7

QUEBEC.

Wheat.....	71	100·0	73·0	88·3	4·0	92·3
Barley.....	86	100·0	39·0	80·1	8·7	88·8
Oats.....	102	100·0	75·0	92·2	4·2	96·4

MANITOBA.

Wheat.....	72	100·0	41·0	87·3	5·5	92·8
Barley.....	38	100·0	7·0	83·1	9·5	92·6
Oats.....	54	100·0	40·0	87·0	5·4	92·4

NORTH-WEST TERRITORIES.

Wheat.....	84	100·0	3·0	77·1	9·4	86·5
Barley.....	51	100·0	7·0	81·6	10·2	91·8
Oats.....	141	99·0	1·0	65·3	7·9	73·2

NOVA SCOTIA.

Wheat.....	45	100·0	61·0	88·1	4·1	92·2
Barley.....	20	100·0	53·0	81·2	7·5	88·7
Oats.....	36	100·0	85·0	91·0	5·0	96·0

NEW BRUNSWICK.

Wheat.....	32	100·0	73·0	90·2	3·3	93·5
Barley.....	12	100·0	44·0	76·3	9·7	86·0
Oats.....	24	100·0	68·0	89·8	5·6	95·4

PRINCE EDWARD ISLAND.

Wheat.....	18	99·0	79·0	87·9	3·6	91·5
Barley.....	5	100·0	84·0	88·6	5·4	94·0
Oats.....	11	100·0	87·0	92·2	5·3	97·5

BRITISH COLUMBIA.

Wheat.....	9	100·0	85·0	86·7	5·7	92·4
Barley.....	4	99·0	92·0	98·5	2·5	96·0
Oats.....	0					

Experimental Farms.

METEOROLOGICAL OBSERVATIONS.

Table of Meteorological Observations taken at the Central Experimental Farm, Ottawa, 1896; maximum, minimum and mean temperature for each month, with date of occurrence, also rainfall and snowfall:—

Months.	Maximum.	Date.	Minimum.	Date.	Mean.	Rainfall.	Snowfall.	No. of days Precipitation.
	°		°		°	In.	In.	
January	38·6	2	—25·0	6	11·9	0·00	23·00	15
February	43·0	28	—30·7	17 & 18	12·2	0·32	37·50	17
March	45·0	30	—9·2	24	17·6	1·45	18·25	15
April	82·8	19	13·0	4	41·5	0·81	2·75	11
May	90·5	9	37·1	1	63·6	2·26	.....	13
June	87·4	5	42·5	30	66·9	3·43	.....	9
July	92·8	2	48·5	24	70·4	3·03	.....	11
August	92·1	11	41·0	29	68·7	3·91	.....	13
September	89·0	11	30·0	23	57·1	3·42	.....	14
October	64·0	15	25·8	17	43·1	1·19	0·50	11
November	59·2	18	8·2	23	34·5	1·79	5·25	21
December	41·0	6	—15·0	22	17·8	0·00	12·50	16
						21·53	99·75	166

Rain or snow fell on 166 days during 12 months.

Heaviest rainfall in 24 hours, 1·96 inches on June 9.

Heaviest snowfall in 24 hours, 15 inches on February 25.

It will be seen the highest temperature during the 12 months was 92·8 on July 2, and 92·1 on August 11.

The lowest temperature during the 12 months was —30·7 on February 17 and 18.

During the growing season rain fell on 13 days in the months of May and August, and on 14 days in September.

June shows the lowest number of days on which rain fell, viz., 9.

Rain or snow fell on 21 days in November.

WILLIAM T. ELLIS,
Observer.

EXPERIMENTS IN CROSS-FERTILIZING TO PRODUCE FRUITS SUITABLE FOR THE CANADIAN NORTH-WEST.

It will no doubt interest many of our readers, more especially those residing in Manitoba and the North-west Territories, to know the nature and the progress of the work which is now being carried on with the hope of producing sooner or later, varieties of apples, plums and cherries, which will be sufficiently hardy to endure the climate and produce fruit of such size and quality as will be useful to the settlers occupying those portions of the Dominion. In the spring of 1890, as soon as the branch experimental farms were established in the Canadian North-west, experiments were begun in the testing of fruits, and during the past six years almost every variety of fruit tree obtainable, which had any special claim for hardiness, has been tried both at Brandon and Indian Head. These have consisted of selections embracing all the hardier forms grown in the eastern parts of the Dominion, in the western and northern parts of the United States and in the northern countries of Europe. A very full selection of Russian varieties has also been obtained partly from importations made by the late Chas. Gibb of

Abbotsford, Quebec, and by Prof. J. L. Budd of Iowa, and partly by direct importation. These have been propagated by the Horticulturist at the Central Farm, Ottawa, and sent to the branch farms in the North-west in considerable quantities so as to try them under every condition as to shelter, soil, &c. Plantations were made on sites with different aspects, on the open prairie, in clearings made in the natural scrub growth on the bluffs and in the shelter of forest belts and hedges, but after seven years of persistent trial including tests of about three hundred of the most promising varieties, and of several thousand trees in all, not a tree remains from which there is any reasonable hope of obtaining fruit in satisfactory quantity.



Fig. 9.—Branch of *Pyrus baccata* with fruit.

central Farm at Ottawa, the second year from seed now stand from 8 to 9 feet high, are very sturdy and thickly set with branches. Fig. 10 shows one of these trees, literally covered with blossom, from a photograph taken last spring.

In the spring of 1896 this promising work was undertaken on a much larger scale, the services of Dr. C. E. Saunders, who is an expert in such matters, were secured, and in addition to the varieties of apples and crabs already named the following sorts were used as crosses on the *Pyrus baccata*, Red Astrachan, Yellow Transparent, Excelsior, Pewaukee, Fameuse, Mackintosh Red, Talman's Sweet, Ribston Pippin and Swayzie

There is, however, one variety of crab, a very hardy sort from Siberia, known as the berried pyrus, *Pyrus baccata* which has endured the climate for the past five years without injury, starting each spring from the terminal buds, both at Brandon and Indian Head. This crab fruits very freely but it is very small, not much larger than a cherry. Fig. 9 represents a small branch of this tree in fruit, from a photograph half natural size. Efforts are being made to improve this fruit in size and quality by cross-fertilizing it with many of the hardest sorts of apples and the larger crabs. This work of crossing was begun in the spring of 1894, part of the work was done by the Director, but the greater part by Dr. C. E. Saunders, and the following varieties were used in making these crosses: Duchess, Wealthy, Tetofsky, MacMahan White, Anis and Red Anis apples, and Hyslop, Transcendant and Orange crabs. The seeds obtained from the fruits which had been crossed were sown in the autumn of 1894, and came up in the spring of 1895. The young trees were well cared for and most of them made strong growth, they were taken up from the seed beds in the spring of 1896 to the number of 175 and planted at the Central Farm in a closely set orchard for test. *Pyrus baccata* is a vigorous grower, but is dwarf in habit with its branches extending close to the ground. Trees planted seven years ago at the Central

Experimental Farms.

Pomme Grise, also the Martha crab. As a result of this work 1,822 cross-bred seeds were procured, which were all duly planted in the autumn. From this quantity of seed 1,500 to 1,600 trees may be expected and it is proposed as soon as these have had one year's growth, that part of them be sent to Brandon and part to Indian Head where suitably inclosed plots are being prepared for them. Out of so large a number of crosses it is expected that many will be found to bear larger and improved fruits, of a hardy and suitable character. It is proposed to select the best of



Fig. 10.—Tree of *Pyrus baccata* in blossom 9 years from seed.

these varieties, and to top-graft them on the poorer sorts which will furnish hardy stocks and it is hoped that good progress will soon be made in this useful and interesting branch of work.

In order that this process of crossing may be the better understood Figure 11 has been engraved from drawings made by Dr. C. E. Saunders. 1 shows the flower of *Pyrus baccata* magnified two diameters, shortly before opening, when it is just ready for this work, 2 the same flower with the petals removed, exposing a central bunch of pistils with the stamens bearing the unripe anthers clustered below them. At 3 the

flower is shown as prepared for crossing with all the anthers, or male organs removed, both these are also magnified two diameters. 4 shows one of the stamens separated with the oval pollen bearing anther supported by the thread-like stem called a filament, this is magnified three diameters. When the anther is mature it bursts open and discharges a very fine yellow powder called pollen, which is composed of very minute oval grains one of which is shown at 5 highly magnified and resting on its side, while 6 shows an end view of the same. It is with such tiny atoms that fertilization is effected. When these pollen grains are placed on the tip of one of the pistils they emit a fine thread-like growth which penetrates the substance of this organ and lengthening extends downwards until it reaches the ovary where fructification of the undeveloped seeds takes place.

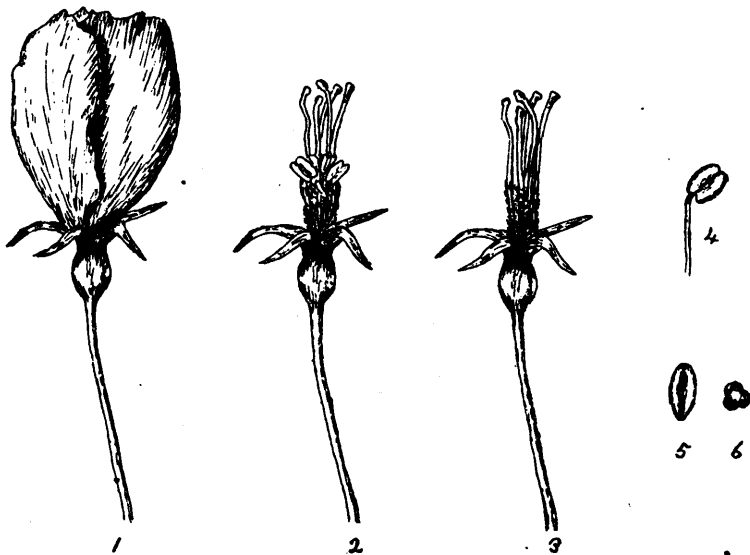


Fig. 11.—Flowers of *Pyrus baccata* showing preparation for cross-fertilizing.

When a branch is to be operated on, all the open flowers are first removed, as these are too far advanced for safe work; the well-developed buds are then prepared, as shown at 3 in the figure, after which all the smaller and partly developed flower buds are pulled off and the branch tied up in a small bag, made of tough manilla paper, so as to prevent any possibility of the access of pollen-bearing insects or of pollen from other flowers being carried to these blossoms by currents of air. Pollen is then collected from the flowers of the variety which has been chosen for the cross and applied freely to the tips of the pistils of the flowers to be fertilized, when the branch is again tied up in the paper bag which is left on for two or three weeks, when the paper bag may be exchanged for one of gauze or muslin, within which any fruit which may have formed will find protection until mature. When ripe, the fruit should be gathered and stored for several weeks so that the seeds may be thoroughly matured, it is then cut open and the seeds separated and sown.

The berried pyrus, *P. baccata*, is subject to much variation and some of the varieties have the fruit much larger than others, advantage is being taken of these natural sports and those trees which produce the largest and best fruit have been chosen as the basis for this work of cross-fertilizing.

Experimental Farms.

The sand cherry *Prunus pumila* is a native fruit having a wide distribution. It occurs on sand beaches, sand dunes and plains from the Gaspé coast westward to the Great Lakes, and on the prairies as far west and north as Prince Albert and probably much further. It is a low-growing bush about 3 or 4 feet high, with a willow-like foliage and spreading branches extending from the base. The fruit which is usually



Fig. 12.—Branch of *Prunus pumila* with fruit.

black is produced in great profusion in clusters as shown in Fig. 12, which represents a small branch from one of the seedlings grown by the Horticulturist at the Central Farm, Mr. John Craig. Mr. Craig has raised quite a number of these seedlings which vary much in size and quality. Several hundred of them were sent two years ago to the farms at Brandon and Indian Head, where plantations have been established of this fruit. Mr. Bedford has also raised at Brandon a number of seedlings from fruit found growing wild in Manitoba. As those raised from Manitoba seed, although the bushes were smaller and younger, fruited well last season, while those sent from the Central Farm bore no fruit, it is feared that eastern grown specimens may not prove perfectly hardy there.

Among the seedlings which fruited of those raised by Mr. Bedford there were three of superior size and merit which were thought worthy of being named. Minnie (No. 9) is a vigorous and rather upright grower, with fruit of large size and good flavour. Othello (No. 8) produces very black fruit of large size and fair flavour. Brandon (No. 6) is above medium size, of good flavour and the bush is a very abundant bearer. Many attempts were made during the past season to cross the sand cherry with the better cultivated cherries but thus far without success. As the stone of this wild fruit bears a resemblance to that of a plum efforts were made also to cross this variety with one of the improved forms of the native plum, and in one instance this was successful and the single seed resulting has been planted. It is hoped that this work with the sand cherry will be continued and that by this means and also by a careful selection of the best seedlings such hardy cherries may shortly be available for cultivation in the North-west as will produce abundant crops of fruit of fair size and good quality. For

further information on this subject and also on the remarkable effects of grafting the sand cherry on plum stocks, the reader is referred to that part of the report written by the Horticulturist.

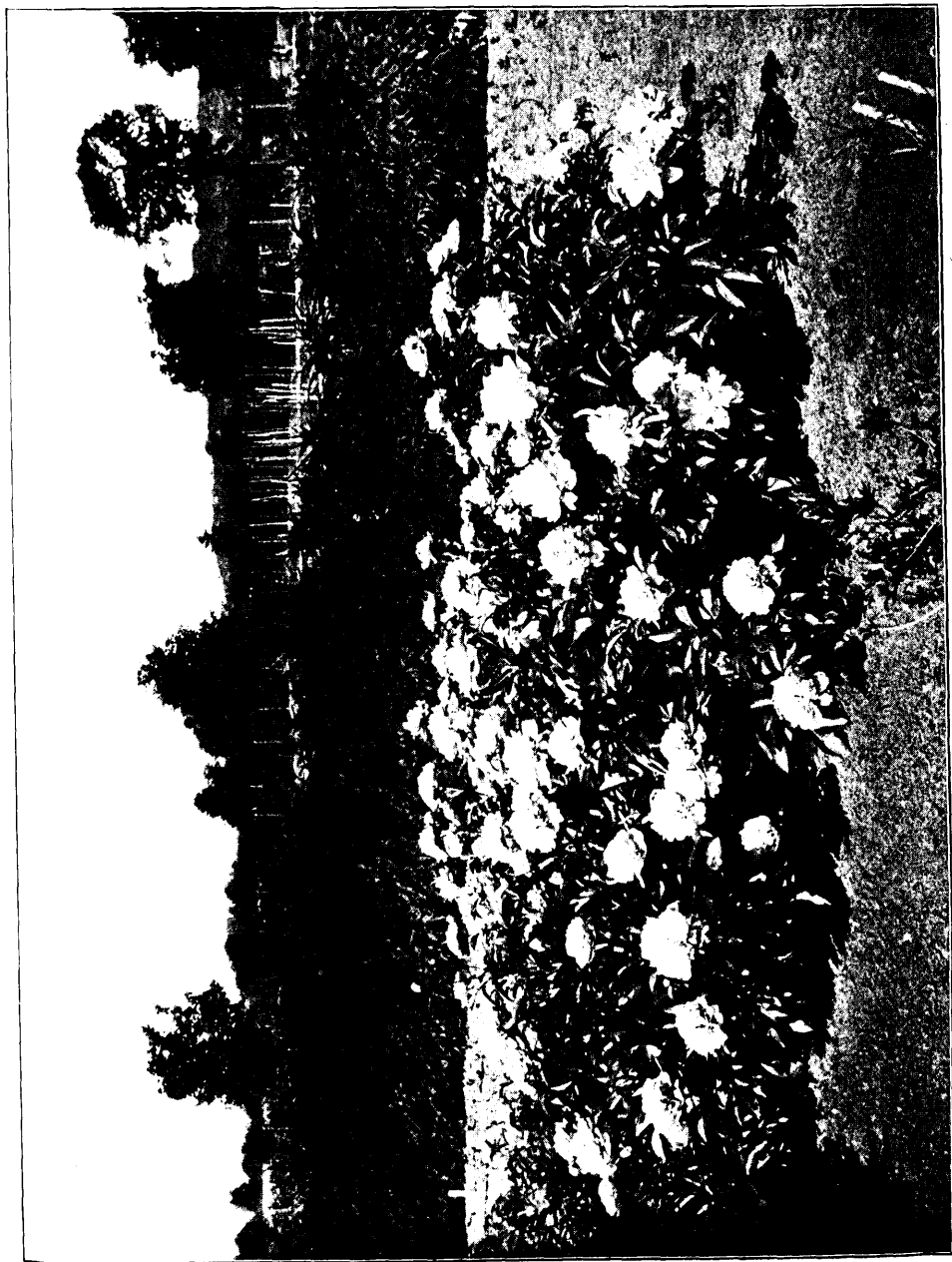
The wild plum *Prunus americana* is found native in many parts of Manitoba, especially in the river valleys. This fruit also varies very much in size, colour and quality, some trees producing red fruit and others yellow, some being of pleasant flavour while others are scarcely edible. Plantations have been made and are being yearly extended consisting of the best varieties of this wild plum; all the improved sorts of the wild forms which can be found in cultivation in the North-western States are also being brought together at the North-west Experimental Farms and preparations are being made for the further improvement of this fruit by cross-fertilizing.

THE PÆONY.

The pæony is an old garden favourite which has of late years grown very much in public esteem on account of the large number of beautiful new varieties which have been produced. The herbaceous sorts are best known and have a first claim on our attention. These consist of several distinct species, the flowers of which when unimproved, are single or semi-double, but by cultivation, selection and cross-fertilizing, a large number of very fine double forms have been obtained. The Chinese pæony *P. albiflora*, a native of China and Siberia has been very much used by those who have worked on the improvement of the pæony. This flower was first introduced to cultivation about 1780, and was brought prominently into notice nearly a century ago; a number of the first new forms having been described in the Transactions of the Linnæan Society in 1817. After this pæonies grew rapidly in favour and from 1835 to 1842 choice examples of the newly introduced sorts of that period were sold at very high figures ranging from £2 to £10 sterling each. In subsequent years, they were favoured with less public attention, but the interest has revived in them very much during the past ten years, and in the catalogues of some of the larger growers of these plants, there are now offered as many as 500 named sorts all said to be distinct varieties, varying in colour from pure white through different shades of lilac, pink, rose, carmine, violet, purple, red and crimson, and many of them are rose scented.

The herbaceous pæonies send up stout flower stems every year, which die down at the close of the season. The roots are thick, fleshy and much branched and if left undisturbed for several years, large clumps form, producing very effective masses of bloom. In the accompanying plate such a clump is shown of 3 years' growth as it appeared in one of the flower beds at the Central Experimental Farm last year. Pæonies delight in a rich, deep soil, well manured, and the roots should be planted with their crowns or buds 3 or 4 inches below the surface. A top-dressing of rotted manure in the summer is also very useful by affording nutriment and preventing evaporation, and a similar covering in winter is desirable for protection. These flowers have succeeded well at all the Experimental Farms, the period of flowering varying with the climate from late in May to near the end of June. At Indian Head, N.W.T., and at Brandon, Man., they have proved hardy and have bloomed freely for the past two years.

Another class of pæonies is known as tree pæonies. These are varieties of a shrubby pæony from China, *P. Moutan* and do not die to the ground each year as the herbaceous sorts do. These have been grown with fair success at the farm at Ottawa, when the ground has been well covered with snow during the severe weather in winter, but if exposed to low temperatures when the ground is bare they suffer more or less from winter killing. The tree pæonies are more expensive than the herbaceous sorts and are not nearly so satisfactory for general cultivation.



Clump of Herbaceous Peonies grown at the Central Experimental Farm, Ottawa.

Experimental Farms

NOTES ON IRISES OR FLAGS.

There are few who have not paid special attention to the beautiful class of perennial plants known under the names of Irises or flags, who can form any correct idea of their great beauty and wonderful variety. Many of the most striking forms are perfectly hardy, of easy culture, and will thrive in any good garden soil, and with the protection of a little mulch in winter will endure the severe climate of the North-west country usually without injury. When once established those with creeping roots spread on either side and soon form large clumps which increase in strength and in multiplicity of bloom from year to year. A large proportion of the hardy forms of Iris bloom in the spring and early summer, but by a judicious selection of varieties the blooming period may be prolonged so as to cover most of the season.



Fig. 13.—*Iris germanica* half natural size.

The many different species and varieties belonging to this interesting group may be conveniently divided into two sections, the division being based on the character of the roots, the one having creeping fleshy rootstocks or rhizomes while the other is characterized by the presence of long bulb-like corms. Of those sorts with creeping fleshy roots there are a large number with a great diversity of form, colour and beauty of markings. The German Irises, *Iris germanica*, sometimes called bearded Irises comprise a number of varieties with large and handsome flowers, the colours of which are very varied and range through rich shades of yellow, purple, mauve, white and bronze. Figure 13 shows the specific form of this group, the colours of which are lilac, blue and purple with a yellow beard, and the flowers are slightly fragrant. This species was in full bloom at the Central Farm early in June, and continued in flower for several weeks. It blooms best if plentifully supplied with water or when planted in a moist situation. It is a native of Central and Southern Europe.



Fig. 14.—*Iris flavescens*, half natural size.

Iris flavescens, see figure 14, is a very attractive species of a lemon yellow colour, veined lightly with purplish brown. This also belongs to the bearded sorts, the beard in this instance being orange yellow. The clusters bear from three to four flowers, and its time of blooming at Ottawa is early in June. This is a native of Eastern Europe and Western Asia.

The Florentine Iris, *Iris florentina*, another bearded form, is perhaps one of the most majestic and graceful of the whole group. The flowers are very large, of a

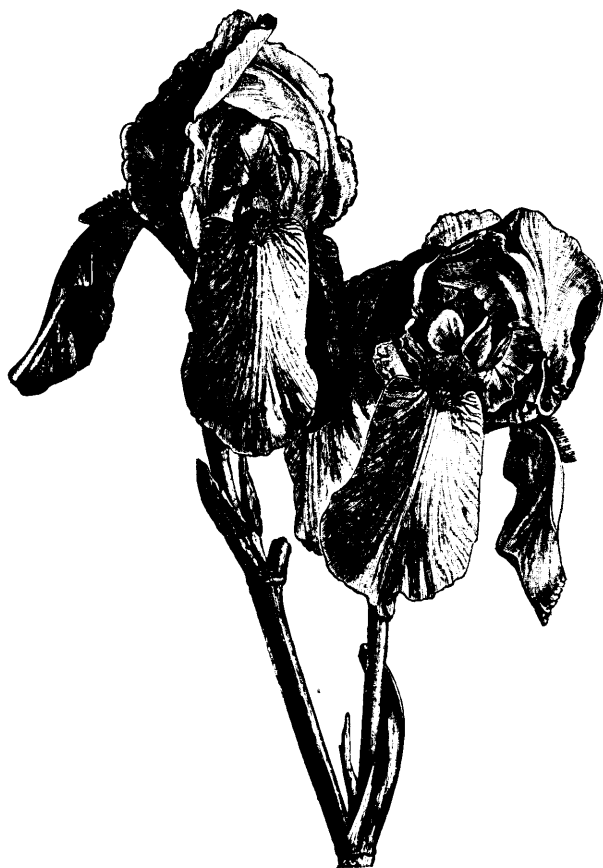


Fig. 15—The Florentine Iris, *Iris florentina*.

very pale lilac blue colour, partly veined with green and brown with a bright yellow beard and is sweet scented. This is a native of Southern Europe, a vigorous grower with flower stalks about two feet long and it is in bloom in Ottawa during the greater part of June. Although this is a distinct specific form yet it is classed in the Germanica group. The rhizome or root has a pleasant odour reminding one of violets. It is sold in the drug stores under the name of orris root, and forms an ingredient in some perfumes and flavouring extracts, also in tooth powders,

Experimental Farms.



Fig. 16—*Iris variegata*, Honorable, half natural size.

The variegated iris, *Iris variegata*. This is another of the specific forms, although usually grouped by florists with *germanica*. It is a handsome species, a native of Eastern Europe, of which there are about forty named varieties, most of them producing very fine flowers. That represented in figure 16 is named Honorable and its colour is yellow with rich shadings and lines of brown. It is in full bloom in Ottawa the first or second week in June. The many varieties which have originated from this species have been mainly produced by cross-fertilizing with other related sorts.

There are many other elegant forms among the varieties with creeping roots, forming very distinct and characteristic groups. Two of these are specially worthy of mention, one is that of the fringed iris *Iris plicata* of which there are a number of beautiful varieties. These flowers have usually the ground colour white with markings of lilac, blue and other colours. One of these named Madame Chereau is probably one of the handsomest irises in cultivation, having the plaited margins of the upright petals—known as standards—of a rich azure blue. Another group to be mentioned is that of the Japanese irises. These are generally catalogued under the name of *Iris Kempferi*, but are more correctly known as *Iris levigata*. These irises produce very large flowers often exceeding 6 inches in diameter, they are rather flat in form, but exhibit a charming variety of beautiful combinations of colour. These bloom late and continue in flower during the greater part of July and present the richest hues blended in charming contrasts.

The bulbous varieties are as a class more tender, those most commonly cultivated are known as Spanish and English Irises *Iris hispanica* and *Iris xiphoides* although they are both of Spanish origin, the Spanish iris is, however, the hardier of the two. The bulbs should be planted about 3 inches below the surface and protected in the autumn, with a mulch of strawy stable manure or other light litter. They usually succeed best in a light rich sandy soil in a situation fully exposed to the sun yet protected if possible from strong winds. Sufficient drainage in autumn and winter are also important conditions. The bulbous irises are most attractive when planted in masses and are usually in the height of their bloom about the middle to the third week of June. The colours of the flowers are most brilliant and the contrasts rich and striking. The specimen represented in fig. 17 has the upright petals pale blue and the greater part of the lower ones a brilliant yellow.

The bulbs may be taken up after the leaves have withered and replanted later in the season, but we have found them to succeed best if left for two or three years in the same spot, but after three years they should be removed and planted in fresh soil.

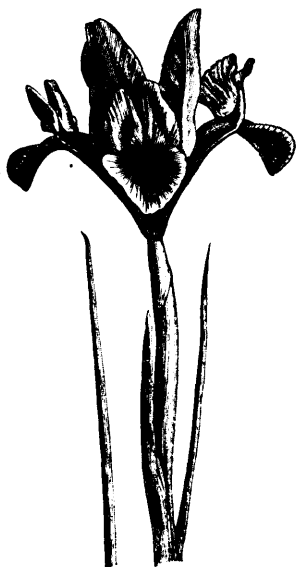


Fig. 17.—Spanish Iris *Iris hispanica*, one half natural size.

REPORT OF THE FOREMAN OF FORESTRY.

(W. T. MACOUN.)

The past season has not been so favourable to the growth of trees, shrubs and flowers as several preceding years. The weather during the months of November and December, 1895, was very trying on the more tender species and varieties, as severe frosts, followed by mild weather, and this again succeeded by great cold in the early part of January, with no snow on the ground, gave them very unfavourable conditions for wintering well; notwithstanding, few trees or shrubs were killed outright, and in the spring the hardier sorts seemed little the worse for the exceptionally trying winter they had come through.

The spring was even earlier than that of 1895, and the warm weather throughout the greater part of April and May caused growth to start and leaves to expand very quickly; but these months being unusually dry, the effect of this drought was noticed on the trees and shrubs which, towards the end of May, appeared stunted in their growth and the flowers of the shrubs which bloomed at that period were not so fine as usual.

The summer was a dry one, and growth was not as vigorous on the whole as it otherwise would have been.

FOREST BELTS.

The forest belts at the Central Experimental Farm extend along its northern and western boundaries; that on the western boundary is 165 feet wide, and that on the northern boundary 65 feet; their total length being nearly $1\frac{3}{4}$ miles. The number of trees growing there, in the autumn of 1896, and in the evergreen clump, was 20,718.

The trees in the forest belts were planted to gain information along several lines, viz. :—To test the rate of growth of the various species; to gain information as to the best distance apart to plant the trees, and to ascertain the effect of planting them in blocks, each containing a single species, as compared with those in mixed belts where many species were indiscriminately introduced, all at regular distances apart. They were also planted that they might make valuable windbreaks for the farm.

Further details regarding the planting of these trees, their cultivation, growth, and general condition will be found in the reports for 1893, 1894, and 1895.

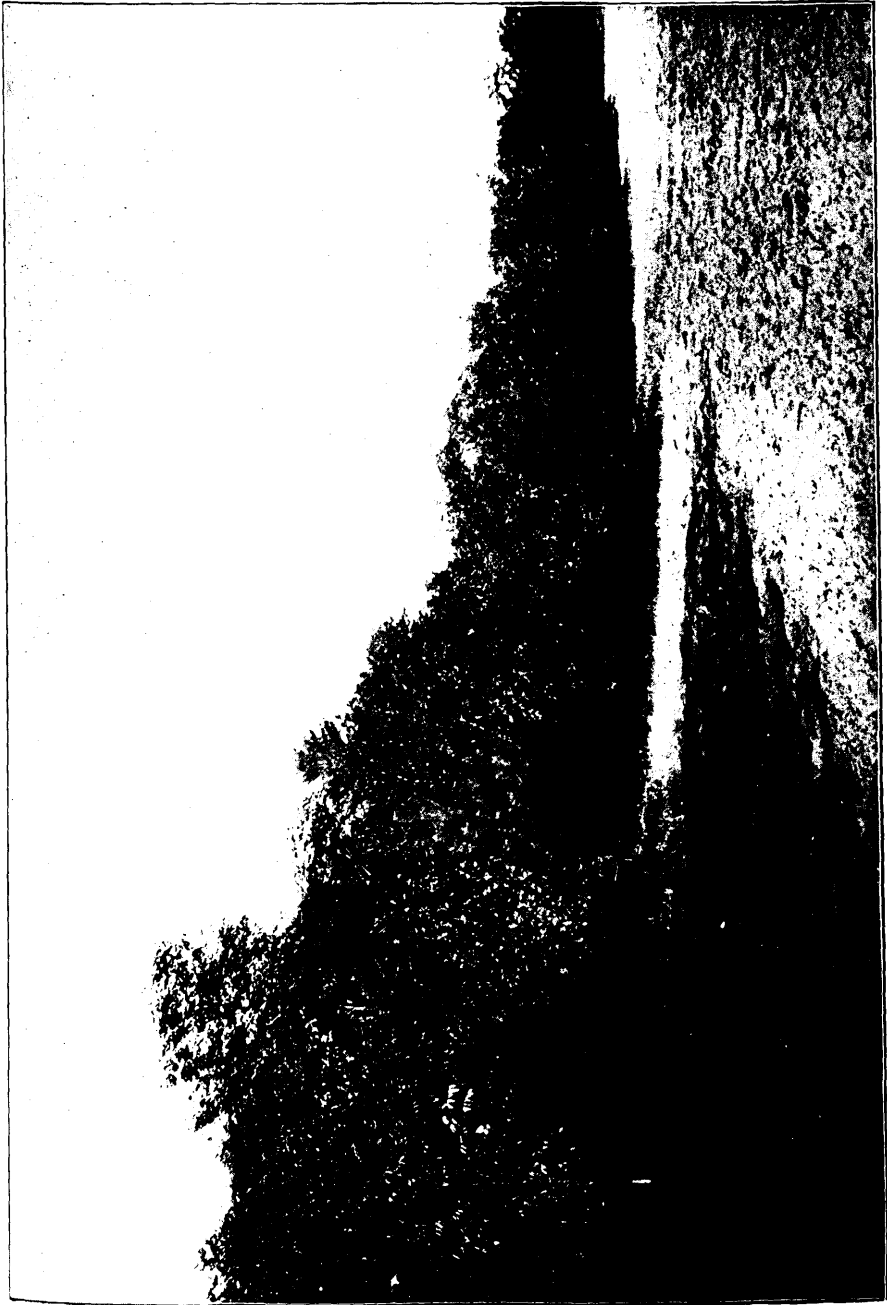
NOTES FROM THE FOREST BELTS, 1896.

Every season new and interesting features are developed in the forest belts, and many instructive lessons can now be learned by the intending forest tree planter.

There is quite a marked difference in the condition of several species of trees between those planted 5 feet and those 10 feet apart. This is especially noticeable in the Scotch pine, European larch, white birch, canoe birch, green ash, white ash, red ash, silver-leaved maple, black cherry, and box elder. Where closely planted, the lower branches to a height of from 4 to 6 feet, have died; whereas the branches of those 10 feet apart are, in most cases, still quite healthy, thus delaying the formation of timber free from knots. The trees planted 10 feet apart do not make as much terminal growth as those 5 feet apart, but the increase in diameter is greater. Injury to the leaders of the trees is more frequent and extensive where planted 10 feet apart.

During the summer, caterpillars were rather troublesome on the black cherry, American elm, black walnut, butternut, and European larch, but these were, for the most part, destroyed before much damage was done. Last winter pine grosbeaks were noticed eating the buds of the Norway spruce, the result being that a considerable number lost their terminal buds, and developed, in consequence, several leaders during the growing season.

Some of the Russian poplars are not proving a success in the forest belts. A large proportion of those planted have died of what appears to be a species of dry rot, and



View of part of the Forest Belt on the Central Experimental Farm, Ottawa.

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nearly all the remainder are affected by the disease. The European alder (*Alnus glutinosa*) is evidently not adapted to this section of the country. For the past few seasons the trees have been fruiting heavily, probably a sign of weakness, and last year and again this year many of them have died. Indeed, but few healthy trees of this alder are now left.

Several species of trees have borne fruit, some of them for the past two or three years. The following were noted fruiting this season:—Box elder, black cherry, green ash, white ash, black walnut, yellow birch, white birch, canoe birch, European alder, Scotch pine, white spruce, European larch, and American arbor-vitæ.

In the report for 1895, measurements were given of many of the trees growing in the forest belts. This work has been continued during the past season and additional data procured. Measurements have also been taken of trees in the more recently planted mixed forest belts where the soil and other conditions are different from those where the trees are growing of which measurements have been already recorded.

The only part of the forest belt cultivated this year was that where the trees were planted in the autumn of 1894. Frequent cultivation was necessary there as the soil in a large part of it is rather wet, where, if neglected, sod would quickly form and be difficult to eradicate. The trees in this part of the forest belt made very satisfactory growth during the past season.

ORNAMENTAL GROUNDS.

The land adjacent to the office and other buildings, which has been devoted to the cultivation of ornamental trees and shrubs, looked better this year than ever before, although the season was unfavourable. As the trees increase in size from year to year the landscape becomes more beautiful; the effects also of the grouping are more apparent and show pleasing combinations and contrasts of colour and form. A number of the species are also beginning to bear freely their white, yellow, red, scarlet, purple, and black fruits, which still further heightens the effect produced by the judicious distribution of the various groups and single specimens which adorn this part of the grounds.

The flowering shrubs, though they looked well, were not as showy this year as usual on account of the exceptional dryness of the season. The flower borders and beds were a mass of bloom from early in the summer to late in the autumn, cannas, gladioli, and asters being particularly fine.

Each year the number of visitors to the farm increases, and the seats, distributed in shady places for the weary to sit on and rest, were well patronized during the past season. The trees also being larger cast more shade which adds to the comfort of those who use them.

During the summer, small hydrants with drinking cups attached were placed in different parts of the grounds, and these throughout the hot weather were much appreciated by many thirsty ones.

CARE OF ORNAMENTAL GROUNDS,

The work of keeping the trees and shrubs, hedges, flower borders, lawns, and roads, in good order, was greater this season than in the past as this year additions have been made to the clumps of trees and shrubs; more hedges have been planted, and some small additional areas seeded down; the flower beds made last autumn, also required attention throughout the summer. Notwithstanding this increase in the work the grounds were, with a little extra help, kept in good condition throughout the season.

ADDITIONS TO TREES AND SHRUBS ON ORNAMENTAL GROUNDS.

During last spring the work of planting was continued on the ornamental grounds and 334 trees and shrubs were added to the number already recorded. Most of this planting was done along the avenue and road from the northern entrance of the farm

to the poultry building. The trees and shrubs planted during the past two seasons now add very much to the attractiveness of this section of the farm.

Several new clumps containing 44 trees and shrubs were planted in the poultry yard for the purpose of providing shade and protection for the fowls during the summer, and of improving the appearance of the surroundings.

HEDGES.

The hedges were much admired this year by the visitors to the farm, few of whom seemed to have any idea that so many trees and shrubs could be used for this purpose. The hedges were clipped twice during the season, once in the latter part of June when most of the year's growth had been made, and again in September. Descriptions of a number of these hedges will be found in the report of the Director for 1894. Of those planted last year the following died during the winter of 1895-96 :—*Cotoneaster buxifolia*, *Cotoneaster microphylla*, *Cotoneaster nepalensis*, *Cotoneaster Simonsii*, and *Quercus palustris*, leaving 61 hedges living in the spring of 1896. To these have been added the following 14 species, making a total of 75 hedges now living, all of different species and varieties.

ADDITIONS TO SAMPLE HEDGES.

Southernwood—*Artemisia Abrotanum*.
 Russian Southernwood—*Artemisia Abrotanum tobolskianum*.
 Green Alder—*Alnus viridis*.
 Common Cotoneaster—*Cotoneaster vulgaris*.
 Sharp-leaved Cotoneaster—*Cotoneaster acutifolia*.
 Dwarf Caragana—*Caragana pygmaea*.
 Siebold's Weigelia—*Diervilla rosea Sieboldii*.
 Tartarian Honeysuckle—*Lonicera tatarica*.
 Elegant Tartarian Honeysuckle—*Lonicera tatarica elegans*.
 Spiræa aubifolia—
 Pyramidal Poplar—*Populus nigra pyramidalis*.
 Sharp-leaved Willow—*Salix acutifolia*.
 Germander-leaved Spiræa—*Spiræa chamædrifolia*.
 Heath-like Retinospora—*Cupressus ericoides*.

SOME CHOICE HARDY ORNAMENTAL TREES AND SHRUBS.

In the Director's report for 1894 will be found a list of some of the most desirable hardy flowering shrubs. To that list may be added the following trees and shrubs which are well worthy of more general cultivation.

Katsura Tree—*Cercidiphyllum japonicum*—This is a very striking, compact, pyramidal shaped tree, with heart-shaped leaves, delicately red veined, which has been thoroughly tested here and found to be quite hardy. It is a native of Japan where it grows to a large size. The katsura tree is closely related to the magnolia family.

Ginnalian Maple—*Acer tataricum Ginnalia*—A very pretty maple which is perfectly hardy and well worthy of more extensive cultivation. It is a small tree, sometimes shrub-like in growth, with deeply cut leaves, which become very attractive when they assume their autumnal colours. It is a native of Amurland and a variety of *A. tataricum* but is much more beautiful.

Pyrus japonica Maulei—This variety of the Japanese quince is quite hardy at Ottawa. Blooming as it does early in the spring before the leaves are fully developed, its clusters of bright red flowers make it a very noticeable and pleasing object. It is a smaller growing shrub than *Pyrus japonica*, which is not hardy at Ottawa.

Lonicera Alberti—One of the most ornamental of the more recently introduced honeysuckles. It is a small, low-growing shrub, native of Turkestan, with pendulous branches, linear leaves, bright pink or rose-coloured blossoms, and is intermediate in

Experimental Farms.

habit of growth between the bush and climbing types. This charming honeysuckle would be a most desirable acquisition to any garden and is quite hardy.

Ligustrum amurense—The only privet yet tested at the Experimental Farm which has proved perfectly hardy. It is quite as ornamental as the common privet, *Ligustrum vulgare*, and has the advantage of wintering well to the tips every season. It is a native of Japan and China.

Garland Flower—*Daphne Cneorum*—This charming little evergreen shrub, which is a native of Eastern Europe has proved hardy at Ottawa, and early in May is covered with clusters of bright pink, sweet scented blossoms. It flowers again late in the autumn, though not so freely as in the spring. It is a very low-growing shrub, twelve to eighteen inches in height, and is very suitable for flower borders.

Syringa villosa—A native of northern China, this lilac flowers after all the varieties of the common species *S. vulgaris* have lost their bloom. The flowers are pale lilac in colour, and not so fragrant as the varieties of the common lilac. It is very desirable, because of its lateness in blooming.

Hypericum Kalmianum—There are few shrubs, hardy at Ottawa, which bloom in July, but during the second and third weeks of that month, this showy species of St. John's wort is covered with its large bright yellow flowers, making a very attractive shrub at a time when bloom is scarce. It is a native of south-western Ontario and the northern United States.

Alcock's spruce—*Picea Alcockiana*—Of the many valuable hardy ornamental trees and shrubs, introduced from Japan, this is one of the best. It is quite distinct from any other spruce growing at the Experimental Farm. The contrast in colour between the dark green of the upper surface of the leaves and the bluish, silvery green of the lower surface, together with its symmetrical growth, make it a very attractive and desirable species.

Colorado Blue Spruce—*Picea pungens*—This beautiful spruce is a native of the north-western States, and is perfectly hardy at Ottawa. Its chief beauty lies in the steely blue colour of the leaves, which make it a very conspicuous object wherever planted. Trees of this species vary greatly in colour from blue to dull green, those of the former shade being much more valuable for ornamental purposes than the latter.

Maiden-hair tree—*Ginkgo biloba*—This interesting and graceful tree is a deciduous conifer from Japan, where it grows to a large size. Its peculiar fan-shaped leaves make it very attractive and ornamental. It has been growing at the Experimental Farm for nine years, and has proved hardy.

Cupressus pisifera (Retinospora pisifera). This beautiful and graceful evergreen has also been introduced from Japan, and is hardy at Ottawa. It has a pendulous habit of growth, is of a bright green colour, and so attractive in appearance as to make it very valuable for ornamental purposes. Although a tree in Japan, it is still shrub-like in growth here.

Cupressus pisifera plumosa—Though more compact than *Cupressus pisifera* this tree is very ornamental. Its branchlets are somewhat feathery in form, hence its name. The bright green and golden varieties of this type are also very beautiful.

Cupressus pisifera filifera.—A very distinct and striking variety of *Cupressus pisifera*, with pendulous branches and long thread-like leaves, which give it an unusual appearance. As it acquires age this tree becomes very compact and beautiful, and attracts attention wherever planted.

Cupressus ericoides, Heath-like *Retinospora*.—This pretty dwarf evergreen, generally known as *Retinospora ericoides*, is a very desirable shrub. Its leaves and branches resemble heather in general appearance and are quite soft to the touch; during the summer they are of a delicate green colour, but as winter approaches become of a dull purplish hue. Specimens of this shrub planted six years ago are about two feet in height.

There is a large number of very beautiful and interesting varieties of the American arbor-vitæ, *Thuja occidentalis*. Of these, some of the finest are *T. occ. Hoveyi*, *T. occ. compacta*, *T. occ. pyramidalis*, *T. occ. Ellwangeriana*, *T. occ. globosa*, *T. occ. aurea*, and *T. occ. vervaenana*, all of which are quite hardy and very ornamental.

ARBORETUM.

The sixty-five acres of land, reserved at the Central Experimental Farm, as a site for an Arboretum and Botanic Garden, are rapidly being utilized for that purpose, and during the past season much progress has been made both in regard to the addition of new species and varieties of trees, shrubs, and plants, and also in preparing the land for them.

There were 935 species and varieties of trees and shrubs growing in the Arboretum last year ; this year the number has increased to 1,931, representing 173 genera ; while in the border specially devoted to the growing of perennial plants there are now 907 species and varieties comprising 222 genera.

These collections, though yet by no means complete, have already demonstrated the practicability of growing a larger number of species of trees, shrubs, and plants, in this vicinity than was at first anticipated. They now form also a valuable field for botanical study and an attraction to visitors who find much delight in observing the many new and interesting forms to be found there. The accompanying plate from a photograph taken in June, 1896, gives a view of the trees and shrubs on one part of the grounds and indicates the progress which has been made since the planting was begun in 1889.

DONATIONS.

Several public institutions, as well as private individuals, have kindly assisted in the addition of new species and varieties by sending either collections of seeds or specimens of plants, shrubs or trees.

To the Royal Gardens, Kew, we are indebted for a large collection of seeds of valuable and interesting species ; to the Arnold Arboretum, Boston, Mass., for seeds, from time to time, of the more recently introduced trees and shrubs ; to the Royal Botanic Gardens, Sapporo, Japan, for seeds of Japanese trees, shrubs and plants ; and to the Botanic Gardens, Ventimiglia, Italy, for a collection of seeds of greenhouse plants and hardy perennials. To Mr. William E. Saunders, of London, Ont., we are also indebted for many species of native plants collected by him in Western Ontario. We desire to acknowledge also valuable contributions from Dr. Chas. Shaffer, of Philadelphia, of seeds of hardy plants and specimens of shrubs grown in the Selkirk Mountains.

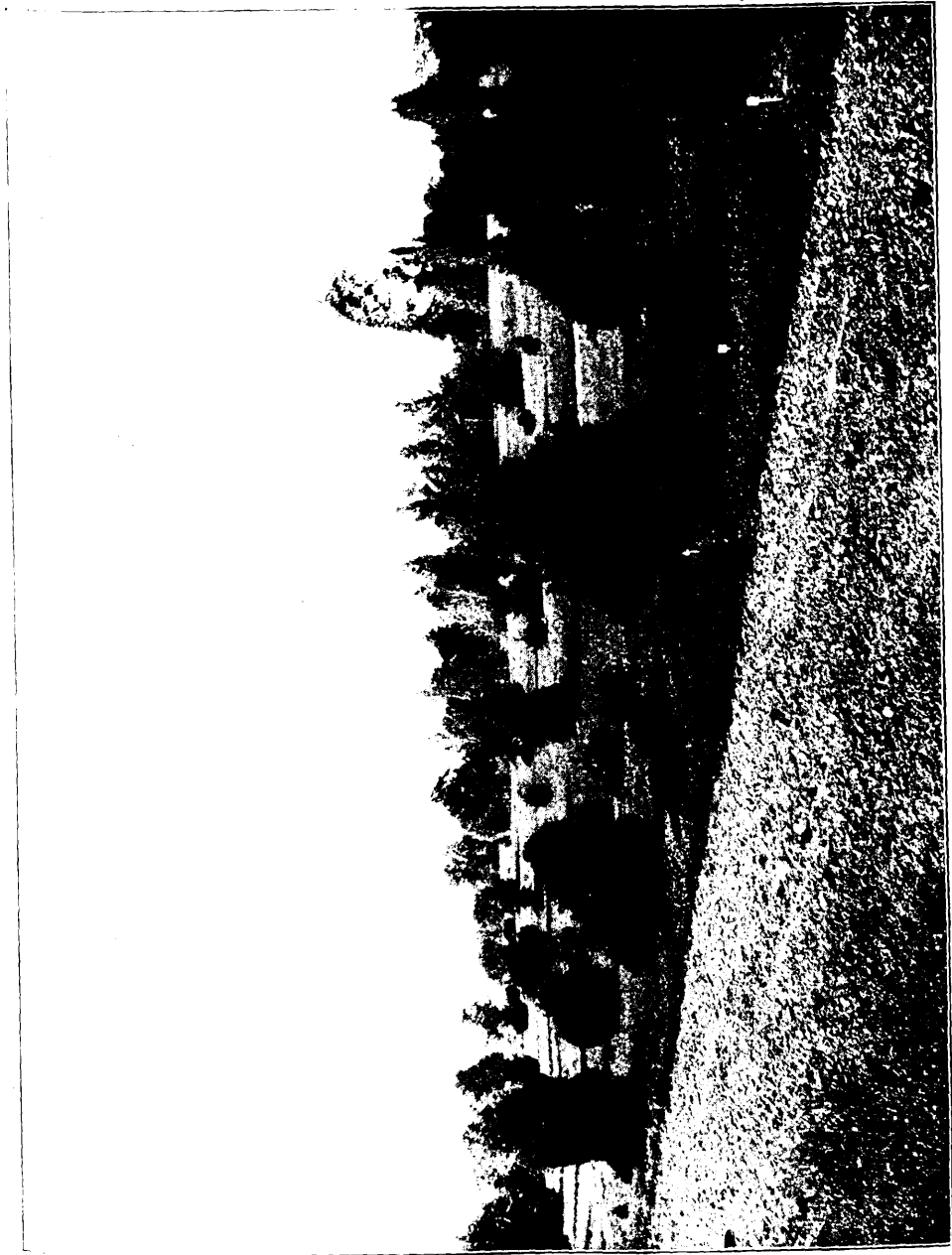
PROGRESS OF THE WORK.

The first work done in the Arboretum, in the spring of 1896, was the removal of the light coating of manure, given in the autumn, to the perennial border which is 12 feet wide and extends for 2,100 feet along the east side of a thrifty hedge of arbor vitae. The plants in this border stood the winter very well with the slight protection referred to, and from early spring to late in the autumn there was a continuity of bloom. Some of the trees and shrubs also had received a mulch of manure in the autumn ; this was likewise removed as soon as possible. Although the winter was very severe, the trees and shrubs did not suffer as much as was anticipated ; the weigelas and some other things, always comparatively tender, were, however, winter-killed more than usual.

The pony lawn mower was started on the 14th of May and kept the grass in very satisfactory condition throughout the season. There was very little work done with the hand mower as the large circles about the trees and shrubs enabled the pony mower to cut the grass close to the margin.

With the increase in the number of trees and shrubs growing in the Arboretum, the work of keeping them in order has necessarily been materially augmented. The past season being an exceptionally dry one also, the soil had to be kept frequently stirred in the circles about the trees, in order that the moisture might be conserved as much as possible.

The roads, required considerable attention to keep down weeds and preserve their general outline. The new roads which have been laid out this autumn will increase the work in this line next season.



View in the Arboretum and Botanic garden at the Central Experimental Farm, Ottawa.

Experimental Farms.

An area of about ten acres, not yet seeded down, was kept cultivated with the horse cultivator from spring until autumn to destroy weeds and promote tree growth by conserving moisture and permitting air to penetrate the soil more freely. This autumn another portion of the land which has been used as a pasture for some years was ploughed and will be got into good tilth next season, so that it may be used for the planting of additional trees and shrubs as required.

From the figures given elsewhere it will be seen that the additions made to the number of species in the Arboretum this year, were large. The greater part of the planting was done in the spring, but as the material on hand was not exhausted then, the work was continued in the autumn.

The perennial border required considerable attention this year to destroy weeds and keep the surface soil loose. The horse cultivator did a large part of the work, and the hand hoe, the remainder. In addition to that part of the border planted this year there has been space prepared for a large number of new species.

Notes were made during the season on the growth, hardiness, and time of blooming of most of the trees, shrubs and plants, and the height has been taken of a large number of the trees. These data will, no doubt, be useful for future reference. The specimens planted this year have all been labelled with the zinc label described in the report for 1895. These labels have, thus far, proved satisfactory.

W. T. MACOUN,
Foreman of Forestry.

FORTY-ACRE LOT.

In the spring of 1891 forty acres of land were set apart at the Central Experimental Farm for the purpose of growing fodder crops for cattle, in order to ascertain how many cattle could be fed each year on the crops from that area. The main object in this experiment as set forth in the report of the Agriculturist for 1891 was to direct the attention of farmers to the practicability of keeping cattle in larger numbers than had been their custom on the moderate and small sized farms of Canada.

The soil of that part of the farm selected for this experiment was partly clay and partly sandy loam and included about five acres of light sandy loam and three acres of a peaty loam.

This experiment was begun on 3rd July, 1891, with 25 cows, and closed 6th June, 1892, having been carried on for a period of 11 months and 4 days. On the 7th of June, 1892, the test for the second year was begun with 28 cows and continued for the full year, viz., until 6th June, 1893.

The tests for the third year were begun with 30 cows on 7th June, 1893, but owing to the discovery of tuberculosis in the farm herd that year and the necessary slaughter of some of the animals the experiment was closed on the 29th July.

On 5th July, 1894, the test for the fourth year was resumed with 30 cows and continued for the full year until July 4th, 1894, and begun again on 5th July, 1895, for the fifth period and continued with 30 cows for another full year, until 4th July, 1896. Since four full years experience was deemed sufficient to accomplish the objects for which these experiments were planned they have not been further continued.

Full particulars of the crops obtained from this forty acres of land were given by the Agriculturist in the Annual Reports of the Experimental Farms for 1891, pp. 104, 109, 1892, pp. 78-85 and 1894, pp. 93-101 to which the reader is referred. It will be seen that the number of acres of crops does not exactly correspond with the number of acres worked for the reason that some of the land each year was twice cropped.

In the following statement a brief summary is given of the crops produced each year including those of 1895 and also of 1893, when the experiment was necessarily interrupted. An approximate estimate of the value of these crops is also given, with particulars of the quantities of food which it was found necessary to borrow from the farm or to purchase each year to supplement that produced on the forty acre lot.

During the summer the cows were turned out every evening after milking and remained all night in a small pasture field which formed part of the forty acres, where they were fed in season with green feed cut from some part of the lot. They were driven to the barn in the morning where they remained and were fed during the day.

None of the straw used for bedding these animals was supplied from the forty acre plot, that was all drawn from the farm stock, and no barn-yard manure or other fertilizer was applied to this land during the whole period of the experiment other than that produced by the cattle placed under this test.

FIRST YEAR, 1891-92.

Twenty-five cows were put on this test on 3rd July, 1891, and continued until 6th June, 1892, (11 months 4 days).

Crops from the forty acres, season of 1891.

Variety.	Yield in		Estimated Value per Ton.		Total Value.
	Tons.	Lbs.	\$	cts.	
14 acres mixed grain crop.....	21	1,791	4	00	87 58
{Straw.....		11	365	20	00	223 65
{Grain.....	37	131	4	00	148 26
3 acres roots.....	7	1,296	2	00	15 30
$\frac{1}{2}$ acre cabbage.....	7	1,905	2	00	15 91
$\frac{2}{2}$ acres spring rye put into silo.....	130	1,750	2	00	261 75
11 $\frac{1}{2}$ acres corn, cut for ensilage.....	5	1,940	4	00	23 88
1 acre corn, cured in stooks.....			Per acre.		
1 $\frac{1}{2}$ acres corn, cut and fed green.....			21 00		31 50
3 $\frac{3}{8}$ acres mixed grain, fed green.....			17 50		64 17
Total.....					872 00

The following quantities of food were borrowed from the farm to supplement the products from the forty acres, during the feeding period the first year, 11 months and 4 days :—

Variety.	Tons.	Pounds.	Estimated Value per Ton.		Total Value.
			\$	cts.	
Roots.....	36	377	4	00	144 75
Hay.....	14	637	8	00	114 54
Corn fodder.....	4	1,840	4	00	19 68
Straw for feed.....	3	1,077	4	00	14 15
Oats, ground.....	1	1,900	20	00	39 00
Barley do.....	1	1,730	20	00	37 30
Pease do.....		600	20	00	6 00
Bran.....		640	12	00	3 84
Oil cake, ground.....		1,100	22	00	12 10
Cotton seed meal.....		1,000	25	00	12 50
					403 86
Deduct from this the value of food left on hand—					
Corn ensilage.....	13	1,930	2	00	27 93
					375 92

During this first year the food required to supplement that produced on the forty acre lot was equal in value to about 43 per cent of the whole, hence the food from the forty acres was more than equal to the feeding of 14 cows for one year. The land during the first season was not in good shape, and better results were obtained afterwards.

Experimental Farms.

SECOND YEAR, 1892-93.

Twenty-eight cows were put on this test on 7th June, 1892, and continued for the full year, until 6th June, 1893.

CROPS from the forty acres, season of 1892.

Variety.	Yield in		Estimated value per ton.	Total value.	
	Tons.	Lbs.	\$ cts.	\$ cts.	
8 $\frac{3}{100}$ acres mixed grain crop.....					
	(Straw	12	1,039	4 00	50 07
	Grain	6	1,317	20 00	133 17
5 acres mixed grain crop, cured.....	16	605	4 00	65 21	
6 $\frac{9}{100}$ acres mixed grain crop and rye, fed green.....	34	906	2 00	68 90	
5 acres roots.....	64	448	4 00	256 89	
16 $\frac{1}{100}$ acres corn with horse beans and sunflowers, cut for ensilage.....	245	1,467	2 50	614 33	
2 $\frac{3}{100}$ acres pasture.....					
				1,188 57	

The following quantities of food were borrowed from the farm to supplement the products from the forty acres during this second year:—

Variety.	Tons.	Pounds.	Estimated value per ton.	Total value.
			\$ cts.	\$ cts.
Roots.....	31	941	4 00	125 88
Straw, for feed.....	5	262	4 00	20 52
Mixed grain, ground.....	2	1,261	20 00	52 61
Wheat, ground.....		1,760	20 00	17 60
Oats do.....		660	20 00	6 60
Barley do.....		1,485	20 00	14 85
Pease do.....		205	20 00	2 05
Bran do.....		1,165	12 00	6 99
Oil cake do.....		935	22 00	10 28
				257 38
Deduct from this the value of food left on hand, 28 tons corn ensilage at \$2 per ton.....				56 00
				201 38

During the second year the food required to supplement that produced on the forty acre lot was equal in value to nearly 17 per cent of the whole, hence the food grown on the forty acres was more than equal to the feeding of 23 cows for the full period of one year.

THIRD YEAR 1893-94.

Thirty cows were put on this test on 7th June, 1893, and continued until 29th July, 1893, (1 mo. 22 ds.). This break in the continuity of the experiment was, as already stated, caused by the discovery of tuberculosis in the herd and the necessary slaughter of some of the animals.

Crops from the forty acres, season of 1893 :

Variety.	Yield in		Estimated Value per ton.		Total Value.
	Tons.	Lbs.	\$	cts.	\$ cts.
8 $\frac{3}{100}$ acres mixed grain crop.....	15	863	4	00	61 72
6 $\frac{3}{100}$ " " " and rye cut and cured as hay.....	4	1973	20	00	99 73
4 acres roots.....	19	155	8	00	152 62
22 " corn with horse beans and sunflower heads made into ensilage.....	88	450	4	00	352 90
2 $\frac{4}{100}$ acres pastures.....	217	464	2	50	543 08
Total.....					1,210 05

FOURTH YEAR 1894-95.

Thirty cows were put on this test on the 5th of July, 1894, and continued for the full year until 4th July, 1895.

Crops for the forty acres, season of 1894 :

Variety.	Yield in		Estimated Value per ton.		Total Value.
	Tons.	Lbs.	\$	cts.	\$ cts.
7 $\frac{7}{100}$ acres mixed grain crop cured.....	18	200	4	00	72 40
1 " " cut green.....	7	1390	1	75	13 46
4 " roots.....	100	907	4	00	401 82
28 $\frac{1}{100}$ " corn, beans and sunflower heads made into ensilage.....	289	850	2	50	723 56
4 $\frac{2}{100}$ " pasture.....					
Total.....					1,211 24

The following quantities of food were borrowed from the farm to supplement the products from the forty acres during this fourth year :—

Variety.	Yield in		Estimated value per ton.		Total value.
	Tons.	Lbs.	\$	cts.	\$ cts.
Ensilage.....	18	737	2	00	36 73
Hay.....	8	1,607	8	00	70 42
Oil cake.....	3	701	22	00	73 71
Bran.....	4	46	12	00	48 27
Deduct from this the value of the food left on hand—4 tons 1,825 lbs. roots at \$4 p r ton.....					229 13 19 65
					209 48

During the fourth year the food required to supplement that produced on the forty acre lot was equal in value to nearly 17 per cent of the whole ; hence the food grown on the forty acres was nearly equal to the feeding of 25 cows for the full period of one year.

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FIFTH YEAR, 1895-96.

Thirty cows were put on this test on 5th July, 1895, and continued for the full year until 4th July, 1896.

CROPS from the forty acres, season of 1895.

Variety.	Yield in		Estimated value per ton.		Total value.
	Tons.	Lbs.	\$	cts.	\$ cts
2 ⁷ / ₁₀ acres sunflower heads.....	16	791	6	30	103 29
2 do carrots.....	46	1,160	4	60	186 32
2 do mangels.....	47	1,750	4	00	191 50
12 ⁷ / ₁₀ do corn cut for ensilage.....	165	1,028	2	00	331 02
5 do corn and horse beans cut for ensilage.....	74	1,769	2	50	187 21
4 ³ / ₁₀ do horse beans cut for ensilage.....	30	815	2	70	82 10
10 do mixed grain crop cured.....	26	1,675	4	00	107 35
4 do do do 2nd crop cut green.....	6	710	1	75	11 13
1 do corn fodder.....	7	1,345	4	00	30 69
					1,230 61

The following quantities of food were borrowed from the farm to supplement the products from the forty acres during this fifth year :—

Variety.	Yield in		Estimated value per ton.		Total value.
	Tons.	Lbs.	\$	cts.	\$ cts.
Hay*.....	19	764	8	00	155 06
Bran.....	3	1,763	12	00	46 57
Oil cake.....	3	87	22	00	66 95
Barley ground.....	1	764	20	00	27 64
Wheat do.....		880	20	00	8 80
Pease do.....		270	20	00	2 70
					307 71
Deduct from this the value of the food left on hand—					
Corn ensilage, 29 tons 1,780 lbs. at \$2 per ton.....			\$	59 78	
Corn fodder, 613 lbs. at \$4 per ton.....				1 22	
					61 00
					246 71

*Ten of the cows were put on a special ration of hay and roots for one month, which accounts for the large quantity of hay borrowed this year.

During the fifth year the food required to supplement that produced on the forty acre lot was equal in value to 20 per cent of the whole; hence the food grown on the forty acres was equal to the feeding of 24 cows for the full period of one year.

SUMMARY.

The results obtained show that sufficient food has been grown on the forty acre lot during the course of these experiments to sustain the following number of cows—the straw used for bedding being taken from the farm stock :—

For the first year, 1891-92.....	14 cows
For the second year, 1892-93.....	23 “
For the third year, 1893-94, broken period.....	
For the fourth year, 1894-95.....	25 “
For the fifth year, 1895-96.....	24 “

THE FEEDING OF STEERS, 1895-96.

The object in view in these experiments was to gain information on the relative cost of fattening steers on different rations, the bulky-fodder portions of which was as follows: First ensilage combination, a mixture of corn, horse beans and sunflowers, composed of 10 tons of the corn, $2\frac{1}{2}$ tons of the horse beans and 1 ton of the sunflower heads, all cut up and mixed together in the silo, with half its weight of turnips and one-tenth its weight of hay. Second, with a bulky-fodder ration, consisting of an equal weight of corn fodder and turnips, with one-fifth the weight of hay, and, third, a ration of which the bulky-fodder portion consisted of hay and turnips. The animals were allowed as much of these mixtures as they would eat. Meal also was fed in addition in varying proportions. The meal used for all the groups was composed of equal parts by weight of barley, wheat, pease, bran and ground oil cake, and in estimating the cost of the rations, this mixture has been valued at the uniform rate of one cent per lb. After the usual preliminary feeding, when all were fed alike for about six weeks, the tests were begun and the experiments continued for twenty weeks.

With the object of making the results of these experiments clear a price was put on each of the components of the bulky-fodder portions of the ration. Combination ensilage (corn, horse beans, and sunflower heads) has been valued at \$2.50 per ton, turnips at \$2 per ton, hay at \$8 per ton, and corn fodder at \$4 per ton. These prices may be considered high or low in different localities, but they are believed to be about the cost of production at Ottawa and will afford a basis for comparison in all parts of the Dominion.

To group No. 1 no meal was given for the first six weeks; for the next eight weeks 2 lbs. was given to each animal per day, and for the remaining six weeks 4 lbs. of meal to each per day.

To groups No. 2 and 3 there were given for the first six weeks 4 lbs. of meal to each animal per day, and six lbs. of meal to each per day for the remaining fourteen weeks.

During the course of these tests the steers had access to water in a trough in front of their stalls, they were also supplied with salt in a small box at the side of the manger. They were weighed once every week and the feed they consumed was weighed every day.

Twelve steers were purchased on 1st November, 1895, which weighed as follows:

	Lbs.		Lbs.		Lbs.
No. 1	1,020	No. 5	1,080	No. 9	975
2	1,030	6	1,100	10	1,005
3	1,080	7	1,070	11	1,145
4	1,125	8	1,000	12	1,135

These animals were fed from 1st November to 17th December, 1895, on the following ration.

	Lbs.
Corn ensilage	50
Roots	25
Hay	5

No meal was given and the food consumed was not weighed.

On 17th December, the steers were grouped as below, and the average of three weighings was as follows:

Group No. 1.	Lbs.	Group No. 2.	Lbs.	Group No. 3.	Lbs.
No. 1	1,030	No. 5	1,160	No. 9	990
2	1,088	6	1,125	10	1,065
3	1,130	7	1,160	11	1,210
4	1,140	8	1,015	12	1,130

These figures show that the total gain during this period was: in group No. 1, 133 lbs.; No. 2, 210 lbs.; and in No. 3, 135 lbs.; and that the three groups weighed collectively at the beginning of the test 4,255 lbs., 4,250 lbs. and 4,260, the heaviest group

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exceeding the lightest by only 10 lbs. On 17th December the feeding test was begun and the rations were as follows:—

GROUP 1 ON RATION 1.

Ensilage combination	50 lbs. at \$2.50 per ton	6¼ cents.
Turnips	25 “ 2.00 “	2½ “
Hay	5 “ 8.00 “	2 “
80 lbs. cost		10¾ “

Results for the first six weeks during which time no meal was given:—

Steer.	Fodder consumed per day.	Meal per day.	Total Increase in Weight.	Increase in weight per day.	Cost per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 1	51.88		60	1.42	6.97	4 87
No. 2	60.19		57	1.35	8.08	5 95
No. 3	60.19		45	1.07	8.08	7 54
No. 4	57.54		30	.71	7.73	10 82
Average	57.45		48	1.13	7.71	6 74

Results for the next eight weeks, during which time each animal received 2 lbs. of meal per day:—

Steer.	Fodder consumed per day.	Meal per day.	Total Increase in Weight.	Increase in weight per day.	Cost per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 1	51.30	2	70	1.25	8.89	7 11
No. 2	56.53	2	75	1.33	9.59	7 16
No. 3	57.33	2	70	1.25	9.70	7 76
No. 4	56.66	2	80	1.42	9.61	6 72
Average	55.45	2	73¾	1.31	9.44	7 16

Results for the remaining six weeks during which time each animal received 4 lbs. of meal per day:—

Steer.	Fodder consumed per day.	Meal per day.	Total Increase in Weight.	Increase in Weight per day.	Cost per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 1	51.71	4	84	2.00	10.94	5 47
No. 2	56.50	4	99	2.35	11.59	4 91
No. 3	57.40	4	98	2.33	11.71	5 01
No. 4	56.26	4	63	1.50	11.55	7 70
Average	55.46	4	86	2.04	11.44	5 58

GROUP 2 ON RATION 2.

Corn fodder	25 lbs. at \$4 per ton.....	5 cents.
Turnips	25 " 2 "	2½ "
Hay	5 " 8 "	2 "
55 lbs. cost.....		<u>9½ "</u>

Results for the first six weeks, during which time each animal received 4 lbs. of meal per day:—

Steer.	Fodder Consumed per day.	Meal per day.	Total Increase in Weight.	Increase in Weight per day.	Cost of Food per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 5.....	49·90	4	70	1·66	12·61	7 56
No. 6.....	42·28	4	35	·83	11·30	13 56
No. 7.....	49·90	4	55	1·30	12·61	9 62
No. 8.....	40·76	4	50	1·19	11·04	9 27
Average.....	45·71	4	52½	1·24	11·89	9 51

Results for the next eight weeks, during which time each animal received 6 lbs. of meal each per day.

Steer.	Fodder Consumed per day.	Meal per day.	Total Increase in Weight.	Increase in Weight per day.	Cost of Food per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 5.....	39·98	6	85	1·51	12·90	8 49
No. 6.....	36·05	6	75	1·33	12·22	9 12
No. 7.....	40·82	6	85	1·51	13·05	8 59
No. 8.....	28·83	6	20	·35	10·97	30 71
Average.....	36·42	6	66¼	1·17	12·28	10 38

Results for the remaining six weeks, during which time each animal continued to receive six pounds of meal per day.

Steer.	Fodder Consumed per day.	Meal per day.	Total Increase in Weight.	Increase in Weight per day.	Cost of Food per day.	Cost per 100 lbs.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 5.....	39·23	6	64	1·52	12·77	8 37
No. 6.....	38·57	6	48	1·14	12·66	11 07
No. 7.....	40·97	6	70	1·66	13·07	7 84
No. 8.....	28·90	6	28	·66	10·95	16 42
Average.....	36·91	6	52½	1·24	12·36	9 88

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GROUP 3 ON RATION 3.

Hay	20 lbs. at \$8 per ton.....	8 cents.
Turnips	50 " 2 "	5 "
70 lbs. cost.....		13 "

Results for the first six weeks during which time each animal received 4 lbs. of meal per day.

Steer.	Fodder consumed per day.	Meal per day.	Total Increase in weight.	Increase in weight per day.	Cost of food per day.	Cost per 100 lbs. of gain.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 9.....	42·54	4	65	1·54	11·90	7 68
" 10.....	47·90	4	50	1·19	12·89	10 82
" 11.....	49·	4	35	·83	13·10	15 72
" 12.....	51·78	4	70	1·66	13·61	8 16
Average.....	47·80	4	55	1·30	12·87	9 82

Results for the next eight weeks during which time each animal received 6 lbs. of meal per day.

Steer.	Fodder consumed per day.	Meal per day.	Total increase in weight.	Increase in weight per day.	Cost of food per day.	Cost per 100 lbs. of gain.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 9.....	40·66	6	70	1·25	13·55	10 84
" 10*.....	40·14	6	70	1·25	13·45	10 76
" 11.....	50·28	6	105	1·87	15·33	8 17
Average.....	43·69	6	81·66	1·45	14·11	9 67

*Sick, supposed to be from something swallowed in feed.

Results for the remaining six weeks during which time each animal continued to receive 6 lbs. of meal per day.

Steer.	Fodder consumed per day.	Meal per day.	Total increase in weight.	Increase in weight per day.	Cost of food per day.	Cost per 100 lbs. of gain.
	Lbs.	Lbs.	Lbs.	Lbs.	Cts.	\$ cts.
No. 9.....	38·38	6	50	1·19	13·12	11 02
" 10.....	40·47	6	85	2·02	13·51	6 67
" 11.....	39·33	6	39	·92	13·30	14 32
" 12.....	45·64	6	54	1·28	14·47	11 25
Average.....	40·95	6	57	1·35	13·60	10 02

From these tests it appears that the four steers fed on ration 1 gained in all during the feeding period 831 lbs. at a cost of \$6.49 per 100 lbs. The four steers fed on ration 2 gained in all during the feeding period 685 lbs. at a cost of \$9.92 per 100 lbs., while the four steers fed on ration 3, made a total gain of 693 lbs. at a cost of \$9.83 per 100 lbs.

Taking the cost per day, each animal in group 1 was fed at a cost of 9.53 cents per day; group 2, at a cost of 12.18 cents, and group 3, at a cost of 13.53 cents each per day.

During the feeding period of twenty weeks, the steers fed on ration 1 gained, on the average, 36½ lbs. per head more and cost 2.65 cents less per head per day for the feed consumed than the steers which were fed on ration 2; and they gained 34½ lbs. per head more and cost 4 cents per head less per day than the steers which were fed on ration 3. This appears to show that of the three rations used in these experiments, No. 1 was the most profitable.

EXPERIMENTS IN THE FATTENING OF SWINE.

The experiments begun in 1890 have been continued each year since, in the feeding of swine on different rations with the object of gaining information useful to the farmers of Canada as to the most economical and profitable methods of producing pork of the best quality. Particulars are given of the different sorts of feed used, and the quantities consumed, also the increase in the live weight of the animals under test.

Lot 1.—(Pen 2.) This pen contained five cross-bred swine, Essex sire and Berkshire dam, farrowed 12th June, 1895, and were fed all they would eat up clean, of a ration composed of equal parts by measure of ground barley, rye, wheat and bran, soaked in cold water for thirty hours. There was also given to each pen 30 lbs. of skim milk per day. This feeding test was begun on 18th September, 1895, and continued for twelve weeks; the pigs were weighed at the end of each two weeks and the increase in weight, food consumed, &c., are given in the accompanying table for each four weeks:—

No. of Swine, Five.	Sept. 18.	Oct. 16.	Nov. 13.	Dec. 11.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight	299	481	683	877	.....
Increase in weight		182	202	194	578
Feed consumed, meal.....		424	635	737	1,796
do do milk		840	840	840	2,520
					Average.
do per lb. of increase, meal.....		2.32	3.14	3.79	3.10
do do do milk		4.61	4.15	4.32	4.35

Sold 23rd December—Shrinkage in weight:—

Live weight (fasted 14 hours).....	932 lbs.
Dressed weight 24 hours after killing	725 "
Percentage of shrinkage from fasted weight.....	22.21

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Lot 2.—(Pen 3). This pen contained five cross-bred swine, Essex sire and Berkshire dam; farrowed 12th June, 1895, and were fed on the same meal ration as Lot 1, but only half the quantity. Thirty pounds of skim milk were given to each pen per day, and all the sunflower heads the pigs would consume. These also were fed for twelve weeks.

No. of Swine, Five.	Sept. 18.	Oct. 16.	Nov. 13.	Dec. 11.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight.....	305	428	600	771	.....
Increase in weight.....		123	172	171	466
Feed consumed, meal.....		212	317½	368½	898
“ milk.....		840	840	840	2,520
“ sunflower heads.....		274	351	361	986
“ per lb. of increase, meal.....		1·72	1·84	2·15	aver. 1·92
“ milk.....		6·82	4·88	4·91	5·40
“ sunflower heads.....		2·22	2·04	2·11	2·11

Sold 23rd December. Shrinkage in weight:—

Live weight (fasted 14 hours).....	828 lbs.
Dressed weight 24 hours after killing.....	616 “
Percentage of shrinkage from fasted weight.....	25·60

Lot 3.—(Pen 4). This pen contained three cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 29th September; one Berkshire sire and Tamworth dam, farrowed 29th September, and one Tamworth sire and Berkshire dam, farrowed 30th September, 1895. These were fed for the first five weeks on raw potatoes pulped, all they would eat with 9 lbs. of skim milk per day to the pen, but finding they made no progress the ration was changed, and for the remainder of the feeding period of twenty weeks they were fed on meal only, composed of equal parts by measure of ground barley, rye, wheat and bran soaked in cold water for 30 hours. The test with this mixed meal was begun on 18th December, 1895, and continued for twenty weeks.

No. of Swine, Three.	Dec. 18, 1895.	Jan. 22, 1896.	Feb. 26.	Apr. 1.	May 6.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight.....	167	169	271	382	458	.....
Increase in weight.....		2	102	111	76	291
Feed consumed, potatoes.....		400				400
“ meal.....			367	365	353	1,085
“ milk.....		315				315
Feed per lb. of increase, potatoes.....		200				aver. 1·37
“ meal.....			3·59	3·28	4·64	3·72
“ milk.....		157½				1·08

Sold May 12. Shrinkage in weight:—

Live weight (fasted 14 hours).....	491 lbs.
Dressed weight (24 hours after killing).....	376 “
Percentage of shrinkage from fasted weight.....	23·42

Lot 4.—(Pen 5.) This pen contained three cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 24th September; one Berkshire sire and Tamworth dam, farrowed 29th September; and one Tamworth sire and Berkshire dam, farrowed 30th September. These were fed from the 18th of December to the 1st of April on cooked potatoes, all they would eat, with 9 lbs. of skim milk per day to the pen. Finding that the pigs were not making satisfactory progress the ration was changed on 1st April, and

for the remaining five weeks they were fed on meal only, composed of equal parts by measure of ground barley, rye, wheat and bran, soaked in cold water for 30 hours. The feeding period in this instance also was twenty weeks, the results being given in the appended table in four equal periods of five weeks each. The potatoes fed were weighed before boiling.

No. of Swine, Three.	Dec. 18, 1895.	Jan. 22, 1896.	Feb. 26.	April 1.	May 6.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight	167	213	292	361	514	
Increase in weight.....		46	79	69	153	347
Feed consumed, potatoes.....		695	870	928		2,493
do do meal.....					530	530
do do milk.....		315	315	315		945
do per lb. of increase, potatoes.....		15·10	11·01	13·44		Average. 7·18
do do meal.....					3·46	1·52
do do milk.....		6·84	3·98	4·56		2·72

The shrinkage in the dressing of this lot was not ascertained.

Lot 5 (Pen 6).—This pen contained three cross-bred swine—one Berkshire sire and Yorkshire dam, farrowed 24th September, 1895; and two Tamworth sire and Berkshire dam, farrowed 30th September, 1895. These were fed for the first five weeks (18th Dec. to 22nd Jan.) on raw potatoes, pulped with 3 lbs. of meal per day to the pen. As the pigs were not making satisfactory progress the ration was changed for the next five weeks (22nd Jan. to 26th Feb.) to boiled potatoes only; and after the 26th of February, for the remaining ten weeks of the feeding period, to a ration of meal composed of equal parts, by measure, of ground barley, rye, wheat and bran, soaked in cold water for 30 hours, with 9 lbs. of skim milk per day to the pen. In this instance also the feeding was begun on the 18th of December and continued for 20 weeks.

No. of Swine, Three.	Dec. 18, 1895.	Jan. 22, 1896.	Feb. 26.	April 1.	May 6.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight.....	165	188	216	396	577	
Increase in weight.....		23	28	180	181	412
Feed consumed, potatoes, raw.....		293				293
do do do cooked.....			995			995
do do meal.....		105		365	473	943
do do milk.....				315	315	630
do per lb. of increase, potatoes, raw.....		12·73				Average. 71
do do do cooked.....			35·53			2·41
do do meal.....		4·56		2·02	2·61	2·28
do do milk.....				1·75	1·74	1·52

Sold May 12. Shrinkage in weight:—

Live weight (fasted 14 hours) 591 lbs.
Dressed weight 24 hours after killing 455 "
Percentage of shrinkage from fasted weight..... 23·01

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Lot 6 (Pen 7).—This pen contained three cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 24th September, 1895 ; one Berkshire sire and Tamworth dam, farrowed 29th September ; and one Tamworth sire and Berkshire dam, farrowed 30th September. These were fed for the first 15 weeks on a ration of cooked potatoes, all they would eat, with 3 lbs. of meal per day to the pen. After this the ration was changed for the remaining five weeks to meal only, composed of equal parts, by measure, of ground barley, rye, wheat and bran, soaked in cold water for 30 hours, with 9 lbs. of skim milk per day to the pen.

No. of Swine, Three.	Dec. 18, 1895.	Jan. 22, 1896.	Feb. 26.	April 1.	May 6.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight.....	164	215	293	386	586	
Increase in weight.....		51	78	93	200	422
Feed consumed, potatoes, cooked.....		560	715	862		2,137
do do meal.....		105	105	105	553	868
do do milk.....					315	315
						Average.
do per lb. of increase, potatoes.....		10·98	9·16	9·26		5·06
do do meal.....		2·05	1·34	1·12	2·76	2·05
do do milk.....					1·57	·74

The shrinkage in the dressing of this lot was not ascertained.

Lot 7 (Pen 8).—This pen contained three cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 24th September, 1895, one Berkshire sire and Tamworth dam, farrowed 29th September, and one Tamworth sire and Berkshire dam farrowed 30th September. These were fed for the whole period of twenty weeks on a ration consisting of cooked potatoes, all they would eat, with 3 lbs. of meal per day to the pen, composed of equal parts by measure of ground barley, rye, wheat and bran soaked for 30 hours in cold water, and 9 lbs. of skim milk per day to the pen.

No. of Swine, Three.	Dec. 18, 1895.	Jan 22, 1896.	Feb. 26.	April 1.	May 6.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight.....	150	240	345	467	575	
Increase in weight.....		90	105	122	108	425
Feed consumed, potatoes, cooked.....		535	620	843	1,103	3,101
do do meal.....		105	105	105	105	420
do do milk.....		315	315	315	315	1,260
						Average.
do per lb. of increase, potatoes.....		5·94	5·90	6·90	10·21	7·29
do do meal.....		1·16	1·	·86	·97	·98
do do milk.....		3·50	3·	2·58	2·91	2·96

Sold May 12, 1896. Shrinkage in weight :—

Live weight (fasted 14 hours).....	583 lbs.
Dressed weight, 24 hours after killing.....	457 "
Percentage of shrinkage from fasted weight.....	21·61

Lot 8 (Pen 10).—This pen contained four cross-bred swine, two Berkshire sire and Yorkshire dam, farrowed 6th May, 1896, and two Tamworth sire and Berkshire dam, farrowed 14th April, 1896. These were fed for a period of 18 weeks on a ration of ground oats soaked in cold water for 30 hours, all they would eat, with 24 lbs. of skim-milk per day to the pen. This test, as well as the two which follow, was begun on 22nd July and completed on 25th November, 1896.

No. of Swine, Four.	July 22.	Aug. 19.	Sept. 16.	Oct. 14.	Nov. 11.	Nov. 25	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight	218	312	426	539	670	738	
Increase in weight.....		94	114	113	131	68	520
Feed consumed, oats.....		180	299	459	516	244	1,698
do do milk.....		672	672	672	672	336	3,024
do per lb. of increase, oats		1·91	2·62	4·06	3·93	3·58	Average. 3·26
do do milk		7·14	5·89	5·94	5·12	4·94	5·81

Sold November 27, 1896. Shrinkage in weight :—

Live weight (fasted 14 hours)..... 724 lbs.
 Dressed weight 24 hours after killing..... 542 "
 Percentage of shrinkage from fasted weight.. 25·13

Lot 9 (Pen 11).—This pen contained four cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 7th May, 1896 ; and three Tamworth sire and Berkshire dam, farrowed 14th April, 1896. These were fed for a period of 18 weeks on a ration of ground pease, soaked in cold water for 30 hours—all they would eat—with 24 lbs. of skim milk per day to the pen.

No. of Swine, Four.	July 22.	Aug. 19.	Sept. 16.	Oct. 14.	Nov. 11.	Nov. 25.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight	250	395	546	674	835	896	
Increase in weight.....		145	151	128	161	61	646
Feed consumed, pease.....		272	382	472	452	205	1,783
do do milk.....		672	672	672	672	336	3,024
do per lb. of increase, pease		1·87	2·52	3·68	2·80	3·36	Average. 2·76
do do milk		4·63	4·45	5·25	4·17	5·50	4·68

Sold November 27, 1896. Shrinkage in weight :—

Live weight (fasted 14 hours)..... 869 lbs.
 Dressed weight 24 hours after killing..... 661 "
 Percentage of shrinkage from fasted weight 23·93

Experimental Farms.

Lot 10 (Pen 12).—This pen contained three cross-bred swine, one Berkshire sire and Yorkshire dam, farrowed 7th May, 1896; and two Tamworth sire and Berkshire dam, farrowed 14th April, 1896. These were fed for a period of 18 weeks on a ration composed of equal parts by weight, of oats and pease, both ground and soaked in cold water for 30 hours. Of the grain the pigs had all they would eat up clean, with 18 lbs. of skim milk per day to the pen.

No. of Swine, Three.	July 22.	Aug. 19.	Sept. 16.	Oct. 14.	Nov. 11.	Nov. 25.	Totals.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Live weight	182	266	393	497	623	684	
Increase in weight.....		84	127	104	126	61	502
Feed consumed, grain.....		167	295	437	430	179	1,508
do do milk.....		504	504	504	504	252	2,268
do per lb. of increase, grain.....		1·98	2·32	4·20	3·41	2·93	Average. 3
do do milk.....		6	3·96	4·84	4	4·13	4·51

Sold November 27, 1896. Shrinkage in weight:—

Live weight (fasted 14 hours).....	672 lbs.
Dressed weight 24 hours after killing.....	505 "
Percentage of shrinkage from fasted weight.....	24·85

RESULTS OF CURATIVE EXPERIMENTS ON CATTLE AFFECTED WITH TUBERCULOSIS.

At the time when the cattle at the Central Experimental Farm were being tested to ascertain the extent of tuberculosis in the herd, in the latter part of 1893 and beginning of 1894, all the older animals which showed a rise in temperature of two degrees or more above the normal were slaughtered. There were, however, five young heifers, from 16 months to three years of age, which although they had all shown high temperatures under the test of tuberculin, it was thought best to isolate and experiment on, by putting them under curative treatment. The names of the animals and the temperatures shown at this time under the action of tuberculin, as reported on page 30, bulletin No. 20, were as follows:—

TEMPERATURES taken 9th January, 1894.

Name of Animal, with Age and Breed.	Quantity of Lymph Injected.	TEMPERATURE.						
		Normal.	After Injection.					
			12 p.m.	10 a.m.	3 p.m.	7 p.m.	10 p.m.	1 a.m.	4 a.m.	8 a.m.
Violette (Canadian) 2 yrs, 3 m.	45 minims	102·	101·4	101·4	101·8	103·2	104·2	104·2
Miss Eden (Devon) 2 yrs, 4 m.	55 do	101·6	102·4	103·4	105·8	107·8	105·4	103·2
Aaggie Cornelia 3rd, (Holstein) 1 yr, 9 mos.	55 do	102·	101·8	101·6	103·2	106·	105·8	102·
Princess (Shorthorn grade) 3 yrs, 4 mos.	60 do	101·6	101·8	103·	105·6	107·4	105·4	104·4
Belle of Glen Duart (Jersey) 1 yr, 4 mos.	45 do	101·6	101·8	102·2	105·2	105·4	105·4	104·2

These animals were strictly isolated from the rest of the herd and treatment was begun with them on January 9th, 1894, and continued until December 24th of the same year, giving to each two teaspoonfuls of sulphurous acid per day, in their drinking water. On December 24th, 1894, a second test was made with the following results:—

Name of Animal.	Quantity of Lymph Injected.	TEMPERATURE.					
		Normal.	After Injection.				
	3 p.m.	9 a.m.	6 p.m.	9 p.m.	12 p.m.	3 a.m.	6 a.m.
December 24, 1894—							
Violette	25 minims..	101·	101·1	101·	103·1	104·2	103·1
Miss Eden	30 do ..	101·	100·3	100·2	101·3	104·	107·2
Aaggie Cornelia 3rd	30 do ..	101·4	101·4	101·2	101·4	104·1	104·2
Princess	35 do ..	101·3	101·1	101·4	103·2	104·3	105·1
Belle of Glen Duart	25 do ..	101·4	102·	101·3	102·1	105·2	106·2

Since these figures showed no evidence of any benefit from the use of the sulphurous acid, it was discontinued, and as it was the opinion of some physicians that injections of small quantities of tuberculin had a curative action, this was next tried. Beginning on July 1st, 1896, five minims were injected into each animal once a week for four weeks. During a second period of four weeks the quantity was increased to ten minims per animal. During a third similar period, to fifteen minims, and during the last period of four weeks, to twenty minims at each injection. The records of temperature, taken at regular intervals after each injection, show that no very suspicious rise in temperature occurred after any of these injections. The only instances where there were increases of more than one degree above normal were:—

Aaggie Cornelia,	July 1,	after injection of 5 minims,	rise above normal	1·2	
Princess	Aug. 27	"	10	"	1·2
"	Oct. 8	"	20	"	1·1
Miss Eden	" 8	"	20	"	1·2

In the case of Miss Eden, it will be seen that her normal temperature varied considerably, on August 27th, it was 103. The increase in temperature in the other cases was scarcely sufficient to warrant any very positive opinion as to this being due to the tuberculin.

Name of Animal and Date of Injection.	Quantity of Lymph Injected.	TEMPERATURE.				
		Normal.	After Injection.			
		8 p.m.	6 a.m.	9 a.m.	12 a.m.	3 p.m.
July 1st, 1895—						
Violette	5 minims.	102·	102·	101·3	101·4	102·1
Miss Eden	5 "	101·2	100·2	101·	100·4	101·3
Aaggie Cornelia 3rd	5 "	102·	101·3	101·4	101·3	103·3
Princess	5 "	101·4	102·	102·	101·2	101·4
Belle of Glen Duart	5 "	101·2	101·3	101·4	101·4	102·1
July 9th, 1895—						
Violette	5 "	101·2	101·	101·	101·	101·
Miss Eden	5 "	102·	102·1	.....	103·	102·1
Aaggie Cornelia 3rd	5 "	101·3	102·1	.....	102·2	102·
Princess	5 "	101·4	102·	.....	102·2	102·
Belle of Glen Duart	5 "	101·4	101·4	.....	101·4	102·

Experimental Farms.

TUBERCULIN TEST—Continued.

Name of Animal and Date of Injection.	Quantity of Lymph Injected.	TEMPERATURE.				
		Normal.	After Injection.			
		8 p.m.	6 a.m.	9 a.m.	12 a.m.	3 p.m.
July 16th, 1895—						
Violette	5 minims.	101·3	101·1	101·1	101·2	101·2
Miss Eden	5 "	102·1	101·3	102·	101·2	102·
Aaggie Cornelia 3rd	5 "	102·1	101·3	101·4	102·	102·
Princess	5 "	102·1	101·3	101·2	101·2	101·4
Belle of Glen Duart	5 "	101·4	102·	101·4	102·	102·0
July 23rd, 1895—						
Violette	5 "	102·	101·1	101·3	101·3	102·
Miss Eden	5 "	101·1	101·2	101·3	101·4	101·4
Aaggie Cornelia 3rd	5 "	101·2	101·1	101·3	101·3	101·3
Princess	5 "	101·4	101·4	101·2	102·2	102·3
Belle of Glen Duart	5 "	101·3	101·4	101·3	101·4	101·4
July 30th, 1895—						
Violette	10 "	101·3	101·	101·2	101·1	101·2
Miss Eden	10 "	101·1	101·3	101·1	101·2	101·
Aaggie Cornelia 3rd	10 "	101·4	101·3	101·3	101·3	101·2
Princess	10 "	101·2	101·4	101·3	101·3	101·
Belle of Glen Duart	10 "	101·	100·3	101·1	101·1	101·
August 6th, 1895—						
Violette	10 "	101·3	101·4	101·1	101·1	101·3
Miss Eden	10 "	102·1	102·	101·2	101·4	101·4
Aaggie Cornelia 3rd	10 "	101·3	101·2	101·1	101·2	101·1
Princess	10 "	101·2	101·	101·3	101·2	101·1
Belle of Glen Duart	10 "	101·2	101·2	101·3	102·	102·
August 13th, 1895—						
Violette	10 "	101·2	101·	101·1	101·1	101·2
Miss Eden	10 "	101·2	101·2	101·1	101·3	101·3
Aaggie Cornelia 3rd	10 "	101·4	101·1	100·4	101·1	101·
Princess	10 "	101·4	101·1	101·2	101·3	101·3
Belle of Glen Duart	10 "	101·1	101·1	101·1	101·2	101·4
August 20th, 1895—						
Violette	10 "	101·1	100·3	101·	101·	101·
Miss Eden	10 "	100·3	100·3	100·4	101·	101·1
Aaggie Cornelia 3rd	10 "	101·3	101·	101·	101·	101·
Princess	10 "	100·4	101·	100·4	101·	101·1
Belle of Glen Duart	10 "	101·	100·4	101·3	101·3	101·2
August 27th, 1895—						
Violette	15 "	101·2	101·	101·	101·	101·
Miss Eden	15 "	103·	101·	100·4	101·3	102·
Aaggie Cornelia 3rd	15 "	101·1	100·4	101·	101·1	102·
Princess	15 "	102·2	102·3	103·	103·3	103·4
Belle of Glen Duart	15 "	101·1	101·	101·1	101·1	101·1
September 3rd, 1895—						
Violette	15 "	101·1	101·	101·2	101·2	102·
Miss Eden	15 "	101·2	101·2	101·3	101·3	101·4
Aaggie Cornelia 3rd	15 "	101·2	101·1	101·	101·2	101·4
Princess	15 "	101·4	101·1	101·2	101·4	102·4
Belle of Glen Duart	15 "	101·1	101·1	101·1	101·1	102·1
September 10th, 1895—						
Violette	15 "	101·4	101·	101·4	101·4	102·
Miss Eden	15 "	101·2	101·1	101·2	101·3	101·2
Aaggie Cornelia 3rd	15 "	101·3	101·2	101·2	101·2	101·
Princess	15 "	101·1	101·1	101·	101·2	101·1
Belle of Glen Duart	15 "	101·1	101·2	101·3	101·3	101·4

TUBERCULIN TEST—*Concluded.*

Name of Animal and Date of Injection.	Quantity of Lymph Injected.	TEMPERATURE.				
		Normal.	After Injection.			
			3 p.m.	6 a.m.	9 a.m.	12 a.m.	3 p.m.
September 17th, 1895—						
Violette	15 minims.	101·1	101·	101·	101·3	101·1
Miss Eden	15 "	100·4	100·4	101·1	101·3	101·2
Aaggie Cornelia 3rd	15 "	101·	101·1	101·1	101·2	101·1
Princess	15 "	101·3	101·3	101·3	102·1	102·
Belle of Glen Duart	15 "	101·2	100·4	101·1	101·4	101·4
September 24th, 1895—						
Violette	20 "	101·	100·3	100·3	100·4	101·
Miss Eden	20 "	101·1	101·2	101·2	101·1	101·1
Aaggie Cornelia 3rd	20 "	101·3	101·1	100·3	100·4	101·1
Princess	20 "	101·2	101·	100·4	101·1	101·
Belle of Glen Duart	20 "	100·3	101·	101·1	101·1	101·4
October 1st, 1895—						
Violette	20 "	101·	100·3	100·4	101·	101·1
Miss Eden	20 "	101·	101·2	101·2	101·4	101·4
Aaggie Cornelia 3rd	20 "	101·1	101·1	101·	101·	101·1
Princess	20 "	101·1	101·	101·1	101·2	101·2
Belle of Glen Duart	20 "	101·2	101·	101·2	101·4	101·4
October 8th, 1895—						
Violette	20 "	100·4	100·2	100·3	100·2	101·1
Miss Eden	20 "	100·1	101·	101·1	100·4	101·3
Aaggie Cornelia 3rd	20 "	100·3	100·3	100·4	101·	101·1
Princess	20 "	100·1	100·3	101·	101·	101·2
Belle of Glen Duart	20 "	100·3	100·2	101·	100·3	101·3
October 15th, 1895—						
Violette	20 "	101·3	100·3	100·3	101·1	101·
Miss Eden	20 "	101·1	101·1	101·1	101·2	101·
Aaggie Cornelia 3rd	20 "	101·3	101·1	101·1	101·2	101·2
Princess	20 "	101·1	101·	101·	101·2	101·3
Belle of Glen Duart	20 "	100·3	100·2	100·3	101·	101·3

After this all treatment was discontinued, but the isolation of these animals was carefully carried on until August 7th, 1896, when, acting under the instructions of the Minister of Agriculture, two of these animals, Princess and Belle of Glen Duart, were slaughtered. These were selected for the first test by slaughter for the reason that they had shown slight symptoms of the presence of the disease, by occasional coughing. Nevertheless, they remained in fair condition. The *post mortem* was made under the superintendence of Dr. D. McEachran, Chief Veterinary Inspector for the Dominion, and the following is a brief description of the internal condition of each of these animals:—

Princess, Shorthorn grade.—The *post mortem* examination showed the lungs of this animal to be sound. The liver was slightly affected. On the surface of the latter there were a number of small yellow spots, which, when cut into, were found to cover, in some instances, tuberculous deposit extending into the substance of the organ. The thoracic glands were much enlarged and filled with calcareous tubercle. The surface of the left side of the interior, both of the thorax and abdomen, was thickly covered with grape-like or miliary tubercles. These were so crowded together, in many places, as to completely cover the surface and, in some instances, overlap each other. The mesenteric glands were also slightly affected with tubercle.

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Belle of Glen Duart, Jersey.—In this case one lung was badly diseased, discharging, when cut across, a large quantity of pus-like tubercle, which oozed out from a large number of different points in the cut surface of the organ. The liver was slightly affected. Tubercle was abundant in the thoracic glands, which were enlarged. It was also found in the mesenteric glands.

On August 11th and 12th, the remaining three animals were again tested with tuberculin, (50 minims being injected in each case) with the following results :—

Name of Animal.	TEMPERATURE.							
	Normal.	After Injection.						
		6 p.m.	8 p.m.	5 a.m.	8 a.m.	11 a.m.	2 p.m.	5 p.m.	6 p.m.
Aaggie Cornelia 3rd	102·1	102·	101·1	102·2	105·2	105·3	105·2	104·3
Miss Eden.....	101·4	101·4	101·4	101·4	101·4	101·4	102·2	102·4
Violette.....	101·4	101·4	101·4	101·1	101·1	101·2	102·1	102·

These were slaughtered on August 15, under the supervision of Dr. A. Smith, Chief Veterinary Inspector for Ontario. The following notes were taken at the *post mortem* :—

Miss Eden, Devon.—In this animal the lungs were scarcely affected ; but the entire substance of the liver was more or less diseased, being filled with cysts of varying size, some of which were full of creamy tubercle and others cheesy in their character, while others were quite fluid and pus-like. The bronchial glands were also enlarged and filled with tubercle of varying degrees of consistence.

Aaggie Cornelia 3rd, Holstein.—In this case both lungs and liver were found to be in a healthy condition. The thoracic glands were also normal in size and healthy. The only tubercle discovered was in one of the intestinal glands, where the deposit was found in moderate quantity.

Violette, Canadian.—The viscera of this cow was carefully examined and all the larger organs found to be healthy. In one of the thoracic glands there appeared to be a slight deposit, but it was not far enough advanced to be clearly demonstrated as tubercular.

VISITS TO THE BRANCH EXPERIMENTAL FARMS.

VISIT TO BRANDON, MANITOBA.

The Experimental Farm at Brandon was visited in the beginning of September on the way going west, and again on the return journey at the end of that month. The crops on this farm appeared to be above the average in yield, but inferior in quality of grain on account of lodging and rust, conditions brought about by the unusual quantity of rain which fell earlier in the season. Many of the varieties of oats suffered severely from rust, which affected both leaf and straw, inducing a more or less shrivelled condition of the grain. The crops of field roots were very heavy, and many varieties of corn gave excellent results. The season was favourable for the growth of grasses, and the crop of the Awnless Brome Grass, *Bromus inermis*, was very satisfactory. A considerable quantity of the seed of this useful grass was saved which is being supplied to farmers for further test in different parts of the province. The many plots of small fruits have yielded well, and good progress has been made with the experimental plantations of selected trees of the wild plum, and with special selected forms of the sand cherry. The season was favourable for tree growth, and the belts, blocks and avenues of forest trees have all made good progress. The live stock in all branches was found in a good state

of health, and the general condition of the grounds and buildings and the satisfactory progress which has been made in all branches of the work, gave evidence of good care and management.

VISIT TO INDIAN HEAD, N.W.T.

The agricultural outlook at this farm and throughout the neighbourhood was exceptionally good. The amount of rainfall during the season, although somewhat heavier than usual was little more than sufficient to bring the crops to perfection, and the yield of all sorts of grain was unusually large. The different varieties of wheat gave returns of from 36 to 46½ bushels per acre; the most prolific sorts of oats yielded from 90 to 108 bushels per acre, and one field of 20 acres of the variety known as Banner gave a total crop of 1,958 bushels, equal to 97 bushels 21 lbs. per acre. Barley also did well, the different sorts tested having varied in yield from 48 to 73 bushels per acre. The wheat crop of the Indian Head district is said to have averaged about 40 bushels per acre on all summer fallowed land and about 25 bushels on spring and fall ploughing, a large proportion of which will grade No. 1 hard. A drive was taken of about 40 miles through the district known as the Pheasant Plains and the fields everywhere promised a most abundant return. The crops of roots on the experimental farm have been good, so also has the Indian corn. The mixed grain crops grown for fodder have produced heavily and the Awnless Brome Grass has given an excellent return. This promising grass has now been tested over a wide area in the North-west country and everywhere it has done remarkably well, has proved hardy, grown vigorously and shown its adaptability to the climate by producing large crops of hay and excellent pasture. There are now about 70 acres under this grass at the Indian Head farm.

Small fruits have given good returns. The forest trees which have been planted, of which there are now more than 120,000 in shelter belts, blocks, hedges and avenues are doing well and their growth has entirely changed the aspect of this farm, so recently a bare prairie section. In the shelter these plantations afford crops can be grown to greater advantage than on the open plain, thus demonstrating the usefulness of tree planting in that country. The stock is doing well and the animals all appeared to be well cared for and in excellent health.

VISIT TO AGASSIZ, B.C.

Agassiz was reached on the 1st of September. The grain crops at the experimental farm and throughout the coast climate of British Columbia generally were below the average and the crops of fruit were lighter than usual. Both grain and fruit were injured by a period of cold wet weather, which began about the middle of May and continued for a month. Under these circumstances the fruit trees which were full of blossom, set their fruit sparingly and the growth of the grain was retarded. Following this the weather became unusually hot and dry, and the drought which continued almost without a break until the middle of September ripened the grain prematurely and prevented the fruit from attaining its usual size and quality. Notwithstanding these disadvantages a large quantity of fruit has been produced in British Columbia and the shipments to the North-west Territories and Manitoba have been heavy. The area under orchard in this province has been much increased during the past few years and the fruit crop is increasing in importance annually. Freight rates have been reduced and methods of packing improved, and most of the fruit has reached its destination in good condition and given the growers satisfactory returns.

A week was spent at Agassiz inspecting the progress of the work there, and arranging plans for the future. The efforts which have been made to gain information as to the relative value and productiveness in that climate of a large number of varieties of all the more important agricultural crops have been attended with satisfactory results. The fruit orchards have been greatly extended by large additions to the collection during the past year. Nearly 600 varieties have been added, which brings the number of different sorts of fruit under test to about 2,000, nearly two-thirds of which are large fruits. The trees forming the recent additions have been obtained chiefly from nurseries

Experimental Farms.

in Germany, and consist of collections of European apples, pears, plums, cherries, apricots and nuts, very few of which have yet been tested in this country. The results of these extensive experiments are already of much value to the fruit growers of British Columbia, giving them needed and reliable information as to many of the varieties which are likely to prove remunerative. Most of the plums were in fruit at the time of my visit and some of the newer sorts were found to be very promising as bearers and shippers and of good quality. The orchards on the higher bench lands on the sides of the mountain are making good progress, many of the trees fruited during the past season and both foliage and fruit have been freer from insect and fungoid attacks, than those in the orchards in the valley.

THE NICOLA VALLEY.

On the return journey a visit was paid to the Nicola Valley, one of the dry districts in British Columbia and the ranches in that valley seen for a distance of about 40 miles from the mouth of the river. In this locality all cultivated crops are grown by irrigation. This territory is favourable for ranching and large bands of cattle are fed on the bunch grass which grows on the hillsides. Mining operations are attracting much attention here and many claims have already been located on Boundary Creek, a short distance south of this valley.

AT CALGARY.

A day was also spent at Calgary where inquiries were made regarding the progress of irrigation, so much needed in that part of Alberta, and some of the crops examined which have been grown during the past season on irrigated land. The results are very encouraging. From information given by Mr. J. S. Dennis, the government engineer in charge of irrigation surveys, it was found that 115 canals and ditches have already been constructed, measuring 230 miles, these are in operation. The number of acres which can be irrigated by these ditches is 79,300. It was further ascertained that 45 additional ditches are in course of construction measuring 173 miles and that these when finished will be capable of irrigating additional land to the extent of 84,250 acres. This work has been done under government supervision in accordance with the Irrigation Act but by private funds.

Surveys have been made by the government engineers during 1895-96 for the following additional canals: Bow River canal, length 40 miles, area capable of irrigation, 300,000 acres; St. Mary Canal, length, 50 miles, area which may be irrigated, 50,000 acres, and Red Deer Canal, length, 47 miles, with a capacity for irrigating 50,000 acres. The land throughout this district is very fertile and with a sufficient water supply very large crops of fodder and grain can be grown. The extension of the irrigated area will offer increased facilities for the raising of cattle and horses and will also afford sustenance for a large population.

VISIT TO EDMONTON.

The district between Calgary and Edmonton was also seen and several days spent at the latter place, inquiring into the progress of agriculture there. Much advancement has been made all through this district since my last visit three years ago. Several new towns have been built, and many homes of settlers were seen in the midst of cultivated fields where on the former visit the country was unbroken. The crops on the whole were good and the quality and yield of grain above the average. Many excellent samples of wheat were sent to me after the threshing was over, especially from the Edmonton district. Increased attention is given to the raising of cattle, horses and swine, for all of which there is a great abundance of food and a ready sale. This branch of farming will admit of unlimited extension here and seems to be both reliable and profitable.

VISIT TO THE DAUPHIN LAKE DISTRICT.

On returning to Brandon, Man., a drive of about 250 miles was taken in company with the superintendent of the experimental farm at Brandon, Mr. S. A. Bedford, through the northern part of Manitoba to gain information regarding the Lake Dauphin district. Taking the east trail by way of Neepawa, wheat is grown to good advantage for some miles north, and beyond this the land along the higher altitudes is good for cattle ranching for the greater part of the route. Some good crops of oats and barley are also grown in portions of this district. After the first 20 or 25 miles the land becomes well covered with timber with occasional openings of plain or scrub. The trees are chiefly poplar, with some spruce and tamarack. About half way to Lake Dauphin the line of railway now under construction was reached. The rails were laid nearly 60 miles from the starting point at Gladstone, and for about 30 miles beyond this gangs of men and teams were grading successive sections of the road.

On approaching Lake Dauphin the country becomes more open and about the lake there are fine stretches of hay land. Within a few miles of Gartmore the land is a little more elevated and becomes quite park-like in character with large stretches of prairie and intervening clumps of trees and scrub. The soil here is rich and fertile, and excellent crops of wheat and other grain are grown. At the time of this visit most of the grain had been stacked, there were, however, some fields recently cut still in stook where samples were taken, and all were found uninjured by frost, save one, which was but slightly affected. The country northward, through the Gilbert plains, comprises a large area of excellent land, and notwithstanding that it is further north yet, on account of its low altitude and the proximity of large bodies of water, this district will probably prove as suitable for wheat growing as some of the more favoured localities in the central parts of the province, and as soon as it becomes easily accessible by rail, settlement will no doubt proceed rapidly.

The return was made by the trail across the Riding mountains to Strathclair, through many miles of woods containing the finest growth of poplars I had ever seen, with considerable quantities of spruce and tamarack, mainly on the southern slopes. The roads, however, were terrible. They would, no doubt, be got over with moderate ease in winter, when the hundreds of deep mud holes are frozen and the fallen logs partly covered with snow, but at this season of the year it must be travelled to be understood, and the individuals are fortunate who reach the end of their journey with vehicle and harness sound. There is no settlement along most of this route and, in one instance, no stopping place for a distance of 40 miles, and this when reached was a log shanty so uninviting that the party preferred to spend the night in the frosty air, sleeping in the shelter of some stacks of straw.

ORNAMENTAL TREES AND SHRUBS AT THE CENTRAL FARM.

The large and varied collection of ornamental trees and shrubs which have been accumulated at the Central Farm at Ottawa is proving a constant source of pleasure to all who come in contact with them. Only nine years have passed since this planting was begun, and the change effected in the landscape by the rapid growth and development of these trees and shrubs is a pleasant surprise. The number of varieties which are proving hardy, and suitable for this climate, is much larger than was at first expected, and their growth has been more vigorous. The number of specimens which have been planted along the roads from the entrance gates to and about the buildings is 2,742, and the number of species and varieties among these is about 400. With so many different types of beauty spread out on every hand, the visitor finds objects of interest to claim his attention at every point, and the judicious grouping of specimens has brought together harmonies in regard to form, as well as colour, which are pleasing to the eye, and produce a favourable impression on the mind. The accompanying plate has been prepared from a photograph taken in June, 1896, showing a part of this ornamental grouping, about half-way between the entrance gate and the office building.



Group of ornamental trees and shrubs on Central Experimental Farm.

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The central and prominent object in this case is a specimen of the cut-leaved birch, a very graceful tree, which succeeds remarkably well at Ottawa.

CHANGES IN THE STAFF.

During the past year, two important changes have been made in the staff. The Central Experimental Farm has lost the valued services of Prof. J. W. Robertson, who resigned his position as Agriculturist, and has removed to offices in the departmental quarters in the city, where he fills the position of Agricultural and Dairy Commissioner. The superintendent of the branch experimental farm at Nappan, Mr. William M. Blair, who had filled that position acceptably for nine years, resigned early in the year, and Mr. George W. Forrest was appointed in his place.

INJURY TO CHEMICAL LABORATORY BY FIRE.

On the evening of the 6th of July, about 6 o'clock, a fire was discovered in the chemical laboratory at the Central Farm, which, on account of the inflammable character of the material it contained, spread with such rapidity that in a few moments the whole interior was filled with flames. By energetic and united effort on the part of the officers and workmen, a stream of water was promptly brought to bear on the blazing building, and the fire was extinguished before the fire brigade from the city arrived. The interior of the building was badly burnt, and nearly all the apparatus and stock of chemicals destroyed. The fire originated from the bursting of a flask in which a sample of barn-yard manure, in process of analysis, was being boiled in sulphuric acid, the operation being conducted in a leaden chamber. The boiling acid fell on the rubber tubing used to convey the gas to the burner, and partially destroyed it; when the large volume of gas liberated mixed with the air, and several explosions followed, which shattered the leaden chamber, and distributed the burning contents in every direction.

Owing to the inflammable character of the material necessarily used in conducting chemical operations, it is very desirable that a separate structure be erected, in which to carry on in future this important branch of the work, with provision for making it fire-proof.

CORRESPONDENCE.

The following is a summary of the letters received and despatched at the Central Experimental Farm from November 30th, 1895, to November 30th, 1896, also of the number of reports and bulletins sent out by mail during the same period:—

	Letters received.	Letters sent.
Director	12,271	11,289
Agriculturist and Dairy Commissioner (Nov. and Dec. only)	722	443
Horticulturist	2,177	2,515
Chemist	1,116	1,047
Entomologist and Botanist	2,083	2,004
Poultry Manager	1,680	1,396
Accountant	1,285	1,213
	21,634	19,907
Circulars sent with samples of seed grain		35,489
Number of Reports and Bulletins mailed		162,642

ACKNOWLEDGMENTS.

I gratefully acknowledge the receipt of another valuable collection of seeds of trees, shrubs and plants from the Royal Gardens, Kew, England, also of a number of packages of seeds of rare and interesting species from the Arnold Arboretum Jamaica Plains, Mass.,

and of Japanese trees, shrubs, and plants from the Royal Botanic Gardens at Sapporo, Japan. Many thanks are also due to Prof. John Macoun, Botanist of the Geological Survey and to Mr. J. M. Macoun, Assistant Botanist, for seeds of many rare and useful species collected in different parts of the Dominion and to Comm. Thomas Hanbury, proprietor of the well-known gardens at La Mortola, Ventimiglia, Italy, for an interesting collection of the seeds of greenhouse plants and hardy perennials.

I also desire to acknowledge the continuance of the faithful service rendered me in the past by all the officers of the Central and Branch Experimental Farms, and for their earnest and diligent co-operation in carrying on the many lines of experimental work planned.

A special acknowledgment is due to those members of the staff who have rendered me efficient aid in the carrying on of those branches of the work of which I have personal charge. To the Farm Foreman, Mr. John Fixter, who has managed and watched over the field experiments and made careful notes on the crops at different stages in their growth; to my assistant, Mr. W. T. Macoun, who as Foreman of Forestry has supervised the work required to be done in connection with the forest belts, avenues, hedges and general ornamental planting, has had charge of the Arboretum and Botanic Garden and also of the uniform test plots of grain and potatoes, and taken records of the growth and yield of the many varieties under test. I have also received much valued assistance from Mr. R. R. Elliott, herdsman, in connection with the carrying on of experimental work with cattle and swine. Faithful and accurate work has also been performed by Mr. W. T. Ellis, who has had the care of the seed testing and propagating houses and has taken the meteorological records, also by Mr. J. Kirkpatrick who has conducted the work of the distribution of samples of seed grain. The employees also in every department of the work have discharged their several duties faithfully and well.

WM. SAUNDERS.

Director Dominion Experimental Farms.

Experimental Farms.

REPORT OF THE HORTICULTURIST.

(JOHN CRAIG.)

DR. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit a report of some of the work carried on by the Division of Horticulture of the Central Experimental Farm for the year 1896.

FRUIT CROP.

The fruit crop as a whole has been unprecedentedly large in all parts of Canada, with the exception of peaches which, owing to severe frosts occurring the latter part of the winter were a light yield on Lake Ontario between Niagara and Hamilton. The crop of apples and plums was truly extraordinary in many portions of Ontario, and heavy in all parts. Owing partly to faulty distribution and partly to the low prices prevailing in foreign, as well as in domestic markets, in many districts large quantities of apples were not harvested. The number of barrels of apples exported to the British markets this year, so far as can be learned from shipping records, has greatly exceeded that of previous years. It is regrettable that with such a large crop of fruit of really fine quality, so many complaints regarding the manner of packing and the faulty character of the fruit should have been made, based too frequently upon apparently justifiable evidence. The vast quantity of fruit in sight in the autumn appears in many instances to have encouraged carelessness upon the part of packers, instead of calling for more conscientious and careful methods of culling and grading. Home markets are filled—almost glutted—with Baldwins, Greenings and Spys, but it is often difficult to purchase a barrel that will turn out an even No. 1 grade throughout.

Keeping Quality.—Frequent complaints are now (Jan. 15th) being made by dealers that the standard winter varieties just mentioned are not keeping as well as usual. The keeping qualities of all varieties are always much influenced by the character of the weather which prevailed during late summer and autumn and at the time of picking. The past season was not an unfavourable one in that respect. The cause of the early decay of winter varieties this year, therefore, should be credited to the time of harvesting and the manner of handling the fruit afterwards. I am of the opinion that much of the crop of 1896, was injured by being allowed to hang on the tree too long. This treatment encouraged ripening to the fullest extent, and while the quality of the fruit for the time being was improved, its keeping properties were much impaired. If picked when fully grown, with pips well coloured, though the skin may not have developed its richest tints, carefully graded and placed in cool, well ventilated cellars, colour will deepen and quality improve, and in most cases the fruit may be preserved satisfactorily. This treatment, except as to the time of picking, is more particularly applicable to fruit intended for domestic consumption or for exportation late in the autumn, than to that which is immediately sent out of the country. Many experienced shippers pack and ship directly from the orchard, others fill the barrels and head them in the packing house after the apples have "sweated,"

It would seem reasonable to suppose that shipments made under the latter method of treatment would show fewer "slacks" and "wets" in the Liverpool Commission Agent's Reports, than those handled according to the first system. It is undoubtedly true that a considerable percentage of "slacks" and "wets" should be charged to rough handling and unsuitable accommodation on board ship.

Peaches.—The area devoted to the cultivation of this luscious fruit is rapidly extending in Ontario. Peach orchards are replacing apple orchards in the South Lake Ontario district. In Essex County too, the industry, though comparatively new, is growing with great rapidity. There appears to be no reason to doubt the statement that Ontario will in the near future produce enough peaches to supply, if furnished with adequate transportation facilities, the entire Canadian region lying east of the Rocky Mountains.

Frost Injuries of the Winter of 1895-6.—Last winter was abnormal in many respects. The low temperatures of December and January, finding the roots of the trees unprotected by our customary snow blanket, caused the death of many fruit trees. These fatalities, with preventive remedies, have been duly recorded in the chapter on "Root Killing" in the body of the report.

Work of the Year.—It is a pleasure to report increased interest in the work of this division, by fruit growers and farmers. This is evidenced by the large correspondence bearing upon topics of vital importance to the growers of fruit and vegetables. Many specimens injured by plant parasites have been received, and remedies suggested; a large number of seedling fruits has been received and their merits passed upon by the Horticulturist, who in this work is pleased to acknowledge the valuable co-operation of Mr. L. Woolverton, Secretary of the Ontario Fruit Growers' Association, and Mr. H. L. Hunt, Lecturer and Instructor in Horticulture of the Ontario Agricultural College, Guelph. Many samples of fruit also were sent in for identification. These were examined and named as far as possible.

Special Investigations.—During the year, certain investigations have been made with regard to special attacks of plant diseases, causing more or less widespread loss to fruit growers and farmers. One of the most important of these related to the pea crop of Prince Edward County. Here field and garden varieties of pease are grown extensively under contract for seed dealers. The industry, which is an important one, amounting probably to \$200,000 or more per annum, has been seriously injured in recent years by a malady or disease which attacks the pea plant soon after the blossoming period, causing its immediate death, or so weakening the plant as to prevent the normal development of the seed. A careful examination of the infested fields was made by Mr. F. T. Shutt, Chemist, and myself. Samples of soil and diseased plants were collected. The former have not been examined thus far. The latter underwent careful microscopic examination at the hands of Mr. J. Dearness of London, Ont., who has with great kindness repeatedly given me valuable assistance in the identification of fungous diseases. Thus far, only suggestive points upon which to work in connection with the trouble have presented themselves. Conclusions based upon our necessarily superficial survey would be premature. It would appear, however, that (1) those fields which have been cropped oftenest are more seriously affected, and (2) that certain varieties show almost perfect immunity, while others exhibit a marked tendency to be affected by the disease. Among the latter class may be mentioned Early Kent. So far, a judicious rotation of crops seems to be the only practical remedy, although a careful trial of the use of mineral fertilizers is to be recommended. It is hoped that this important matter may be fully investigated the coming season, by experiments inaugurated and carried out upon these lines.

Blossoming Records.—The work of recording the blossoming period of our leading varieties of large and small fruits throughout the Dominion has been carried on again with the kind assistance of my fruit growing friends. I regret to say that it has not been found possible to compile and condense these records in time to include them in the annual report. It is hoped that the average results gained after another season's

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work will so enhance their value as to render a separate publication desirable. I wish to acknowledge very gratefully the effective help rendered by the following fruit growers:—

Provinces.	Recorder.	Residence.
Prince Edward Island.	J. Johnstone	Long River.
	J. T. Weeks	Alberton.
New Brunswick	Hon. David Laird	Charlottetown.
	F. McRae	Pownall.
	W. W. Hubbard	Sussex.
Ontario.	G. U. Hay	St. John.
	Thos. Beall	Lindsay.
	Richard Trotter	Owen Sound.
	J. P. Cockburn	Gravenhurst.
	W. H. Pettit	Grimsby.
	E. B. Edwards	Peterborough.
	G. E. Fisher	Freeman.
	G. Nicol	Cataraqui.
	B. Gott	Strathroy.
	Capt. J. Shepherd	Queenston.
Nova Scotia	E. Morden	Niagara South.
	Geo. Thompson	Wolfville.
	C. E. Brown	Yarmouth.
	Rev. H. How	Annapolis.
	W. Saxby Blair	Nappan.
	W. C. Archibald	Wolfville.
	R. W. Starr	do
Quebec	S. C. Parker	Berwick.
	Asa Johnston	East Farnham.
	W. M. Pattison	Clarenceville.
	C. P. Newman	Lachine Locks.
	J. C. Chapais	St. Denis.
	R. Brodie	Montreal.
British Columbia.	J. M. Fisk	Abbotsford.
	Thos. Daly	Keremeos.
	J. R. Anderson	Victoria.
	W. B. Anderson	Comox.
	Theodore Trage	Salt Spring Island.
	Henry Kipp	Chilliwack.
	T. G. Earl	Lytton.
	Richard Layritz	Near Victoria.
	Tom Wilson	Vernon.

Meetings Attended.—I was present by invitation and gave addresses at the following provincial organizations:—

Nova Scotia Farmers' Association, January 21st. Nova Scotia Fruit Growers' Association, meeting held at Wolfville, January 22nd, 23rd and 24th. Quebec Pomological Society, St. John, February 12th and 13th. Quebec Pomological Society, St. Jean Port Joli, September 24th and 25th. Ontario Fruit Growers' Association, Kingston, December 2nd, 3rd and 4th.

An important series of meetings was held in Prince Edward Island during the last week in January and the first week in February. The meetings were most successful, and to His Honour Lieut.-Governor Howlan, and Mr. T. J. Dillon, Supt. of Dairying on the Island, and the various local committees is due the entire credit. It is hoped that the interest aroused on the island will be kept fully alive through the agency of the Provincial Fruit Growers' Association, lately organized.

Acknowledgments.—I am deeply indebted for valuable assistance rendered during the year, to the following eminent scientists, Dr. B. D. Halsted, Botanist and Horticulturist, Experiment Station, New Brunswick, N.J., U.S.; Prof. B. T. Gallo-way and Dr. Erwin F. Smith, of the Division of Vegetable Pathology, Department of Agriculture, Washington, D.C. U.S.; Prof. L. R. Jones, Botanist, Experiment Station, Burlington, Vt., U.S.; Prof. A. D. Selby, Botanist and Chemist, Experiment Station, Columbus, Ohio, U.S.; Prof. L. H. Bailey, Horticulturist, Cornell University, Ithaca, N.Y., U.S.; and J. Mr. Dearness, Inspector of Schools, London, Ont.

DONATIONS.

I beg gratefully to acknowledge the receipt of cuttings, plants, scions, seeds, imple-
ments, &c., as follows, from Canadian fruit growers and nurserymen; also from enthu-
siasts in horticultural work residing in the United States.

Sender.	Donations.
1. Aylmer Iron Works, Aylmer, Ont.	1 spraying pump.
2. Allen, A. McD., Goderich, Ont.	Scions, apples; Jordan, Breckenridge.
3. Anderson, J. R., Dept. of Agriculture, Victoria, B. C.	Native <i>Ribes</i> — <i>Lobbia</i> , <i>divaricatum</i> , <i>lacustre sanguineum</i> , <i>bracteosum</i> .
4. Anderson, Mr. Hamilton, Ont.	Cuttings, gooseberry; Drum major, Fiddler, Full moon, London, Whitesmith, Yorkshire Green.
5. Burns, John, St. Foye Tollgate, Quebec.	Cuttings, chrysanthemums.
6. Brown, C. E., Yarmouth, N.S.	Seeds of palms.
7. Bruner, M. G., Olinda, Ont.	Grapes, 2 vines "Bruner."
8. Ball & Colquhoun, Knowlton, Que.	Seeds, vegetable; beets, Stinson, Danish Sugar; beans, Day's leafless; carrot, Red meaux; corn, Early Quebec Sweet; tomatoes; Fordhook First.
9. Burgess, Thos., Bala, Ont.	Scions, crab, "Burgess."
10. Black, R. J., Bremen, Ill., U.S.	Bud sticks, peaches; Miss Lola, June Rose, Onderdonk, Boquett Free.
11. Conn, John, Kemptville, Ont.	Trees, apple: Scarlet Pippin, Haas, scions, McIntosh Red.
12. Crandall, Franklin, Lindsay, Ont.	Scions, apple, Empress, Red Rock.
13. Cuppage, J., Orillia, Ont.	" Diamond No. 4.
14. Claire, F. H. P., Rideau Centre, Ont. ..	" "Joe Pattie."
15. Dempsey, W. H., Trenton, Ont.	" Ontario, Pear; Flemish Beauty.
16. Edwards, E. B., Peterborough, Ont.	" Blenheim Pippin.
17. Graves & Son, H. O., St. Joseph, Mo., U. S.	" Longevity.
18. Gordon, J. K., Whitby, Ont.	Cuttings, grape; Whitby.
19. Gault, W. C., Ruggles, Ohio, U.S.	Plants, raspberry; 6 Gault, B. Cap.
20. Gill, J. H., Charlottetown, P. E. I.	Scions, apples; Seedling.
21. Graham, J. I., Vandeleur, Ont.	" green seedling.
22. Grierson, G. H., Oshawa, Ont.	Scions, <i>Crataegus</i> .
23. Gerrish, O. K., Lakeville, Mass.	Scions, apple, Arctic.
24. Hansen, N. E., Prof., South Dakota, Exp. Station, Brookings.	Seeds, Vladimir cherry.
25. Hoover & Gaines, Dayton, Ohio.	Peach trees, Champion, jr; plants, raspberry, 2 Dayton Early.
26. Howard, Capt. A. L., Capleton, Que.	Scions, apple, winter variety.
27. Hoover, D. B., Almira, Ont.	" Hoover Weeping, Lady Washington, Hoover Red.
28. Hales, Hy., Ridgetown, N.J., U.S.	Seeds; thin-shelled hickory nuts.
29. Johnson, J. D., Miranda, Que.	Scions; Red Fameuse.
30. Johnson, John, Long River, New Lon- don, P. E. I.	Scions; apple, Winter Bough.
32. Kerr, W. J., Renfrew, Ont.	Scions, apples:—Forrest No. 1; Knight's No. 1. Knight's Winter; " 2; " 2. " Russet; " 3; " 3. " Greening; " 4; Fraser's No. 1. Stewart's No. 1; " 5; " 2. " 2; McCallum No. 1.
32. Leef, W. H., Orillia, Ont.	Seedling apple.
33. Livingston, L. L., Frankville, O.	Seed of Honey Locust.
34. Mills, Charles, Fairmount, N. Y.	Raspberry plants, 12, Onondaga, B.C.; do 12, No. 15, B. Cap.
35. Morse, S. P., Milton, Ont.	Scions, apple, "Boys Delight."
36. Niemetz, Jarsolav, Conseiller d'Etat Winnitza, Podolie, Russia.	Large collection of scions. Apples—R. de Winnitza, Grafenst Red, Antonovka I. P., Pirus Spectabilis, Grafensteiner, Spasovka, Annis Rose, Voronesh Sablonka, Gr. D. Michel, Aport (White), Dop, Prinz, Diester, Olga Onikov. Pears—Princease, Bessemianka, Long, Rylsk, Ordynka, Bergamotte, Beurré Roman, Sapieganka, Flutsk, Kriv- onogov, Mitschurin, Bonchretien, Tonkovietka, Lemon.
37. Pettit, A. H., Grimsby, Ont.	Seeds, <i>Bignonia radicans</i> .
38. Roberts, J. D., Cobourg, Ont.	Scions, apple—Reinette du Canada, Prince Albert, The Queen, Peasegood Nonsuch, Devonshire Quarrenden, Lord Suffield, Bedfordshire Foundling. Scions, pears—Fer- tility, Wilmot, Beurré Baltet, Marguerite Marillat, Beurre Chaudy, Directeur Alphande, Beurre de Martillet.
39. Ramsay, A. J., Central, Lot 16, P. E. I. ..	Scions, Apple No. 1 and No. 2.
40. Reid W. C., Belleville, Ont.	Scions, apple. Ontario.

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DONATIONS—*Concluded.*

Sender.	Donations.
41 Smith, A. M., St. Catharines, Ont.	Plants, gooseberry ; Pearl.
42 Van-Lindley, J., Pomona, N.C., U.S. ...	Trees, peach ; 2, Musser.
43 Williamson, W. J., Port Nelson, O.	Scions, apple ; seedling.
44 Whitten, C. E., Bridgeman, Mich.	Plants, strawberry ; 12, Satisfaction.
45 Williams, Thos., Orillia, Ont.	Scions, apple ; Keane's Seedling.
46 Waters, J. M., Fernhill, Ont.	Tips, raspberry ; 4, Triumph.
47 Yeisley, Charles, Lisbon, Iowa	Scions, apple ; Springdale, Allen's Choice, Banana, American Blush, Milding, Isherwood, Kohl's Early.

I have the honour to be, sir,

Your obedient servant,

JOHN CRAIG,

Horticulturist.

THE GRAPE.

The rapid development of the grape industry in America is without a parallel in the history of horticulture. This marvellous growth has been brought about by the ease with which the wild grape may be improved, and as a result of the application of intelligent effort. Within forty years have been produced, by patient effort and through chance production, more than 75 per cent of the 165 varieties described in the tabular statement in connection with this article. The following pages on this subject are directed to beginners in grape growing, to whom I trust it may prove helpful. The grape is exceedingly variable in its behaviour, and is more dependant for perfect success upon soil and climatic conditions than most of the edible fruited plants. For this reason it is not wise to place too much weight upon an opinion gained by testing a variety in a single locality. Slight differences in soil and aspect often create great modifications in the character of the fruit.

In the matter of the production of new varieties by the art of hybridization, as Canadians we may point with pride to the good systematic work done by a few of our foremost growers, some of whom we now regret to have to number with the honoured dead, Charles Arnold, of Paris, Ont. ; Peter C. Dempsey, Trenton, Ont. ; Robert Burnet, Hamilton, Ont., and W. H. Mills, Hamilton, Ont., all did excellent work in this line. The good work commenced by Prof. Wm. Saunders at London, Ont., has been continued by him in his capacity as Director of the Dominion Experimental Farms and is now bearing fruit.

There is still need for better varieties than we yet have—hardy early ripening kinds of good quality, suitable to the comparatively short season characteristic of Eastern Ontario and the province of Quebec. This work should be perseveringly pushed on till such varieties as Champion and Florence are supplanted. It is remarkable to note that growers, even in the most favoured portions of Ontario, find Champion one of the most profitable varieties. Happily, the market for grapes of this quality is comparatively limited, as they are soon crowded out by the more palatable varieties that follow closely upon their season of ripening.

The Botanical position of the Grapa.—Grapes belong to the genus *Vitis*, order *Ampelida*. Numbers of this genus are found in nearly all parts of the globe, with a few notable exceptions, as for example, Africa, Australia and South America. The classification of the species making up the genus *Vitis* has been a subject of some controversy.

Systematic botanists and botanical horticulturists are thus far not agreed upon the nomenclature of the species of this genus under cultivation. In the wild

state the grape is exceedingly variable, thus greatly increasing the classificatory difficulties. The botanical descriptions given below are those adopted by Dr. C. E. Bessey, botanist to the University of Nebraska, Lincoln. I have included only those species credited with being the progenitors of the cultivated varieties mentioned in the accompanying tabular statement. Dr. Engelmann, an authority upon the genus *Vitis*, refers to the fact that wild vines frequently bear sterile blossoms.

NORTHERN FOX GRAPE (*Vitis labrusca*, L.)—"A moderate sized climber, young branches very woolly; leaves large (4 inches to 6 inches wide), thick and of firm texture, entire or lobed, slightly dentate; rusty woolly beneath; berries in compact clusters, large, purple or amber, with a bloom, seeds, plump, heart-shaped, top notched with a groove."

Geographical Distribution.—"Eastern North America, from New England to South Carolina, and westward to the Alleghany Mountains." (Bessey). This species is the parent of the majority of the cultivated varieties of to-day. Its cultivation began about 100 years ago. Among the notable descendants are:—Catawba, Isabella, Diana and Concord, the advent of this latter variety marked an epoch in grape culture. Lindley, Agawan, Barry and other Roger's, hybrids belong to this type.

MUSTANG GRAPE (*Vitis Candicans*, Engel.)—"A tall climber with young branches woolly; leaves, rather large, white cottony below; rounded or five-lobed; berries, large, greenish, purplish, or black, with a bloom. Seeds plump, broadly heart-shaped, top notched with a broad, shallow groove. Geographical distribution Texas, from the Colorado to the Rio Grande, and west to the Pecos" (Bessey). This grape has recently been hybridized with cultivated varieties. One or two apparently valuable varieties have been developed. Elvicand has been favourably reported by the Experimental Station of New York.

SUMMER GRAPE (*Vitis Aestivalis*, Michx.)—"A moderate sized climber, with young branches rounded and sparsely hairy; leaves large (4 in. to 6 in. wide), entire or commonly three-lobed to five-lobed; of firm texture, rusty woolly beneath when young; nearly smooth when mature; berries in compact clusters, one-half inch to three-quarters of an inch in diameter, black with a bloom; seeds plump, heart-shaped, top with a rounded cord, not notched.

Geographical distribution.—New England to Ontario and Minnesota, Southward to Florida, Louisiana and Texas" (Bessey.)

The Summer Grape is the parent of a number of valuable wine grapes. It is more at home in the middle and southern states than in the north. One of them, Eumelan, has done well at Ottawa.

RIVERSIDE GRAPE (*Vitis Vulpina*, L. or *V. Riparia*, Michx, of the ordinary manuals).—"A vigorous high climbing plant with round branches, in which the woody partitions in the joints are very thin; leaves large, smooth, three-lobed; berries in small compact clusters, small (one-third inch diameter), black with a bloom; seeds plump, heart-shaped, top, with a groove or faint cord, slightly notched.

Geographical Distribution,—Western New England to Quebec, Minnesota and the Eastern slopes of the Rocky Mountains south to Pennsylvania, Kentucky, Arkansas, Texas and New Mexico common throughout Nebraska." (Bessey).

This species is the parent of a large and important class of cultivated varieties characterized by their thin-skinned fruit, their vigour and hardness of cane. Among them are Clinton, Brant, Canada and Bacchus.

EUROPEAN GRAPE (*Vitis Vinifera*, L.)—"A vigorous climber, with branches smooth, or nearly so; leaves, large, smooth, five-lobed to seven-lobed; berries, in the wild state, small and dark blue; under cultivation, large, with solid flesh of many colours; seeds plump, elongated, top-notched with a groove.

Geographical Distribution.—In its wild state from Asia Minor to Austria, Germany, Belgium, France, south to the Mediterranean Sea, and possibly in Algiers, Oran, and Tunis in Africa. Under cultivation it is now widely distributed." (Bessey). The characteristics of this species are well brought out in the firm fleshed, highly flavoured

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Kensington, produced by Dr. Saunders; the equally firm fleshed Mills, by W. H. Mills, of Hamilton, Ont., and in Secretary, produced by Jas. S. Ricketts, of Newburg, N. Y., U. S.

Propagation.—Grapes are among the easiest of the fruits to propagate. The usual method is by cuttings. A cutting is a piece of cane of one season's growth, containing three or four buds, usually nine to twelve inches in length. Cuttings are made in the fall from the strongest and best ripened wood after the annual pruning has taken place. The base of a bud forms the lower end of a cutting—roots are more readily emitted at this point. The amateur keeps these in a cold cellar, first tying the varieties in separate bundles, carefully labelled and packed in damp sawdust or earth. The nurseryman makes them into bundles containing 100 cuttings each. The lower ends are squared and the bundles packed away in earth in cold cellars, or stored in pits outside, well protected from the action of frost, by heavy coverings of soil and mulch. Some propagators make a point of placing the butt end of the bundle upwards, and only one tier deep. When the ground begins to warm in the spring, protective mulch and soil is taken away, leaving a covering of three or four inches of mellowed earth over the butts of cuttings. As the sun first warms the surface of the ground callousing action is, therefore, incited preparatory to the emission of roots from the cut surface of the cutting sooner than elsewhere which is difficult to propagate. The cuttings are examined occasionally and when roots begin to make their appearance the bundles are taken up and the cuttings transplanted in nursery rows. This is accomplished by means of a spade or dibble. All varieties do not strike with the same readiness. The relative ease with which they strike is dependant mainly upon the species from which they are derived. Those of *Labrusca* origin propagate readily, with one or two exceptions, as in the case of Moore's Early, which is generally higher priced than other standard sorts on that account. The descendants of *Riparia* and *Aestivalis* strike less freely. In such cases it is wise to resort to layering.

By Layering.—If a low growing cane is bent to the ground in spring and covered with earth it will throw out roots at the "joints"—buds. In the autumn the entire arm may be severed from the parent stock and often, as many rooted plants as there are buds on the cane may be obtained in this way. A sufficient depth of earth should cover the cane, especially at the buds, as will preserve a fairly uniform degree of moisture. The young plants should be set in nursery rows for a year before they are used for permanent planting. The Delaware is often grown from layers, because like Morre's early it is difficult to propagate from cuttings.

By Single Bud.—This is an economical method employed to multiply new or high priced varieties. A single bud or "eye" is used only. The bud is cut with an inch of cane on each side. The "Eyes" are packed in boxes with earth, or moss and stored in a cellar. Towards spring, the boxes are placed in a hot-bed or on a greenhouse bench, to induce callousing. When this takes place and the weather is sufficiently warm they are set in rows out of doors. They may also be grown in the greenhouse bench. They should be placed in a bench of sandy soil, two months before spring opens and will be ready for transplanting into cold frames in May, in this locality, and into nursery row a month later.

By Grafting.—The vine may be grafted by any method used in multiplying other plants. It is often desirable to change the variety of an old, well established plant. This may be done very easily by cleft grafting, the simplest of all methods. The operation in northern countries should be performed in early spring, the best time being at that period when the leaves are starting. The stock is cut off three or four inches below the surface of the ground, split by means of a wedge and mallet, and a scion of two buds in length then inserted. The cleft should be bound with a string and the soil replaced so as to cover the union. This completes the operation. Root grafting is largely practised in France, and is practically the same method as that employed in root grafting the apple (see Report 1895, page 82. In this case whole roots are only used.

THE VINEYARD.

The Site.—The investigating fruit-grower will find in Ontario healthy and paying vineyards, situated upon nearly all classes of soils. The grape is a warmth loving plant and undoubtedly the most favourable location is that which furnishes a loose, well drained clay loam, in addition to a free atmospheric circulation. Good soil drainage is imperative if a long-lived, productive vineyard is the ambition of the fruit-grower. There are examples of the ill effect of imperfect soil drainage to be found in some of the best grape growing sections of Ontario—a yellowing of the foliage—dropping of the fruit—indications are that there is something radically wrong. Occasionally late spring frosts visit us, the injury is most severe as a rule in the lower levels of the vineyard. In Eastern Ontario and Quebec where the summer heat requisite to bring some of our best varieties to maturity is deficient, a warm southern exposure should be selected. If this is protected by wind breaks on the north and west, so much the better.

Preparing the soil.—Hoed crops meaning those requiring cultivation, in summer as roots and potatoes, should precede vines. When the ground is cleared of these, a good plan is to plough it into narrow lands, allowing the dead furrow to fall into the line of each proposed row. Subsoiling is of prime importance and should be done as thoroughly as possible. If the ground is allowed to remain in this condition till spring, the pulverizing action of the frost will have acted beneficially upon the soil, greatly increasing its mellowness and friability.

Time to plant.—In the best grape growing sections, both fall and spring planting is practised, most growers claim, with equal success. The amount of leisure time, therefore, may be allowed to guide the planter, although in fall planting the ameliorating influence of the frost upon the soil previous to planting is lost. Fall set plants should also be protected by throwing a furrow against them on each side. In the east and north, spring is undoubtedly the best season.

Distance apart and how to plant.—Grapes, like apple trees, require room, according to their vigour—Delaware, Moore's Early and Moyer do well 8 x 8 feet apart, or even less. Strong growing varieties, like Concord and Niagara, need more room between the plants in the row and should be 10 feet apart, though as a general rule 8 x 10 feet is the distance used by most planters. At the north, it is important that the vine should be planted deeply, 15 inches to 18 inches being often recommended. To obtain this depth, the vine is planted in a hollow, which is filled gradually subsequent to the growth of the plant. Ten to twelve inches may be accepted as the ordinary depth. It always pays to buy strong plants. They quickly return the price in fruit. Occasionally satisfactory yearlings may be secured, but strong two year olds are much better. As in setting out tree fruits, be careful to remove all bruised portions of roots; the fibres should not be allowed to become dry; the earth should be firmly packed about the roots.

Intermingling varieties in the vineyard.—It has long been a common observation that certain varieties set loose straggling bunches when planted in blocks by themselves. This is the result of imperfect pollination. The experiments of Prof. S. A. Beach, of the New York Experiment Station at Geneva, have given us a list of those varieties, fertile, partially fertile and nearly, or wholly sterile, with their own pollen. It will be noticed that the majority of the self-sterile varieties are hybrids—the product of two distinct species.

* The following list is only partial but includes the principal commercial varieties

I. Grapes fully self-fertile—

Variety.	Parentage.	Variety.	Parentage
Campbell,	Lab. x Vin.	Poughkeepsie, Red,	Lab.
Delaware,	Vin. x	Rogers' No. 13,	Lab.
Janesville,	Lab. x Vulp.	Rogers' No. 24,	Lab.
Moore's Early,	Lab.	Rogers' No. 32,	Lab.
Niagara,	Lab.	Winchell,	Lab.

* A complete list is given in the Annual Report of the Ontario Fruit Growers' Association, p. 98.

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II. Grapes partially self-fertile, but practically capable of fruiting satisfactorily if planted alone :—

<i>Variety.</i>	<i>Parentage.</i>	<i>Variety.</i>	<i>Parentage.</i>
Agawam,	Vin x Lab.	Empire State,	Lab.
Brilliant,	Lab. x Vin.	Jefferson,	Lab.
Catawba,	Lab.	Vergennes,	Lab.
Clinton,	Vulp.	Worden,	Lab.
Concord,	Lab.		

III. Grapes partly self-fertile ; set fruit unsatisfactorily when planted alone :—

<i>Variety.</i>	<i>Parentage.</i>	<i>Variety.</i>	<i>Parentage.</i>
Adirondack,	Lab.	Duchess,	Lab.
Amber Queen,	Rip.	Eumelan,	Lab.
Canada,	Rip. x.	Perkins,	Aest.

IV. Grapes which bear abortive fruit, but do not perfect fruit when planted alone :—

<i>Variety.</i>	<i>Parentage.</i>	<i>Variety.</i>	<i>Parentage.</i>
Aminia, (Rogers' No. 39),	Lab.	Merrimac, (Rogers' No. 19),	Lab.
Brighton,	Lab.	Requa, (Rogers No. 28),	Lab.
Essex, (Rogers' No. 41),	Lab.	Rogers' No. 5,	Lab.
Gaertner, (Rogers' No. 44),	Lab.	Salem, (Rogers' No. 53),	Lab.
Massasoit, (Rogers' No. 3),	Lab.	Wilder, (Rogers' No. 4),	Lab.

V. Grapes in which self-pollination has no perceptible influence on the ovary, —

<i>Variety.</i>	<i>Parentage.</i>	<i>Variety.</i>	<i>Parentage.</i>
Amber,	Vin x Lab.	El Dorado,	Lab x Vin.
Barry (Rogers' No. 43),	Lab. x Vin.	Lady,	Lab x Vin.
Creveling,	Vin x Aest.	Lindley, (Rogers' No. 9),	Lab x Vin.
Eaton,	Lab.	Norwood,	Lab.

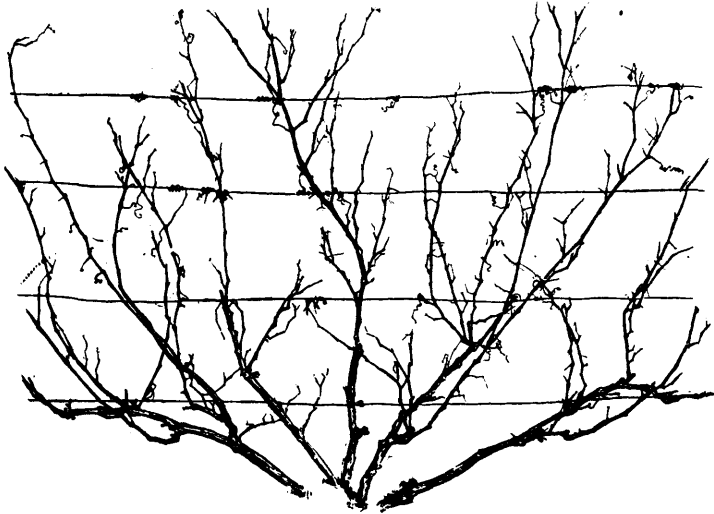
Cultivation.—“Frequent cultivation” should be a motto in growing a vineyard. The surface should be kept mellow by the frequent passage of the cultivator or grape hoe. This latter, is an exceedingly useful implement in the vineyard or small fruit plantation. In a dry season the importance of frequent shallow cultivation, as a means of retaining the moisture of the soil, is not easily over estimated. A good practice is to plough to the vines in the late summer and away from them in the spring. The furrows nearest the trellis should be very shallow, as the surface soil is filled with fibrous roots. The cultivator and grape hoe will do the work during the remainder of the season. A cover crop is of great service in the north, to catch the snow, and thus afford protection to the roots of the vines. Crimson clover does not, as a rule, make sufficient growth to afford much protection when sown as late in the season as seems desirable. Probably rye or field pease will serve the purpose and will also give some return when ploughed under. Grape growers in this vicinity make special arrangements in the way of providing movable “snow catchers” for the more exposed parts of their vineyards. This is very important when the vines are young.

Fertilizers.—Heavy fertilizing with barnyard manures will, in most cases, induce an over luxuriant growth with a tendency to mildew of foliage and fruit. A dressing of barnyard manure once in three years will probably give sufficient nitrogen. The phosphoric acid and potash (both of which are largely drawn upon by the grape vine) should be supplied the two remaining years. Wood ashes or muriate of potash, and superphosphate or bone meal will supply these.

Training and Pruning.—To carry out any system of pruning properly, and there are many, one should understand the underlying principles, and these are the same throughout.

The vine produces its fruit near the base of the growing shoots that spring from the wood of last season's growth. These shoots go on growing after producing two or three clusters of fruit; a bud is formed every six or eight inches. If the cane makes a growth of eight or ten feet it would mean a dozen or more such buds. Then if this cane were not cut back each bud would throw out a shoot the following spring, which would bear two or three bunches of fruit. As each vine would carry ten or fifteen such canes it is easily seen that the crop of fruit would be greater than the vine could properly develop and mature. Pruning, is therefore, practised as a means of thinning the crop and keeping the vines within bounds and under control.

In Quebec and Eastern Ontario, where vines need winter protection, and are carried through the winter by laying them down and covering them with earth, two systems of training are practicable only. Whatever system, the cane may be cut back, to two eyes at the close of the first year's growth in the vineyard.



Fan system before pruning. (From a photograph.)

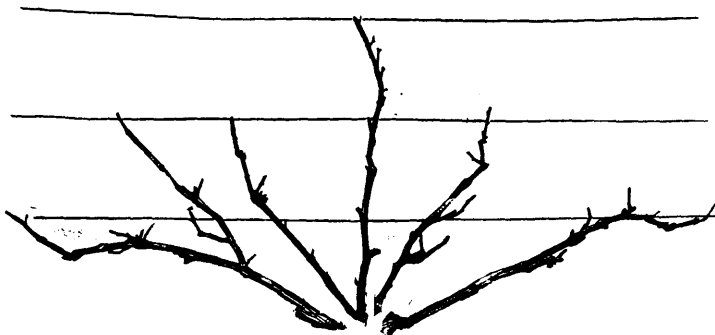
Fan System.—This is used most freely where vines are protected in the autumn by laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis.

There is a tendency on the part of the grower to allow too much wood to remain on the plant in the autumn, especially when it is young. The vine should not be allowed to bear the second year after setting out, and only a small crop the third year. I quite realize that instructions of this kind are much easier given than understood and carried out. A heavy crop of fruit borne by young vines the third year after planting will sometimes ruin the yield for two or three succeeding years, and often destroy the vines. The prospective crop may be more or less accurately estimated by multiplying the number of buds by two, this kind of estimate may be used as a guide in pruning. The fan system aims, at starting the canes near the ground, giving the vine practically several main stems.

High Renewal.—This system, or modifications of it, are probably more generally adopted throughout Ontario than any other. It aims at starting the head about two feet from the ground, so that the main branches are tied to the lower wire. The vine is usually started the second year with two canes striking out in Y-shaped fashion. In the fall of the same year all side shoots are cut back closely and the main canes cut back

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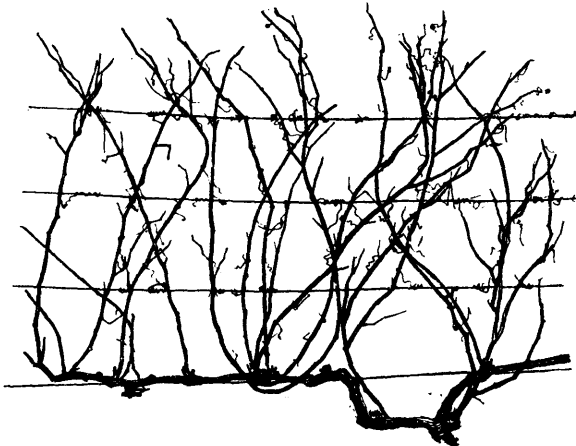
to four or five buds each. The third season three or four of the strongest shoots springing from the centre of the head are allowed to grow. In the autumn these replace the outer arms, and are in turn replaced by them the following season. The aim is, then to renew the fruiting canes from different parts of the old wood every year. The number of buds to be left will depend upon the strength of the variety and the individual plant.



Fan system, pruned. (From a photograph.)

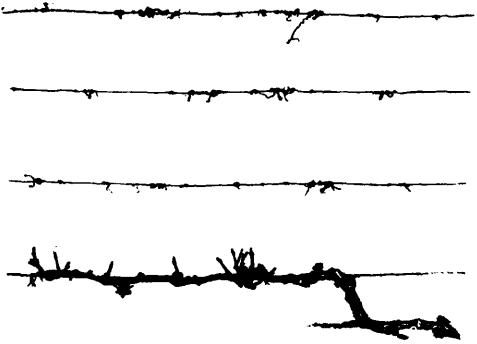
Concord, Niagara and Worden will carry with safety more wood than Moore's Early or Delaware. As the canes grow they are tied to the wires of the trellis, distributing the foliage as much as possible. It is usually found necessary to go over the vineyard two, three and, occasionally four times, during the summer, in order to properly secure rapidly growing wood, so that the bunches are held clear of the ground. When the head becomes weak, as it may, after a few years, it is necessary to train up a new shoot from the ground.

Horizontal System.—This method of training is especially adapted to sections of the country where it is advisable to give the vines winter protection. Two strong canes are trained in opposite directions. The laterals springing from these are trained perpendicularly. In the autumn the laterals are cut back to two spurs. When the spurs become weak they are renewed, as is an entire arm occasionally. This system calls for a four-wired trellis, in order to properly tie the strong laterals. The three methods of training described thus far, are all on the upright plan; in those which follow, the vines hang down and are termed the drooping system.



Horizontal system, before pruning. (From a photograph).

Four Cane Kniffen.—In this system the trellis consists of two wires. The main cane is carried to the top wire and from it an arm is trained each way on the two wires. The side canes are tied to the wires and the lower ends allowed to hang free. The advantage of this system over others is that it obviates a large amount of tying and perhaps lessens the amount of summer pruning. This Kniffen system is largely used in the Hudson River Valley, N.Y., where it originated. It has been strongly recommended and is in favour for strong growing varieties. In pruning a full grown vine, the upper arms are usually allowed to carry a greater number of buds than the lower. Thus, many allow ten buds to the upper, and five buds to the lower canes. The arms should be stretched along and attached firmly to their respective wires; from these the laterals droop. When the arms become weak they are renewed from the head.



Horizontal system pruned. (From a photograph).

Modifications of this system are found—one umbrella-like, falls from a single high wire only, others carry six or eight canes, but all are drooping.

Over-head or Arbour-Kniffen.—This method of training is practised by a few prominent fruit growers in Ontario. The vines are carried up seven foot posts and allowed to rest on cross wires, forming in this way a kind of arbour. One plan is to nail a cross piece to each post at right angles to the pole. This extends three feet on each side. Three wires are stretched on these, one at each end, the other in the middle to the posts. The trellis is thus a horizontal one and six feet above the ground. An unbranched trunk is carried up to the middle wire and the canes spread either side from this point. A T-shaped head is considered the ideal form. Another over-head system is known as the “Cross Wire Kniffen.” In this a small post six or seven feet high is set for each vine. The tops of the posts are connected by cross wires. The vines are trained up the posts, and on reaching the top four arms are trained outwards, one on each wire. In the autumn the arms are cut back to six or eight buds each. In the case of the over-head systems, movable platforms may be used in harvesting the fruit.

Post Training.—This has been used at Ottawa in order to compare it with trellised vines. It has not given satisfactory results. When the foliage is crowded on a small post the fruit colours slowly and unevenly, and mildew and rot are encouraged.

Summer Pruning.—It is always desirable to remove the shoots that spring from or near the base of the vine, except when they are required for a special end. These shoots are quickly broken out, or nipped off when still soft and succulent. A certain amount of shortening back is also desirable. This should not be done too early in the season. In summer pruning of Lindley, for instance, I have found it best to shorten back after the first strong growth has taken place. If pinched early in the growing season a great mass of laterals is produced and the amount of work very much augmented.

The Trellis.—It is well to set the posts the year following the planting of the vineyard. If trained on the upright system, the posts should stand five feet to six feet above ground, and be not less than six feet high if the over-head system is adopted. Cedar or oak are preferred on account of durability. The end posts of each row should be thoroughly and efficiently braced, either with a brace on the inside, or on the outside, with a strong wire running from the top of the post to a stone firmly embedded in the ground. No. 12, plain annealed wire is ordinarily used and is fastened to the posts by wire staples. The posts are usually set far enough apart—in the upright systems—to allow of two vines being planted between each two posts. The wires should be run through the end post and be attached to and wound around a piece of wood, which will act as a spool, to enable the growers to tighten them in the spring and to loosen them

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in the autumn, thus allowing for contraction. Raffia—the product of a palm-like plant—wool twine and osier willows are used in trying the canes to the trellis. The first named, is a cheap and very satisfactory material for the purpose.

CARE OF THE FRUIT.

Thinning.—Reference has already been made to the desirability of pruning with a view to restricting the quantity of fruit and of providing for its even and irregular distribution upon the vine. The size of the bunches may be materially enlarged by a judicious removal of the smaller clusters. The size of the berries may also be increased by thinning the berries on each bunch where they are closely set. The average grower cannot afford the time required to do the latter, except, perhaps, in the case of exhibition samples—nor do all varieties call for this treatment. In this age of keen competition it will, I believe, pay growers to remove a portion of the smaller bunches when “tying” and “suckering.” The effect will be seen in the improved size and appearance of the remaining product. “Ringing” canes, which produces large clusters and berries, at the expense of quality, should be discouraged.

Spraying.—This is not always needed. If properly done, it is always effective. Downy mildew attacking leaves and fruit, may be prevented by using Bordeaux mixture. Make the first application as the buds are bursting, the second, just after the fruit has set, and the third, two weeks later. If later applications are needed, Ammoniacal Copper Carbonate should be used. Powdery mildew also yields to Bordeaux mixture. “Anthracnose” or “Bird’s Eye rot,” is one of the most serious troubles affecting grapes in Eastern Ontario and the province of Quebec. It is kept in check only when the utmost care and vigilance is exercised.

- 1.—Spray the canes when uncovered and still dormant, with Copper Sulphate, 1 pound to 25 gallons of water.
- 2.—Follow this with Bordeaux mixture, as directed above.
- 3.—Remove and destroy diseased foliage and fruit as soon as it makes its appearance.
- 4.—Fertilize with wood ashes and bone meal, supplemented with light dressings of well rotted barn-yard manure.

Picking and Packing.—Growers almost invariably pick into the baskets that are shipped to market. Thin skinned grapes of fine quality, like Delaware and Brighton, should always be packed in small baskets. A ten-pound “vener” basket is a favourite in the Niagara district. A basket rack, holding two baskets, is a convenient device to use in the vineyard. The bunches may be cut with a sharp knife or pruning shears, as preferred. They should be cut off close to the cane and placed stem end down in the basket, laying the bunches regularly till the receptacle is filled. The filled baskets are taken to the packing house, weighed, the finishing touches put on, in the way of facing, etc., and then covered. A leno cover of suitable colour attached to a veneer frame, when fastened down, completes the package, the name of the variety being stamped upon the end or top. The bunches should always be handled gently to prevent bruising and cracking. Concord and Worden are usually shipped in 20-pound baskets. Good keepers like Vergennes and Catawba, are sold, advantageously in winter in 5-pound packages.

The following table contains information relative to the characteristics and yield of 167 (?) varieties grown in the vineyard at the Central Farm. The yields given are somewhat under the actual returns as no account has been rendered of the bunches taken for exhibition samples each year. This sometimes amounted to four or five pounds. All varieties were treated as nearly as possible alike in this respect, still, the more productive varieties were naturally drawn upon more freely than the weaker growers and lighter bearers.

CHARACTERISTICS and Yield of different Varieties of Grapes

Name.	When Planted.	Place of Origin.	Parentage.	Vigour, 1 to 10.	Freedom from Disease, 1 to 10.	Date of Blooming.
						1895.
Ariadne	1888	Newburgh, N. Y.	Rip. × Vin.	8	8	June 14..
Antoinette	1888	New Jersey.	Labr.	8	8	do 21..
Amber Queen	1888	Norwood, Mass.	Labr. hybr.	8	7	do 19..
Alma	1888	Newburgh, N. Y.	Rip.	8	7	do 21..
Alvey	1888	Hagerstown, Md.	Æst. hybr.	8	8	do 22..
August Giant	1888	Norwood, Mass.	Rip. hybr.	9	7	do 20..
Abyssinia	1888	Hamilton, Ont.	Rip.	8	8	do 21..
Autuchon	1888	Paris, Ont.	Rip. hybr.	7	8	do 21..
Alexander Winter	1891	Bellefontaine, Ohio.	Labr.	8	7	do 20..
Aminia, (Rogers' No. 19)	1888	Salem, Mass.	Labr. hybr.	8	8	do 21..
Agawam, (Rogers' No. 15)	1888	do	do	9	7	do 19..
Amber	1888	Bluffton, Mo.	Rip. × Labr.	8	7	do 18..
Allen's Hybrid	1888	Salem, Mass.	Labr. × Vin.	7	6	do 21..
Brant	1888	Paris, Ont.	Rip. hybr.	8	6	do 20..
Barry, (Rogers' No. 43)	1888	Salem, Mass.	Labr. hybr.	9	8	do 20..
Beta	1888	London, Ont.	Vin. hybr.	8	8	do 15..
Belvidere	1888	Belvidere, Ill.	Labr.	7	8	do 21..
Black Elvira	1888	Morrison, Mo.	Rip. hybr.	9	8	do 20..
Burnet	1888	Albury, Ont.	Labr. hybr.	8	7	do 22..
Bacchus	1888	Newburgh, N. Y.	Rip.	9	8	do 12..
Beauty	1888	Morrison, Mo.	Æst. hybr.	8	6	do 20..
Brighton	1888	Brighton, N. Y.	Labr. × Vin.	9	7	do 21..
Berkman's	1888	Chester, S. C.	Rip. hybr.	9	8	do 15..
Brilliant	1891	Denison, Tex.	Labr. hybr.	7	8	do 19..
Berlin	1894	Ionia, Mich.	Labr.	8	8	do 19..
Clinton	1888	New York.	Rip.	10	10	June 13..
Cynthiana	1888	Arkansas.	Æst.	8	8	do 19..
Canada	1888	Paris, Ont.	Rip. hybr.	9	8	June 18..
Creveling	1888	Pennsylvania.	Labr. hybr.	8	5	do 17..
Cottage	1888	Concord, Mass.	Labr.	8	8	do 19..
Critic	1894	North Carolina.	do	7	8	do 19..
Concord	1888	Concord, Mass.	do	9	8	June 19..
Cornucopia	1888	Paris, Ont.	Rip. hybr.	8	7	do 19..
Cambridge	1888	Cambridge, Mass.	Labr.	9	8	do 21..
Challenge	1888	New Jersey.	Labr. hybr.	8	7	do 12..
Conqueror	1888	do	do	8	8	do 14..
Champion	1888	New York ?	Labr.	9	8	do 17..
Canterbury	1888	do	do	8	7	do 20..
Clevener	1888	New Jersey.	Rip.	9	8	do 12..
Cunningham	1888	Virginia.	Æst.	7	8	do 17..
Catawba	1888	North Carolina.	Labr.	9	7	do 21..
Chase Bros.	1888	Brighton, N. Y.	do	8	8	do 21..
Campbell, G. W. (Early Golden) ..	1891	Denison, Tex.	Labr. hybr.	7	7	do 22..
Delaware	1888	New Jersey.	Vin. hybr.?	8	9	do 21..
Dracut Amber	1888	Dracut, Mass.	Labr.	9	8	do 18..
Don Joan	1888	Newburgh, N. Y.	Labr. hybr.	7	6	do 22..
Diana	1888	Milton, Mass.	Labr.	8	6	do 20..
Duchess	1888	Newburgh, N. Y.	do	8	6	do 27..
Early Victor	1888	Kansas.	do	7	6	do 17..
Essex, (Rogers' No. 41)	1888	Salem, Mass.	Labr. hybr.	7	8	do 20..
Eaton	1888	Concord, Mass.	Labr.	7	8	do 19..
Eumelen	1888	Fishkill, N. Y.	Æst.	8	7	do 23..
Elainburg	1888	New Jersey.	do	7	7	do 25..
Eva	1888	Bluffton, Mo.	Labr.	8	6	do 21..
Etta	1888	Morrison, Mo.	Rip.	9	7	do 17..
Eldorado	1 888	Newburgh, N. Y.	Labr.	8	7	do 20..

Experimental Farms

grown in the Vineyard at the Central Farm.

Date of Ripening.	Colour.	Average yield per Vine.		Useful for Wine or Dessert.	Remarks.
		Number of years.	Lbs. Ozs.		
1895.					
Oct. 12.	Black	2	2 12	Wine	Valueless in Eastern Canada.
Sept. 16	White				A seedling of Concord.
Oct. 3.	Reddish purple	4	14 9	Table	Differs in colour from that grown by others in this vicinity.
do 2.	Black	4	4 0	Wine	Does not seem to be valuable.
do 3.	do	2	2 2	do	Not suited to this locality.
do 6.	Reddish black	4	11 6	do	Though vigorous, occasionally winter kills.
Sept. 29.	Black	4	8 6	do	Hardy.
Oct. 2.	White	4	2 3	do	Does not appear to be valuable.
do 1.	Dark amber	2	1 0	Table	Proves tender in this locality.
Sept. 20.	Dark purple	4	2 8	do	One of the most valuable of the Rogers.
Oct. 8.	Dark red	4	9 3	do	Needs spraying.
Sept. 29.	Pale amber	4	3 1	do	Too late in this locality.
do 20.	Golden white	4	6 4	do	Good quality.
Oct. 5.	Black	4	5 0	Both	Much affected by anthracnose.
Sept. 22.	do	4	8 0	Table	Ripens evenly; keeps well.
do 27.	do	1	3 8		
do 16.	do	4	4 13	do	Neither large nor attractive.
Oct. 3.	Blue black	4	18 11	Wine	Rather late for this locality.
Sept. 29.	Purplish black	4	5 9	Table	Keeps fairly well.
Oct. 5.	Black	4	8 6	Wine	A good wine grape at the north.
do 9.	Bright red	3	7 0	Table	Later than Concord.
Sept. 23.	Bright amber	4	3 1	do	Of fine quality, but perishable.
Oct. 3.	Pale red	4	6 0	do	Larger than Delaware; not equal in quality
Sept. 25.	Deep garnet	2	2 2	do	Of fine quality, but not productive.
do 25.	White	1	0 4	do	
Oct. 4.	Black	4	8 0	Wine	Uncertain in ripening at Ottawa.
do	do			do	Vines killed out.
Oct. 5.	do	4	3 10	do	Appreciated as a dessert grape by some.
do 10.	Blue black	4	7 9	Table	Suffers severely from anthracnose.
Sept. 25.	Purplish black	4	9 10	do	Shells badly.
	Red			do	Description taken from Bushberg's catalogue.
Oct. 2.	Black	4	18 8	Black	Reliable, but late.
Sept. 28.	do	4	4 9	Table	Usually too late.
Oct. 1.	do	4	4 11	do	Resembles Concord closely.
do 15.	Pale red	2	3 2	do	Sets and ripens unevenly.
Sept. 27.	Black	4	2 0	do	Pulp tough.
do 10.	do	4	15 13	?	Productive, but of poor quality.
Oct. 15.	do	3	17 6	Table	Not valuable.
Sept. 27.	do	4	8 1	Wine	Resembles Clinton.
do 29.	do	3	8 0	do	
Oct. 15.	Dark red	3	6 0	Table and wine.	An old standard variety.
Sept. 14.	do	4	4 4	do	An unintroduced variety.
do 23.	Yellowish white	1	1 8	do	Not promising.
do 16.	Light red	4	8 10	Dessert	Does well on gravelly soils when sufficiently fertilized.
do 14.	Pale red	4	17 0	do	Shrivels and drops badly.
Oct. 10.	Dark amber	4	2 12	Table	Much affected by anthracnose.
do 15.	Lilac pink	4	6 0	Wine and table.	Too late.
do 3.	White	4	8 4	Table	Quality good; berries spot badly.
Sept. 16.	Black	4	10 4	Both	Berry shrivels soon after ripening.
Oct. 5	do	4	9 8	Dessert	Has not been productive.
Sept. 27.	Blue black	3	7 0	Table	Has not proved productive.
Oct. 1.	Black	4	15 8	do and wine.	Of rich vinous flavour.
do 15.	do	4	3 0	Wine	Small and worthless.
Sept. 16.	White	4	4 4	do	Too late in this locality.
Oct. 5.	do	4	17 10	do	do
Sept. 16.	do	3	2 0	Table	Fine quality; sets badly.

CHARACTERISTICS and Yield of different Varieties of Grapes

Name.	When Planted.	Place of Origin.	Parentage.	Vigour, 1 to 10.	Freedom from Disease, 1 to 10.	Date of Blooming.
						1895.
Excelsior	1888	Newburgh, N. Y.	Labr. hybr.	9	7	June 20..
Elvira	1888	Morrison, Mo.	Rip. hybr.	9	8	do 18..
Eclipse	1891	Leavenworth, Ks.	Labr.	7	8	do 23..
Empire State	1888	Newburgh, N. Y.	Labr. × Rip.	7	8	do 21..
Early Ohio	1894	Euclid, Ohio.	Labr. hybr.	7	8	.....
Florence	1888		Labr.	7	9	June 20..
Farrell	1891	Leavenworth, Ks.	do	8	9	do 24..
Faith	1888	Morrison, Mo.	Rip.	8	6	do 18..
Gartner (Roger's No. 14)	1888	Salem, Mass.	Labr. hybr.	9	7	June 21..
Grein's Golden	1888	Hermann, Mo.	Rip. hybr.	8	6	do 18..
Grein's No. 4	1888	do	do	9	7	do 17..
do 7	1888	do	do	8	7	do 19..
Golden Gem	1888	Newburgh, N. Y.	Æst. hybr.	7	7	do 20..
Golden Drop	1888		Labr. hybr.	7	7	do 18..
Herbert (Roger's No. 44)	1888	Salem, Mass.	do	9	8	do 18..
Hartford Prolific	1888	Hartford, Conn.	Labr.	9	9	do 17..
Hosford	1894	Ionia, Mich.	do	7	.....	.....
Hermann Jaeger	1891	Denison, Tex.	Æst. × Linc.	9	8	June 21..
Highland	1888	Newburgh, N. Y.	Labr. hybr.	7	7	do 22..
Hofer No. 2	1891	McGregor, Iowa	Labr.	7	9	do 22..
Hayes	1888	Concord, Mass.	do	9	8	do 22..
Imperial	1888	Newburg, N. Y.	do	8	6	.....
Isabella	1888	South Carolina	do	9	7	June 18..
Israella	1888	New York	do	8	7	do 21..
Ideal	1891	Leavenworth, Kan.	Æst. ×	7	8	do 18..
Iona	1888	Iona Island, N. Y.	Labr.	8	7	do 22..
Ives	1888	Cincinnati, O.	do	8	7	.....
Irving	1888	Croton Point, N. Y.	do hybr.	8	7	June 17..
Jewel	1891	Leavenworth, Kan.	Æst.	8	8	do 22..
Janesville	1888	Wis.	Labr.	8	8	do 15..
Jefferson	1888	Newburgh, N. Y.	do	8	7	do 18..
Jessica	1888	St. Catharines, Ont.	Vin. hybr.	8	7	do 20..
Kensington	1888	London, Ont.	do	8	8	do 18..
Leavenworth	1891	Leavenworth, Kan.	Labr. hybr.	8	8	do 21..
Lindley (Rogers' No. 9)	1888	Salem, Mass.	do	9	7	do 19..
Lady Washington	1888	Newburgh, N. Y.	Labr.	8	8	do 20..
Lady	1888	Ohio.	do	7	8	do 21..
Merrimac (Rogers' No. 19)	1888	Massachusetts	Labr. hybr.	9	8	do 21..
Moores' Early	1888	Concord, Mass.	Labr.	7	9	do 21..
Marion	1888	Pennsylvania.	Rip.	9	7	do 14..
Monroe	1888	Rochester, N. Y.	Labr. hybr.	7	8	do 21..
Mills	1891	Hamilton, Ont.	Vin. hybr.	8	7	do 22..
Montefiore	1888	Morrison, Mo.	Rip. hybr.	8	6	do 19..
Maxatawney	1888	Pennsylvania.	Labr.	9	8	do 20..
Mary	1888	Griffin, Ga.	do hybr.	9	7	do 19..
Moyer	1888	Lincoln County, Ont.	Æst. hybr.	7	8	do 20..
Massasoit (Rogers No. 3)	1888	Salem, Mass.	Labr. hybr.	8	7	do 20..
Martha	1888	Lebanon, Penn.	Labr.	8	8	do 19..
Missouri Reising	1888	Hermann, Mo.	Rip. hybr.	9	6	do 13..
Moore's Diamond	1888	Brighton, N. Y.	Lab.	8	8	do 22..
Mason's Seedling	1888	Mascoutah, Ill.	do	7	7	do 22..
Norton	1888	Richmond, Va.	Æst.	9	8	do 25..
Naomi	1888	Newburgh, N. Y.	Rip.	8	8	do 21..
Norfolk Muscat	1888	Norwood, Mass.	Labr. hybr.	7	7	do 21..
Northern Muscadine	1888	New Lebanon, N. Y.	do	9	7	do 17..

Experimental Farms.

grown in the Vineyard at the Central Farm—*Continued.*

Date of Ripening.	Colour.	Average yield per vine.		Useful for Wine or Dessert.	Remarks.	
		Number of years.	Lbs.			Ozs.
1895.						
Oct. 12.	Pinkish red.....	3	3	13	Table.....	Ripens too late.
do 1.	White.....	4	4	0	Wine.....	A thin-skinned wine grape.
Sept. 28.	Green.....	4	2	0	Table.....	Later than Concord.
Oct. 1.	White.....	2	3	13	do.....	Has not been productive.
	Black.....				do.....	Vines killed by frost after bearing one crop.
Sept. 6.	do.....	4	7	10	do.....	Valuable only on account of earliness.
Oct. 9.	White.....	4	2	8	do.....	Vine somewhat tender.
Sept. 16.	do.....	4	5	0	do.....	Berries small; worthless here.
do 25.	Bright red.....	4	5	13	do.....	Good quality.
do 18.	Golden yellow.....	4	14	10	do.....	Too tender for a market variety.
Oct. 1.	Greenish white.....	4	7	3	Wine.....	Thin skinned and tender.
Sept. 25.	White.....	4	11		Table.....	A thin skinned, tender fleshed variety.
do 14.	Golden yellow.....	3	2	9	do.....	Valuable only to the amateur.
do 10.	Yellowish white.....	4	2	11	do.....	do do
do 27.	Black.....	4	18	2	do.....	A reliable Rogers' variety.
do 16.	do.....	4	9	12	do.....	Productive, vigorous, poor quality. Not fruited.
Oct. 10.	Purplish black.....	2	1		Table.....	Ripens imperfectly.
do 9.	Black.....	4	10		do.....	Too late in this locality.
Sept. 16.	do.....	3	1	10	do.....	Concord type.
do 12.	White.....	4	2	9	do.....	Does well on sandy loam.
	Pinkish white.....				do.....	Perishable.
Oct. 8.	Dark purple.....	4	13	2	Table and wine.....	Does not ripen perfectly here.
do 10.	Black.....	4	10		Wine.....	do do
Sept. 19.	Amber.....	4	1	9	Table.....	Vine seems to lack vigour.
Oct. 9.	Bright amber.....	4	7	13	do.....	Too late.
	Purplish black.....				Wine.....	Vines proved tender.
Sept. 19.	Yellowish white.....	4	6	5	Table.....	Too late.
do 8.	Black.....	2	1	4	do.....	Seems to be an improvement on Janesville.
do 20.	do.....	4	5		do.....	Slightly better in quality than Champion.
do 18.	Light red.....	4	11	3	do.....	Keeps well.
do 19.	White.....	4	10		do.....	Rather late.
do 27.	do.....	4	11	11	do.....	Valuable amateur variety.
Oct. 1.	Black.....	3	3	4	do.....	This may not be true to name.
Sept. 16.	Red.....	4	8	12	do.....	Is badly attacked here by anthracnose.
Oct. 5.	White.....	4	1	6	do.....	Inclined to drop from bunch.
Sept. 12.	do.....	4	4	9	do.....	Valuable on account of earliness.
do 9.	Black.....	4	9	10	do.....	Should be planted with other varieties
do 12.	do.....	4	3	6	do.....	Needs good cultivation.
Oct. 1.	do.....	4	10	13	Wine.....	Bears heavily.
Sept. 20.	do.....	4	7	12	Table.....	Ripens early, but poor in quality.
Oct. 15.	do.....	2	2		do.....	Fine quality. European type.
Sept. 25.	Blue black.....	4	5	12	Wine.....	Ripens unevenly.
do 16.	Light amber.....	4	5	12	Table.....	Berries mildew somewhat and drop badly.
do 29.	Bright red.....	4	11		do.....	Very much like Lindley.
do 10.	do.....	4	4	12	do.....	Valuable on account of earliness only.
do 29.	Dark red.....	4	15		do.....	Needs spraying.
do 16.	White.....	4	8		do.....	Fairly early and productive.
do 30.	Greenish white.....	4	14	3	Wine.....	Too late in this locality.
do 29.	do.....	4	5	3	Table.....	Rather tender for distant shipment.
do 27.	White.....	4	3	5	do.....	Does not seem valuable.
Oct. 8.	Black.....	4	4	12	Wine.....	Ripens fairly well.
do 5.	do.....	4	8	13	do.....	Too small.
Sept. 29.	Lilac.....	4	2	9	Table.....	Holds to the bunch fairly well.
do 29.	Dark amber.....	4	9	3	Wine.....	Drops from bunch badly.

CHARACTERISTICS and Yield of different Varieties of Grapes

Name.	When Planted.	Place of Origin.	Parentage.	Vigour, 1 to 5.	Freedom from Disease, 1 to 5.	Date of Blooming.
						1895.
Noah.....	1888	Nauvoo, Ill.....	Rip.....	9	2	do 14..
Niagara.....	1888	Lockport, N.Y.....	Labr.....	9	8	do 20..
Northern Light.....	1891	L'Original, Que.....	do.....	7	8	do 21..
Norwood.....	1888	Norwood, Mass.....	do hyb.....	8	7	do 17..
Othello (Arnold's Hybrid No. 1).....	1888	Paris, Ont.....	Rip. hyb.....	9	7	do 19..
Oriental.....	1888	Norwood, Mass.....	Labr. hyb.....	9	6	do 21..
Owosso.....	1888	Michigan.....	Labr.....	9	7	do 20..
Ozark.....	1891	Leavenworth, Kans.....	Æst.....	7	8	do.....
Oneida.....	1888	Oneida County, N.Y.....	Labr. hyb.....	6	7	June 21..
Pizzaro.....	1888	Newburgh, N.Y.....	Rip. hyb.....	8	7	do 19..
Pattison.....						do 12..
Peabody.....	1888	Newburgh, N.Y.....	Rip.....	8	6	do 20..
Potter.....	1888	Rhode Island.....	Labr.....	9	8	do 18..
Paragon.....	1891	Leavenworth, Kan.....	Labr. hyb.....	8	8	do 22..
Perkins.....	1888	Mass.....	Labr.....	7	7	do 19..
Poughkeepsie.....	1888	Poughkeepsie, N.Y.....	Labr. hyb.....	8	8	do 22..
Prentiss.....	1890	Puetney, N.Y.....	Labr.....	9	5	do 18..
Pearl.....	1888	Morrison, Mo.....	Rip.....	8	4	do 14..
Pocklington.....	1888	Sandy Hill, N.Y.....	Labr.....	7	8	do 19..
Rogers No. 17.....	1888	Salem, Mass.....	do hyb.....	8	8	do 17..
do 2.....	1888	do.....	do.....	8	7	do 20..
do 33.....	1888	do.....	do.....	8	7	do 20..
do 36.....	1888	do.....	do.....	8	8	do 18..
do 5.....	1888	do.....	do.....	7	7	do 18..
do 13.....	1888	do.....	do.....	7	7	do 21..
Rogers' No. 24.....	1888	Salem, Mass.....	Labr. hyb.....	7	7	June 15..
do 30.....	1888	do.....	do.....	8	7	do 21..
do 32.....	1888	do.....	do.....	8	7	do 21..
do 34.....	1888	do.....	do.....	8	6	do 18..
Requa (Rogers' No. 28).....	1888	do.....	do.....	7	6	do 17..
Rebecca.....	1888	Hudson, N.Y.....	Labr.....	6	7	do 17..
Rommel.....	1891	Denison, Texas.....	Rip. hyb.....	8	7	do 20..
Secretary.....	1888	Newburgh, N.Y.....	do.....	7	7	do 21..
Senasqua.....	1888	Croton Point, N.Y.....	Labr. hyb.....	7	8	do 22..
Saunders' No. 8.....	1888	London, Ont.....	Rip. x Vin.....	8	7	do 13..
do 11.....	1888	do.....	do.....	8	7	do 23..
do 51.....	1888	do.....	do.....	7	8	do 22..
do 75.....	1888	do.....	do.....	8	7	do 20..
do 84.....	1888	do.....	Rip. x Vin.....	8	8	do 19..
do 85.....	1888	do.....	do.....	8	8	do 21..
Standard.....	1891	Leavenworth, Ks.....	Labr.....	8	8	do 22..
Salem (Rogers' No. 53).....	1888	Salem, Mass.....	Labr. hyb.....	9	7	do 19..
Stayman's No. 19.....	1888	Leavenworth, Ks.....	Labr.....	7	8	do 13..
Telegraph.....	1888	West Chester, Penn.....	do.....	8	8	do 18..
Taylor.....	1888	Jerico, Kentucky.....	Rip. hyb.....	8	6	do 15..
Transparent.....	1888	Morrison, Mo.....	Rip.....	9	7	do 14..
Triumph.....	1888	Ohio.....	Labr. hyb.....	8	6	do 24..
Ulster Prolific.....	1888	Marlboro', N.Y.....	Labr.....	7	8	do 18..
Victoria.....	1888	Clinton, Ky.....	do.....	7	7	do.....
Vergennes.....	1888	Vergennes, Vt.....	do.....	9	7	June 20..
Worden.....	1888	Minetto, N.Y.....	do.....	8	9	do 19..
Wilder (Rogers' No. 4).....	1888	Salem, Mass.....	Labr. hyb.....	8	8	do 20..
Woodruff.....	1888	Ann Arbor, Mich.....	Labr.....	7	7	do 20..
White Ann Arbor.....	1888	do.....	do.....	6	8	do 22..
Winchell.....	1888	Vermont.....	do.....	8	8	do 23..
White Imperial.....	1888	Kansas.....	do.....	9	7	do 22..
White Beauty.....	1888	do.....	do.....	8	7	do 21..
Wilding.....	1888	Morrison, Mo.....	Rip. x Labr.....	8	7	do 20..

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grown in the Vineyard at the Central Farm—*Concluded.*

Date of Ripening.	Colour.	Average Yield per Vine.		Useful for Wine or Dessert.	Remarks.	
		Number of years.	Lbs.			Ozs.
1895.						
Sept. 30..	Green.....	4	16	3	Wine.....	Ripens late and mildews badly.
Oct. 1..	Pale yellow.....	4	14	1	Table.....	Like Concord, very productive.
Sept. 19.	White.....	1	..	12	do.....	Introduced by P. E. Bucke, of Ottawa, Ont.
do 28..	Bright amber.....	4	9	10	do.....	Resembles Lindley.
Oct. 12..	Black.....	4	9	..	do.....	Rather late.
do 8..	Bright amber.....	4	14	..	do.....	Late ripening variety.
do 3..	Dark amber.....	4	8	11	do.....	Apt to mildew.
	Blue black.....				do.....	Poor quality.
Sept. 29..	Black.....	2	1	8	do.....	Fruit keeps well ; poor bearer.
Oct. 3..	do.....	4	2	..	Wine.....	Too late in this locality.
Sept. 10..	do.....	4	2	12		
Oct. 1..	do.....	4	5	..	Table and wine.	Excellent quality.
Sept. 24..	do.....	4	10	8	Table.....	Berries drop badly.
do 30..	do.....	3	2	..	do.....	Not equal to Concord.
Oct. 1..	White.....	3	10	3	do.....	Berries drop badly.
Sept. 18..	Clear red.....	4	5	4	do.....	Larger in bunch than Delaware.
do 23..	Greenish white.....	4	6	4	do.....	Mildews badly.
Oct. 15..	Pale yellow.....	3	11	12	Wine.....	Ripens late, mildews badly.
do 5..	Yellowish green.....	4	1	6	Table.....	A weak grower, and rather late for this locality.
do 25..	Blue black.....	4	16	5	do.....	Closely resembles Merrimac.
do 29..	Purplish black.....	4	17	..	do.....	Too late.
do 26..	Black.....	4	8	8	do.....	Bears regularly.
do 25..	Blue black.....	4	15	8	do.....	Ripens evenly.
do 30..	Red.....	4	10	4	do.....	Resembles Lindley.
do 29..	Dark amber.....	4	7	12	do.....	Good keeper.
Sept. 23..	Amber.....	4	10	..	Table.....	Blossoms imperfect.
Oct. 4..	Light red.....	3	12	6	do.....	Sets unevenly.
do 5..	Dark red.....	4	23	10	do.....	Rather late.
Sept. 18..	White.....	3	6	8	do.....	Blossom imperfect ; sets badly.
Sept. 26..	Brownish red.....	4	4	6	do.....	Good quality but unreliable.
do 14..	Pale green.....	4	3	14	do.....	Lacks vigour.
Oct. 1..	Greenish white.....	4	1	8	do.....	Not productive.
do 5..	Black.....	4	5	4	do.....	A fine table grape of European type.
do 8..	do.....	4	9	9	do.....	Bunch very large.
do 4..	do.....	4	4	..	Wine.....	Hardly promising.
Sept. 18..	do.....	3	1	10	Table.....	Resembles Worden.
do 20..	do.....	4	5	8	Wine.....	Berry shrivels quickly after ripening.
do 20..	do.....	2	1	14	do.....	Rather late.
Oct. 1..	do.....	3	4	5	do.....	Vigorous and hardy.
do 9..	do.....	4	6	7	do.....	Rather small.
Sept. 23..	do.....	3	1	10	Table.....	Early and promising.
Oct. 1..	Dark amber.....	4	8	4	do.....	A valuable winter variety.
Sept. 18..	do.....	1	1	1	do.....	Weak grower.
do 12..	Black.....	4	11	3	do.....	Requires good cultivation.
Oct. 5..	White.....	3	6	2	Wine.....	Mildews and ripens late.
do 5..	do.....	4	6	10	do.....	do.....
do 15..	do.....	1	12	0	Table.....	Highly prized in Missouri and Georgia.
Sept. 25..	Light red.....	4	4	0	do.....	Not sufficiently vigorous.
	Light amber.....				do.....	Not hardy.
Sept. 29..	Bright red.....	4	13	3	do.....	A fine keeper.
do 23..	Black.....	4	8	6	do and wine.	A standard variety.
do 29..	Purplish black.....	4	8	7	do.....	Does not ripen evenly on light soil.
do 29..	Bright red.....	3	2	8	do.....	Quite foxy.
do 16..	White.....	1	8	..	do.....	Has been quite unproductive.
do 20..	do.....	2	2	12	do.....	Berries somewhat tender.
Oct. 3..	do.....	4	3	10	do.....	Is fairly promising.
Sept. 18..	do.....	4	3	0	do.....	Later than last.
Oct. 1..	Pale green.....	4	8	3	do.....	Strictly an amateur variety.

VARIETIES.

With increased production and consequent lowering of prices will come a demand for better quality. It is probable that Concord, Niagara and Delaware will continue to lead in popularity for some time. It is also probable that the handsomer Rogers varieties will be more widely planted. Vergennes, on account of its productiveness and keeping qualities, should be more generally planted. Early kinds, like Moyer and Moore's Early, lacking in vigour and productiveness, will be planted sparingly. In the province of Quebec, where earliness is a desideratum, these two should find a place. For the more discriminating tastes of the amateur, such fine varieties as Kensington, Mills and Secretary, should not be lost sight of.

RASPBERRIES.



Sarah. (Natural size.)

An illustration from a photograph of Sarah Raspberry described in Bulletin 22, and in the annual report for 1895 is given in this connection. Further experience with this variety emphasizes the necessity of guarding against anthracnose by planting it upon strong sandy loam, and by spraying the plants with Bordeaux mixture.

The raspberry crop was an exceedingly light one owing to two principal causes. First the canes of all varieties were undoubtedly much weakened by the severity of the frost that visited this section the previous December and January, at a time when the ground was unprotected by snow. The scale indicating winter injury, shows this to have been considerably greater than the previous year. Most of the varieties blossomed

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fairly and set a fair amount of fruit, out a large proportion of this did not come to maturity owing to the weakened condition of the plants. There were very few suckers thrown up in early summer, another indication of debility. Second, about the middle of the picking season, during a period of dry weather, "red spider" appeared and occasioned much damage, as oily or offensive sprays could not be used at that time. The exceptionally small yields are accounted for in this way. Late in the summer under good cultivation and with the accession of rains, the plants recovered and made a vigorous growth. Previous to this, however, all varieties had been badly injured by red spider.

Notwithstanding these drawbacks interesting results were again, as in 1895, obtained by different methods of treating the same varieties. Of the following 17 varieties of red raspberries, each is made up of two rows 165 feet in length. One row was summer pruned—that is the young growth was nipped back when it had reached a height of 15 to 20 inches. The old wood was also taken from the plants in this row the previous season as soon as the fruit had been harvested. The other row was left untouched as far as pruning was concerned till this spring when the old canes were removed and the dead tips shortened back. These rows have received for three years this kind of treatment. In the autumn the plants occupying half the length of each row have been laid on the ground, placing over the prostrate ends sufficient soil to hold them down. Records are submitted giving the yields obtained from the parts of the rows under the different treatments; of the total yield of each variety and of the relative amount of injury sustained during winter.

Raspberries, 1896.	PRUNED, 160 FEET.				NOT PRUNED, 160 FEET.				Date of First Picking.	Date of Last Picking.	Yield of Pruned Row.	Yield of Unpruned Row.	Total Yield in Boxes from 320 ft.	Estimated Yield in Boxes per Acre
	Pro- tected.		Unpro- tected.		Pro- tected.		Unpro- tected.							
	Scale of in- jury 1-10.	Yield of 80 feet.	Scale of in- jury, 1-10.	Yield of 80 feet.	Scale of in- jury 1-10.	Yield of 80 feet.	Scale of in- jury, 1-10.	Yield of 80 feet.						
Heebner.....	9	5½	4	4½	10	11½	5	7½	July 11.	Aug. 1.	10½	19½	29½	677
Springfield.....	9	7	7	4	9	11	7	6½	do 2.	do 4.	11	17½	28½	649
Royal Church.....	2	2½	2	1½	4	3½	5	2	do 21.	do 1.	2½	4	8	182
Carman.....	7	15½	5	7½	9	26½	8	13½	do 2.	do 8.	23	39½	62½	1,422
Thompson's Early Prolific.....	8	13½	7	8	9	28½	7	18½	do 2.	do 8.	21½	46½	68½	1,547
Herstine.....	7	7	4	4	9	14½	6	6½	do 11.	do 8.	11	21	32	728
Parnell.....	8	8½	4	3½	8	7½	5	4	do 7.	do 8.	11½	12½	24	546
Golden Queen.....	5	2	5	2½	8	9½	5	8	do 16.	do 8.	5½	17½	23	524
Reider.....	8	7½	4	3½	8	7½	4	2½	do 11.	July 29.	10½	9½	20½	467
Brandy-wine.....	8	10½	6	6	9	12½	7	7	do 7.	Aug. 8.	16½	20	36½	825
Niagara.....	7	8	4	4	9	12½	6	6½	do 7.	do 4.	12	19½	31½	711
Marlboro.....	7	1½	4	1	9	9½	5	5	do 7.	July 27.	2½	14½	16½	381
Hansell.....	8	6	6	3½	10	13	7	5	do 2.	do 29.	9½	18	27½	632
Clark.....	7	5	5	3	8	7	5	2	do 11.	Aug. 4.	8	9½	17½	399
Cuthbert.....	7	3½	4	1½	9	6½	7	4½	do 13.	July 29.	5	11½	16½	376
Turner.....	9	6½	6	5½	9	4½	6	4½	do 7.	Aug. 1.	11½	9	20½	467
Caroline.....	8	11	6	5½	9	21½	7	11	do 7.	do 8.	16½	32½	48½	1,109

It will be seen (1) that the protected plants were least injured by winter—10 representing no injury, the descending scale indicating increased injury; (2) the yields from the pruned and unpruned rows show a balance again (see Report, 1895, p. 107) in favour of the latter in almost every instance; (3) the protected rows show the larger yields in almost every instance. This last result is quite in line with each year's experience as regards the desirability of protecting raspberries during winter at Ottawa. That the unpruned canes should outyield their fellows pruned, is not in keeping with orthodox teaching upon this point, and suggests the desirability of fruit growers looking carefully into this matter.

BLACKBERRIES.

The yield of blackberries was light, owing to winter injury and summer drought. Snyder gave the largest yield, followed by Agawam. The latter made a very strong growth and showed less injury by cold than any in the collection. There was practically no difference in the time of ripening of the main crop of Snyder and Agawam.

Some mulching experiments were tried in 1895, during the picking season. A portion of the plants of three leading varieties was mulched with green rye, with a view of holding the moisture in the ground in this way instead of using the cultivator. The result last year was a light increase in yield of the plants so treated. This year records of the yields of the mulched and unmulched were not taken, but there was a marked difference in the vigour of the two series, this difference being decidedly in favour of mulched rows.

BLACKBERRIES—YIELDS, etc.

Variety.	Length of row, in feet.	Date of First Picking.	Date of Last Picking.	Yield in Boxes.	Estimated Yield in Boxes, Per acre.	Showing Injury from Winter 1895-96 Scale : 1-10.
Snyder.....	330	July, 25	Aug. 12	39½	863½	8
Agawam.....	330	do	do 12	33½	731½	8
Erie.....	69	Aug., 4	do 12	4	420	7
Taylor's Prolific.....	330	July, 29	do 12	19	418	5
Ancient Briton.....	165	Aug., 4	do 12	9	396	8
Wachusets.....	330	July, 25	do 12	15	330	7
Early Cluster.....	170	do 25	do 12	7½	325½	7
Kittattinny.....	315	do 27	do 12	14	322½	6
Wilson, Jr.....	57	Aug., 1	do 12	2½	286	1
Nevada.....	165	do 4	do 12	6	264	2
Wilson's Early.....	132	do 1	do 12	3	165	4
Western Triumph.....	330	July, 27	do 12	3¾	82½	1
Stone's Hardy.....	288	Aug. 4	do 12	3½	81½	.....
Tecumseh.....	150	July, 8	do 8	½	12	1

Cultivation.—All varieties of blackberries should be protected in winter in this locality. This protection is best secured by bending the canes to the ground in the fall and partly covering them with earth. To do this successfully, nip the young shoots at three feet high and pinch the laterals later in the season. The plants should be in hills more or less regularly and about three feet high in the autumn. To lay them down without breaking, is very difficult even with the exercise of the greatest care, a few canes will be broken, allow for this by having five to seven canes in each cluster; remove a little soil from the side of the hill to which the canes are to be bent, gather the canes together with a six pronged fork, and with the foot press the crown in the same direction as the canes are to be inclined. Some soil should be thrown upon the crowns as well as upon the tops. Bend them in the line of the row, so that they will overlap and thus mutually assist in collecting and holding the snow.

CRANBERRIES.

The interest in the cultivation of this fruit is increasing each year, and many letters of inquiry like the following have been received:—"I have about six acres of land in the bed of an old mill pond, most of which, when dried for a year, will make good workable land. It has one or two feet of muck on top of the natural soil. It grows an immense crop of weeds every year. I could arrange it so that this area might be flooded in the fall or spring, if that would be of any advantage." This is quoted in order to draw attention to a common misconception of the essential requisites for successful cranberry culture. While facilities for flooding are indeed indispensable, yet the possession and use of these facilities will not make cranberries grow, and fruit successfully in uncon-

Experimental Farms.

genial soil. Cranberries occasionally succeed on a mud bottom, but this is the exception. When the ground is rich, as is often the case in hollows, subject to the wash from surrounding hills, the plants, as growers say, "run to vine," and do not produce much fruit. A soil of this nature would be much improved by a heavy "sanding." The weeds and upper turf might be removed in the autumn, and the sand transported during the winter months. A covering of four to six inches would be advantageous on rich alluvial soils. This keeps down weeds and prevents a too rank growth of the cranberry vines.

The cost of preparing and bringing marsh land into a condition suitable to cranberry culture varies much, depending upon the condition and character of the swamp. If there is much clearing to be done the cost will materially be increased. It is nearly always necessary to apply a coating of sand—except in such instances as a thin covering of muck overlies a sub-stratum of sand, when the latter may be brought up by ploughing. Nova Scotia growers, with favourable conditions, estimate the initial outlay to range between \$60 and \$100 per acre, including \$10 to cover the cost of five barrels of vines.

The first car load of cranberries was shipped from Aylsford, N.S., in 1892. This is also believed to have been the first complete car of cranberries from the Annapolis valley. Mr. Henry Shaw, of Waterville, writes that in 1894 there were 1,400 barrels sold. This year the estimated crop amounted to 3,000 barrels produced in the same region. Bog land is being rapidly reclaimed for this purpose. It should be remembered per contra that the crop of 1893 was nearly a total failure on account of frost, and that 1895 saw another severe frost visitation, which destroyed a great part of the crop. Marshes, well dyked, ditched, and with good flooding facilities, if properly managed, will frequently escape damage by late frosts when others uncared for will suffer injury. Cranberry culture is receiving some attention in Prince Edward Island. Mr. C. R. Dickie, of Muddy Creek, P.E.I., has been growing them with a fair degree of success for some years. Late spring and early autumn frosts are the chief drawbacks.

Prof. John Macoun, of the Geological Survey, has very kindly given me the following note on the distribution of the two Canadian species:—

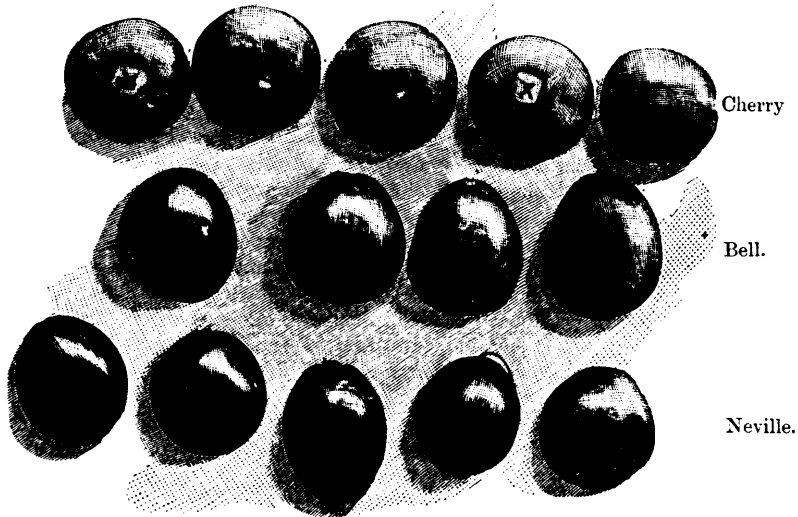
"I find that the cultivated Low Bush Cranberry, *Vaccinium macrocarpum*, although found in Ontario is not common there, but in Quebec and the Eastern provinces it is quite common. Its usual habitat is in soft mud on the borders of ponds and not in peat bogs as *Vaccinium oxycoccus* affects. It would follow then that the right soil for the cranberry is black muck and not peat as I have sometimes thought. This species can be distinguished from *V. oxycoccus* by its flat leaves and having the flowers at the ends of the last year's branches."

"My son, Mr. J. M. Macoun, has written an article on the other Low Bush Cranberry, known in New Brunswick by the name of Wolfberry (*V. Vitis-idaea*), this is in part as follows:—Along the Gaspé coast and the north shore of the Gulf of St. Lawrence, the fishermen's families gather this fruit in large quantities for their own use or for sale, calling it the Low Bush Cranberry; and throughout the whole of northern Canada, hunters and trappers, as well as native Indians, have frequently to depend upon it for food when game and fish are scarce. Deemed of no value in the warmer parts of Canada, and pronounced by Gray to be acrid and bitter and scarcely edible, it seems when in its home in the cold rocky woods of the north or along the shores of Hudson Bay or the Arctic Ocean, to derive size and flavour from the very conditions that dwarf and kill its less hardy competitors."

CULTIVATED TYPES.

Although cranberry culture is a comparatively new industry in Canada, a few noteworthy selections have already been made from the wild species. These are being cultivated with success and appear to meet the requirements of the market. It does not seem necessary or even desirable that plants should be imported from the Atlantic States by intending planters. It would seem desirable, however, that the merits of these more southerly types should be determined by conclusive and careful trial, in one or more of the best Canadian bogs, so that authoritative data might be secured. It should be remembered in this connection that thus far Canadian bogs have not been seriously infested with injurious insects; in importing plants healthy non-infested stock should

be procured. I am of the opinion that we have in Canada varieties fully equal to foreign kinds, and probably much better adapted to Canadian conditions.



During the early part of November Mr. Shaw, Waterville, N.S., forwarded to this office samples of four of the leading types selected from native cranberries as found in King's County.

BELL (of *Nova Scotia*) medium size, pear shaped bright red with occasional mottling of lighter red. Flesh firm stained with red. When cooked this makes a highly coloured sauce; rich acid in flavour and without astringency.

CHERRY (of *Nova Scotia*).—This seems to be the largest of the native berries some times measuring $\frac{7}{8}$ of an inch in lateral diameter. Its axial diameter some times reaches $\frac{5}{8}$ of an inch. Cherry resembles quite closely in form the Cape Cod variety of that name. Large, roundish oblate, ground colour, yellowish white, mostly covered with patches of light red. Flesh firm. Good keeper. When cooked the flavour is pleasantly acid without astringency or bitterness. Very good.

NEVILLE.—Medium size, oval in form, colour deep crimson; flesh firm, with a decided trace of astringency in the skin which becomes more pronounced on cooking it. Sauce bright claret colour, fairly good though requiring more sugar than Cherry or Bell. It makes a beautiful jelly, firm and dark crimson in colour.



Shaw (natural size photographed.)

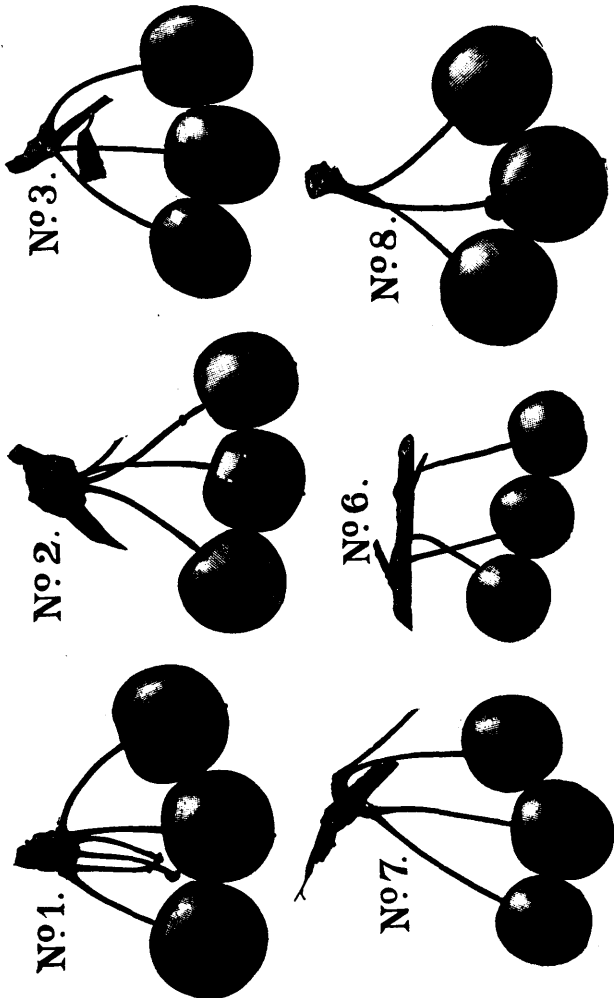
Shaw.—Named in honour of Mr. Henry Shaw, of Waterville, N.S., who states that he found this variety in a wild bog on the Gaspereaux. Berry of medium size broadly

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ovate—intermediate in form between Bell and Neville—purplish red in colour. Flesh deeply coloured throughout, moderately acid. This is said by Mr. Shaw to be an exceptionally hardy variety. Cooking qualities not tested.

IMPROVEMENT OF THE SAND CHERRY—*Prunus pumila*, L.

Attention was called in the annual report for 1894, page 131, to experiments in progress, having for their object the amelioration of this native fruit. It was hoped at that time that the form under experiment would be found sufficiently hardy to withstand the climatic severities of Manitoba, if not the whole North-west. The hope has not been fully realized. So far, seedlings of the form illustrated in my report for 1894 have not proved much more than half hardy at the branch farm at Brandon or at Indian Head—that is without protection. Many seedlings of the original stock have been fruited since my first report was given. A few of the second generation bore fruit this year also. Selections of the best types of those which fruited first have been made, due attention being paid to the various desirable characteristics and qualities expected in a fruit of this kind.

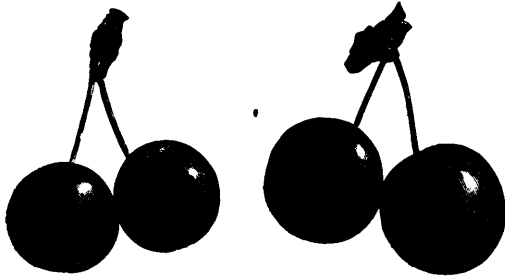


Types of sand cherries appearing in a single batch of seedlings.

The accompanying photographic illustration shows the remarkable variation in size. This feature is indicative also of the variation found to prevail with regard to season and flavour.

SAND CHERRY GRAFTED ON NATIVE PLUM STOCK.

While plums or cherries have not taken readily, either budded or grafted, on sand cherry stocks, yet when the conditions are reversed and the native plum (*Prunus Americana*, L.) is used as the stock, a ready and permanent union has been effected. Scions of a selected type of sand cherry, which were inserted into two year old seedling plum stock—about a foot from the ground—in the spring of 1894, bore a good crop of fruit this year, and made, in addition, a very satisfactory growth.



Own roots. Topgrafted on plum (*P. Americana*).

The remarkable thing about the fruit was that it was distinctly better in quality and considerably larger than that borne the same season upon the original parent plant, although the fruit of this latter was fully up to normal size. I am unable to say that we may confidently look for a continuation of this improved size and quality, nor that the union between scion and stock will be permanent. At present, this seems to offer a field for interesting and profitable experiment.

RUSSIAN MULBERRY.

Morus alba tatarica, Descf.

This tree was brought to America about thirty years ago by Mennonites from Western Russia. It is thought by some to be a cross between *M. nigra* L. and *M. alba tatarica*, Descf., in other words a hybrid form peculiar to that region. All American trees of this species have been grown from seed; this has of course given rise to considerable variability with regard to the size and appearance of the fruit. Enterprising tree agents, not over-scrupulous, have taken advantage of the fact that this tree is popular in the western states, on account of its rapidity of growth and tenacity of life, and of the fact that in some instances fruit of edible size and quality has been found, to systematically boom the tree in the east, as being valuable for ornament, for timber and for its fruit. The tree undoubtedly possesses many desirable characteristics; it grows readily and rapidly from seed; it is easily transplanted; it is fairly hardy and if its terminals are injured by winter the growth the following year is as vigorous as ever.

The Fruit.—It is the fruit with which we are most concerned. The same enterprising tree agents just referred to, sold trees of Russian Mulberry in the province of Quebec, some years ago as high as \$3 each, or “\$5 for a pair.” Buying and planting the trees in pairs ensured their fruitfulness! In an article before me by a Kansas writer appearing in the Ontario Forestry Report for 1882, the fruit is described as follows: ‘About the size of blackberries, has a sub-acid sweet taste and is used for dessert; it also makes a pleasant light wine, and the leaves are largely used for silk worm food.’ I have never seen fruit of the Russian Mulberry as large as blackberries. A number of trees were planted by the late Chas. Gibb, at Abbottsford, Que., about eighteen years ago. They grew thriftily and began to fruit seven or eight years after planting. No tree bore fruit exactly like that of any other, the variation being chiefly in regard to colour and size. The fruit on all the trees ripened during the early part of August. The colour varied from light pink to dark red. Selected seedlings grown from this seed are on trial at Ottawa. The Russian Mulberry as a fruit bearing tree has very little if any value at the present time. It is possible that useful varieties may be developed by hybridization and selection. The above illustration of the fruit is made from a photograph of some of the largest berries in a single spray-like cluster.



Russian Mulberry. Natural size.

varieties may be developed by hybridization and selection. The above illustration of the fruit is made from a photograph of some of the largest berries in a single spray-like cluster.

Experimental Farms.

VARIETIES OF APPLES PLANTED SINCE 1888.

This list does not include unintroduced varieties including seedlings on trial.

AMERICAN OR OF EARLY INTRODUCTION.		EUROPEAN AND OF RECENT INTRODUCTION.	
Living.	Failed.	Living.	Failed.
Arkansas Black. Allen's Russet. Alexis, Baldwin. Andrew's Sweet. August. Arthur.	American Pippin. Arkansas Beauty.	Anisovka, M. 32. Anisim, 18. M. Annis, 32. M. Antonovka. Antonovka 236, 26 M. Antonovka (Fisk). Aport No. 252. Almond Reinette No. 4. Alexander, M. Arabka, Winter (Fisk). Arkad (Grell). Antonovka (Ansjutin). Antonovka White (Koslov)	Ananasnoe (Pine Apple). Avendrusia. Avenarius. Alfister (Warsaw). Aucubifolia (M). Argentueil Seedling.
Ben Davis. Brockville Beauty. Bethel. Babbit. Baraboo. Bell Pippin. Baxter. Bessie. Beecher's Red. Bailey's Sweet.	Bombarger. Benoni. Brewington. Beauty of the World. Bottle Greening. Belle de Boskoop. Baldwin. Blue Orange.	Blushed Calville. Basil The Great. Bergadoff (Sk). Beautiful Arkad No. 453 B. Burlovka, No. 183 (Beadle) Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Babushkino. M. Beresinskoe No. 122 M.B. Beel Solotskoe.
Canada Baldwin. Calumet. Canada Red. Crawford. Cox's Orange Pippin. Clayton. Cullens, keeper. Cullender.	Cooper's Market. Chenango Strawberry. Cranberry Pippin.	Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Citron (Vilne). Cinnamon Streaked. Christmas, No. 477 Beadle
Duke of Connaught. Duchess. Delaware Red Winter. Dery's Baldwin. Decarie (Fisk) Davis Seedling (from Mrs. Foster, Knowlton, Q.) Dr. Walker. Dempsey No. 80.	Dominie. Dickson.	Beautiful Arkad No. 453 B. Burlovka, No. 183 (Beadle) Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Dinnaya. Danish Kantapfel. Duchovoe.
Early Colton. English Pippin. Excelsior (crab.) Edith. Eisike.	Early Harvest.	Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Erdbeer Streiffing.
Fameuse. Family Favorite. Frazier's Russet. Flushing Spitzenberg. Fanny. Forest.	Fall Pippin. Fallwater. Fall Jenetting.	Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Foundling. Fonarie. French Pippin.
Gano. Gideon No. 6. Gideon No. 9. Gideon No. 10. Grimes' Golden. Golden Ball. Green Fameuse. Glowing Coal. Gideon. Golden Russet. Ghent (unknown).	Giant Swaar. Gravenstein.	Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Grand Duke Constantine. Gros Mogul.
Hart's Seedling.	Hurlbut.	Boiken. Blackwood No. 407. Bode. Broad Green, No. 157 M. Borsdorf, No. 402. Bogdanoff Steklianka. Bogdanoff. Broad Cheek. Borovinka Koslov. (Niemetz).	Howard's Best Russian.
	Jolti Calville. Jolti Beil.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Imperial Citron.
	King. Keswick Codlin. Kellogg Russet.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Keiv Reinette.
	Lord Suffield. Lady Henniker.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Long Arcad. Large Bogdanoff. Large Gruner-Guelder.
	Mother. Mann. Maiden's Blush. Mason's Orange. Magog Red Streak.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Lapouchoe No. 470. (Beadle).
	Nero. Nonpareil.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Marble. Muscatelnoe. Malus Toringo. Moregi.
	Osceola.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Nitchners.
	Perry's Russet. Peck's Pleasant.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Prolific Annis.
	Red Russet. R. I. Greening. Red Beitigheimier.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	Rosenrother. Rother Annanas. Riga Transparent. Rother Winter. Rhennischerbohn, M. Revel Borsdorf. Rotta. Red Eiser. Rambour Riga. Red Swedischer. Roschdestvenskoe. (Christmas Fisk).
	Stump. Sutton's Beauty. Stuart's Golden. Stark. Saxton.	Cinnamon No. 50 Vor. do 322 B. Champagne Pipka. Cross No. 413. Charlamoff. Cinnamon Pine, No. 375. Crimean. Court-pendu-plat.	
		Hare Pipka, No. 202 B.	

VARIETIES OF APPLES PLANTED SINCE 1888—Continued.

AMERICAN OR OF EARLY INTRODUCTION.		EUROPEAN AND OF RECENT INTRODUCTION.	
Living.	Failed.	Living.	Failed.
Huntsman. Hartshorn. Haas. Hardisty No. 2. Hardisty A. Hardisty X. Hardisty Seedling. Heidi. Harkison. Hebbel White. Headley. Hardy. Holly. Hamilton. Hartman (C. W.) Ivanhoe. Inkerman Greening. Iowa Beauty. Jake (The). John Richardson. Jonathan. Jennie. Johnson's Seedling. King of Pippins. Kinnaird's Medium. Lady. Lankford. Longueuil. Lou. Lady Elgin. Louis Favorite. La Victoria Seedling. Langford Beauty. Logan Sweet. Late Winter. Lakes Pippin. Layman's Red Seedling. Layman's Red Winter. Louise. Lawver. Lord (Sweet). Mitchell's No. 1. Mitchell's No. 2. Mary (Mitchell's No. 3). Mitchell's No. 4. Mitchell's No. 5. Mammoth Black Twig. Minkler. Mo. Pippin. Martha. Mickel. Malinda. Milwaukee. McMahan White. McIntosh Red. Newman No. 19 (Gibb). Northern Spy. North Star. Newton. Newell's Winter.	Spitzenburg. St. Jchnsbury Sweet. Utters Red. Vandevere. Victoria (Gibb). Wine Sap. Warners King.	Himbeer. Hative de Crimea. Herren, No. 315. Hibernal. Handsome White, No. 450 B. Kremers, No. 284 B. Kruder, No. 17 M. Kremers, No. 284 Glas. Kursk Annis, No. 984. Karabovka, No. 21 M. Krimskoe, No. 65 M. Kara-Synap A. Kara-Synap B. Lead. Little Hat. Longfield. Lubsk Queen. Lubsk Queen. Large Annis No. 413. Ledenetz (Gibb). Lielvand Raspberry. Lead (of St. Petersburg). Lebedka. Lebokey Sweet. Lapouchoe (Koslov). Moscow Pear. Melonen. Marmalade. Meinster. Marion (Grell). Marion (Solovieff). No. 20 M. No. 585. No. 380 Dept. No. 57 M. No. 135 M. No. 569 M. Ostrakoff No. 472 B. Orel No. 1. Ostrakoff Glass (Fisk). Orel. Osimoe. 7 M. Orel No. 5. Orel No. 980. Plodovitka (Koslov). Pointed Pipka. Possart. Paperovka (Niemetz). Plikanoff. Polosatoe Calville (M). Rosovka Rosy No. 406 (Beadle). Romna, No. 599. Rosy Repka. Romna No. 599. Rosovka, Rosy No. 406 (Beadle). Red Subluck, No. 26.	Stettiner Kantapfel. Stripe. Skrischapfel (M). Striped Calville M. Tuttle No. 5. Table Apple. Winter Lielvand. White Bogdanoff. White Rambour. Yellow Stettin.

Experimental Farms.

VARIETIES OF APPLES PLANTED SINCE 1888—*Continued.*

AMERICAN OR OF EARLY INTRODUCTION.		EUROPEAN AND OF RECENT INTRODUCTION.	
Living.	Failed.	Living.	Failed.
<p>Nodhead.</p> <p>Ontario.</p> <p>Orange Winter.</p> <p>Orel No. 7.</p> <p>Ohmer.</p> <p>October.</p> <p>Okabena.</p> <p>Princess Louise.</p> <p>Pomme Grise.</p> <p>Peach.</p> <p>Peach, M & H.</p> <p>Peasegood.</p> <p>Pewaukee.</p> <p>Patten's Greening.</p> <p>Peffer.</p> <p>Palmer.</p> <p>Pewaukee Russet.</p> <p>Piumb's Cider.</p> <p>Patten's Duchess No. 4.</p> <p>Peter Smith.</p> <p>Primate.</p> <p>Quebec Sweet.</p> <p>Red Detroit.</p> <p>Rose.</p> <p>Rawles Janet.</p> <p>Rainbow.</p> <p>Rubicon.</p> <p>Red Rudolph.</p> <p>Renaud Seedling.</p> <p>Red Astrachan.</p> <p>Roxbury Russet.</p> <p>Reynard.</p> <p>Ribston Pippin.</p> <p>Rome Beauty.</p> <p>Roger's (Hill Centre).</p> <p>Ruby Gem.</p> <p>Rolfe.</p> <p>Red Gravenstein.</p> <p>Richard's Graft.</p> <p>Schantz (E. M.)</p> <p>Starr (C. R. H.)</p> <p>St. Lawrence.</p> <p>Stone.</p> <p>Snyder.</p> <p>Smith's Seedling.</p> <p>Seek-no-Further.</p> <p>Scarlet Pippin.</p> <p>Spencer.</p> <p>Stark.</p> <p>Sarah.</p> <p>Smith's No. 1.</p> <p>Shaker Pippin.</p> <p>Sind Centre.</p> <p>Smith's No. 2.</p> <p>Sambo.</p> <p>Shiawassee Beauty.</p> <p>St. Hilaire.</p> <p>Saxton.</p> <p>Scott's Winter.</p> <p>Swayzie (Pomme Grise).</p> <p>Sharp's Russet.</p>		<p>Reinette Grise, No. 28.</p> <p>Repka Winter.</p> <p>Rosy Repka (200).</p> <p>Resonart.</p> <p>Russian Transparent.</p> <p>Rambour Reinette, No. 502</p> <p>Red Reinette No. 316 (Beadle).</p> <p>Reinette Kievskoe.</p> <p>Red Serinka.</p> <p>Red Repka (200).</p> <p>Revel No. 338.</p> <p>Red Stettiner (Fisk).</p> <p>Russian Tyrol.</p> <p>Red Annis No. 985.</p> <p>Red Queen No. 316.</p> <p>Revel Glass No. 170 B.</p> <p>Red Duke.</p> <p>Romenskoe (Gibb).</p> <p>Repolovka I. M.</p> <p>Rosy Voronesh No. 1277 B.</p> <p>Round Borsdorf No. 356 B.</p> <p>Simbirsk No. 1.</p> <p>Sweet Pipka (Beadle).</p> <p>Simbirsk No. 2.</p> <p>do No. 4.</p> <p>do No. 5.</p> <p>do No. 9.</p> <p>do No. 10.</p> <p>do No. 11.</p> <p>Saccharine.</p> <p>Sugar Sweet.</p> <p>Sara-Synap (Niemetz).</p> <p>Skрут (Grell).</p> <p>Stone Antonovka.</p> <p>(Govt. of Tchernigov.)</p> <p>Sweet Pipka (Beadle).</p> <p>Stettin No. 80.</p> <p>Switzer.</p> <p>Sugar Miron, No. 368.</p> <p>Sweet Borovinka No. 874.</p> <p>Sablouke d'Automme No. 10.</p> <p>Sablouke (Grand Arronde No. 9).</p> <p>Skrisck Apfel (Grell).</p> <p>Schwarze Gans. M.</p> <p>Svinetz No. 426.</p> <p>Sweet Stripe No. 12.</p> <p>Silken Leaf.</p> <p>Serinka, No. 107 M.</p> <p>Sandy Glass, No. 24 M.</p> <p>Scented, No. 264 B.</p> <p>Sultan, No. 344 B.</p> <p>Svintzovka.</p> <p>Sklanka Bogdanoff.</p> <p>Skarlock Reinette.</p> <p>Striped Winter (Budd).</p> <p>Taffet Winter.</p> <p>Tetofsky.</p> <p>Toskin No. 4.</p> <p>Thin Twig.</p> <p>Transparent, No. 12.</p> <p>Tiesenhausem No. 190.</p>	

VARIETIES OF APPLES PLANTED SINCE 1888—*Concluded.*

AMERICAN OR OF EARLY INTRODUCTION.		EUROPEAN AND OF RECENT INTRODUCTION.	
Living.	Failed.	Living.	Failed.
Senecal.		Titovka (Gibb).	
Salome.		Taffet Winter. Proskau	
Sops of Wine.		(Gibb).	
Thompson's Seedling No. 63		Throne No. 243 B.	
do 35.		Titovka (Koslov).	
do 26.		Titovka (Solovieff).	
Talman Sweet.		Ukraine (Gibb).	
Thaler.		Ukraine, No. 290 M.	
Upp Apple, from Hope.		Vargulek No. 55 (Vor).	
Uncle Sam.		Vargulek (Grell).	
Van Deman.		Voronesh Reinette, No.	
Wright (G. A.)		282 B.	
Wealthy.		Vargul (Fisk).	
Watterson No. 3.		Voronesh Sweet.	
White Winter Calville.		Winter Rambour (Nie-	
Wolf River.		metz).	
Williams Russet.		White Borovinka.	
Walworth Pippin.		White Naliv.	
Walter.		White Pigeon No. 317	
Washington Strawberry.		(Beadle).	
Watterson No. 4.		White Borsdorf (Fisk).	
Winter St. Lawrence.		Workunok No. 565 B.	
Windsor Chief.		White Russet.	
Walbridge		White Transparent.	
Wisconsin Spy.		Yellow Annis, No. 987.	
Wagener.		Yellow Arcad.	
Winter Duchess.		Zolotoreff (Niemetz).	
Winter Bough.			
Yellow Bellefleur.			
York Imperial.			
Yellow Transparent.			

CRABS.

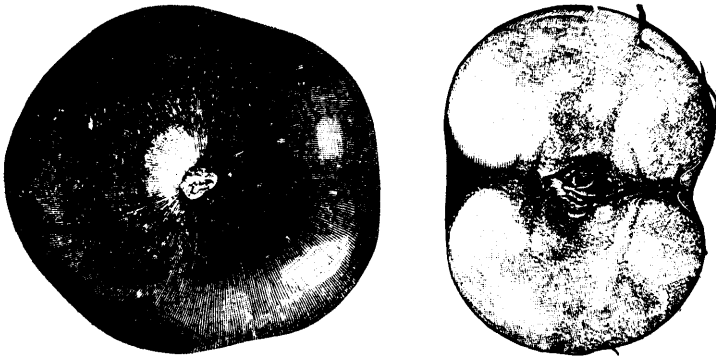
Ball's Winter.	Bowman.		
Brier's Sweet.	Coral.		
Chicago.	Gen. Grant.		
Dartmouth.	Hesper Rose.		
Excelsior.	Paul's Imperial.		
Hyslop.	Red Siberian.		
Jumbo.	Waxen.		
Lord's Late.	Whitney.		
Martha.			
Marengo.			
Orion.			
Orange.			
Oblong.			
Ogilvie.			
Rose of Stanstead.			
Transcendent.			
Van Wyck.			

Experimental Farms.

DESCRIPTIONS OF VARIETIES.

The following varieties have come specially under my notice during the year:—

Arctic—Introduced by O. K. Gerrish, nurseryman, Lakeville, Mass. It has not been fruited at Ottawa. Trees and fruits were examined in the orchard of H. H. Hill, Isle La Motte, Grand Isle Co., Vermont, late in September.



Arctic.—Reduced one half.

Description.—Large, varies in form from oblate to round and roundish conic with a marked tendency in large specimens to become distinctly five-sided, sometimes two-lobed. Typical form roundish oblate. Skin smooth, yellow, but completely covered with rich crimson deepest, next basin. This is overspread with a delicate bloom, interspersed with large buff coloured dots. Cavity shallow broad, lined with green or russet; stem short, thick inserted. Basin, irregular; calyx closed. Very handsome. Flesh, yellow, firm, rather mealy, but melting, mild sub-acid, quality, medium to good. Season, January and February. Some specimens examined late in the season show a tendency to rot at the core.

Tree upright, spreading branching, somewhat like a Greening; forks, strong; well knitted; twigs, stout; bark, dark coloured; leaves, large, rich, glossy green; altogether vigorous and healthy looking, as seen growing under good cultivation.

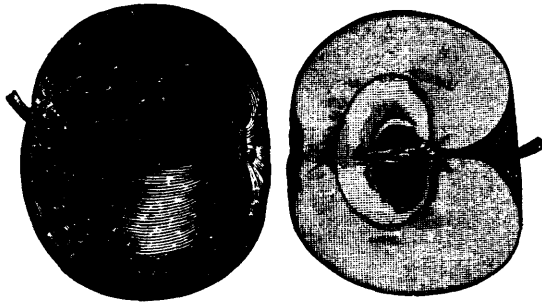
Prof. Waugh, of Burlington, writes as follows:—"There are conflicting reports regarding the origin of the 'Arctic' apple. O. K. Gerrish, of Lakeville, Mass., U. S., claims to be the only original discoverer and introducer. He says the 'Arctic' apple originated at Cape Vincent, N.Y. The original tree grew near the St. Lawrence River in a very exposed situation. Mr. Gerrish says he has been growing and disseminating the variety for ten years, and that he has the most favourable reports from it—even in the coldest northern sections. Mr. Gerrish furnished the stock for Isle La Motte. It seems that there are numerous mixtures however. Some professional grafters in Northern New York have been putting in Kings for 'Arctic.' Our U. S. division of pomology is not yet satisfied as to the identity and history of the variety."

Mr. Gerrish in a letter recently received says:—"The Arctic is a chance seedling, it having sprung up along the bank of the St. Lawrence opposite Wolf Island, Canada, about 30 feet from the shore." He claims also to have purchased the original tree which after propagating he destroyed some years ago.

CANADA BALDWIN.

Description.—Medium size; roundish oblate. Skin, smooth, yellow, overspread with splashes and stripes of carmine and crimson interspersed by numerous large dots. Cavity, wide, deep, smooth; stem, stout, 1 inch long. Basin, medium depth, calyx closed. Flesh, white, frequently tinged with pink extending almost to the core, firm, sometimes inclined to be dry and corky, fairly juicy sub-acid with peculiar and not

unpleasant suggestion of astringency; quality, good; season, mid-winter and later. This variety shows a tendency to "scab" on light soils.



Canada Baldwin.

(Reduced one half.)

Tree a strong upright grower with prominent branches. On light warm soils it is much affected by sun-scald and bark-splitting. On clay, or clay loam it seems to be more at home and is giving satisfaction in locations of this kind in the eastern townships and on the St. Lawrence in Western Quebec, where it is well known. Mr. N. C. Fisk, of Abbotsford, Que., says that it originated from seed of *Pomme de fer* on the farm of Alexis Dery, St. Hilaire, Que. It was brought by Mr. Fisk to Abbotsford in 1855, who propagated and introduced it to the public under the name of Canada Baldwin.

BEDFORDSHIRE FOUNDLING (*Cambridge Pippin*, Hogg).—Grown by J. D. Roberts, Cobourg, Ont.

Description.—Large, roundish ovate, ribbed, prominently near calyx. Skin rather rough, dark green, pale yellow when fully ripe; dots, large, buff coloured. Cavity deep, broad at base; stalk, short, inserted; basin, deep, narrow, angular. Calyx, open; Flesh, yellow, tender, mild, sub-acid, melting; season, late winter; an old English variety.

CORNISH GILLIFLOWER.—Grown by Mr. J. D. Roberts, Cobourg, Ont.—Large oblong-ovate, angular ribbed. Skin, rough, dull green striped with bright red, marked with patches of russet; cavity, shallow; stalk, $\frac{3}{4}$ to 1 inch long. Basin, narrow angular; calyx large closed. Flesh, yellow, firm, aromatic; quality, good; season, winter. This has been known in England since 1813, when it was brought to public notice. In England it is said to be unproductive.

DORKHAM RUSSET.—From Wm. Craig & Son, Abbotsford, Que.

Description.—Medium size, round, very slightly conical. Skin, bright red, partly covered with patches of clear buff coloured russet mingled with crimson, handsome. Cavity rather deep, lined with russet; stem, medium length. Basin, moderately deep regular. Calyx, small, closed. Flesh, white, juicy of the russet type but not tough, brisk, sub-acid, good quality; season, October to December.

Tree is a round topped rather spreading grower fairly hardy; began to bear at eight years from planting and has been fairly productive since that time; an exceedingly handsome apple of good quality, but valuable principally to the amateur. It drops from the tree early in the season thus destroying its commercial value.

GAHO.—From Storrs & Harrison, Painesville, Ohio. Planted spring 1891.

Description.—Large, round, sloping towards calyx, regular. Skin smooth, oily, thick; a yellow ground covered with dark glossy diffused red, especially next cavity. Dots white obscure. Cavity deep, round, smooth; stem slender, of medium length. Basin medium size, slightly wrinkled; calyx, partly open. Flesh white, a little tough and dry. Quality not quite good, lacking in sprightliness and in juice. Core large; seeds large, plump. Season probably January. Resembling Ben Davis very closely in character of skin.

Experimental Farms.

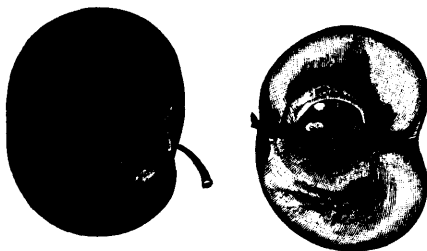
Tree is a spreading grower, fairly vigorous. The terminal shoots have not been injured by winter's frost thus far, though the stem of one of the trees planted has suffered to some extent from sunscald. This variety is said to have originated in Missouri, and is claimed by some to be a seedling of Ben Davis, which it resembles in certain respects.

LONGEVITY.—Originated with Dr. D. Young, Adolphustown, Ontario.

Description.—Medium size, round, regular, with tendency to a conical form. Skin smooth, somewhat oily. Colour yellow ground, nearly covered with blotchings of dark red. Dots of a light grayish colour, large but rather obscure. Cavity deep, narrow, lightly russeted below; stem slender, inserted. Basin large and broad, sometimes wrinkled; calyx small, closed. Flesh yellowish, fine grained, remarkably firm, juicy, but melting brisk, sub-acid. Quality good. Core small, open. Seeds small. Perhaps not so aromatic as a spy, but much superior to Ben Davis.

Of the tree and its manner of origination, Dr. Young writes, as follows in Dec., 1896: "As much as 50 or 60 years ago there were seedling apple trees set out on many farms about here. They appear to be mostly all dead, except the tree in question (Longevity), which tree is remarkably healthy and fresh looking still. I heard of the tree shortly after coming here to live, but until I chanced to see and eat some of the apples late on in the season I paid no attention to it. Soon after that I grafted some hardy trees with scions from it, believing that the stock could be disseminated profitably in some way, because the apples of good size and appearance and of fine grain, and in the following spring and summer very palatable, in addition to being a remarkably long keeper. In the autumn of 1894, having two barrels of them for the first time I sent them to Messrs. Hart & Tuckwell, Montreal asking them to test their keeping qualities; but about the first of June following, Mr. Walter Paul offered them \$50 for the two barrels. It was too strong a temptation and they sold the two barrels for that amount. In the fall of 1895 I shipped them two more barrels which they kept over, and I think they still have them in perfect condition." As the two barrels of the crop of 1895 have been kept in a cold storage warehouse under favourable conditions, this somewhat detracts from the value of the keeping test. This variety is now the property of H. C. Graves & Sons, nurserymen of St. Joseph, Mo., U.S. Messrs. Graves & Sons kindly forwarded scions of Longevity last spring for trial at the Experimental Farm. Unfortunately some of them were lost by the failure of the stocks upon which they were set owing to root killing. These facts are given to the public at this time in order to anticipate queries regarding the history and value of this apple, as it will probably be offered to the trade next year.

MARTHA (Crab)—Experimental Farm. Large, $2\frac{1}{4}$ inches laterally by $1\frac{7}{8}$ inches axial diameter; oblate regular. Skin, smooth, glossy, more or less covered by a pinkish



Martha (Crab).

Reduced one half.

blush. Cavity, deep, broad; stem, $1\frac{1}{4}$ inches in length. Basin, broad, moderately deep. Flesh, yellow, crisp, juicy, acid, brisk and pleasant; good. Ripens during the latter part of September. A handsome fruit, valuable for jelly making and desirable, when uncooked, if thoroughly ripened. Tree is of fine pyramidal habit, the side branches being

given off regularly from a central leader and overlapping each other horizontally. The lower ones assume, with age a weeping habit. The leaves are large, light green on the upper side and strikingly pubescent beneath.

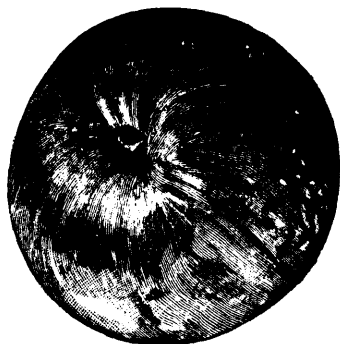
This variety was produced by Peter M. Gideon, Excelsior, Minnesota, who also originated Wealthy, Gideon, Florence, October, Lou and a number of others not so well known. These are all supposed to be hybrids between the Siberian Crab (*Pyrus prunifolia*, L.) and the cultivated forms of the common apple (*Pyrus malus*).

MALINDA.—From C. G. Patten, Charles City, Iowa. Fruited at Experimental Farm. Medium size, irregularly ribbed, sharply conical. Skin, greenish yellow below, covered in part by patches of russet, shaded with pink about basin and on sunny side. Cavity deep, narrow; stem stout, short, inserted. Basin, deep, narrow, corrugated; calyx closed. Flesh yellow, firm, rather pithy and tough, mild, sub-acid, juicy, with a sweetish after taste. Quality fair. Season, late winter.

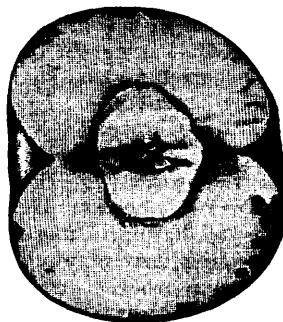
Tree a slender grower; fairly hardy. Originated in Iowa a number of years ago but it has not been widely planted until recent years, probably owing to the fact that it is slow in coming into bearing.

NORTH STAR (*Syn. Dudley's Winter*).—From Chase Bros., Rochester, N.Y.

Origin.—A seedling of Duchess, originating with John W. Dudley, Mapleton, Aroostook Co., Me. Original tree is now only about fifteen years old, so I am informed by Prof. W. M. Munson, Orono, Me.



North Star.



Reduced one half.

Description.—Large, roundish oblate, smooth, regular. Skin, yellow, mostly covered with dark red, suffused, overlaid with light lilac bloom. Cavity, deep, russeted; stem, one inch long. Basin, deep, round, slightly wrinkled. Calyx, large, open. Flesh, yellow, coarse, sub-acid, lacking in fine flavours; quality, not quite good. In appearance a compromise between Wealthy and Duchess. Season, September to middle of October.

Tree hardy, upright with large healthy leaves and small reddish coloured buds.

PARSON (*Parson's Sweet*).—Specimens from Fonthill Nurseries, Welland, Ontario.

Description.—Large roundish, oblique, conical. Skin moderately smooth; colour, yellow, nearly covered with rich dark red, marked with large white or russet coloured dots marbled on the shaded side. Cavity deep, narrow, regular; stem half to three-quarters inch long inserted curved, slender. Basin large, slightly ribbed; calyx, large, open. Flesh white, tender, flaky, fairly juicy, very sweet; core small. A large handsome sweet early winter apple. One of the best of the class.

Mr. A. L. Root, of the Fonthill Nurseries, says: Parson's Sweet originated near Springfield, Mass., being a seedling tree in one of the old New England orchards. It was brought to Geneva, N.Y., by Fowler Bros. about sixteen years ago, and brought to Welland, Ont., by Mr. Root when he came to Canada. Mr. Root says the tree is hardy in nursery, strong and stocky, and as a top graft it has been very productive.

Experimental Farms

PATTEN'S GREENING—Fruited at Experimental Farm. Medium size, oblate, sloping towards basin. Skin smooth light yellow about cavity, flushed with light pink near basin. Cavity moderately deep, broad, russeted below; stem very short, deeply inserted. Basin broad, slightly wrinkled; calyx large, partly closed. Flesh, yellowish white, juicy, rather tough in consistency, sharp, sub-acid, quality fair, core small. Season, December to February.

Tree a strong upright spreading grower with large leaves usually healthy. Hardy. Originated by C. G. Patton, Charles City, Iowa, said to be from seed of Duchess. Quality and texture does not impress me favourably considered for foreign market or export purposes.

PALOUSE.—Fruit forwarded by Geo. W. Beebe, Agassiz, B.C., who received the scions from Geo. Rudy, Palouse County, Washington, U.S.

Description:—Large; form oblong, conic, distinctly five-sided, somewhat oblique. Skin, rich golden yellow, streaked and blotched with pinkish red, bearing numerous small grayish russet dots. Cavity deep, narrow, lined at bottom with green; stem, thick, one to one and a-quarter inches long, curved. Basin shallow, wrinkled. Calyx large, open. Flesh yellow, coarse, with an unripe rather disagreeable odour when cut. Quality poor insipid and without character. Season, mid-winter. This apple resembles Cornish Gilliflower in regard to form and colouring, but does not approach the quality of that variety.

PEASEGOOD NONSUCH—Fruit grown by J. D. Roberts, Esq., Cobourg, Ontario.

Description:—Large, oblate, roundish. Skin, yellow, overspread with stripes and splashes of red and crimson. Cavity deep, narrow, stalk short, inserted, basin, deep, smooth, regular; calyx large, open. Flesh yellow, tender, juicy, sprightly, sub-acid. Classed with dessert apples by Dr. Hogg. Season, October. An amateur and home market apple. Such large and rather tender apples are exported in good condition with difficulty.

QUEEN (*Queen of Sauce*, Dr. Hogg.)—Fruit from J. D. Roberts, Esq., Cobourg, Ontario.

Description:—Largest size, oblate, broad at base, narrowing to calyx, smooth; skin, yellow, shaded and flushed with russet light red large dots, numerous. Cavity round, lined with russet; stalk short, inserted. Basin deep, angular; calyx, open. Flesh, yellowish, firm, crisp, juicy and sugary, brisk and pleasant flavour. Described by Dr. Hogg as a culinary apple. As grown by Mr. Roberts it resembles Alexander in a general way, but is much better in quality, being finer in texture. Season, November.

ROCHELLE.—Fruit received from R. W. Shepherd, Como, Quebec.

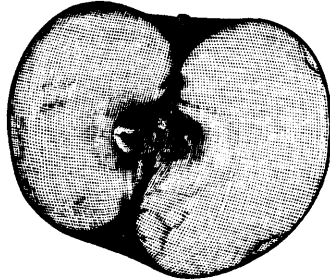
Description:—Large or slightly above medium, roundish with conical tendency, sometimes obscurely ribbed. Colour, greenish, yellow beneath nearly covered with red and crimson stripings marked with numerous small dots. Cavity large, sometimes russeted with a protuberance on one side; stem, short, thick. Basin medium size irregular; calyx open. Flesh, yellow crisp, juicy sharply sub-acid, quality good. Season, barely mid-winter, in best condition in December. Mr. Shepherd says the tree grew in nursery row from the root of an apple graft received from Wisconsin in 1878; that it has never been injured by frost or climate and that it has been productive. Its behaviour when propagated and planted in orchard has yet to be ascertained. In speaking of the origin of this variety Mr Shepherd says:—

“We noticed that the tree was growing from the stock and because it was a fine looking tree we allowed it to grow, and it has never been transplanted since. When the tree first began to bear we saw at once that the fruit was very good, and we have since cut off scions heavily for grafting every year. In 1880 the nursery was removed to another part of the farm and now the ‘Rochelle’ tree stands between the rows in my ‘Wealthy’ orchard. The tree is quite hardy, in fact appears very hardy and productive, the fruit is very handsome and keeps till mid-winter; quality, very fine.”

SCARLET PIPPIN (*Syn, Leeds Beauty*).—Originated at Lyn, Leeds County, Ont., on the St. Lawrence in the vicinity of Brockville, where it has been locally grown for some years. Its value as an autumn dessert fruit has been recently brought before the public through the efforts of Mr. Harold Jones, Maitland, Experimenter for Ontario for apple in the St. Lawrence River district.



Scarlet Pippin.



Reduced one half.

Description:—Medium size, round, inclined to oblate, regular, skin yellow, waxy, nearly always entirely covered with bright to dark crimson in strips or in suffused patches, overspread with a light bloom, altogether exceedingly handsome. Cavity, shallow, broad occasionally showing a protuberance on one side; stem, short, stout. Basin, almost wanting, slightly wrinkled; calyx open. Flesh, firm, white, flaky, crisp, melting, sub-acid, juicy, core, small, quality very good; season, early winter. This variety might be mistaken for McIntosh Red. The flesh is firmer and crisper. As a home market apple it is undoubtedly valuable.

Tree said to be hardy and productive. It has not been fruited at the Experimental Farm.

Mr. John Conn, Kempville, Ontario, says:—"The Scarlet Pippin is a remarkably handsome tree of upright growth; it is hardy and a heavy bearer. Mr. Borthwick (fruit dealer of Ottawa), gave 50 cents a barrel more for this variety than for Snow (Fameuse) last year." It does not enjoy immunity from "apple spot" but is less attacked than Fameuse.

VAN DEMAN.—From Prof. E. S. Goff, experiment station, Madison, Wis., Top-grafted on Wealthy, 1891.

Description:—Fruited last year and again this season. Medium size; roundish oblate. Skin smooth, shiny, covered with stripes and blotches of brilliant crimson, overlaid with a delicate bloom. Cavity broad, shallow; stem, half-inch long. Basin, shallow, corrugated; calyx, large, closed. Flesh white, flaky, melting and juicy, sharp acid, with a slight tinge of bitterness, good, season that of Red Astrachan. This apple so closely resembles Red Astrachan, that it could easily be mistaken for that variety of which it may be a seedling. The character of flesh is somewhat firmer and it may prove to be a better shipper.

WINTER ROSE.—Fruit from Mr. John Conn, Kemptville, Ont., originated in the county of Dundas.

Description:—Large, oblate, smooth and regular towards basin, but irregularly five sided towards cavity. Skin, green, overspread with a dull pinkish blush, and painted with a light gray coating except in a circle around calyx; cavity, broad, irregularly russeted below; stem, short. Basin round and smooth; calyx, large, open. Flesh white moderately firm, melting fairly juicy, very mild sub-acid, almost sweet; core, large, open. Specimens examined were affected by the "dry rot" described under fungous diseases. Quality good, but not high flavoured lacking in aromatic qualities and spiciness. Inclined to become mealy when fully ripe. Season, January and February.

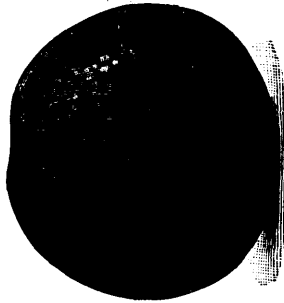
Mr. Conn has found this variety hardy and productive at Kemptville. Mr. Conn says:—"I send you a sample apple of the 'Winter Rose.' It improves in colour

Experimental Farms.

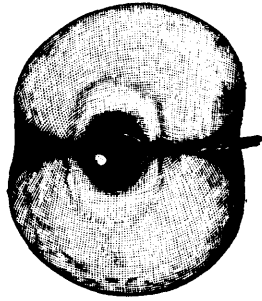
and quality towards spring and I have proved the tree to be hardy and a prolific bearer on alternate years. An old grafter, named Wagoner, got scions of it somewhere and used to some extent on his crab orchards in the back township of the county of Dundas. It is grown only, as far as I am aware, as a top graft, and it makes a remarkable good union with the stock."

WINTER ST. LAWRENCE (*Mank's Codling, Rambour Barré*).

Description.—Fruited at Experimental Farm. Medium to large, round, slightly conical. Skin yellow, nearly covered with light and dark red in splashes and broken stripes. Dots large, whitish grey, numerous; occasional patches of russet. Cavity broad, rather deep, sometimes russeted; stem slender. Basin small, slightly wrinkled; calyx closed. Flesh white, flaky, rather soft, juicy, brisk sub-acid, melting; quality good. Season, January to February. This variety possesses the Fameuse type of flesh, but does not rank as high in quality as that variety.



Winter St. Lawrence.



Reduced one half.

Tree a round-topped, vigorous grower, occasionally sun-scalds, but has never been injured by winter at Ottawa. The fruit is not injured by *Fusicladium* to the same extent as Fameuse, but at the same time requires careful spraying. According to the 5th report of the Montreal Horticultural Society this apple was imported in 1833 from Manchester, England, under the name of Mank's Codling, by the late Wm. Lunn of Montreal. It was exhibited and disseminated under various names by different people, but was finally named by the Montreal Horticultural Society about 1873.

VARIETIES OF PEARS PLANTED SINCE 1888.

Living.	Dead.	Cause of death.
Ansault.	Baron de Mello	Blight.
Beurré de Livonie, No. 38.	Beurré Hardy	Winter.
Beurré Slatzsk, No. 39.	Buffum	do
Bessemianka.	B. Canton Horimer?	do
Bezi de la Motte.	Beurré Hardy	do
Baba (Niemetz).	Beurré d'Anjou	do
Bessemianka, No. 102, Vor. (seedling).	Belle Lucrative	do
Bessemianka, No. 3, M. (seedling).	Beurré Superfine	do
Bonchretien, No. 15.	Beurré Clairgeau	do
Bessemianka, St. P.	Clapps Favorite	Blight and winter.
Byrne Large Seedling.	Countess Clara Fays	do
Bartlett.	Doyenne d'Été	Winter.
Czar, No. 15 M.	Double Beurré	do
Cure de Carnot.	Doyenne Boussock	do
Coleman's Butter.	Duchess de Bordeaux	Winter and blight.
	Duchess	do

VARIETIES OF PEARS PLANTED SINCE 1888—*Concluded.*

Living.	Dead.	Cause of Death.
Dula Medviedovka.	Easter Beurré.....	Winter.
Double Beurré.	Fitzwater	Winter and blight.
Dr. Reeder.	Frederick Clapp	do
Dempsey.	Goodale	Winter and blight.
Dvinnoe Solovieff (Niemetz)	Gros Zucherbirn	Blight.
Early Bergamot (Budd).	Howell.	Winter.
Flemish Beauty.	Hamburg Bergamot	Blight.
French Seedling (Amherstburg).	Indian Queen.	Winter.
Flat Bergamot, No. 396.	Junjferbirn.....	Blight.
Gliva Kurskaya.	Juicy Gliva.....	do
Gleck (Niemetz).	Krasovka (Niemetz).....	Blight.
Güte Gruner.	Kansas Seedling	do
Gakovka (Gibb).	Lawrence.	Winter.
Helen No. 4 (Peffer).	Longstem	Blight.
Honey (Budd).	Lutovka	do
Josephine de Malines.	Large Sugar.....	do
Justine (Peffer).	Louise bonne de Jersey	Winter.
Jessie, No. 8 (Peffer).	Mannings Elizabeth.....	Winter.
Kurskaya (392 Budd).	Medviedovka.....	Blight.
Keiffer.	Mount Vernon.....	Winter.
Lemon (Kharkoff).	Osband's Summer.....	Winter.
Lemon (Gibb).	Orel No. 16	Blight.
Longworth.	Peffer's No. 3	Blight.
Le Czar No. 36.	Petit Marguerite.....	Winter.
Maria (Currant Pear).	Pitmaston's Duchess	do
Mongolian Snow Pear.	Pound	Blight.
Mdme. Chaudy.	Pomeranovka.....	do
Matilda.	President Drouard.....	Winter.
Medovia, No. 4.	Ritson.....	Blight and winter.
Peffer's No. 2.	Red Bergamot.....	do
Peffer's No. 1.	Sheldon	Winter.
Peffer's No. 7.	Salviate (Ansjutin).....	do
Prairie du Pont (from J. Graham, Iowa)	Thin Twig.....	Blight.
Panna No. 33.	Tyson.....	Winter.
Princesse No. 3.	Theresa	do
Scented (Mor, No. 109).	Thick Twig	Blight.
Sapieganka.	Ukraine Bergamotte (Niemetz)	do
Sugar No. 9.	Voronesh, No. 28.....	Blight.
Sutton's Great Briton.	Vicar of Winkfield.....	Winter.
Seckel.	Voskovaya.....	Blight.
Summer Belle.	Voronesh No. 102.....	Blight.
Tonkoviетка (Budd).	Vinogradni Bog.....	do
Vermont Beauty.	Victoria.....	Winter.
Voronesh No. 18.	Weinbirn.	Blight.
Wilmot.	White Leiveland.....	do
White Doyenne (No. 2 Seedling).	Zoe	Blight.
Winter No. 9 M.		
Zucherbirn (Budd).		

NOTE.—A number of seedling varieties unnamed and unintroducted are not included in this list. Many of these are as yet in nursery row, or as top grafts. See article on blight.

Experimental Farms.

PEARS.

BEURRÉ BALTET.—Grown by Mr. J. D. Roberts, Cobourg, Ont.

Description :—Large pyriform oblique; skin yellow, flesh mealy, lacking in flavour insipid. Quality poor; season, October.

BEURRÉ CHAUDY.—Grown by J. D. Roberts, Cobourg, Ont.

Description :—Large, regular pyriform. Skin yellow, slightly russeted near calyx. Stalk stout, calyx open. Flesh white, firm, buttery, quite granular “gritty” near core. Quality good, season, November.

DIRECTEUR ALPHANDE.—Grown by J. D. Roberts, Cobourg, Ont.

Description :—Large, broad at base with a bottled shaped neck (obtuse obovate) deep suture on one side. Skin deep green, rough. Basin russeted, irregular, calyx closed. Stem very large, $\frac{3}{8}$ inches in diameter, $1\frac{1}{4}$ inches long, curved. Flesh white, firm, coarse, poor quality. Season, January or later, Mr. Roberts says “will keep until April or longer and is a delicious baking pear.”

PRES. DROUARD.—Grown by J. D. Roberts, Cobourg, Ont.

Description :—Medium to large, obtusely pyriform, angular, green with patches of russet. Stem $1\frac{1}{2}$ inches long set in a broad shallow depression. Basin deep, calyx closed. Flesh white, firm.

THERESA.—Grown by J. D. Roberts, Cobourg, Ont.

Description :—Small roundish ovate, yellow with slight blush towards stalk, cavity wanting; stalk strongly shouldered, 1 to $1\frac{1}{4}$ inches long, prominent. Basin small, calyx open. Flesh yellow melting, slightly gritty about core. Quality good, sweet. Season, October 15th to November 1st. Stem too much in the way to be a good shipper.

VARIETIES of cherries planted since 1888 (not including unnamed seedlings).

Living.	Dead.	Type.	Cause of death.
Amarelle Bouquet.....		Morello.....	
Abesse d'oignies.....		do.....	
Amarelle Hâtive.....		do.....	
Brusseler Braun.....		do.....	
Bessarabian.....		do.....	
	Belle Magnifique.....	Duke.....	Freezing, sunscalding.
	Black Eagle.....	Heart.....	Freezing roots.
	Brown's Best.....	Mazzard.....	Freezing, top and stems.
	Bender.....	Morello.....	do
	Black Tartarian.....	Heart.....	do
Carnation.....		Morello.....	
Cerise de Ostheim.....		do.....	
Kentish.....		do.....	
Cleveland.....		Bigarreau.....	
Double Natte.....		Morello.....	
Dupuis.....		do.....	
Double Glass.....		do.....	
	Dyehouse.....	do.....	Freezing roots.
	Downer's Late.....	Heart.....	Freezing top and stem.
Early Richmond.....		Morello.....	
English Morello.....		do.....	
	Early Purple.....	Heart.....	do
	Empress Eugenie.....	Duke.....	Freezing roots, top and stems.
	Elton.....	Heart.....	do do
	Esther.....	do ?.....	do do
Foûche Morello.....		Morello.....	
	Früh Morello.....	do.....	Freezing roots.
	Fraundorfer Weichsel.....	do.....	do
Griotte de Butner.....		do.....	
Gruner Glass.....		do.....	
Griotte du Nord.....		do.....	
Glaskirk Doppelte.....		Duke.....	
Griotte d'Ostheim.....		Morello.....	
	Griotte Morello.....	do.....	Freezing roots.

VARIETIES of Cherries planted since 1888 (not including unnamed seedlings)—*Con.*

Living.	Dead.	Type.	Cause of Death.
	Gov. Wood.....	Heart.....	Freezing tops and stems.
	Griotte Imperial.....	Duke?.....	Freezing roots.
	Griotte Précôce.....	do.....	Freezing top and stem.
	Galopin.....	do.....	do
	Gros Gobet.....	do.....	do
Heart Shaped Weichsel.....		Morello.....	
June Amarelle.....		do.....	
Koslov Morello.....		do.....	
	King's Amarelle.....	do.....	Freezing roots.
	Knight's Early.....	Heart.....	Freezing top and stem.
	Kirtland's Mary.....	do ?.....	do
Lithauer Weichsel.....		Morello.....	
Lieb.....		do.....	
Lutovka.....		do.....	
	Late Morello.....	do.....	Freezing roots.
	Louise (Chase Bros.).....	Duke?.....	Freezing top and stem.
Mercer.....		Bigarreau.....	
Montmorency.....		Morello.....	
do Ordinarie.....		do.....	
Minnesota Ostheim.....		do.....	
	Montmorency Large.....	do.....	Freezing roots.
	May Duke.....	Duke.....	Freezing top and stem.
	Montmorency Long-que.....	Morello.....	do
	Mezel.....	Bigarreau.....	do
	Napoleon.....	do.....	do
	Niemetz (Seedling).....	Morello.....	Freezing roots.
Ostheim.....		do.....	
Orel No. 23.....		do.....	
do No. 24.....		do.....	
do No. 25.....		do.....	
do No. 27.....		do.....	
	Olivet.....	do.....	Freezing roots.
Riga No. 18.....		do.....	
Russian No. 207.....		do.....	
	Royal Duke.....	Duke.....	Freezing top and stem.
	Reine Hortense.....	do.....	do
	Roberts Red Heart.....	Heart.....	Freezing roots.
	Rose.....	Morello.....	do
	Red Morello.....	do.....	do
	Russian No. 2.....	do.....	Sunscalding.
	Rockport.....	Bigarreau.....	Freezing top and stem.
Strauss.....		Morello.....	
Shadow Amarelle.....		do.....	
Spate Amarelle.....		do.....	
Sand Cherry C.E.F. No. 1.....		Prunus pumila.....	
	Sklanka.....	Morello.....	Sunscalding.
	Susse Früh Weichsel.....	do.....	Freezing roots.
	Sparhawk's Honey.....	Bigarreau.....	Freezing top and stem.
	Tradescant's Black.....	do.....	do
Vladimir.....		Morello.....	
	Vistula.....	do.....	Freezing roots.
	Voronesh, No. 27.....	do.....	Sunscalding.
Wagner, Budd.....		Duke?.....	
	Windsor.....	Bigarreau.....	Freezing top and stem.
	Wragg.....	Morello.....	Freezing roots.
	Weir No. 2.....	Duke.....	do
	do No. 13.....	do.....	do
	do No. 18.....	do.....	do
Yellow Sand Cherry.....		Prunus pumila.....	

Experimental Farms.

Varieties of Plums planted since 1888. (Not including a large number of unnamed seedlings.)

Living.	Dead.	Type.	Cause of Death.
American Eagle.....			
Arab.....	Admiral.....	P. Dom.....	Freezing top and stem.
	Adirondac.....		
	Abundance.....	Japan.....	do do
Bicksley.....		P. Am.....	
Bohemian.....			
Botan.....		Japan.....	
Bonne St. Anne.....		P. Dom.....	
Black Hawk.....		P. Am.....	
Bradshaw.....		P. Dom.....	
	Beauty of Naples.....	do.....	do do
	Bleecker's Gage.....	do.....	do root.
	Bingham.....	do.....	do top and stem.
	Blue Orleans.....	do.....	do do
	Black's Purple.....	do.....	do do
	Belgian.....	do.....	do do
	Briton (Brown).....	do.....	do do
	Bryanston's Gage.....	do.....	do do
Colorado Queen.....		P. Ang. ?	
Clinton.....		P. Am.....	
Carver.....		do.....	
Comfort.....		do.....	
Cheney.....		do.....	
Chateauguay.....		P. Dom.....	
Chabot.....		P. Chicasa.....	
Charles Downing.....		do.....	
City.....			
Cottrell.....			
Champion.....			
Col. Wilder.....		do.....	
	Copper.....	P. Dom.....	do do
	Communia.....	do.....	do do
	Coe's Golden Drop.....	do.....	do do
	Canada Egg.....	do.....	do do
	Columbia.....	do.....	do do
De Soto.....		P. Am.....	
Dr. Dennis.....		do.....	
Deep Creek.....			
Dunlap's No. 1.....		P. Dom.....	
do No. 2.....		do.....	
do I.X.....		do.....	
	Duane's Purple.....	do.....	do do
	Damson.....	do.....	do do
	Dame Jaune, 115.....	do.....	do do
Forest Garden.....			
	Felleberg.....	do.....	do do
	Forest Rose.....	P. Am.....	Sunscauld.
Golden Beauty.....			
Galem.....			
Glass Seedling.....		P. Dom.....	
Gaylord.....			
German Prune.....		do.....	
Green Gage No. 1 (R. B. W.).....		do.....	
do No. 4 (R. B. W.).....		do.....	
	Gueii.....	do.....	do do
	Golden Cluster.....	do.....	do do
	General Hand.....	do.....	do do
	Grand Duke (E. & B.).....	do.....	do do
	Golden Gage.....	do.....	do do
Hawkeye.....		P. Am.....	
Hungarian.....		do.....	
Hunt.....		do.....	
Hogg's No. 2.....			
Hammer.....		do.....	
Hoyosomomo.....		Japan.....	
	Honey Drop.....		
Iroquois.....			
Irene.....			

VARIETIES of Plums planted since 1888—Continued.

Living.	Dead.	Type.	Cause of Death.
Iron Clad			
Idol			
	Ida	P. Am	Freezing root.
	Imperial Gage	P. Dom	do top and stem.
	Isium Ureck, No. 6	do	do root and top.
Jessie		P. Chicasa	
John A		P. Dom	
	James Vick	P. Chicasa	do top and stem.
	Kansas Drawf	do	do root and top.
	Kingston	P. Dom	do top and stem.
	Kenyon No. 1		
	Krasnaya Sklospok	do	do do
Leipsic			
Louise			
Lombard Seedling (Saunders)		do	
Lincoln		do	
	Late Red (Fisk)	do	do root.
	Lawrence's Favorite	do	do do
	Lombard	do	do top and stem.
	Luscombs None-such	do	do do
	Latchford	do	do roots.
Massu			
Mankato			
Miner			
Manitoba No. 4		P. Am	
do No. 5		do	
Moreman		do var	
Milton		P. Chicasa	
Mills' Seedling			
Marianna		P. Hort	
	Masters	P. Dom	do roots.
	Munro	do	do top and stem.
	Maquoketa	P. Chicasa	Sunscald, freezing.
	Magnum Bonum	P. Dom	Freezing top and stem.
	Montmorency Beauty	do	do do
	Moldavka	do	do roots.
	Mdlle Blanche Saumer	do	do top and stem.
		do	
Nicholas			
Nelly			
Nebraska			
New Uln			
	Niagara	do	do do
	Niemetz	do	do roots.
	Nota Bene (Brown)	do	do top and stem.
	Newman (E. & B.)	do	do do
Ocheeda			
Orel No. 20		do	
Otschakoff (Fisk)		do	
	Ogon	Japan	do do
	Orange (E. & B.)	P. Dom	do do
Peffer's Premium			
Prairie Flower			
Pond's Seedling		do	
	Pottawattamie	P. Chicasa	do root and top.
	Prince Englebert	P. Dom	do top and stem.
	Prunus Simonii	Japan (hybrid)	do root, top and stem.
	Postmaster	P. Dom	do top and stem.
	Prune d'Agen	do	do do
	Peach Plum	do	do do
Quaker			
Quebec		do	
	Quackenboss	do	do do
Rockford		P. Am	
Reine Claude		P. Dom	
Reed			
Richland		do	
Rollingston		P. Am	
Richard Trotter		P. Dom	
	Russian No. 19	do	do do

Experimental Farms.

VARIETIES of Plums planted since 1888—*Concluded.*

Living.	Dead.	Type.	Cause of Death.
	Riga No. 113	P. Dom.	Freezing root.
	Red Winter, B.	do	do top and stem.
	Robinson	do	do do
Silas Wilson		P. Am. var.	
Snelling		P. Am.	
Speer		do	
Stoddard		P. Dom.	
Sophie		do	
	Shropshire Damson	do	do roots, top and stem.
	Shipper's Pride	do	do top and stem.
	Smith's Orleans	do	do do
	Sweet Water	do	do do
	St. Lawrence, (E. & B.)	do	do do
Trabische		do	
Ungarish		do	
Voronesh (Fisk)		do	
Vorenesh Yellow (Budd)		do	
Vanburen		P. Am. var.	
Voronesh No. 102		P. Dom.	
do No. 20		do	
Van Deman		do	
Victoria		do	
Whitacker		P. Am.	
Wolf		P. Am.	
Wyant		do	
Weir's Large Red		P. Dom.	
Washington		P. Am.	
Weaver		P. Dom.	do roots.
	White Otschakoff	do	do top and stem.
	Wangenheim, (E. & B.)	do	
Yosemite Purple		P. Am.	
do Yellow		do	
Yellow Sweet		P. Dom.	do do
	Yellow Egg	do	do do
	do Gage	do	

SEEDLING FRUITS.

I am pleased to report an increased interest on the part of owners of seedling fruits in bringing these to public notice, for the purpose of ascertaining their particular features of usefulness with a view of introducing them if thought sufficiently valuable. In continuation of the work begun two years ago, a considerable number of varieties have been received and examined this year; where thought worthy they were described in detail and scions were asked for. In most instances growers have furnished these without hesitation, always being assured that their distribution would be restricted to the various experimental stations until permission was given by the grower.

In this connection I may be allowed to urge upon persons sending in these seedling fruits the necessity of wrapping each specimen in paper and inclosing them in a strong cardboard box, a history and description of the tree with the name of the sender and that of the owner or introducer should accompany each package, or be inclosed with the fruit. A number of packages have been received without anything but the post mark, and sometimes minus that, to identify them. This leads to confusion and enhances the labour of recording the necessary data. Suitable mailing boxes will be furnished on application by the Horticultural Division, Central Experimental Farm, Ottawa, to those who wish to forward samples of seedling or other fruits for examination. It is also desirable to send six specimens in each case, so that they may be distributed to three members of the committee of the Fruit Growers'

Association of Ontario, on new fruits. Information regarding the fruits received is given in condensed form in the following tabular statement. Where thought worthy a fuller description is appended.

SEEDLING APPLES.

Record Number.	SENDER.		Remarks.
	Province.	Name.	
100	* P. E. Island....	Gill, John H., Little York....	Medium to large; yellow; flesh juicy, with a peculiar quince flavour.
101	do	Ward, W. M., Uptown	Three distinct seedlings; not valuable.
102	New Brunswick...	Williams, B., Long Reach....	Medium size, round; yellow; winter.
103	* Quebec.....	Dart, Rev. W. J., St. Lambert	Northern Spy seedling; much resembles parent in appearance and quality; winter.
104	Quebec	Frazer, John, Coaticooke....	Small size, round; red; winter.
105	do	Herrick, J. E. K., Abbotsford.	"Herrick." Good for cooking only; keeps well; mid-winter.
106	* Quebec.....	do do	"Bangle." Medium size, handsome; fair quality; early winter.
107	Quebec	La Trappe, Oka.....	No. 1, medium size; poor quality.
		do	No. 2, small, crimson; winter.
		do	No. 3, small, yellow; long keeper; cooking.
108	* Ontario.....	Allan, A. McD., Goderich....	"Williams." Small, compact; acid, juicy; late winter.
109	do	Burgess, Amos, Bala	Crab; good size, handsome; September.
110	* do	Clare, R. P., Rideau Centre...	Medium size; yellow; firm; good winter.
111	do	Fisher, M. J., Maxville.....	"Sir Oliver." Red, juicy; fair quality; resembles "Gravenstein" in appearance and season. Medium size.
112	do	Graham, I. J., Vandeleur...	Medium to large; green; firm; acid; winter.
113	do	do do	Medium size; red; poor quality; autumn.
114	do	Greenfield, S., Ottawa East...	Large; red; poor quality.
115	do	do do	No. 2, small; yellow; good winter.
116	* do	do do	No. 4, medium; yellow; good winter.
117	do	do do	Medium; yellow; poor quality; winter.
118	do	Kerr, W. J., Renfrew.....	"Knight's Russet." A small, sweet, white fleshed russet; maybe locally valuable; autumn.
119	do	do	"Knight's No. 1." Resembles St. Lawrence; two or three weeks later; handsome; fair quality; autumn.
120	do	do	"Fraser's No. 1." Small; poor quality; autumn.
121	do	do	Seedling; Blue Pearmain type; worthless.
122	do	Leef, W. H., Orillia.....	Large, green; poor quality.
123	do	Lowrey, E. D., St. Davids	Small; said to be a crab; September.
124	* do	Morse, S. P., Milton.....	Medium to large; yellow; quality, best; promising; probably a seedling of early harvest. Early summer.
125	* do	do	Medium to large; oblate; red, sweet; late winter
126	do	McConnell, H. L., Grovesend	Medium size; crimson; good quality; winter.
127	* do	Ramer, John H., Markham	Medium size; yellow; good quality; not attractive; good keeper.
128	do	Roberts, C. H., Paris	"Ridgemount." Medium size; sweet; summer; not good enough to compete with "Duchess."
129	do	do	"Allan Ridgemount." Medium; yellow; fair; mid-winter.
130	* do	Williamson, W. P	Small; oblate; yellow; good; mid-winter.

* More complete description follows.

Experimental Farms.

PLUMS.

Record Number.	SENDER.		Remarks.
	Province.	Name.	
131	* Nova Scotia.....	McFarlane, D. H., Pictou.....	Seedling of White Magnum Bonum. Good quality; season, late September.
132	do	do do	Seedling of White Magnum Bonum. Blue; nearly free; fair quality.
133	Ontario	Ruth, S., Ridgetown.....	Blue; size of Lombard; cling; late August.
134	* do	Smith, A. M., St. Catharines..	"Smith's October. Medium size; nearly black; cling; fair quality; October.
135	do	Stephens, C. L., Orillia....	Seedling, native red; good quality.
136	Manitoba.....	.....	9 samples; native Manitoba plum; Nos. 1 to 3 worthy of propagation in Manitoba.

PEACHES.

137	* Ontario	Bruner, M. G., Olinda.....	"Corlett." Medium; pink, yellow, free; end of July.
138	do	Whaley, M., Olinda.....	"Ermine." Medium; partially free; pit large; ripe first week August.

GOOSEBERRIES.

139	Ontario.....	Stephens, C. L., Orillia.....	Medium size; white; fair quality; July 10.
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CURRENTS.

140	Ontario.....	Stephens, C. L., Orillia.....	Red Dutch type, but sweeter; July 10.
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* More complete description follows.

Record No. 100. Apple, seedling. Received Nov. 11, 1896.

From John H. Gill, Little York, P.E.I.

Description.—Medium or above, oblong, slightly conical obscurely five-sided. Skin glossy, green with a pinkish blush on one side. Cavity broad moderately deep; stem $\frac{3}{4}$ to 1 inch long stout, unusually thickened at base, curved. Basin, shallow wrinkled; calyx end large, closed. Flesh white, crisp, juicy, but not melting with a pronounced quince like flavour, peculiar but pleasant, core large open. Season mid-winter or later. Worth propagating on account of good quality and keeping properties. Resembles in flavour—so says Dr. Fletcher the English Quince pippin. Scions have been received for grafting.

Record No. 103. Apple. Received Nov. 11, 1896.

From Rev. W. J. Dart, St. Lambert, Que., said to be a seedling of Northern Spy.

Description.—Medium or below, roundish conical Northern Spy form with the same ribbings more or less distinct. Skin thick, dull crimson in colour diffused. Cavity broad, deep regular; stem long, stout. Basin small, shallow. Flesh yellow, firm, crisp, almost identical with Spy in character and flavour. Season, winter. Mr. Dart says: "the specimens were grown by Mr. John Duckworth, Grand Trunk Railway bridge inspector. He says that 10 or 11 years ago he planted some seeds from a Northern Spy apple. One of the trees so produced has never been grafted and bore the

apples forwarded. The fruit is very much like Northern Spy in colour, in shape and texture. The tree is quite hardy here at St. Lambert, never having been winter killed. It stands in a rather sheltered garden about half a mile from the banks of the St. Lawrence." Scions asked for.

Record No. 106. Apple, seedling. Received Nov. 16, 1896.

"Bangle," from J. E. K. Herrick, Abbotsford, Que.

Description.—Large, oblate, smooth and regular, skin tough, greenish yellow in colour; nearly covered with light stripings and blotchings. Cavity, broad, deep, sometimes russeted; stem slender $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long. Basin small, round; calyx partly closed. Flesh yellowish white, with a distinct St. Lawrence like flavour; texture inclined when fully ripe to be mealy; slightly lacking in juice and sprightliness. A chance seedling now about 25 years of age growing in the garden of the Bangle farm, Abbotsford, Que. Tree hardy, round topped. A heavy alternate bearer. Probably a seedling of St. Lawrence and named by Mr. Herrick after the original owner of the farm. Worthy of trial in a limited way.

Record No. 108. Apple, seedling. Received October 10, 1896.

"Williams," from A. McD. Allan, Goderich, Ont.

Description.—Small roundish conical. Skin yellow, with light pink stripes on one side. Cavity very shallow, almost wanting; stem short $\frac{3}{8}$ to $\frac{1}{2}$ inch with a prominent terminal knob. Basin shallow, slightly wrinkled. Flesh yellowish white, firm, crisp, very juicy, acid and aromatic. Fair, core small, season, late winter; rather promising for home winter use on account of compactness of form and pleasant acidity of flesh, but is not sufficiently attractive or large enough for export purposes.

Record No. 109. Crab seedling. Received September 20, 1896.

Forwarded by J. P. Cockburn, Gravenhurst, Ont. Grown by Amos Burgess, Bala, Muskoka, Ont.

Description.—Size, longitudinal diameter, 2 inches, lateral diameter, $1\frac{3}{4}$ inches. Form roundish, oblate regular. Skin glossy, bright scarlet in colour, Siberian type. Stem $1\frac{1}{2}$ inches long. Flesh firm, crisp-juicy, slightly astringent. Season, end of August. Said to be very productive. Like other crabs, useful for culinary purposes. Scions received.

Record No. 110. Apple, seedling. Received October 10, 1896.

"Joe Pattie." From R. P. Claire, Rideau Centre, Ont.

Description.—Medium to large roundish, slightly conical. Skin smooth, glossy yellow, partly covered with a bright red blush. Cavity entirely wanting in some specimens; stem stout, 1 inch long, obtrusive; its most objectionable feature. Basin deep, narrow, calyx closed. Flesh white, firm, fine-grained, very juicy, acid good. Season mid-winter. Locally known by the name of "Joe Pattie." Season, late winter. Mr. Claire says: "The seedling originated on the farm of Mr. Pattie between L'Orignal and Vankleek Hill. The tree is a fair annual bearer, a very thrifty grower, perfectly hardy, but its chief point of merit is its keeping qualities. In our cellar it keeps perfectly till April or May." Scions received.

Record No. 114. Received March 4, 1896.

Apple seedling. From S. Greenfield, Archville, Ont.

Description.—Medium size, conical. Skin yellow, with light red stripings. Cavity small; stem short. Basin small, smooth, calyx, closed. Flesh yellow, firm, juicy, sprightly, sub-acid, good, with Roxbury russet flavour. Appears to be worthy of further trial locally.

Record No. 124. Received August 14, 1896.

Apple seedling. S. P. Morse, Milton, Ont.

Description.—Large, round; smooth, regular; skin, a clear, glossy yellow, bearing numerous more or less distinct black dots; cavity, broad, sloping rapidly; stem, medium length, $\frac{5}{8}$ to 1 inch; basin small, round, smooth, calyx, open; flesh, white, firm, grained, tender, melting, juicy and buttery, pearl-like in character, with pleasant aroma; quality, best.

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Mr. Morse says: "I take it to be a chance seedling of Early Harvest, because the tree sprang up not far from one of that variety, which it very much resembles in many points, but is more vigorous—fruit much larger, finer in texture, of better form and more exempt from *Fusicladium*. It is here pronounced the best of all the harvest apples."

This variety appears to be worthy of careful and extended test. Scions received.

Record No. 125. Received October 29, 1896.

Apple seedling, No. 3, from S. P. Morse, Milton, Ont.

Description.—Slightly above medium, flat, conical, regular. Skin smooth, not oily, green, partly covered at base with light to dark red, diffused or in stripes, bearing numerous small dots. Cavity, smooth, broad, sloping, deep, lined with green or russet; stem, $\frac{7}{8}$ to $1\frac{1}{4}$ inches long, fairly stout. Basin, small, shallow. Calyx, small, partly open. Flesh, white, crisp, juicy, nearly sweet, melting, very pleasant, good; core small; seeds, large and plump; season, mid-winter. Appears to be worthy of local trial as a sweetish winter apple.

Mr. Morse says: "Tree like the Spy, finely fastigiata, very vigorous. It has no marked excess of those small spray-like twigs that infest the growth of the Spy and produce most of the worthless fruit. The crop is produced mainly on the wood of last year's growth. * * Very productive. * * Holds well to the tree."

Record No. 126. Received September 15, 1896.

Apple seedling, from A. L. McConnell, Gravesend, Ont.

Description.—Medium size, round, remarkably spherical and regular. Skin covered with a rich crimson, thickly marked with large white dots; very handsome. Cavity almost wanting; stem short, $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Basin shallow, only a slight depression; calyx open. Flesh white, fine grained, juicy, melting, sub-acid; good. Season, early winter.

Mr. McConnell says: "I send small and imperfect specimens of a seedling grown by myself. Tree remarkably strong and symmetrical, bears annually. Fruit not affected by 'scab.' Very uniform in size and shape." Worthy of trial.

Record No. 127. Received April 30, 1896.

Apple seedling. From John H. Ramer, Markham, Ont.

Description.—Size above medium, roundish oblated, tapering rapidly towards basin. Skin rough, golden yellow, marked with russet coloured dots, and blushed with light red towards calyx end. Cavity medium; stem $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long. Basin marked by a slight depression, calyx closed. Flesh white, flaky, juicy, mild, sub-acid. Quality good at this season. Apple not attractive, but regular in form and good in quality, besides being a keeper. Mr. Ramer says: "The tree was planted in 1823 by my father, Peter Ramer, who set out nearly 300 seedlings on three acres of ground. The trees were grown from seed brought, I think, from the States, and no two bore the same kind of apples. The tree is a heavy annual bearer." Worthy of local trial.

Record No. 130. Received January 20, 1896.

Apple seedling. From W. J. Williamson, Port Nelson, Ont.

Description.—Small, oblate. Skin yellow, nearly covered with crimson stripes and splashes. Cavity, deep and russeted; stem slender, short. Basin shallow; calyx open. Flesh yellow, crisp breaking, very juicy, pleasant, good. Season, mid-winter. Worthy of local trial.

Record No. 131. Received September 28, 1896.

Plum seedling. From D. H. McFarlan, Pictou, N.S. Seedling of white magnum bonum yellow egg.

Description.—Medium to large egg-shaped, tapering towards stem. Suture plainly marked, but not deep. Stem, $1\frac{1}{4}$ inches long, set in a moderately deep cavity, fairly stout. Skin greenish yellow, thinly covered with light lilac bloom, with some mottling. Flesh yellow, firm, good quality, closely adherent to stone. Stone small, flat, one-sided, hollowed near wing, sub-acid. Quality, good. Season about middle of September. Mr. A. McD. Allan says: "With us it would scarcely have a place for introduction owing to the fact that it is about the same season as Coe, and scarcely as large in size, but it may be valuable for other sections if the tree has hardness to recommend it."

Record No. 134. Received October 4, 1896.

Plum seedling. "Smith's October." From A. M. Smith, St. Catharines, Ont.

Description.— $1\frac{3}{8}$ inches longitudinally and laterally. Slightly one-sided; suture obscure. Colour nearly black with light blue bloom, some mottling. Flesh dark yellow, firm, sub-acid, cling. Fair quality. Stone small, globular, with deep hollow along side a thickened margin. Mr. A. McD. Allan, of Goderich, Ont., says: "There are many seedlings in this section of this class, but owing to the fact that like this they are under size, and not possessing any distinguishing points to recommend them specially, I have never brought them to notice. * * * Coe is as late as I have found value for a plum, and I would be inclined to pass anything late, unless it was large and a good cooking plum with free stone." I am inclined, however, to think this variety worthy of local trial.

Record No. 137. Received July 27, 1896.

Peach seedling "Corlett." From M. G. Bruner, Olinda, Ont.

Description:—Size two inches longitudinally, by $2\frac{1}{2}$ laterally—nearly round, regular. Suture shallow extending half the length. Skin yellow, partly covered with a pink blush, deepest near cavity. Stem set in a deep narrow cavity. Flesh pale-yellow, moderately firm, juicy, sweet, good. Stone medium size, free. Worthy of local trial. Mr. Bruner says: "The tree is a strong grower, produced by Mr. Corlett, of Olinda, resembling in form Amsden June."

KEEPING PROPERTIES OF APPLES.

Twenty-five varieties of apples were taken from an earth cellar, where they had been placed after harvesting, and placed in the cellar of the Horticulturist's house early in December, 1895. The temperature of the cellar ranged between 35° and 40° F. for three months, with the exception of a short time during an unusually cold snap in January, when the temperature fell to 26° F., or 6° below freezing. The apples at this time were undoubtedly frozen, but were in the dark and thawed out slowly. The temperature was very uniform afterwards until April 15th, when it reached 45° F. During May it rose a little higher. The apples were not wrapped in paper, being simply packed in boxes or baskets of sufficient capacity to hold the quantity of fruit in each instance. They were examined carefully on May 28th, and notes made of the number of sound, partially decayed and completely rotten specimens of each variety. The results are given below in percentages of each grade, varieties ranged in order of merit, as shown by their keeping properties:—

Variety.	Percentage Sound.	Percentage Partly Decayed.	Percentage Rotten.
Ben Davis.....	100		
Orange Winter.....	93	7	
Wagener.....	88		12
Rawles Janet.....	82	6	12
Wine Sap.....	82	4	14
Walbridge.....	73	13	13
Green Sweet.....	72	11	16
Crimean.....	62	15	23
Lawver.....	49	11	40
Bombarger.....	44	36	20
Duke of Connaught.....	42	16	42
Hardy.....	34	33	33
Swayzie Pomme Grise.....	31	6	63
Pewaukee.....	20	47	33
Watterson No. 3.....	20	40	40
Salome.....	20	40	40
Fameuse.....	12	18	70
Quaker Beauty.....	4		96
Hardisty.....		25	75
Haas.....			100
Gideon.....			100
McIntosh Red.....			100
Anisovka.....			100

Experimental Farms.

ROOT KILLING OF FRUIT TREES.

It is not often in Eastern Canada that the roots of the hardier classes of tree fruits are injured or killed by frost. The accustomed heavy winter covering of snow prevents, as a rule, the frost from penetrating to a dangerous depth, by preserving the natural warmth of the soil. Occasionally, however, a period marked by low temperatures arrives in advance of the snow covering, bringing with it sure death or surer injury, to roots unprotected. The greatest damage usually occurs to trees on dryish sandy soils. In such situations the frost penetrates readily and its action is attended with graver results on account of light soils being more sensitive to sudden changes of temperature. The action of the frost in this instance would be analogous to that described in discussing its effect upon the cells, composing the branches and twigs of trees.

Speaking of injury of this kind, Prof. Hartig, University of Munich, says:—

“Roots of all young trees—even forest trees, may be killed if severe and long continued frost finds the lighter classes of soil unprotected by snow or any other covering. The periderm of the roots is thinner than on the stem and consequently the former are less protected and, moreover, growth is active for a longer period in roots. In mild climates, it continues till the middle of winter, so that when frost occurs the tissues are not in the inert condition which assist them to resist cold. Such plants burst their buds in spring, but wither up whenever transpiration from the delicate young shoots has exhausted the stock of water.” An occurrence of this kind may wipe out in a single winter what was a promising young orchard. As the trees grow older and become deeper rooted, the danger naturally lessens. Portions of the Central Experimental Farm cherry and apple orchards upon light soils under clean cultivation were almost totally destroyed in this way last winter. The temperature fell and remained at 20 degrees below zero for some days towards the end of December, when the ground was entirely unprotected by snow. The cherries were mainly root grafted or budded on Mahaleb stock, the apples were budded and grafted on French crab stocks. The character or variety of stock seemed to have less to do with the extent of the injury than the nature of the soil. In those portions of the orchard where a hard and impervious subsoil approaches the surface the injury was greatest. The twigs and branches retained their plumpness till the commencement of vegetative process; the flower buds, with which the trees were thickly covered, opened or partly opened, as the case might be, and in some instances fruit set; the leaf buds usually made an attempt to do their duty, but failed to more than half develop leaves. By this time the twigs were much shrivelled, and the store of food having become exhausted the trees gave up the struggle and died. On digging them up, it was found that in nearly every instance the upper system of roots was entirely killed and while the lower or tap roots were alive towards their lower extremities, the superior portions were completely destroyed. A lesson of this kind need only be learned once, and strongly emphasizes the desirability, if not necessity, of surface protection from that standpoint.

One of the best means of guarding against this danger is discussed under the head of *Orchard Cover Crops*; another way may be suggested under the head of *Hardy Stocks*. It is unwise to expect that either or even both of these preventives will always be effectual; they are, nevertheless, the best means to the end desired. There are a number of unsettled questions relating to the effect of stock on scion and vice versa. In the case of budded and root-grafted trees, nurserymen well know that when a variety of apple tree has reached three years of age in the nursery row, no matter what class of root has been used in propagating it, whether budded or grafted, the roots of the salable nursery trees will all resemble each other and will collectively represent a type characteristic of the variety propagated. This may be exemplified by a deep rooting habit, a shallow rooting habit or by having a large number of small, fibrous roots in contradistinction to a few large branching roots. These differences are characteristic of the habit of the variety represented by the scion used in grafting. These may be termed physical differences. Whether a similar constitutional change is wrought in the stock is a question that is not settled, so far as I am aware, at the present time. It seems reasonable to suppose that the virility of the stock would undergo modification in a degree coördinate with its physical transformation. If so, root-grafting as a means of

increasing the root hardiness of tender varieties would not be as effectual as might at first thought be expected. By what is known as "double working" there is reason to believe the desired end might be more completely attained. A "double worked" or double grafted tree is one which has been propagated by root-grafting or budding and has subsequently, when it has reached the proper size, at three or four years of age, been itself top-grafted in the main branches, or in the stem at a point just below where branching took place. In this way stocks of a certain character are formed, and upon them are placed other varieties wanting, in desirable qualities. It may be asked, will the scions placed upon these trees modify and finally dominate the stock to such an extent as to eventually effect a complete transformation into its own constitutional likeness. It is probable that a gradual change will take place, but the opposing forces, if we may so term them, being at the beginning in favour of the stock, the change, if any, may presumably be expected to take place slowly.

Top Grafting Stocks.—Among the Russian varieties and Siberian crab hybrids there are a number which will undoubtedly prove valuable for this purpose. The following are being tested: Romna, Hibernial, Gideon, McMahan White and Haas. They are strong growers and characteristically deep rooted.

The following is a list of apple and cherry trees destroyed by root killing last winter:

CHERRIES.

Variety.	Stock.	When Planted.	Number of Trees Killed.	Remarks.
Amarelle Hâtive	Mahaleb	1891	1	Roots entirely killed.
do Boquet	do	1890	4	do partly killed.
Abesse D'Oignes	do	1890	2	do do
Bessarabian	Mazzard	1891	3	Upper part of roots killed.
do	Mahaleb	1888	2	do do
Bender	do	1891	1	Roots alive at extremities.
Black Eagle	Mazzard	1891	2	Roots entirely killed.
Double Natte	do	1888	2	do
Dyehouse	Mahaleb	1890	2	do
Downer's Late	Mazzard	1891	1	Roots partly killed.
Early Purple	do	1891	1	Roots alive at extremities.
Elton	do	1891	1	Roots partly killed.
Early Richmond	Mahaleb	1888	2	Roots killed at base of tree.
Fouche Morello	Mazzard	1890	1	Roots entirely killed.
Fraundorfer Weichsel	do	1888	1	do
Griotte Morel	do	1891	1	do
do de Butner	do	1892	1	do
do Impériale	Morello	1888	1	do
do do	Mahaleb	1890	1	do
do d'Ostheim	do	1888	1	Roots partly killed.
do du Nord	do	1894	3	do
Gruener Glas	do	1891	2	Roots entirely killed.
Glaskirche Kurtz	do	1891	2	do
Governor Wood	do	1891	2	Upper part of roots killed.
King's Amarelle	do	1894	3	Roots partly killed.
*Koslov Morello	Own root	1890	2	do
Kentish	Mazzard	1888	1	Roots entirely killed.
Knight's Early	do	1891	1	do
Lutovka	do	1891	3	do
Late Morello	Mahaleb	1888	2	do
Lithauer Weichsel	do	1894	3	Roots killed at base of tree.
Montmorency, large	do	1891	2	Upper parts of roots killed.
do	do	1888	2	Roots killed at base of tree.
Moscow, No. 12	do	1891	2	Roots partly killed.
do 62	do	1894	2	Roots entirely killed.
Morello Früh	do	1888	1	Roots partly killed.
May Duke	Mazzard	1891	2	Roots entirely killed.
Napoleon	Mahaleb	1891	2	do
Olivet	do	1888	2	do
Ostheim	do	1888	21	do
Orel, No. 24	do	1891	3	do
do 27	do	1894	1	do
do 27	do	1890	1	do killed above only.
do 25	do	1888	1	do

*Two trees out of twenty killed.

Experimental Farms.

CHERRIES—Concluded.

Variety.	Stock.	When planted.	Number of Trees Killed.	Remarks.
Orel, No. 23	Mazzard	1894	3	Roots entirely killed.
Red Morello	do	1888	1	do
Roberts' Red Heart	do	1891	1	do
Rose	Morello	1888	1	do
Schatten Amarelle	Mazzard	1888	3	do
Süsse Früh Weichsel	Mahaleb	1890	1	Roots alive at extremities.
Späte Amarelle	do	1894	3	Roots entirely killed.
Strauss	do	1888	1	do
Vladimir	do	1889	3	Lower part of roots alive.
do	Mazzard	1890	3	Roots entirely killed.
Vistula	do	1888	1	do
Wragg	Mahaleb	1888	1	do
Weir, No. 18	do	1888	1	Roots partly killed.
do 12	do	1888	1	do
do 13	do	1890	1	Roots alive at extremities.

PLUMS.

Bryanston's Gage	Myrobolan	1888	1	Roots entirely killed.
Bleecker's Gage	do	1890	1	do do
Belgian Purple	do	1888	1	Lower extremities of roots alive.
Bonne Ste-Anne	Own roots	1895	1	Roots entirely killed.
Chas. Downing	Myrobolan	1893	1	Extremities of roots alive.
Comfort	do	1892	1	Roots entirely killed.
Dunlop, 1. X	Own roots	1893	2	do do
Damson	do	1888	1	Upper part of roots alive.
Dunlop, 2. X	do	1893	2	Roots entirely killed.
De Soto	Myrobolan	1888	1	do do
do seedling	Own roots	1895	4	do do
Early Red	do	1890	1	do do
Early Damson No. 2	do	1895	1	do do
Green Gage No. 3	do	1893	2	do do
do No. 4	do	1893	2	do do
Gamache	do	1893	1	do do
Hawkeye	Myrobolan	1890	2	do do
Ida	do	1890	2	do do
Isium Ureck	do	1893	1	do do
John A	do	1895	1	do do
Kansas Dwarf	do	1888	2	Upper part of roots killed only.
Lawrence's Favourite	do	1890	1	do do
Late Red	do	1888	3	Lower extremities of roots alive.
Latchford	Own roots	1895	3	Roots entirely killed.
Leipsic	P.Americana	1893	1	do do
Moldavka	Myrobolan	1888	2	Roots alive below.
Marianna	do	1888	1	do do
Masters				
Niemetz	P.Americana	1895	2	Roots entirely killed.
Nicolas		1888	2	Roots alive at lower extremities.
do White		1888	2	Roots entirely killed.
Orleans Blue	Own roots	1891	2	do do
Orel No. 27	Myrobolan	1890	2	do do
Otschakoff	do	1888	1	do do
Pottawattamie	do	1890	1	do do
Pond's Seedling	do	1888	1	do do
Quebec	Own roots	1895	2	do do
Riga No. 113	Myrobolan	1890	1	Lower extremities alive.
Rollingston	do	1888	4	Roots entirely killed.
Reine Claude (de Montmorency)	P.Domestica	1890	2	do do
R. B. W. No. 1	Own roots	1895	2	do do
Shense (apricot)	do	1894	3	do do
Snelling (P. Am)	do	1895	2	do do
Voronesh		1888	1	do do
Wyant	Myrobolan	1890	2	do do
Wyant Seedling	Own roots	1891	2	do do
Wolf	do	1892	2	do do
do	Myrobolan	1888	2	do do
Yosemite Purple	do	1890	2	do do
Yellow Egg	do	1888	1	do do

APPLE AND CRAB TREES, ROOT GRAFTED OR BUDED MOSTLY ON FRENCH CRAB STOCKS.

Variety.	When planted.	How propagated.	Number killed.	Remarks.
Arabka	1888	Root grafted.....	3	Lower roots killed first.
American Pippin	1888	Budded.....	1	Roots gradually killed off.
Ananasnoe.....	1888	Root grafted.....	2	Shallow roots all dead.
Avenarius.....	1888	Budded.....	1	do do
Champagne.....	1888	Root grafted.....	1	do do
Antonovka.....	1888	do	1	Lower roots previously killed.
do	1888	Budded.....	1	Lower roots alive.
Beresinskoe.....	1888	do	1	Lower roots previously killed.
Boinbarger.....	1888	Root grafted.....	1	Killed near the surface of the ground.
Bethel.....	1888	Budded.....	1	do do do
Borovinka.....	1888	do	1	Shallow rooted.
Cooper's Market.....	1888	do	1	Roots shallow; all killed.
Coral (crab).....	1888	do	2	Roots deep; lower part alive.
Cinnamon.....	1888	Root grafted.....	1	Roots shallow; killed.
*Duchess.....	1888	Budded.....	4	Roots shallow; completely killed.
Dartmouth (crab).....	1888	do	1	Roots shallow; all killed.
Fonarie.....	1888	do	1	Roots largely decayed.
Gravenstein.....	1888	do	1	Shallow rooted; a few living from stem.
Grandmother.....	1888	Root grafted.....	1	Lower parts dead; a few from stem liv'g.
Golden White.....	1888	do	1	Lower parts alive; killed at base.
Hibernal.....	1888	Budded.....	1	Upper roots and stem healthy; lower dead.
Imperial Citron.....	1888	Root grafted.....	1	Surface rooted.
Keswick Codling.....	1888	Budded.....	1	Surface part of roots killed.
Kara-synap, B.....	1891	Top grafted on Wealthy	1	Roots deep; upper part killed.
Koursk Annis.....	1888	Root grafted.....	1	Lower roots killed first.
Louis.....	1888	Budded.....	1	Lower roots alive.
Mann.....	1888	do	1	Lower part of roots alive.
Melonen.....	1888	Root grafted.....	1	Surface rooted; all dead.
Martha.....	1888	Budded.....	3	Surface roots all killed.
Mottled Annis.....	1888	do	1	do do
Northern Spy.....	1888	do	1	Roots killed to a depth of 12 to 16 inches.
Ostrekoff's Glass.....	1888	do	1	Lower roots alive.
Orange Winter.....	1888	do	1	Upper series of roots entirely killed.
Primate.....	1888	do	1	Roots killed to a depth of 12 to 15 inches.
Pewankee.....	1888	do	2	Roots shallow; lower system wanting.
Pear Apple.....	1888	do	2	Deep rooted; lower parts alive.
Possart.....	1888	do	1	do do
Pointed Pipka.....	1888	Root grafted.....	1	Lower roots killed first.
Richard's Graff.....	1888	do	1	Lower parts of roots alive.
Riga Transparent.....	1888	do	1	A few roots from stem of tree alive.
Rosy Repka.....	1890	do	1	Roots shallow; all killed.
Revel Borsdorf.....	1888	Budded.....	1	Roots deep; lower parts alive.
Red Annis.....	1888	do	1	do do
Seek-no-Further.....	1888	do	1	Roots entirely destroyed.
Saxton.....	1888	do	1	Roots killed to a depth of 12 to 15 inches.
Stettiner Red.....	1888	do	1	do do do
*Tetofsky.....	1888	do	3	A few roots living above stock; ex- tremities all dead.
Thaler.....	1888	Root grafted.....	1	Surface roots all killed.
Titovka.....	1888	Budded.....	1	do do
Ukraine.....	1888	do	1	Roots alive at extremities.
Van Wyck (crab).....	1888	do	1	Upper part of roots killed only.
Vargulek.....	1888	do	1	Shallow roots all dead.
Voronesh Reinette.....	1888	do	1	Deep roots; lower parts alive.
*Wealthy.....	1888	Budded.....	5	Roots destroyed near surface of ground.
Whitney (crab).....	1888	do	1	Roots entirely destroyed.
White Astrachan.....	1888	do	1	do do
White Pigeon.....	1888	do	1	do do
White Naliv.....	1888	Root grafted.....	1	Lower roots previously killed.
Yellow Arcad.....	1888	Budded.....	1	Lower roots alive.
Yellow Transparent.....	1888	do	1	do do

*Killed, out of 25 to 30 trees.

Experimental Farms.

DEDUCTIONS.

It would appear that both root grafted and budded trees suffered severely if not quite to the same extent. Budded trees usually give a stronger and better distributed system of roots at four or five years of age. When these are injured by frost, it is the upper portion immediately in contact with the tree that is most affected. The root grafted tree is characterized by a smaller quantity of root fibres. The lower parts of the roots have, in a great many instances, in fact in the majority of cases, been injured first by frost. Some trees lost the seedling stock completely, two or three years ago but continued growing, being supported by the roots emitted from the one time scions, but now collar of the tree. It was found, however, that these roots were occasionally killed the succeeding winter. Such was not an unusual occurrence, indicating that while the roots from the scion were hardier, as a rule, than the seedling, yet, even though the stock was perfectly hardy, its roots might be injured, or killed when unduly exposed. This same result may be noted in connection with seedling plums of *P. Americana* type, and with named varieties of this class upon their own roots. We are thus warned that orchard cover crops are essential to success in northern orcharding.

ORCHARD COVER CROPS.

Suitable cover crops to protect orchards are of great importance in all fruit-growing sections. In northern regions, the practice of sowing a crop after cultivation ceases, that will at once enrich the soil and protect the feeding roots of the trees, is one of the essentials towards success, and an item in the annual programme of orchard management that should never be omitted. The late P. C. Dempsey, of Trenton, recognized the truth of these statements years ago, and frequently expressed himself to the effect that a cover crop of weeds in the autumn was far better—considered in the light of what was best for the trees—than no cover crop at all. The healthy and profitable orchard of apples and pears which he left to his worthy son W. H. Dempsey, of Trenton, furnishes ample proof of the benefits of the system.

What the meaning of a Cover Crop is—In brief, it means sowing such a crop in the orchard after cultivation ceases in summer, as will protect the roots of the trees by preventing at once alternate freezing and thawing, and deep freezing of the ground; that will add something—the more the better—to the fertility of the soil when turned under; that will improve its tilth or mechanical condition, and, lastly, that will occupy the ground to the exclusion of such plants as may wander out of place—weeds. When soils, especially those of a clayey nature, are constantly cultivated without being subjected to the ameliorating influences induced by producing some kind of vegetation, not only do they become mechanically unfitted for the production of healthy and vigorous plant growth, but the plant food may take on forms not readily assimilable by plants. In northern sections, perhaps the strongest reason that can be urged in favour of the practice is the protective influences cover crops exert against the often severe root injury wrought by sharp frosts to trees growing upon bare soil.

Cover Crops tried—In 1895 a number of plants were tried with a view of ascertaining some facts regarding the advantages of each in this climate, for the purposes outlined above. Half an acre each, of the following fodder plants were sown on Aug. 15th, with a seeding of rye, at the rate of one and a quarter bushels per acre.

No. 1. Crimson Clover	20 lbs. per acre.
No. 2. Mammoth Clover	12 “
No. 3. Alsike Clover	12 “
No. 4. Alfalfa	15 “
No. 5. Common Red Clover	12 “
No. 6. White Clover 6 lbs. and Orchard Grass 14 lbs.	“
No. 7. Alsike Clover 8 lbs. and Orchard Grass 14 lbs.	“
No. 8. Crimson Clover 10 lbs. and Orchard Grass 14 lbs.	“
No. 9. Pease	2 bushels per acre

The following notes show the condition of these crops late in the autumn of the same year and early in the following spring :—

Plant.	CONDITION.		Remarks.
	Fall, 1895.	Spring, 1896.	
Crimson Clover	2-4 inches high, smothered by rye; light covering by the time of the first frost.	Entirely killed out; no plants to be seen May 12th.	Smothered by rye.
Mammoth Red Clover	2-3 inches high, weakly; ground fairly covered by rye	Light cover; best where unprotected by rye.	Fairly good cover.
Alsike Clover	2 inches; very light covering; poor catch.	Wintered well; fair cover where alone.	Fairly even growth; light cover.
Alfalfa	5-8 inches; good catch, showing well through rye; tops killed by first "black" frost.	Wintered well on low ground; killed out on knolls.	Good growth where not crowded by rye.
Common Red Clover.	Very weak; nearly crowded out by rye.	Badly killed; very light cover; patchy.	Much too weak to be effective.
White Clover and Orchard Grass.	No improvement over last.	Killed out.	Too weak.
Alsike Clover and Orchard Grass.	Better than last; cover light, but fairly even.	Light crop on low ground.	Too weak.
Crimson Clover and Orchard Grass.	Crimson clover weak; orchard grass makes a good showing.	No clover; orchard grass makes some show.	Too weak.
Field Pease	Nearly crowded out by rye.	Only rye left.	Smothered by rye.

Summing up the conclusions it would appear that (1) rye sown as a nurse plant at the rate of one and a quarter bushels per acre proved too thick and too strong a grower for most of the clovers and prevented their full development; at the same time it furnished a certain amount of protection. (2) The seeding down took place about one month too late to secure the best results in this locality. (3) The best cover obtained was given by (a) Alfalfa, (b) Mammoth Red Clover, and (c) Alsike Clover and Orchard Grass.

Cover Crops tried, 1896—Upon the same piece of orchard soil as that used in 1895, one acre each of the following cover crops were sown on July 13th, 1896. These were seeded separately and alone, lightly harrowed and well rolled :—

Crimson Clover	20 lbs. per acre.
Mammoth Clover	15 "
Alfalfa Clover	15 "
Common Red	12 "
Soja Beans	60 "
Cow Pease	2 bushels per acre.

Field Notes—*Crimson Clover*—Appeared in 5 days, even, fairly strong. Aug. 12th, 3 inches high, covering ground fairly well; strongest in partial shade. Oct. 14th, strongest plants 15 to 18 inches. On the lighter and poorer parts of the orchard the plants are rather weak.

Mammoth Clover—Appeared rather sparsely in 6 days. Aug. 12th, growth moderate, weeds principally "purslane" (*Portulaca oleracea*), taking possession. Oct. 14th, strong, even growth throughout; average, 12 inches high, giving a close heavy covering.

Alfalfa—Came up in 5 days, remarkably even and strong catch. Aug. 12th, 8 to 10 inches high, completely covering the ground. Oct. 14th, knee high, very uniform. Growth, strong, even on light sand.

Common Red—Appeared unevenly in 6 or 7 days. Aug. 12th, 2 to 3 inches high; ground partially covered. Oct. 14th, 6 to 10 inches high; rather thin here and there. Not heavy enough.

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Soja Beans—Appeared promptly and evenly in 5 days. Aug. 12th, plants 8 to 12 inches high, vigorous. Oct. 14th, quite black and leafless; killed by first frost; ground practically unprotected at this date.

Cow Pease—Germinated evenly in 5 or 6 days. About right as to quantity; making strong growth. Aug. 12th, plants 10 to 12 inches high, nearly shading ground. Oct. 14th, exactly the same condition as *Soja Beans*.

There is little to be said in favour of *soja beans* or *cow pease* as cover crops for northern localities. They grow rapidly, produce a considerable amount of foliage and vine, but are cut down by the first light frosts. Apart from their office as collectors of nitrogen, they do not seem to furnish as much surface protection, as buckwheat or rye, and certainly not as much as field pease.

NOTES ON THE BEST COVER CROP PLANTS.

Alfalfa Clover—Is a plant of slender, upright growth and does not branch much the first year if uncut. It does not, therefore, furnish as much leafy covering to the surface of the soil as is afforded by the same number of plants of Mammoth Clover, which stool out better and are naturally more spreading in habit of growth than the upright Alfalfa Clover. This plant does very well on sandy soils and seems able to penetrate the hardest subsoils and maintain itself where Crimson Clover would starve.

Crimson Clover—Will, I fear, in this locality serve only one of the ends for which it is sown, viz., that of keeping down weeds and adding to the fertility of the soil, without protecting it very much during the winter. It is possible that selected strains of northern bred seed may be produced that will give plants capable of withstanding the severity of our northern winters. A desirable field for patient and painstaking work presents itself in this connection. On light and poor sandy soils this variety makes a very weak growth.

Common Red—This possesses no advantage over the Mammoth Red and is a weaker grower.

Mammoth—I am of the opinion that this will prove the most satisfactory cover crop for all the northern apple and pear growing sections. It germinates promptly, (good seed) soon takes, and holds possession of the ground to the exclusion of weeds; is fairly deep rooted; covers the ground with a good mat in the autumn, and begins to grow at a moderately low temperature in the spring. A block of six acres of this clover sown July 10th, in one of the apple orchards had produced an ideal protective covering when covered by snow this autumn. (See Chemist's report for a discussion of the fertilizing value of the clover mentioned above).

FRUIT BUDS OF PEACHES AND PLUMS—THEIR RELATIVE HARDINESS.

The cause of the frequent and sometimes chronic unfruitfulness of apple and pear orchards is invariably a source of deep financial interest to the fruit grower, besides furnishing subjects for the speculation of the theorist and for the investigation of the scientist. It is cheering to note that the efforts of patient scientists and observant fruit growers are being rewarded each year, by the addition of some new facts to our store of knowledge upon this subject. The work of Prof. Waite upon pear blossoms has been duplicated by Prof. Beach on grapes, and gives us a large amount of valuable data. My object at this time is to present some thoughts and some facts, bearing upon the relative ability of the fruit buds of our cultivated peaches and plums to withstand low and rapidly fluctuating temperatures.

The fruit bud is, like the leaf bud after all, only a modified branch a good deal compressed.

Parts of the blossom—Beginning at the centre of a cherry, peach or plum blossom, we find the pistil or female organ. It is composed of a dilated basal portion, the ovary—a long tube-like prolongation—the style, with a knob-like termination, called the stigma. The pistil is made by the fusion of two sessile leaves—that is, leaves without stems. Around the pistil we find a small army of stamens—these, too, are modified leaves, modified for a certain purpose. A single stamen is made up of a delicate stalk (filament) ending in a

cylindrical blade (anther). The anther contains the pollen sacs which lie on both sides of the connective line. There are usually 4 pollen sacs in each anther. The pollen is developed by a modification of the internal cell tissue which forms pollen grains. These pollen grains, are then liberated by the splitting of the anther, which at the same time opens the pollen sacs. The power which art may exercise over plant growth is shown in the modification of a stamen into a petal, as in the doubling of flowers, and even into green leaves, which is a still more retrogressive action. Surrounding the stamens we find a series of delicately constructed and beautifully coloured envelopes. These assist in protecting the organs within, but their principal function is to attract. Outside the petals are the sepals, another set of leaves whose mission is to protect. This, in brief, is a type of a flower, and describes the arrangement of the cherry blossom. There are thousands of variations, but all amenable to the general conception that a flower is a modified shoot with its parts arranged in whorls or sets and corresponding to the arrangement of the twig, and as such may be transformed from one series to the other.

Pollination and fertilization—Prof. Bailey, in his excellent book on plant breeding, emphasizes the distinctive difference between pollination and fertilization—terms which are often used somewhat loosely. Pollination, as defined here, is the artificial or manual part of the work of carrying, or transferring, the pollen from one flower to another. Fertilization is the work of the pollen itself, and refers to the growth of the pollen tube down through the connective tissue of the style, to the cavity of the ovary, where fecundation takes place. The stimulus which the process of fertilization imparts to the ovule, and which results in the development of seed, is also transmitted to the tissues of the ovarian wall. We recognize this in the rapid modification of the flowers of apples and pears after fertilization takes place. With the development of the seed, the carpels surrounding these, become modified from green tissue to ripened fruit. Such is the natural course of events when nothing untoward has happened to injure the bud during the period of its dormant condition.

Effect of Frost upon Vegetable Tissue—The reasonableness of the statement that it is the temperature of the surrounding air that chiefly determines the temperature of twigs and branches, as well as the more delicate parts, such as fruit buds and leaf buds, and their sympathetic action, will be at once admitted; yet many people speak vaguely about the benefits of mulching trees heavily after the ground is frozen, in order to hold the frost in the ground in the spring, and by this means retarding the opening of the blossoms. One experiment of this kind if fairly tried will convince the most skeptical that the buds with their store of prepared food, respond towards spring, after their accustomed winter's rest, to the temperature of the air which surrounds them, regardless of the temperature or condition of the soil. A study of the effects of frost upon plant tissue is exceedingly interesting. In looking into the literature on this subject, I have found in "Diseases of Trees," by Prof. Hartig, of Munich, many valuable facts and observations which I am pleased to present.

First, then, the effect of frost upon *green* tissue. When the tissues of the leaves or cortex, and, in fact, when any parenchymatous green tissues are frosted, pure water is withdrawn into the adjoining intercellular spaces, but the cells themselves do not generally freeze. The result is that the cells lose their turgidity and at the same time the leaves begin to droop.

When a thaw occurs in the frosted parts of a plant the tissues usually regain the condition which characterized them before the frost appeared. As the water is set free by the melting of the ice it is slowly absorbed by the cell walls and the cell contents. In many cases, however, it is found that the parts have been killed. Instead of the chemical processes that are revived under the action of a recurrence of normal metabolism—living conditions—they imitate chemical decomposition. Views are divided as to the time when frost proves fatal. Some say during continuance of frost. Sachs, the eminent botanist, is of the opinion that the tissues die only after they have thawed and that the issue depends much upon the manner of thawing. Both theories are probably correct at different periods in the life of the plant.

When *green and growing tissue* is frozen the issue depends not only upon the severity of the frost but upon the manner of thawing. Should the plant thaw gradually,

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the water which has been extracted is reabsorbed by the walls and contents of the cells at the same rate as it is formed from the ice crystals, by the gradual accession of heat, so that normal conditions are restored. In the case of a rapid and marked rise of temperature, the ice thaws rapidly and the ice-water flows into and remains in the intercellular spaces, driving out the air and causing, in the case of green leaves, the translucent appearance so well known. Chemical processes start afresh under the influence of the rise in temperature. Instead of these processes going forward in the ordinary manner, decomposition sets in, resulting in dried and withered foliage.

Considering now the action of frost upon what we call *dormant wood*, this writer says:—"Death of a plant under the action of frost during winter bears a close resemblance to the effects of drought on vegetable tissues." Severe frost, as before stated, abstracts moisture, and in proportion to its severity. The cells may, therefore, die in winter when this deficiency of water exceeds a certain limit. Hartig says again that "a change is induced in the molecular constitution of the protoplasm rendering it incapable of retaining any considerable quantity of water. This change is brought about probably by the formation of new molecular groups." Speaking of the effects of drought and frost he says: "Should the critical limit of drought not be passed, the cell gradually reabsorbs and life functions may proceed. If this critical point is passed, the cell cannot reabsorb and it withers. The same holds true with regard to the action of frost, as inducing a loss of water." The cell will bear a certain amount of frost, such as will not disturb the molecular arrangement of the protoplasmic particles, but as in the case of drought when this limit is overstepped the cell is unable to recover the water abstracted by the process of freezing, and death ensues. This may be illustrated by the action of frost upon starch paste. Frost separates the water from the starch; but subsequent thawing still leaves the water and the starch in a separated condition. Our winters are rarely so cold that our forest trees become injured by molecular disorganization of the protoplasm of their cells. These have become injured by long and gradual processes of acclimatization. Not so with exotics, including many varieties of ornamentals and not a few classes of fruit trees, among which we may mention peaches and plums.

The absorption of water by the roots ceases, when the ground is frozen to a depth that is reached by the roots of the young plants. No harm is done growers if the trees are protected above ground against evaporation, by snow or other covering. The twigs and exposed branches in cases of extreme frost then suffer as if affected by severe drought. Warm south winds causing evaporation during winter, then, assist this injurious effect. "The limits of forest growth, in my opinion, are as much determined by action of this kind of drought as by low temperature." (Hartig).

The manner of destruction of the fruit buds of peaches and plums is undoubtedly analogous with the conditions, causes and effects outlined above. In many cases they (the fruit buds) being the tenderer parts in the plants' anatomy, are injured, while the leaf buds pass through uninjured. In their composition there is perhaps a larger percentage of water and more or less soluble assimilated food material than in the leaf buds. For this reason they are oftener influenced by sudden climatic changes than the leaf bud, approaching as they do more nearly the physical character of the green leaf, they are thus more liable to injury from sudden cold followed by a rapid rise of temperature. It is the temperature of the surrounding air that chiefly determines the temperature of the twigs, and I may say the vegetative action of the buds. The roots may be encased in a mass of frozen soil and covered with a sheet of ice, yet if the conditions of the atmosphere are favourable, leaves and flower buds will expand and develop, at least till the food material stored up for immediate assimilation becomes exhausted. In this respect the similarity between the action of the fruit bud and that of the seed, with its store of prepared food may appropriately be pointed out. This leads me to say again, therefore, that in my opinion no amount of what might be called artificial precaution that might be taken in the way of providing heavy ground mulches would affect the time of blossoming of fruit trees to any appreciable extent, and certainly not to the extent of holding them back so that injury from late frosts might be averted.

An effort, which I may say was only partially successful, was made last year to ascertain the relative amount of winter injury sustained by peaches and plums throughout

Ontario. After beginning the investigation many collateral questions of great interest arose in connection therewith. These perhaps in a measure clouded the main object, which was to discover by examining the buds of the same variety from different localities, whether or not they were characterized by a more or less fixed ratio of hardiness wherever grown. Owing to the varying conditions, it was found exceedingly difficult to arrive at reliable data. Twigs of the same varieties bearing fruit buds were secured from a number of localities. Some of the buds were examined with a hand lens, but a majority of the scions were placed in water in a hot-house, where they were allowed to expand at will. While the results may not be in accord with the experience of some growers, by reason of peculiar soil or climatic conditions, yet I believe that they represent in a general way the ability of a number of the standard varieties of peaches and plums, to produce fruit after winters of unusual severity, and may in this way be of service to planters.

It is a well recognized fact that in the case of peaches the percentage of fruit buds killed, does not represent inversely the percentage of a full crop which may be looked for. If a fruit set, for every fruit bud that blossomed, much less opened, then would thinning become an annual necessity instead of it being, as at present, an occasional possibility. At the close of the fruit season, circular letters were directed to those who so kindly furnished the scions, asking for approximate crop returns of peaches and plums, in order to compare these with the estimates made by examining the buds. An element of error, at first not appreciated, affecting the accuracy of the results obtained from the examination of the fruit buds, lies in the fact that many of the buds received, were cut no doubt from the lower branches of the trees, because easier to secure. Observant fruit growers will have noticed that during years of light crops—when frost has been the lessening agency—the major portion of the crop is often upon the upper branches of the trees, where the temperature was probably at the critical period, somewhat higher, that is warmer, than the stratum of air surrounding the lower branches.

A list of peaches, made out in order of hardiness of fruit bud, based upon the results of these investigations, which I wish to record as preliminary, tentative and subject to revision, rather than permanent and final, would read as follows:—

Group 1—

Hill's Chili,
Longhurst,
Barnard,
Early Rivers.

Group 2—

Salway,
Smock,
Tyhurst's Seedling,
Wager,
Yellow St. John,
Amsden June.

Group 3—

Hyne's Surprise,
Hale's Early,
Fitzgerald,
Foster,
Reeve's Favourite,
Crawford Late.

Group 4—

Crawford Early,
Wheatland,
Mountain Rose,
Early Richmond,
Red Cheek Melocoton,
Old Mixon,
Alexander,
Early York,
Garfield,
Champion,
Shaw's Rareripec,
Stephen's Rareripec.

Following the same system with regard to plums, I would group them as follows:—

Group 1—

English Damson,
Shropshire Damson,
Blue Damson,
Canada Orleans.

Group 2—

Lombard,
Smith's Orleans,
Moore's Arctic,
Reine Claude,
Glass Seedling.

Group 3—

Duane's Purple,
French Prune,
Coe's Golden-Drop,
Field,
Grand Duke,
General Hand,
Pond's Seedling.

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Group 4—

Quackenboss,
Washington,
Victoria,
Yellow Egg,
Jefferson,
German Prune,
Bradshaw,
Columbia,
Gueii,
Prince's Yellow Egg.

Group 5—

Italian Prune
(Fellemburg),
McLaughlin,
Niagara,
Prince of Wales,
Prince Engelbert,
Shippers' Pride,
Burbank,
Ogon.

Group 6—

Abundance,
Prunus Simonii,
Satsuma,
Willard.

DEDUCTIONS.

Tender fruit buds are not always correlated with tender leaf buds, *e.g.*, Glass Seedling suffers less from the winter killing of the terminal shoots at Ottawa than most other varieties of *Prunus domestica*, yet it bears fruit only when winter visits us in its mildest form. Other varieties which have their terminal wood killed back almost annually, very often produce fruit regularly upon spurs situated on the older branches. The substance then of the result of these investigations is, that there is a striking difference in the relative ability of varieties of peaches and plums to withstand the injurious effects of low temperature, coupled with rapid fluctuation. To overcome this, growers should select the hardiest varieties having commercial merit, planting them in situations furnishing climatic conditions subject to the least possible fluctuations of temperature.

Finally, cultivate in such a manner as will encourage the most thorough ripening of the wood and fruit buds possible. After this,—the fruit, and when we get the fruit, it is Grindon who says that there is just one hour, not much more, when the aroma and taste of this regal fruit—the peach—are at its highest pitch. The meridian passed, the fruit is still delicious, but now it is afternoon. This is true in part, but most of us are not so exacting and will be more inclined to agree with another of his remarks, that the composition of the peach is so exquisitely sub-liquid that while enjoying the fruit we hardly know whether we are eating or drinking. It is well to incite our desires to do better by various measures of encouragement. The following interesting letter bearing upon this subject is from Mr. Joseph Tweddle:—

“FRUITLAND, ONT., 27th June, 1896.

“DEAR SIR,—I send you herewith some records of injured buds of peach and plum secured in the orchards of Mr. J. W. Smith and Mr. E. D. Smith, Winona, Ont. The figures differ somewhat, especially with regard to Crosby peach. * * *

PEACHES.

AT J. W. SMITH'S.

PLUMS.

Variety.	Percentage of Buds Sound.	Actual Crop.	Variety.	Percentage of Buds Sound.	Actual Crop.
Crosby	10	$\frac{1}{4}$	Washington	80	Full.
Elberta	0	0	Reine Claude	90	do
Garfield	5	$\frac{1}{10}$	Hudson River	75	do
Reeve's Favourite	3	$\frac{1}{15}$	Empire	75	do
Early Rivers	35	Full.	Abundance	1	$\frac{1}{10}$
Early Louise	40	do	Prunus Simonii	0	0
Mountain Rose	5	$\frac{1}{10}$	Ogon	50	Full.
Early Crawford	15	$\frac{1}{2}$	Lombard	90	do
Early Richmond	30	Full.	Black Diamond	15	$\frac{1}{2}$
Smock, Large	10	$\frac{1}{2}$	Niagara	80	Full.
Wager	50	Full.			
Atlantic	15	$\frac{1}{2}$			

PEACHES.			AT E. D. SMITH'S.			PEACHES.		
Variety.	Percentage of Buds Sound.	Actual Crop.	Variety.	Percentage of Buds Sound.	Actual Crop.	Variety.	Percentage of Buds Sound.	Actual Crop.
Crosby.....	80	Full.	Wonderful.....	0	0	Wonderful.....	0	0
Wager.....	50	do	Alexander.....	50	Full.	Alexander.....	50	Full.
Willet.....	0	0	Early Richmond.....	30	$\frac{1}{2}$	Early Richmond.....	30	$\frac{1}{2}$
Early York.....	0	0	Hill's Chili.....	50	Full.	Hill's Chili.....	50	Full.
Conkling.....	15	$\frac{1}{2}$	Champion.....	15	0	Champion.....	15	0
Mountain Rose.....	50	Full.	Early Crawford.....	0	0	Early Crawford.....	0	0
Globe.....	10	$\frac{1}{2}$	Elberta.....	5	$\frac{1}{2}$	Elberta.....	5	$\frac{1}{2}$
Waterloo.....	50	Full.	Foster.....	0	0	Foster.....	0	0

MULCHING TO RETARD THE BLOSSOMING OF LARGE AND SMALL FRUITS.

The question is often asked, can I by mulching the ground heavily while it is frozen, hold the frost in the ground late in the spring, and thus retard the normal blossoming period of fruit trees? The commonly proffered answer is the one affirmative. A simple trial will readily convince any one that this belief is error



Mulched.

Not mulched.

Seedling Plum Twigs, May 5, 1896.

To test this the ground beneath apple, plum and cherry trees, in addition to the leading small fruits, was mulched with strawy manure to the depth of a foot and covering an area exceeding by ten feet in diameter the spread of their branches. The mulch was laid on about March 15th, when there was 8 to 12 inches of snow overlying the deeply frozen ground. Check trees—that is, trees not mulched—of the same variety were selected in each instance so that a proper comparison might be made.

Experimental Farms.

The following notes show that there was practically no difference, in the time of blossoming of the trees that were mulched and those that were not mulched :—

TREES.	How treated.	Condition.	
		May 4th.	May 12th.
<i>Apple.</i>			
Duchess	Mulched.....	Leaf buds one-quarter open. Flower buds showing.	Roots frozen. In flower.
do	Not mulched.....	do do	do
Wealthy	Mulched.....	Leaf buds quarter grown. Flower buds showing.	Ice below manure. In flower.
do	Not mulched.....	do do	In flower.
Tetofsky	Mulched.....	Leaf buds starting. Flower buds showing.	Ice beneath mulch. Flowers half open.
do	Not mulched.....	Leaf buds ahead of last. Flower buds quarter grown.	Flowers about half open.
<i>Cherry.</i>			
Amarelle Hâtive.....	Mulched.....	Ice beneath. Leaf buds starting. Flower buds one-tenth open.	Flowers fully open.
Osthheim.....	Not mulched.....	do do	do
Montmorency Large.....	Mulched.....	One foot solid ice beneath. Leaf buds quarter grown. Flower buds one-fifth open.	Flowers falling.
Carnation.....	Not mulched	Same condition.....	Flowers falling.
<i>Plum.</i>			
Arab	Mulched.....	Leaf buds starting. Flower buds showing.	Flowers fully open.
Early Red.....	Not mulched.....	do do	do
Wolf	Mulched	Leaf buds swelling. Flowers ready to open.	Flowers falling.
P. Americana Seedling.....	do	Flower buds swelling	do
do do	Not mulched.....	Same condition.....	do
Voronesh Yellow.....	Mulched	Flower buds swelling.....	Flowers fully open.
do	Not mulched.....	do do	Flowers beginning to fall.
SMALL FRUIT PLANTS.			
<i>Gooseberry.</i>			
Houghton.....	Mulched.....	Leaves two-thirds grown....	Ice beneath mulch.
do	Not mulched.....	do	No difference.
Downing.....	Mulched.....	do two-thirds grown....	Ice beneath mulch.
do	Not mulched.....	do three-fourths grown....	Two or three days later.
Early Orange.....	Mulched.....	do half grown.	Ice beneath mulch.
do	Not mulched.....	do	No difference.
<i>Currants, Red.</i>			
Cherry	Mulched	do two-thirds grown....	Leaves full grown.
do	Not mulched.....	do three-fourths grown....	do
London Red.....	Mulched	do two-thirds grown....	do
do	Not mulched.....	do	do
<i>Currants, Black.</i>			
Prince of Wales.....	Mulched	do three-fourths grown....	do
do	Not mulched.....	do	do
Black Champion.....	Mulched.....	do three-fourths grown....	do
do	Not mulched.....	do two-thirds grown....	do
do Seedling 13.....	Mulched.....	do three-fourths grown....	do
do	Not mulched.....	do two-thirds grown....	do nearly full grown.
<i>Strawberries.</i>			
Haverland.....	Mulched, covering 6 ins. deep.	No growth.....	Beginning to grow.
do	Not mulched.....	Growth active	Leaves fully formed.
Parker Earle.....	Mulched 6 inches.....	Beginning to grow.....	do half grown.
do	Not mulched.....	Leaves half grown.....	do fully grown.
Barton.....	Mulched 6 inches deep..	No growth.....	Beginning to grow.
do	Not mulched.....	Leaves half grown.....	Leaves fully grown.
Martha.....	} Mulched and not mulched.	Confirmed above results.	
Beverly.....			
Garibaldi.....			
Black Giant			

Deductions—It will be seen from the date given above that there was practically no difference in the time of leafing and flowering of the trees and plants mulched and those not mulched, with the exception of the strawberries. Here the conditions are unlike those surrounding the other fruits. The strawberries were completely enveloped in the covering, consequently the temperature of the vines and leaves more closely approximated that of the roots than did that surrounding the tops of the gooseberries or



Prince of Wales Black Currant.
 Mulched. Not mulched
 May 5, 1896.

currants, apples or cherries. In short, after its accustomed season of rest a healthy plant responds readily to the quickening influences of warmth, regardless of the frozen or otherwise condition of the roots. It is enabled to do this by reason of having a certain amount of nutriment stored in its cells which is always used for this purpose in early spring, in the same manner that the plantlet is dependent during the early days of its existence upon the food stored in its seed leaves, (see chapter on root killing). It is possible that the growth of the strawberry might be retarded so that it might have a practical bearing upon the production of fruit; but this is a question which requires further investigation.

EVAPORATING APPLES.

In order to obtain some information regarding the relative values of some of the commoner varieties of apples, for evaporating purposes, some work along this line was carried out last fall. The principal objects in view were: 1. To ascertain the shrinkage in each case caused by paring, coring and drying; 2. To note the differences in the appearance and quality of the evaporated product from the several kinds tested.

Experimental Farms.

Five pounds of the fruit of each variety were used. The apples were pared and cored with a "Family Bay State Parer, Corer and Slicer," and evaporated, without sulphuring, in the No. 1 Evaporator, kindly loaned by the G. H. Grimm Manufacturing Co., 84 Wellington street, Montreal, Que. The dimensions of this are: Width, 26 inches; depth, 24 inches; height, 48 inches. The evaporating chamber holds six wire trays, 22 x 22 inches. It is made of galvanized iron. This size is intended for family use, and is not large enough for evaporating fruit on a commercial scale. It is probably economy, in the long run to purchase a larger size to begin with, as there is little difference in the amount of time or attention required to operate one successfully. In order to secure true evaporation a high temperature is necessary. This demands the closest attention, as the fruit will crisp and burn quickly, if not attended to at the right moment. Cheese cloth was used to prevent the pared apples sticking to the wire screens. A temperature uniformly between 200 degrees to 210 degrees Fahr. was maintained as evenly as possible, each sample being removed when, according to our judgment, it had reached the proper state of dryness. It will be seen that this would admit of, even with the exercise of the greatest care and best judgment, considerable variation in the condition of dryness of each sample. The results, therefore, while useful from a commercial standpoint, do not aim at chemical accuracy. I have to acknowledge the kindness of the Messrs. Grimm Manufacturing Co. in furnishing, free of charge, the evaporator and the parer used in carrying out the experiment. With regard to the latter, it works well and makes a good job of medium sized apples, but is not quite suited to paring and coring large apples, like well grown Kings, Spys or Baxters. The "Improved Bay State" will, I think, give greater satisfaction.

DEDUCTIONS.

Weight.—As evaporated or dried apples are always sold by the pound, the most profitable variety, for this purpose, other things being equal, will be that one giving the largest amount of dried product for each bushel of apples.

Graded by this standard, some of our best known commercial apples take a high place. A new variety, Patten's Greening, stands at the head with the remarkable yield of 16 pounds of dried apples to the bushel of green fruit. This may be exceptional. The flavour of the dried product is not equal to that of many others. Following this variety come Baxter, Ben Davis, Golden Russet, Northern Spy, King, Ribston Pippin, Twenty Ounce and Pewaukee. Summer varieties being soft and juicy in character of flesh are unsuited for this purpose. Commercially they are rated as giving 4 to 5½ lbs. of dried apples per bushel, while winter varieties yield 6 to 7 lbs.

Colour.—The flesh of some kinds quickly changed colour, turning brown on being cut, while that of others did not discolour neither as rapidly nor to the same extent. Sulphuring largely overcomes this defect, but an apple whose cut surface dries white instead of brown on exposure to the atmosphere is distinctly to be preferred to one that rapidly turns brown under the same treatment.

Among varieties that retained their colour well may be mentioned Baxter, Duke of Connaught, Lawver, Missouri Pippin and Walbridge.

Texture.—Most of the varieties when dried retained their original characteristics of texture. This was dependent somewhat upon the state of maturity and ripeness. Over-ripe apples lost colour more rapidly and showed a greater shrinkage than did those in good condition. The dried product of these was also inclined to be brittle. To obtain the best results apples should be evaporated before they reach a state of maturity—perfect maturity from the dessert standpoint. The evaporated product will have better texture and colour, if manufactured when the apple is still crisp, firm and somewhat green. If evaporated at this stage the flavours are more fully retained in the dried article, in the same way that sauce made from partly ripened apples contains more of the delicate

aromatic flavours than is found in the same variety, if cooked when fully ripe and in good eating condition.

Variety.	Weight Pared and Cored.	Weight Dried.	Length of Time Drying.	Percentage of Water evaporated.	Weight of Dried product in each bushel of 50 lbs.	Remarks upon appearance and character of dried product.
	Lbs. oz.	Lbs. oz.	Hrs. min.		Lbs. oz.	
Ben Davis.....	3 6	0 15	1 45	72.2	9 6	Brown, corky; subacid.
Baxter.....	4 2	1 0	2 43	75.7	10 0	Pinkish-white, tough; subacid.
Colvert.....	3 9	0 11½	1 50	79.8	7 3	Yellow, brittle; acid; fair.
Cross.....	3 4	0 12	2 00	76.6	7 8	Brown, brittle; mild subacid.
Cinnamon.....	3 9	0 10½	2 30	81.5	6 9	Chocolate, brittle; poor flavour.
Canada Baldwin.....	2 13	0 12½	1 38	72.2	7 13	Yellow, tough; acid; good.
Duke of Connaught.....	3 6	0 11	1 40	79.6	6 14	White, tough; insipid.
Fameuse.....	2 14½	0 11	1 20	76.3	6 14	Yellow, brittle; rather insipid.
Gideon.....	3 9½	0 10	2 25	82.6	6 4	Brown, brittle; insipid; over-ripe.
Golden Russet.....	2 14	0 15	1 25	67.4	9 6	Brown, tough; mild subacid.
Greening, R. I.....	3 6½	0 13½	1 40	75.1	8 7	Brown, tough; subacid; good.
Hartshorn.....	3 4½	0 12	1 45	77.1	7 8	Brown, brittle; sweetish.
Hurlbut.....	3 7½	0 12½	1 53	77.4	7 13	Yellow, tough; woody; insipid.
Hibernial.....	3 9	0 8½	2 15	85.0	5 5	Brown, tough; sharp acid.
Haas.....	3 1	0 10	1 45	79.6	6 4	Brown, brittle; good flavour.
King.....	4 1½	0 14½	2 38	77.8	9 1	Yellow, tough; fine texture; good.
Lawver.....	3 2	0 12½	1 55	75.0	7 13	White, tough; mild acid; over-ripe.
Longfield.....	2 12	0 9½	1 32	78.4	5 15	Brown, brittle; sweet; insipid.
Late Winter.....	3 12	0 11	2 5	81.6	6 14	Brown, brittle; sweetish.
Malinda.....	3 4½	0 13½	1 45	74.2	8 7	Yellow, tough; sweet; insipid.
Mo. Pippin.....	3 1½	0 13½	1 35	72.7	8 7	White, tough; subacid; good.
Melonen.....	3 2½	0 9½	1 55	81.1	5 15	Yellow, tough; insipid; over-ripe.
McMahan.....	4 2	0 13	2 15	80.3	8 2	White, brittle; subacid.
Northern Spy.....	4 1	0 15½	2 50	76.1	9 11	Yellow, tough; good flavour.
North Star.....	3 8½	0 8½	.....	84.9	5 5	Brown, tough; sharp acid.
Pewaukee.....	3 11½	0 13½	2 30	77.3	8 7	Yellow, tough; acid.
Pewaukee (6 lbs.).....	4 5	0 14½	2 40	78.9	7 9	.....
Plumb's Cider.....	3 10½	0 10½	2 45	82.0	6 9	Yellow, tough; acid.
Patten's Greening.....	3 7	1 0	1 35	70.9	16 0	Yellow, tough; insipid.
Princess Louise.....	2 15	0 10	1 35	78.7	6 4	Yellow, tough; subacid; over-ripe.
Ribston Pippin.....	3 7½	0 14½	2 4	73.8	9 1	Yellow, rather brittle; subacid; good.
Romna.....	3 8½	0 12	2 5	78.7	7 8	White, tough; acid; pleasant.
Rawle's Janet.....	2 10	0 12	1 30	71.4	7 8	White, brittle; brisk subacid.
Scarlet Pippin.....	3 5	0 10½	2 34	80.1	6 9	.....
Spitzenberg.....	3 6	0 13	1 40	75.9	8 2	Brown, tough; flavourless.
Scott's Winter.....	2 11	0 8½	.....	80.2	5 5	Yellow, brittle; sharp acid.
Snyder.....	2 10½	0 8½	1 50	80.0	5 5	Brown, brittle; subacid.
Sops-of-Wine.....	3 2	0 10	1 20	80.0	6 4	Yellowish-white; brittle; insipid.
Swayzie Pomme Grise.....	3 0	0 13	1 28	72.9	8 2	Yellow, tough; good flavour.
Simbirsk, No. 4.....	3 4½	0 9½	2 0	81.9	5 15	Chocolate, brittle; fair flavour; over-ripe.
St. Lawrence.....	3 1	0 10½	1 35	78.5	6 9	Yellow, tough; good flavour; over-ripe.
Sharpe's Russet.....	3 1	0 12	1 40	75.5	7 8	White, tough; brisk acid.
Twenty-Ounce.....	4 3	0 15	2 20	77.6	9 6	Yellow, tough; mild subacid.
Winter Bough.....	4 2½	0 11	2 20	83.4	6 14	Brown, brittle; subacid; poor.
Waterson, No. 3.....	3 2	0 13½	1 35	73.0	8 7	White, tough; acid; good.
Walbridge.....	3 3½	0 11½	1 37	77.6	7 3	White, tough; sharp acid.
Wealthy.....	2 15½	0 7½	2 26	84.6	4 8	Yellow, tough; brisk acid.

Experimental Farms

GENERAL REMARKS.

In speaking of evaporated apples and the old fashioned dried product, it is well to point out the important difference between the two. Sun dried fruit is that which has lost a large part of its water by natural evaporation. Very little, if any, chemical change has taken place in its constituent parts. Evaporated fruit is that from which the moisture or water has been extracted by being subjected to rapidly moving currents of hot air. This air is heated to a temperature of about 220 degrees Fahr. The fact that the sliced apples do not burn or become cooked in this high temperature is based upon the principle that the evaporation of water is a cooling process, inasmuch as the vapour carries with it a large amount of heat in latent form, thus keeping the temperature of the apple far below that of the surrounding air. It is also claimed that by this treatment the albumen is coagulated instead of being dried. Chemical changes are also said to take place in the pectins which are converted into forms of sugar not easily decomposed. In other words, the moisture is extracted at the same time that the fruit is sterilized. This process, of course, requires specially constructed apparatus. There are now many kinds of evaporators. Instructions for the preparation of the apples and the management of the dryers are furnished with each evaporator sold.

Evaporating—The mode of preparing apples for drying in an evaporator is to pare them, core and slice them into rings. This is done very rapidly by ingenious machines, which may be bought at moderate prices.

It is customary now to submit the pared apple before or after slicing to the fumes of sulphur, which process is called "bleaching." This improves the appearance of the fruit by preventing discoloration and preserving the natural colour. The sulphur is placed in a vessel over the fire and the fumes pass up through the fruit resting upon the trays above. Provision should be made for the escape of the fumes above. The time occupied in doing this need not exceed 25 minutes. After bleaching, the fruit is placed on wire trays made to fit inside the drying chamber of the evaporator, and there remains till sufficiently dried. The time occupied may vary from two and a half to four hours. It should not remain until crisp, but should be removed while it is yet soft and somewhat tough.

The kinds of driers in use are : 1. Portable ; varying in size with capacity of 5 to 150 bushels per day. 2. Kiln drier ; a cheap form. 3. Tower drier ; generally used in western New York, where the work is done on a commercial basis. 4. Steam drier ; rather newer than the other systems and probably the most desirable.

Packing the Dried Fruit—The fruit should not be packed for 24 hours after drying. It is then packed in paper lined boxes holding 25, 50 or 75 pounds. A 50-pound box is 24 inches long, 12 inches deep and 12 inches wide. Evaporated apples are packed in the same manner as the raw article, that is to say, the head is "faced." To do this, nail on the cover and take off the bottom, line it with paper, upon which a layer of rings is regularly placed, with each ring overlapping the others. After "facing" one or two layers the box is filled and the bottom replaced, the box is then properly branded and it is ready for the market.

THE CANNING INDUSTRY.

VARIETIES OF FRUITS AND VEGETABLES PREFERRED BY CANNERS.

The growth of the canning industry in Canada has been marvellously rapid. Nineteen years ago it is said that there were but two small canning establishments in the Dominion. With the extension of fruit culture and a knowledge of the fine quality of Canadian fruits came the growth and development of the canning industry. The pack of vegetables and fruits has increased gradually each year. It is estimated that Canadian canners now pay annually to farmers \$500,000 for fruits and vegetables, and as much more to manufacturers for cans, solder, labels and shipping cases. Mr. W. P. Innes, of Simcoe, stated before the tariff commissioners recently that the canning factories of the Dominion represented invested capital in plant and machinery equal to half a million dollars and gave employment to 6,000 workers for six months of the year. Mr. Innes says:— "There are at least 27 factories in Ontario, 6 in Quebec, and at least one each in Nova Scotia, New Brunswick and Prince Edward Island and one or more in British Columbia."

During the past year a number of letters have been received from market gardeners and small fruit growers asking for information relative to the best varieties of fruits and vegetables to grow for canning purposes. In order to obtain the views of canners upon this important matter, a circular letter was addressed to the heads of as many of these establishments as were known at the time. The managers very courteously gave the information, which is condensed into the following tabular statement. Returns have been received from 23 factories in Ontario, 2 in Quebec, 1 in Prince Edward Island and 3 in British Columbia. Statistics relating to the industry in British Columbia were obtained through the kindness of the Deputy Minister of Agriculture Mr. J. R. Anderson.

The varieties have been arranged according to their degree of popularity with canners, the one recommended oftenest coming first and the others following in order of preference. Where the same numeral is placed opposite one or more varieties it means that such kinds are in equal demand. The prices are estimated and averaged, but will naturally fluctuate from year to year, depending upon the supply, except, where the crop is grown under contract, as is usually the case with vegetables.

Classes of Fruits and Vegetables.	Varieties in order of Preference.	AVERAGE PRICE PER 100 POUNDS.			20 lbs. = 1 basket. 1 lb. = 1 quart. 186 lbs. = 1 barrel. 50 lbs. = 1 bushel. 60 lbs. = 1 bush. of tomatoes.
		Ontario.	Quebec.	British Columbia.	
		\$ cts.	\$ cts.	\$ cts.	
Apples.	{ 1. Baldwin, 2. Greening, 3. Fameuse, 4. Keswick Codling, 3. Snow, 3. Maiden's Blush, 3. Spy, 3. Russets, 3. Cooper's Market, 3. Ben Davis. Siberian Crab.	0 45	.....	1 25	
Pears.	{ 1. Bartlett, 2. Flemish Beauty, 2. Clapp's Favourite, 3 Keiffer, 3. Sugar	2 16	.....	2 66	
Plums.	{ 1. Green Gage, 2. Lombard, 3. Yellow Egg, 4. Damsons, 4. Imperial Gage, 5. Victoria, 5. Blue Plums, 5. Mon- roe, 5. Red Egg, 5. Columbia, 5. Coe's Golden Drop, 5. General Hand.	1 95	.....	1 83	
Peaches	{ 1. Late Crawford, 2. Smock, 2. Long- hurst, 3. Wager, 3. Ey. Crawford, 3. All kinds, 3. Yellow Peaches.	1 50 to 4 00	.....	.....
Cherries. ...	{ *1. Royal Ann, 2. Kentish, 2. Black Tartarian, 2. Napoleon, 2. Governor Wood, 2. Ey. Richmond, 2. Yellow Spanish, 2. White varieties.	3 75	.....	4 12	

Experimental Farms.

THE CANNING INDUSTRY—*Concluded.*

Classes of Fruits and Vegetables.	Varieties in order of Preference.	AVERAGE PRICE PER 100 POUNDS.			
		Ontario.	Quebec.	British Columbia.	20 lbs. = 1 basket. 1 lb. = 1 quart. 186 lbs. = 1 barrel. 50 lbs. = 1 bushel. 60 lbs. = 1 bush. of tomatoes.
		\$ cts.	\$ cts.	\$ cts.	
Grapes.....	Not used.....				
Raspberries.	1. Cuthbert, 2. Marlboro, 2. Schaffer, Philadelphia Red, 2. Black Caps.	5 30		6 25	
Gooseberries	1. Downing, 1. Ashton Red, 1. Oregon Champion, 1. Warrington, 1 White Smith, 1. Lancashire Lad.	4 16		4 00	
Currants....	1. Fay's Prolific, 2. Lee's Prolific, 2. Cherry Currant, 2. Naples, 3. Champion, 3. White Grape.	4 25		3 62	
Blackberries	1. Snyder, 2. Bangor, 2. Taylor, 2. Kittatinny; 2. Taylor's Long Black.	5 62		4 00	
Strawberries	1. Wilson, 2. William's Prolific, 2. Crescent, 3. Manchester, 3. British Queen, 3. Jessie, 3. Albany, 3. Sharpless, 3. Jacunda.	5 00		5 91	
Blueberries..	Not generally used.....			3 00	
Asparagus...	Not generally used.....	4 00			
Beans	1. Early Refugee, 2. Golden Wax, 3. White Wax, 4. Valentine, 4. Early Crystal, 4. Detroit Wax, 5. Black Wax.	1 09		1 10	
Cauliflowers	Henderson's Snowball.	2 25		2 50	
Cabbage.....	Not used.....				
Corn.....	1. Crosby's Early, 1. Stowell's Evergreen, 2. Hickox Sugar, 3. Old Colony, 4. Shaker's Early, 5. Henderson's Sugar, 5. Perry's Hybrid, 5. Sweet Vars, 5. Country Gentleman.	0 34	0 50		
Cucumbers..	1. Long Green, 1. Boston, 1. Chicago, 1. Gherkins.	1 00		1 00	
Onions.....	1. Yellow Danvers, 1. Egyptian, 1. Silver Skins, 1. Small Onions.	0 75		0 90	
Pease.....	1. Horsford's Market Garden, 2. McLean's Advancer, 2. Champion, 3. McLean's Little Gem, 4. Alpha, 5. Alaska, 5. Bliss, Abundance, 5. White Marrowfat, 5. Telephone, 5. Stratagem, 5. American Wonder, 5. Kentish Gem, 5. Any sweet varieties.	1 12		1 25	
Peppers.....	Not generally used.....	3 50			
Rhubarb....	Cahoon's Mammoth, Myatt's Linnæus, Victoria.	1 00		1 25	
Tomatoes...	1. Livingston Perfection, 2. Livingston Royal Red, 2. Any smooth, red variety, 3. Ignotum, 3. Livingston Favourite, 4. Paragon, 4. Red Queen, 4. Stone's Matchless.	0 39	0 33	1 00	

*A favourite in British Columbia.

PRESERVATION OF GRAPE JUICE.

The manufacture and consumption of grape juice in its natural, fresh condition is increasing each year, aided as it is by the greatly increased production of grapes. As a beverage it is wholesome and refreshing. There is probably a market in Canada for a considerable quantity of grapes in this form, and the market might be annually extended if it were more generally understood that the unfermented article could be satisfactorily

and cheaply preserved. It may be explained here that alcoholic fermentation which takes place in the manufacture of wine and beer transforms the sugar or glucose into alcohol and carbonic acid. This action is brought about by the rapid growth of certain vegetable organisms known to the bacteriologist as ferments. The ferment of yeast is recognized as a type of the family, though the particular species in this case is distinct from the commonest ferments of wine. The ripening and subsequent decay of fruits is due to the action of ferments. The juices of all fruits, if exposed to ordinary atmospheric conditions, are rapidly transformed by the action of ferments from what may have been the sweet, aromatic and palatable substance, to that which is acrid, acid or alcoholic. Fermentation can take place only under favourable conditions of temperature. If the temperature is too high the ferments are destroyed; if too low, their growth is prevented. Their growth may also be prevented by the use of certain antiseptic substances, aided, by completely excluding air, from the material to be preserved. If the germs of ferment have been destroyed and the substance to be preserved is at once inclosed in an air-tight vessel and hermetically sealed, there is usually no difficulty in preserving it unchanged, for an indefinite period. Success depends upon thorough sterilization and subsequent complete exclusion of air. The use of antiseptics as a means of preserving vegetable beverages in an unfermented condition is not a commendable practice. Sterilization, or what is now called Pasteurization, combined with the complete exclusion of the atmosphere, is the most practical as well as the most effective method within reach of the grape grower.

PROCESS OF MANUFACTURE.

A considerable quantity of what is commercially known as "pure grape juice" or "unfermented grape juice" is now being made in Canada and the United States. The process of manufacture is usually as follows: Sound, clean grapes are selected and their juice expressed. This is at once strained through two thicknesses of bleached cotton or, what is thought to be better, a woollen cloth. The juice is then poured into a double-jacketed, covered kettle. The temperature of the juice is then brought up to 180 degrees Fahr., where it is held for 20 minutes. The report of the North Carolina Horticultural Society describes the remainder of the process as follows: "It should then be removed from the fire and allowed to stand closely covered for 24 hours. At the end of this time return it to the kettle and re-heat to 180 degrees F. for half an hour, then strain through a thick white woollen cloth into the bottles in which it is to be marketed, or, if more convenient, it may be run from the strainer into large glass carboys, or air-tight kegs, holding not more than five gallons. These must be previously sterilized by boiling water, and should be as hot as the juice is when ready to be filled. The vessels, whether large or small, must be filled until the juice begins to run out at the opening, and then corked tightly and the cork or bung covered with wax or resin to make it air-tight. If a wooden vessel is used to store the juice in, it should be thoroughly varnished on the outside to make it air-proof. If the juice is run at once into small bottles no further manipulation is required. If it is temporarily stored in large vessels, when wanted for market or consumption it must be once more heated to 180 degrees F. and strained through a woollen cloth into the bottles. When the storage vessel is opened the entire contents must be removed at once. If allowed to remain twenty-four hours in a partly filled vessel the juice will begin to ferment. This fermentation may be stopped at any time by heating the juice to 180 degrees F., but the character of the liquid as unfermented wine is lost and cannot be recovered. It is of the utmost importance that the juice be heated to 180 degrees F., neither less nor more. If heated above 180 degrees F., the albumen of the juice will coagulate and greatly deteriorate the nutritive properties, and the taste of the juice will be quite spoiled."

"If heated to less than 180 degrees F., the germs of ferment will not be killed and the juice will soon begin to ferment. To insure the proper temperature in the kettle, a glass dairy thermometer, costing about ninety cents, should be inserted through a hole in the cover and allowed to float on the juice."

Experimental Farms.

EXPERIMENTS.

In October, 1893, Mr. Joseph Tweddle, Fruitland, Ont., who was interested in the manufacture of grape juice, kindly furnished this division with 150 pounds of well ripened Concord grapes, which were used in carrying out some experiments, having for their object the securing of information bearing upon the preservation of grape juice. The juice was extracted by crushing the berries and subjecting the pulp to moderate pressure, after which it was strained. Small quantities were treated as described below. In each case the juice was heated in a porcelain vessel, the temperature being gradually raised to the resting point, where it was held the required length of time, by the use of a tube thermometer. The vessels into which the various samples were placed, without straining were immersed in boiling water, then filled and sealed while still hot; the bottles were stored in a cupboard in a warm, dry cellar.

No. 1.—Quantity, half a gallon; held at 130 degrees Fahr. for 11 minutes; bottled in a museum hermetically sealed jar. Bottled 30th October, 1893. Considerable amount of sediment was noticed on 20th December, 1893. Fermentation began apparently about a month after bottling. Opened 17th September, 1894, and found to be quite alcoholic; 10th December, 1896, now in the form of a dry wine, lacking in spiciness.

No. 2.—Quantity, one pint; heated 10 minutes at 135 degrees Fahr.; bottled in a pint bottle, cork covered with paraffine wax. Fermentation began almost immediately. Cork thrown out 15th November, 1893.

No. 3.—Quantity, one pint; pint bottle used, stopper paraffined; heated 10 minutes at 145 degrees Fahr. Fermentation was not noted until September, 1894, when it began slowly. Opened 12th December, 1896, and found to be in the form of a mild brand of dry wine.

No. 4.—Quantity, one pint; heated 10 minutes at 160 degrees Fahr.; pint bottle, used, stopper paraffined. No change was observed in this for 11 months. It was then sent to Mr. Tweddle, who reported it fresh and palatable.

No. 5.—Quantity, one pint; heated 10 minutes at 170 degrees Fahr.; pint bottle, cork paraffined. Opened 12th December, 1896. Juice sweet; no trace of fermentation. Original flavour entirely preserved. The "boiled flavour" sometimes so prominent in beverages of this kind, not apparent. The colour of the liquid was not as clear as desirable, showing the necessity of careful straining.

No. 6.—Quantity, one pint; heated 10 minutes at 185 degrees Fahr.; pint bottle, cork paraffined. Opened 12th December, 1896. No trace of fermentation, either past or present. Flavour, sweet and palatable and refreshing. Equal to last sample.

No. 7.—Quantity, one pint; heated to 190 degrees Fahr.; in bottle, with cork paraffined. Not opened thus far, apparently in good condition, 15th December, 1896.

No. 8.—Quantity, one pint; heated 20 minutes at 190 degrees Fahr.; in bottle, with paraffined stopper. Apparently in perfect condition when sent to Mr. Tweddle, September, 1894, and so reported by him when received.

No. 9.—Quantity, one quart; salicylic acid, .175 grammes, or at the rate of 7 grammes to each 10 gallons; not heated; cork of bottle sealed with paraffine. Opened 9th September, 1894. No fermentation had taken place. Flavour, sweet, without any suggestion of acid. Colour, that of a bright claret.

No. 10.—Quantity, one quart; salicylic acid, .2 grammes, at the rate of 8 grammes to each 10 gallons; not heated; cork of bottle sealed with paraffin. Opened 17th September, 1894, found to be in good condition, with a slight suggestion of the beginning of fermentation. Sealed again. Opened 12th December, 1896. Fermenting actively.

No. 11.—Quantity, one quart; boracic acid, .175 grammes; in sealed bottle; not heated. 15th November, 1893, in good condition. 17th September, 1894, fermentation began quite actively. 15th October, 1894, opened and found quite alcoholic. 12th December, 1896, makes a dry wine of medium quality.

No. 12.—Quantity, one quart; .2 grammes boracic acid; in sealed bottle; not heated. Cork proved to be defective; fermentation began within a few days.

No. 13.—Quantity, one pint; sugar, 2 ounces; heated 10 minutes at 160 degrees Fahr.; in sealed bottle. Colour, that of clear, bright port wine. Opened 12th

December, 1896. Flavour, sweet, fresh, palatable. Some sediment at bottom, which might easily be separated by straining. This sample very desirable.

No. 14.—Quantity, one pint; sugar, 3 ounces; heated 10 minutes at 160 degrees Fahr.; in sealed bottle. In good condition; that is, fresh and unfermented, when sent to Mr. Tweddle, 17th September, 1894.

No. 15.—Quantity, one pint; sugar, 3 ounces; salicylic acid, .087 grammes; heated 10 minutes at 160 degrees Fahr.; in sealed bottle. Fermentation began two or three weeks afterwards and went on more or less actively. This was found to be due probably to a defective cork.

No. 16.—Quantity, one pint. A duplicate of No. 15. Was unfermented and fresh when sent to Mr. Tweddle, 17th September, 1894.

Deductions.—It would appear from the foregoing that the natural flavour of grape juice may be preserved intact by raising the temperature of the juice gradually to 170 degrees Fahr., keeping it at this point for ten minutes and then quickly bottling it, taking care to use absolutely air-tight and thoroughly sterilized vessels. These vessels should be taken from a tank or kettle of boiling water, immediately filled, and corked or covered, with the least possible delay. The addition of sugar in the proportion of four ounces to each quart of liquid will improve the quality and palatability of the juice of the more acid varieties of grapes, such as Clinton, Bacchus and Marion.

The use of antiseptics, such as salicylic acid, should not be encouraged. It is not probable that they would prove injurious if used in the quantities mentioned above, but in view of the fact that samples in which they were not used, were preserved equally as well as those in which they were employed, it would seem that to be really effective for this purpose larger quantities are necessary. A practice of this kind is undesirable.

Other experiments in this line are now in progress and will be reported in due time.

DISEASES OF FRUITS.

APPLE AND PEAR BLIGHT.

This disease, so mysterious and destructive in its methods, has again caused wide-spread damage. Its ravages were most severe on apple trees in the vicinity of Hamilton and Burlington Bay. To some extent also it was present along the eastern shore of Lake Ontario, the Peterborough and Lindsay districts, and Eastern Ontario and St. Lawrence River districts. Nearly all varieties were attacked to a greater or less extent at Freeman, near Burlington, Ont. Mr. G. E. Fisher writes that "Holland Pippin was one of the worst." Mr. Thos. Beall, Lindsay, Ont., records it as attacking English Hawthorn. At Ottawa the Mountain Ashes were injured in many instances. Mr. Fisher also points out that the disease manifests its presence and methods of attack in different ways on apples as compared to pears. The former are usually attacked through the terminal shoots, from whence the disease works downwards involving main branches and, in bad cases, finally the stem of the tree. Pears, on the contrary, show the presence of the disease more frequently by the blighting of the leafy tufts on the spurs—often fruiting spurs—found on the larger branches, and sometimes on the stems of the trees. Trees attacked in this manner should, except in cases of very mild attack, be promptly rooted out and destroyed. Instances have come under my notice where a single infected tree was the means of spreading the disease throughout an entire orchard. It has been observed in the orchard at the Central Farm and elsewhere, that the blight appears to spread in a manner that would give strong colour to the belief, that the prevailing winds have much to do with carrying it from one tree to another. The experience of each year has added some evidence to the correctness of this assertion.

Remedies.—Thus far there seems to be only one remedy, viz., to cut out and destroy affected branches without delay, on the first appearance of the disease. Diseased branches should be cut off at least 15 inches below the affected part. Diseased patches of bark on large branches of pear trees, or upon the stems should be removed and the exposed surface covered with grafting wax.

Experimental Farms.

Spraying with Bordeaux mixture as a preventive has been tried here very thoroughly on apple trees, but without apparent benefit. When a young, cultivated and vigorously growing orchard is attacked, I would advise seeding it down to clover for a couple of years in order to check the too exuberant growth.

As with Black Knot, so with Pear and Apple Blight, the treatment, of necessity, is often heroic, but if rigidly practised, in connection with rational cultural methods, growers may, I believe, hold it in check. A fuller discussion of the subject will be found in the annual report of this division for 1893.

RECORD OF BLIGHT IN RUSSIAN APPLE ORCHARD AT OTTAWA.

Abbreviations used in describing virulence of the attack:—M., Medium. S., Slightly. B., Badly.

Variety.	1893.	1894.	1895.
Anisovka	S.		S. M.
Antonovka	B. S. B.		M. B.
Arabka	S. B. M.	S. M.	S. B.
Anisim 18 M.	B.		
Aport	B.	S.	S.
Alexander, M.	B.	M.	B.
Arabka Winter (Fisk)	M. B.	S.	M.
Antonovka (Ansjutin)			S.
Beauty of the World	S.	Dead.	
Bergadoff	B. M.	S. B.	S. B.
Beautiful Arkad (Beadle)	S.	S.	S.
Bethel	S.	B.	S.
Burlovka No. 183 (Beadle)	S.		S.
Blushed Calville	S.		
Blackwood No. 407	B. S.	M.	B.
Broad Green No. 157 M.	M.		S.
Borovinka	S.	S.	S.
Bogandoff (Fisk)	S.	M.	M.
Broad Cheek	S. M. S.		M.
Champagne	B. M.		B.
Cinnamon Pine	M. S.	S.	M.
Cinnamon No. 322 (Beadle)	B. M.		S.
Champagne Pipka	M.	S.	B.
Cross No. 413	S.		S.
Charlamoff No. 262	M. B.	M.	B.
Crimean	S.		
Christmas No. 477 (Beadle)	B.		
Dvinnoe Solovieff	S.		M.
Decarie (Fisk, a Quebec seedling)	S.		
Enormous No. 398 (Beadle)	B.	M.	B. S.
Extra, Solovieff	S.		
Early Prolific No. 332 B.	M.		B. S.
Fonaric	B. S.		S.
Furst Taffet	M.	B.	E.
Foundling (a Quebec seedling)	S.		
Grand Sultan	S.		S.
Gipsy Girl	B.	S.	M.
Golden White	M. S.	S. B.	S. M.
Gros Mogul			
Grand Duke Constantine	B.	M.	B.
Grandmother No. 469-6 M.	S.	S.	S.
German Calville (Fisk)	S. B.	M.	M. B.
German Skrute No. 371 B.	S.	B.	S.
Green Sweet No. 169.	S.		S.
Golden Reinette	S.	S.	S.
Good Peasant			S.
Howard's Best Russian	B.	Dead.	
Hurlbut	S.	S.	Dead.
Himbur	S.	S.	S.
Herren No. 315	M.		
Handsome White No. 450 B.	B. S.		
Hibernal	S. M.		S.
Imperial Citron No. 293	S.		S.
Jolti Biel	M.	Dead.	
Keswick Codlin	S.	Dead.	
Kruder No. 17 M.	M. B.	S.	S.

RECORD OF BLIGHT IN RUSSIAN APPLE ORCHARD—*Continued.*

Abbreviations used in describing virulence of the attack:—M., Medium. S., Slightly. B., Badly.

Variety.	1893.	1894.	1895.
Kremer's Glass No. 284	M.		B.
Krimskoe No. 65 M	S. M.		
Koursk Annis No. 984	M.	S.	S.
Keiv Reinette.	B.		
Lead	M. B.	S.	S. M.
Longfield	B.	S.	S.
Lead of St. Petersburg	M.	M.	S.
Louis' Favourite.	B.	M.	M.
La Victoria, Seedling	S. M.	S. M.	M.
Lapouchoe (Koslov)			S.
Muscatel	M.	M.	S.
Marble	B.	Dead.	
Melonen	B. S.		M.
Marion, Solovieff	S.		
Marmalade	M.	S.	
Meinster			M.
Ostrekoff, No. 472 (Beadle)	M.		
Osimoe, No. 7 M.	M. B.	Dead.	
Ostrekoff's Glass (Fisk)	M.	S.	S.
Orel	M.	S.	
Peach	M.	S.	M.
Pointed Pipka	M. B. S.	M. S. B.	M. S. B.
Plodovitka, Koslov			S.
Possart	B.	S.	M.
Prolific Annis No. 471 (Beadle)	B.		
Paperovka (Niemetz)	S.		S. B.
Pipka, No. 265 B.	M.	S.	S.
Riga Naliv	B. B.	M.	B. B.
Rosy Repka No. 200	S. B.	S.	S. B.
Resonant, No. 352 (Beadle)	M.		S.
Russian Transparent	B. M.	S.	S. B.
Rambour Reinette	S. M.		S.
Rubicon	M.	S.	B.
Red Reinette (Beadle)	B.		S.
Revel Borsdorf (Beadle)	B.	S.	M.
Red Serinka	S.	M.	S.
Red Repka No. 200.	S.		
Romna, No. 599	S. M.	S. M.	M. S. B.
Red Duke	S. M.	B.	B.
Red Stettiner (Fisk)	S.		S. M.
Red Annis No. 985	M. B.	M.	S.
Revel No. 338.	S.		S.
Red Queen No. 316	M. B. S.	B.	S.
Romenskoe (Gibb)	S.		
Revel Glas, No. 170 B	S. M.		B.
Rambour, Riga	S.		
Round Borsdorf, No. 356 B.	B.	S.	M.
Stettiner Kantapfel.	S.		
Sweet Borovinka B.	M.	S.	S.
Sandy Glas, No. 24 M.	B. S.		S.
Striped Calville	S.		
Schwarze Gans. ? M.	B. M.		S.
Svinetz No. 426	B.	B.	B.
Stripe	M.		
Serinka No. 107 M.	M.	S.	S.
Switzer	B. M.	B. M.	B.
Scented	S.		B.
Simbirsk No. 1.	S.	B.	S.
Sklanka Bogdanoff	S.		S.
Simbirsk No. 9.			M.
Striped Winter (Budd)			M.
Thaler	B. S.	S. B.	S. M.
Thin Twig	S. M.	S.	S.
Tiesenhausen, No. 190	M.	M.	B.
Titovka (Gibb)	M.		M.
Titovka (Koslov)			S.
Titovka (Solovieff)			S.
Transparent Naliv B	B. S.	B.	

Experimental Farms.

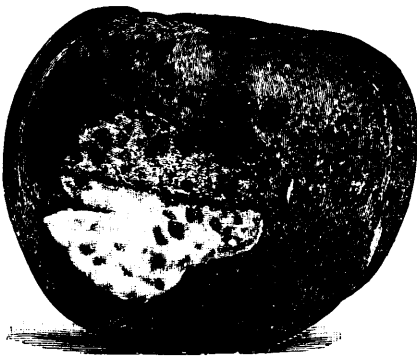
RECORD OF BLIGHT IN RUSSIAN APPLE ORCHARD—*Concluded.*

Abbreviations used in describing virulence of the attack :—M., Medium. S., Slightly. B., Badly.

Variety.	1893.	1894.	1895.
Throne No. 243 (Beadle)	S.		
Table Apple			S.
Ukraine (Gibb).....	M. B.	M. B.	B. S.
Voronesh Reinette (Beadle).....	B.	S.	M.
Voronesh Sweet	M.	M.	
Vargul (Fisk).....	M.	S.	M. S.
White Borodovka.....	S.		S.
White Naliv, No. 157 (Beadle).....	M. B.	S.	S.
Winter Calville	S.	S.	S. M.
White Pigeon.....	B.		
White Borovinka.....	S.		
White Borsdorf (Fisk).....	S.	S. M.	S.
Worgunok No. 565 (Beadle).....	B.		
Wolf River	S.		S.
White Rambour	B.	S. B.	M.
Zakoritnoe (Duchess)		M.	S.
Yellow Annis No. 987.....	B.	M.	M.
Yellow Arcad	S. M.	M.	S. B.

A DRY ROT OF APPLES.

During 1895 and again the present season, a number of specimen apples were received from various parts of Canada, all exhibiting in a more or less marked degree the presence of a curious kind of dry rot. This was manifested exteriorly by small circular depressions on the surface or skin of the apple. These depressions were $\frac{1}{8}$ to $\frac{1}{4}$ of an inch deep and $\frac{1}{4}$ to $\frac{3}{8}$ of an inch in diameter. On removing the skin of the apple it was found that each depression was the centre of a small area of dryish brown tissue. In some varieties badly attacked, this brown and pithy tissue extended in a more or less complete network over the whole surface of the apple. Its texture was dry and tough enough to prevent it from being cut into easily with anything but a keen edged blade. The flesh of the apple was rarely affected to a depth of more than $\frac{3}{8}$ or $\frac{1}{2}$ an inch. The affected flesh was dry and flavourless, but not bitter. While the apple was not rendered wholly unfit for use, its appearance and salability were totally destroyed. At first I was inclined to think it was a form of bitter rot (*Glaeosporium*). Specimens were sent to a number of specialists in Canada and in the United



Apple affected with dry rot.

States. Prof. L. R. Jones, Experiment Station, Burlington, Vt., appears to have described this trouble briefly, in 1891, as affecting Baldwins. The fungus described by Prof. Jones was identified by Mr. J. B. Ellis, of Newfield, N.J., "as being probably *Dothidea pomigena*, Schu." Prof. Jones describes a small pustule in the centre of each spot as being a characteristic indication of the presence of the trouble, and also states that the diseased tissue is pronouncedly bitter. I have found that the flavour varies somewhat, but an insipid quality without bitterness prevailed in the majority of the specimens examined. Spraying with bordeaux mixture does not seem to prevent it, as the first specimens received were from the orchard of Mr. James J. Paterson, Agincourt, Ont., which had been sprayed six times during the season under direction of Mr. Wm. Orr, Superintendent of Spraying Stations, for Ontario. Mr. Paterson writes that his trees

are young and in a healthy condition. Mr. Orr states "that the fruit on all the trees is similarly affected."

Mr. D. James, Thornhill, Ont., writes as follows on 9th January :—

"Dear Sir,—In reply to your request as to varieties of apple affected by dry fungus or dry rot, the Snows are by far the worst, yet we never had better Snow apples than this year in this section; in the same orchard some trees are badly affected, while on others there is not a sign or trace of dry rot. The Northern Spy comes second, yet not bad; the Seek-no-further coming third."

Mr. James is of the opinion that the trouble is largely due to some unfavourable peculiarity of the soil.

This disease has been noticed on the following varieties since 20th October, 1896 :—

Rawle's Janet, Ottawa, Ont.	Ben Davis, Ottawa, Ont.
Golden Reinette do	Lawver, Ottawa, Ont.
Salome do	Plumb's Cider do
Princess Louise do	Orange Winter do
Red Canada, Sarnia, Ont.	Romna do
Winter Rose, Kemptville, Ont.	Fameuse, Agincourt, Ont.
Hurlbut, Trenton, Ont.	Seedling do
Baldwin, Grimsby, Ont.	Golden Russet, Ottawa, Ont.
Malinda, Ottawa, Ont.	Winter Bough do
Northern Spy, Agincourt, Ont.	Patten's Greening do
Simbirsk No. 4, Ottawa, Ont.	Seek-no-further, Agincourt, Ont.
Talman Sweet, Ottawa, Ont.	Silken Leaf, Ottawa, Ont.

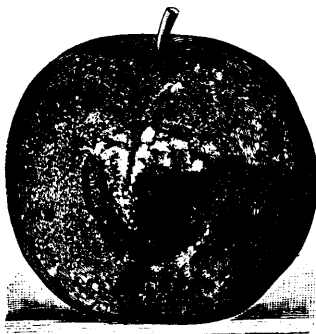
Apple packers should reject all specimens affected with this fungus. The small depressions, at first un conspicuous, under the confined and sometimes heated conditions afforded by the barrel, increase in size and number and discolour rapidly; a few specimens in each barrel will thus condemn the whole consignment.

Mr. J. Dearness, London, Ont., writes me as follows on 26th January :—

"None of the specimens I examined were affected with a *Dothidea*, as that genus is defined now. It is an ascigerous fungus, each containing eight septate hyaline sporidia. Schweinitz does not seem to have so understood the genus. No. 1896 in his herbarium is named *Dothidea fructigena*; it is on rotten apples, and No. 1909 is the *Dothidea pomigena* also on mature apples. These have been examined by Mr. Ellis and found not ascigerous. Mr. Ellis thinks the latter is a fructigenous form of *Fusicladium dendriticum*.

"I believe the disease on the apples you sent me is the same as has been called *Glaeosporium fructigenum*, popularly 'bitter-rot,' but I doubt that fungus has been well described." Dr. W. T. Connell, Pathologist of Queen's University, Kingston, Ont., is at present engaged in working up the life history of this disease.

CORE ROT OF APPLES AND PEARS.



Core Rot.—Gideon.

Varieties of apples, like some kinds of pears, that decay at the core while preserving an apparently sound condition on the outside, should be avoided by planters who intend doing a home market or exporting business. Such varieties deceive the grower, and the purchaser finds himself the victim of misplaced confidence. Bessemianka and Sapieganka, two Russian pears, are of considerable value on account of hardiness in regions where the temperature falls below 25 degrees below zero, thus preventing the cultivation of better varieties. The trees are perfectly hardy and the fruit, if properly handled, is very fair in quality. It must not be allowed to hang on the tree till fully ripe as it rots at the core first; but if picked when yet green and uncoloured it may be ripened successfully in the fruit house. It should be examined occasionally so that it may be used before core

Experimental Farms.

rot commences. The Gideon apple possesses many good points, but has the peculiar habit of rotting at the core in the manner shown in the preceding illustration. This takes place sometimes while the apple is still on the tree. The core of the apple (which is first "water cored") becomes brown, and on losing, by evaporation, the surplus water, shrinks, becomes smaller, and separating with the carpels from the surrounding pulp, remains suspended, as it were, by its axial attachments.

Gideon should be harvested as soon as the pips begin to turn brown, and stored in as cool a place as possible. It is useless to try to keep them into winter with ordinary cellar accommodation. While the form may be retained, the flavour will be entirely lost

SPRAYING.

The number of those engaged in fruit growing who believe in spraying as a means of preventing the destruction wrought by injurious insects and fungous diseases is increasing rapidly each year. In this connection it may not be out of place to warn farmers and orchardists that, as a natural effect of the large crop of fruit this year, we may expect a comparatively small yield next year, but with insects and fungous diseases in abundance. The conditions for the development of fruit pests were favourable to an unusual degree the past season, the full effect of this will no doubt be most emphatically noticeable next season with a greatly reduced apple crop. Fruit growers should bear this in mind, and meet the enemy early in spring, fully equipped with spraying apparatus and material. Mr. W. P. Richards, of Sherbrooke, Que., says that "during the past season I sprayed my apple trees five times, and as a result consider I have completely cleared the orchard of all pests, besides having a good crop of apples." Much evidence of this kind could be adduced, but should not be necessary at this time.

FUNGICIDES AND INSECTICIDES.

With the kind co-operation of Mr. Murray Pettit, of Winona, Ont., some experiments with various combinations of the leading fungicides and insecticides were carried out, with a view of preventing at once the cracking of the pear and injury by the late brood of the Codling Moth. The fruit of the sprayed and unsprayed were uniformly free from fungous attacks. No results were gained in this connection. The following mixtures were used:—

Spraying Mixtures:—

No. 1—Arsenate of Lead, composed of :

- $\frac{1}{2}$ ounce of arsenate of soda dissolved in
 - 1 quart of water,
 - $\frac{3}{4}$ of an ounce of acetate of lead dissolved in
 - 1 quart of water,
 - 1 quart of molasses.
- Water to fill a 5 gallon knapsack spray pump.

No. 2—Lysol, composed of :

- Lysol, 12 fluid ounces,
- Molasses, 1 quart,
- Water, 5 gallons, or knapsack full.

No. 3—Copper Carbonate, composed of :

- $\frac{1}{2}$ ounce of copper carbonate (the copper carbonate dissolved in the ammonia).
 - $\frac{1}{2}$ ounce of lime.
 - $\frac{1}{2}$ ounce of Paris green,
 - $\frac{1}{2}$ pint of ammonia.
 - 1 quart of molasses.
- Water, 5 gallons.

Spraying Mixtures—Concluded.

No. 4—Paris Green, mixture composed of :

- $\frac{1}{2}$ half ounce of Paris green,
- $\frac{1}{2}$ half ounce of lime.
- 1 quart of molasses,
- 5 gallons of water,

One tree of Bartlett was sprayed twice with each mixture on July 10th and 24th. The fruit was picked and graded on September 1st. The percentages below, give the results as gained by counting the number of sound and wormy specimens, found in windfalls and hand picked fruit.

SHOWING per cent of Sound and Wormy Pears.

Mixture.	HANDPICKED.		WINDFALLS.		PER CENT WORMY.
	Per cent Sound.	Per cent Wormy.	Per cent Sound.	Per cent Wormy.	Handpicked and Windfalls.
Arsenate of Lead.....	50·9	32·4	.....	16·7	49·1
Check.....	50·5	34·4	3·8	11·2	45·6
Lysol.....	58·9	31·5	0	9·6	41·1
Check.....	32·2	34·1	2·4	31·3	65·4
Copper Carbonate and Paris Green.....	57·7	24·2	2·2	15·9	40·1
Paris Green.....	46·4	36·2	1·4	16·0	52·2
Check.....	38·6	45·6	1·8	14·0	59·6

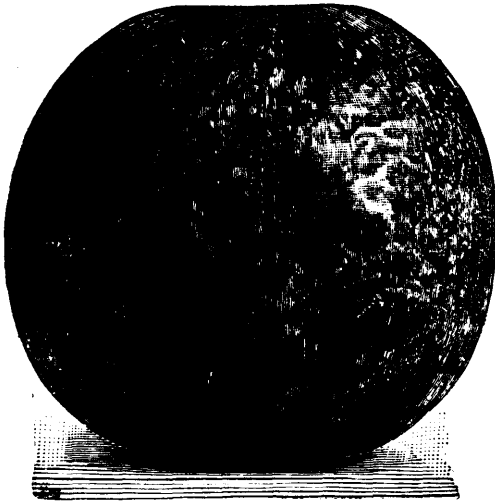
It will be seen that the trees sprayed with Lysol gave the largest percentage of sound fruit. Copper carbonate with Paris green also gave a large percentage of sound fruit, but a check tree immediately adjacent was wanting in this case. Compared with other checks or unsprayed trees, it makes a good showing.

These experiments may be accepted as indicative and will be repeated. The results with arsenate of lead are surprising. Last year in spraying at Ottawa to prevent injury from the *early* attacks of codling moth this insecticide gave excellent results.

FRUIT INJURED BY SPRAYING.

Since 1890, when Prof. Clarence M. Weed, then of Ohio, reported that spraying with Bordeaux mixture injured the skin of apples, certain russetting effects noticed each year have been credited to this agency. Prof. Beach (see Report of N. Y. Exp. Station, p. 673) reports extended injury, and gives a list of apples affected. The injury usually takes the form of patches, or splashes of russet upon the skin of the apple, usually confined to one side, and often to the region surrounding the basin. It varies considerably in extent, some varieties being much affected, while others show little or no injury. The injury in unusual instances is so severe, as to prevent the normal development of the apple, resulting, in these cases, in warty growths causing deformed specimens. Most varieties show a slight roughening of the skin as a result of three applications of Bordeaux mixture. This roughness is caused by a corky modification

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Fameuse russeted by spraying.

of the epidermal cells of the skin of the apple. Where much affected, the modification extends somewhat deeper. I have never seen the injury so severe when Bordeaux mixture was used at the rate of four pounds each of copper sulphate and lime to a barrel of water, as to materially injure the sale of the fruit. Such cases have been reported, however. By examining the growing apple after an application of the spraying substance has been made, the operator will be able to decide by its appearance whether it is wise to continue the work of spraying, or whether, on the other hand, it is advisable to discontinue it for the season. If the first spraying—that is, the application before the blossoms open—is made very thoroughly, the amount of copper sulphate used in the applications which follow may be lessened and the possibility of injury avoided.

GARDEN PEASE.

In the subjoined table information obtained in testing 101 varieties of garden pease is submitted. They were grown under as nearly uniform conditions as possible. It is quite probable that a variety may be duplicated in the list, appearing under another name. So closely do many of the early varieties resemble each other that it is difficult to establish their identity, in trying them for a single season only. Then again there is sometimes greater variation in evidence, between individual plants of the same variety, than is observable between so-called distinct varieties. Among the early, medium and late varieties the following appear to be worthy of special mention:—

EARLY.	MEDIUM.	LATE.
Alaska,	Abundance,	Champion of England,
Blue Beauty,	Blue Imperial,	Juno,
Carter's First Crop,	McLean's Little Gem,	Laxton's Charmer,
Extra Early Star,	Premium Gem,	New Maud S.,
Early Kent,	Rural New Yorker,	Telegraph,
First and Best,	Wm. Hurst.	Yorkshire Hero.
King of Dwarfs,		
Nott's Excelsior,		
Ex. E'y. Market (Thorb.)		

GARDEN PEASE.

Abbreviations—Dwarf, D; Medium, M; Tall, T; Early, E; Late, L; Wrinkled, W; Smooth, S; Round, R.

Name.	Seedsman.	Date of Sowing.		Number of Seed Sown.		Length of Row.	Date of Blossoming.		When ready for Table.	Average number of Pease in Pod,			Weight of Peas in Lbs.		Kind of Pea—Wrinkled or Smooth.	Height.	Early, Medium or Late.
		1896.	Ft.	1896.	1896.		Lbs.	Oz.		Lbs.	Oz.						
Alaska	Thorb.	May 15.	400	30	June 17.	July 3.	6	1	4	W	D	D	E				
American Wonder	do	do 15.	400	30	do 20.	do 7.	5	1	12	S	D	M	E				
Alpha	do	do 15.	400	30	do 18.	do 3.	5	1	11	W	M	D	E				
Admiral, The	do	do 15.	400	30	do 29.	do 17.	5	2	5	W	M	M	E				
Abundance	do	do 15.	400	30	do 30.	do 18.	5	3	12	W	M	D	M				
Anticipation	Simm	do 15.	400	30	do 30.	do 22.	6	1	5	W	M	M	L				
Blue Beauty	Thorb.	do 15.	400	30	do 20.	do 7.	5	2	11	S	M	E	L				
Barnard's Maritime Pea	do	do 15.	400	30	July 6.	do 31.	6	2	8	W	T	L	L				
Black-eyed Marrowfat	do	do 15.	400	30	July 7.	do 24.	6	3	0	S	T	L	L				
Blue Imperial	Ewing	do 15.	400	30	June 30.	do 18.	5	3	7	W	T	M	E				
Bergen Fleetwing	Greg.	do 15.	400	30	do 17.	do 3.	6	2	6	S	M	E	L				
Boston Wrinkled	Breck	do 15.	400	30	do 30.	do 23.	5	2	8	W	M	M	L				
Blue Peter	Thorb.	do 15.	400	30	do 20.	do 7.	5	2	10	W	D	E	L				
Chelsea	do	do 15.	400	30	do 20.	do 9.	5	2	11	S	D	E	L				
Champion of England	do	do 15.	400	30	do 30.	do 24.	6	3	4	W	M	E	L				
Cleveland's First and Best	Ewing	do 15.	400	30	do 17.	do 3.	5	2	11	R	T	E	E				
Carter's First Crop	do	do 15.	400	30	do 17.	do 3.	5	3	0	S	M	E	L				
Crown Prince, No. 80	J. & St.	do 15.	400	30	do 30.	do 28.	6	3	0	W	D	M	E				
Crooked, or Scimitar	Steele	do 15.	400	30	do 30.	do 28.	5	1	13	S	T	L	L				
Daniel O'Rourke Improved	Thorb.	do 15.	400	30	do 20.	do 7.	5	2	11	S	M	E	M				
Duke of York	do	do 15.	400	30	do 29.	do 13.	6	1	11	W	M	M	L				
Dwarf White Sugar Edible Pod	do	do 15.	400	30	July 3.	do 28.	5	2	11	S	D	L	L				
Dwarf Wrinkled Sugar	do	do 15.	400	30	June 20.	do 7.	5	2	6	W	T	E	L				
Duke of Albany	Ewing	do 15.	400	30	July 2.	do 26.	7	2	0	W	D	L	L				
Dwarf Champion of England	Greg.	do 15.	400	30	June 30.	do 28.	5	3	2	W	M	L	L				
Daisy	do	do 15.	400	30	do 24.	do 11.	6	2	1	W	D	E	L				
Exonian	Thorb.	do 15.	400	30	do 17.	do 3.	4	2	3	W	M	E	L				
Everbearing	do	do 15.	400	30	do 29.	do 28.	5	3	7	W	M	E	L				
Extra Early Star	Ewing	do 15.	400	30	do 17.	do 2.	5	3	0	R	M	E	E				
Early Kent	do	do 15.	400	30	do 19.	do 4.	5	2	0	W	D	E	E				
Eureka, Extra Early	Dreer	do 15.	400	30	do 19.	do 4.	6	2	14	S	D	E	E				
Extra Early Pioneer	do	do 15.	400	30	do 19.	do 4.	5	2	15	S	M	E	L				
Extra Early Dwarf Brittany	Steele	do 15.	400	30	July 2.	do 27.	5	2	4	S	D	L	L				
Early Dexter	Farquhar	do 15.	400	30	June 17.	po 2.	5	2	8	R	M	E	E				
Extra Early	Land	do 15.	400	30	do 17.	do 2.	5	3	5	S	M	E	L				
Early Frame Improved	do	do 15.	400	30	do 17.	do 4.	5	3	1	S	D	E	E				
Early May do	do	do 15.	400	30	do 17.	do 4.	5	2	12	S	D	E	E				
Evergreen Pod	do	do 15.	400	30	do 20.	do 4.	6	2	3	W	D	E	L				
Eugenie	do	do 15.	400	30	do 20.	do 20.	5	3	0	W	M	M	E				
Extra Early Challenge	Currie	do 15.	400	30	do 17.	do 2.	6	3	8	R	M	E	E				
Early Prize	Greg	do 15.	400	30	do 20.	do 6.	5	3	9	S	D	M	E				
First and Best	Thorb.	do 15.	400	30	do 17.	do 2.	5	3	10	S	M	E	L				
Filbasket	do	do 15.	400	30	do 30.	do 27.	6	2	3	S	M	L	L				
French Canner	do	do 15.	400	30	do 30.	do 24.	7	2	15	S	T	L	L				
Forty Fold	Land	do 15.	400	30	do 30.	do 26.	7	3	0	W	...	L	L				
Grant's Favourite	Buckbee	do 15.	400	30	do 30.	do 27.	6	2	8	W	T	L	L				
Horsford's Market Garden	Thorb.	do 15.	400	30	do 30.	do 18.	4	1	15	W	D	M	M				
Heroine	do	do 15.	400	30	do 30.	do 20.	6	2	4	W	M	M	E				
Hancock	Greg	do 15.	400	30	do 17.	do 2.	5	2	13	S	M	E	L				
Hair's Dwarf Blue Mammoth	Simm	do 15.	400	30	July 3.	do 31.	6	1	0	W	D	L	L				

Experimental Farms

GARDEN PEASE—*Concluded.*

Name.	Seedsman.	Date of Sowing.	Number of Seeds Sown.		Date of Blossoming.	When ready for Table.	Average number of Pease in a Pod.		Kind of Pease—Wrinkled or Smooth.	Height.	Early, Medium or Late.	
			Ft.	1896.			Yield of Dried Pease in Lbs., ozs.					
							1896.	1896.				Lbs.	Oz.
Juno.....	Thorb.	May 15.	400	30	July 2.	July 26.	6	2	3	W	M	L
John Bull.....	do	do 15.	400	30	June 30.	do 26.	6	2	4	W	M	L
Kentish Invicta.....	Ewing	do 15.	400	30	do 20.	do 7.	5	3	8	S	M	E
King of the Dwarfs.....	Greg.	do 15.	400	30	do 23.	do 7.	5	3	0	W	D	E
Large Irish White Marrowfat.....	Land.	do 15.	400	30	July 3.	do 27.	5	2	15	S	T	L
Laxton's Alpha.....	Ewing.	do 15.	400	30	June 20.	do 11.	5	3	5	W	M	L
do Charmer.....	do	do 15.	400	30	do 30.	do 26.	6	2	8	W	M	L
do Supreme.....	Simm.	do 15.	400	30	do 30.	do 28.	6	0	13	S	T	L
Long Island Marrowfat.....	Land.	do 15.	400	30	do 30.	do 28.	7	1	14	W	M	L
Melting, Sugar Edible Pods.....	Thorb.	do 15.	400	30	do 30.	do 28.	6	1	13	S	M	L
Mammoth Gray Seeded Sugar.....	do	do 15.	400	30	do 30.	do 31.	7	0	14	S	T	L
Marblehead Early Marrowfat.....	Greg.	do 15.	400	30	do 30.	do 26.	7	3	10	S	D	L
McLean's Little Gem.....	Thorb.	do 15.	400	30	do 23.	do 11.	5	2	6	W	T	E
do Advancer.....	do	do 15.	400	30	do 24.	do 13.	5	2	6	W	M	M
do Prolific.....	Ewing.	do 15.	400	30	do 31.	do 28.	6	1	12	W	D	L
Nott's Excelsior.....	Thorb.	do 15.	400	30	do 20.	do 7.	5	2	3	W	D	E
Ne Plus Ultra.....	do	do 15.	325	25	do 30.	do 31.	6	1	5	W	T	L
New Maud S.....	Buckbee.	do 15.	400	30	do 19.	do 23.	5	3	8	S	D	L
New Life.....	Breck	do 15.	400	30	July 1.	do 27.	6	2	8	W	D	L
New Giant Podded Marrow.....	J. & Stokes	do 15.	400	30	June 30.	do 27.	8	3	0	W	M	L
900 to 1.....	Land.	do 15.	400	30	do 30.	do 27.	6	3	9	S	D	L
New Victory.....	Rennie.	do 15.	400	30	do 30.	do 28.	5	2	4	W	M	L
Premium Gem.....	Thorb.	do 15.	400	30	do 20.	do 13.	5	3	0	W	D	M
Philadelphia.....	do	do 15.	400	30	do 17.	do 13.	5	3	1	S	M	M
Pride of the Market.....	do	do 15.	400	30	do 30.	do 28.	7	2	11	S	D	L
Prince of Wales.....	do	do 15.	400	30	do 29.	do 20.	5	2	3	W	M	L
Paragon.....	Dreer.	do 15.	400	30	do 30.	do 20.	5	2	3	W	T	L
Profusion.....	Breck	do 15.	400	30	July 2.	do 28.	5	1	9	W	T	L
Petit Poise, or Small E'y French.....	Farquhar.	do 15.	400	30	June 29.	do 18.	5	2	5	S	M	M
Phonograph.....	Land.	do 15.	400	30	July 8.	do 26.	6	2	0	S	T	L
Queen.....	Thorb.	do 15.	400	30	June 30.	do 28.	7	1	11	W	M	L
Rural New Yorker.....	do	do 15.	400	30	do 20.	do 20.	5	3	11	S	M	M
Station.....	do	do 15.	400	30	do 20.	do 20.	5	1	15	W	D	M
Shropshire Hero.....	do	do 15.	400	30	do 30.	do 26.	5	2	0	W	M	L
Sander's Marrow.....	do	do 15.	400	30	July 8.	do 26.	6	1	6	W	T	L
Stratagem Improved.....	do	do 15.	400	30	do 2.	do 24.	5	0	12	W	D	L
Stanley.....	Dreer	do 15.	400	30	do 2.	do 28.	7	1	4	W	D	L
Startler.....	Buckbee.	do 15.	400	30	do 3.	do 27.	5	1	8	W	M	L
Sunol.....	Gregg	do 15.	400	30	June 17.	do 16.	5	3	0	S	M	M
Sharpe's Queen.....	Breck	do 15.	400	30	do 30.	do 29.	6	1	0	W	D	L
Sutton's Satisfaction.....	J. & Stokes	do 15.	400	30	do 29.	do 26.	5	2	10	W	M	L
Thorb. Ex. Ey. Market.....	Thorb.	do 15.	400	30	do 17.	do 3.	5	3	7	S	M	E
Tom Thumb.....	do	do 15.	400	30	do 20.	do 5.	5	2	11	R	D	E
Telegraph.....	do	do 15.	400	30	do 29.	do 26.	6	2	6	S	T	L
Telephone.....	do	do 15.	400	30	do 29.	do 27.	7	1	15	W	T	L
Tall White Edible Pods.....	do	do 15.	400	30	do 29.	do 27.	7	1	11	S	T	L
Veitch's Perfection.....	Ewing.	do 15.	400	30	July 3.	do 27.	5	0	11	W	M	L
do from W. Wilson, Fort Arthur, Ont.....	do	do 15.	400	30	do 2.	do 27.	6	2	7	W	T	L
White Marrowfat.....	Thorb.	do 15.	400	30	do 6.	do 31.	7	2	4	W	D	L
William Hurst.....	Dreer	do 15.	400	30	June 20.	do 13.	6	3	4	W	M	L
Yorkshire Hero.....	Thorb.	do 15.	400	30	do 30.	do 31.	5	3	10	W	D	M

GROWING CELERY IN BEDS.

A good deal has been said and written about the advantages of "bed culture" of celery, over the ordinary single, or double row system. Celery has been grown both in beds and in rows for the past three years at the Central Farm. Some data regarding the condition and yield of eight varieties grown in beds this year is given below. The bed system is undoubtedly to be recommended to those who have but a small area that may be devoted to the cultivation of this vegetable, which I may venture to remark parenthetically is largely neglected and unappreciated by farmers. There is much less labour involved when celery is grown in beds than if grown in single or double rows,—banking up being unnecessary. In order to secure satisfactory results, an abundance of manure and water is needed. Without these the plants will be small, stringy in quality and spindling in appearance. The water question is the main drawback; the draught on the soil moisture is heavy. It is unsafe to depend upon the average rainfall. The plants in this experiment were watered on an average twice a week, by using the garden hose.

How to grow.—Sow the seed in a hot bed or cold frame about the middle of April. It will be ready for pricking out into rows two inches apart each way about a month later. If it is not pricked out the young plants should be cut back to give stockiness. In this experiment the plants were set out on June 27th. Hot bed frames were used, additional soil being added until a covering 6 to 8 inches was laid over the now well settled manure. The plants were set approximately 7 x 7 inches apart. They grew somewhat slowly at first, but soon covered the ground and made a vigorous growth till arrested by autumn frost. The sides of the frames were 12 inches high. This furnished the requisite amount of shade. The early varieties were well blanched when taken up, while the late kinds needed further blanching to make them suitable for market, though they were in good condition for storing. As stated before, it was found that such a large number of plants upon a comparatively small area sucked up the moisture so rapidly that it was necessary, in order to preserve them in a healthy growing condition, to irrigate the beds at least once a week, and sometimes twice. "Celery leaf rust" was controlled by spraying with Bordeaux mixtures.

The seed was sown in hot bed, April 7; plants pricked out, May 12; planted out, June 27; harvested, October 22.

Paris Golden Yellow, White Plume and Boston Market are three excellent varieties, and mature in the order in which they are mentioned.

YIELD OF CELERY GROWN IN BEDS.

Variety.	Seedsmen.	Area Occupied. Sq. ft.	No. of Plants.	Height when Harvested.		Total Weight in Lbs.		Average Weight of Stalks.		Condition when Harvested.
				Ft.	In.	Lbs.	Ozs.	Lbs.	Ozs.	
White Plume.....	Thor'b'n	37	80	2	6	141	0	1	12	Well blanched and fit for table.
New Pink Plume	Hend'n	48	141	2	6	224	0	1	9	Not so solid as White Plume; well blanched.
Covent Garden Rose ..	Thor'b'n	13	40	2	8	75	0	1	14	Considerably rusted; unblanched.
Giant Paschal.....	do	20	60	2	11	116	8	1	15	Solid; slightly blanched.
Boston Market.....	Steele	40	120	2	6	258	8	2	2	Unblanched; numerous side shoots; these slightly blanched.
London Red.....	do	40	120	2	8	277	0	2	4	Only slightly blanched; large, solid heads.
Paris Golden Yellow..	do	34	100	2	0	228	0	2	4	Handsome, well blanched, crisp; free from disease.
Golden Self-Blanching.	Thor'b'n	34	100	2	0	196	0	1	15	Healthy and solid; well blanched.



Tobacco plantation in August, Central Experimental Farm.

Experimental Farms.

TOBACCO CULTURE.

The first lot of seed sown at the usual time, towards the end of March, failed to germinate satisfactorily. This necessitated a second sowing which resulted in giving strong plants, but much too late for this locality. The varieties tried were White Burley, Yellow Pryor, Canadian and Cannelle (Quesnel). After setting them out on June 10 the plants made a rapid and satisfactory growth. White Burley matured first and was partly harvested when the killing frost of September visited the field and practically destroyed the later varieties. The situation was somewhat low and the frost effects were, therefore, severe. The accompanying illustration from a photograph gives a correct impression of the character of the growth. Tobacco plants should be strong and vigorous and fit for transplanting in this locality by May 15th, in order to ensure the crops against autumn frosts. The following sensible instructions offered to planters by Mr. C. E. Archibald, manager of the Empire Tobacco Co., Granby, Que., are submitted for the guidance of tobacco growers.

POINTS IN REFERENCE TO GROWING TOBACCO.

(By C. E. Archibald, Granby, P.Q.)

It is necessary to start the plants in a hot-bed or cold frame. The bed, if unprovided with bottom heat, should be carefully prepared in good, rich soil, if possible on a hill sloping towards the south-west. First cover the intended bed with refuse wood, and burn it, so that all foreign seeds in the ground may be killed, then spade the ashes under, and make the ground light and pliable. Then carefully sprinkle the seed over the ground and press it under with the foot. In about 6 or 7 weeks plants should be large enough to transplant to your field, which should in the meantime be carefully prepared to receive them. (Ploughed and harrowed). When plants are about 4 or 5 inches tall, take advantage of a rain and "draw" the plants from the plant-bed (without breaking the roots) and transplant to the field. Pryor tobacco is planted $3\frac{1}{2} \times 3\frac{1}{2}$ feet, but White Burley may be set somewhat closer. If the ground is very rich and strong 20 x 40 inches is about right for Burley, having the wide row running north and south, so that each plant may get the maximum amount of sun.

If the ground is not very strong set the Burley 30 x 40 inches. The Pryor plants should be topped leaving 10 or 12 leaves on each plant. This means that when that many leaves have grown out from the stalk, the top of the plant must be pinched out, and any suckers which may appear afterwards must be taken off close to the stalk.

White Burley plants are topped at 16 to 20 leaves to prevent the tobacco from being too heavy in body.

Never cut tobacco on a rainy day, as it is sure to get full of sand, and the rain is very likely to affect the curing of it. One great trouble with the leaf grown in Canada is that it contains more or less sand, therefore great pains should be taken in seeing that the bottom leaves are taken off before cutting the plant, as these usually contain more sand than the other leaves, owing to the rain striking on the ground and splashing it against the lower leaves. When the plant is cut it should not be thrown on the sandy soil, but upon a suitable rack, as in handling it in this way it is sure to collect sand.

A properly constructed drying barn should be prepared to receive the leaf after it is cut. This barn should be well ventilated, so as to take off the moisture that comes from the green tobacco. A very good way to arrange for this is to have boards hinged horizontally along the bottom part of the sidewalls with the ventilator in the top of the barn, so that the air may enter below, pass through the leaves and out the ventilator on the top.

In "striking" the leaves from the stalks, (after drying) great care should be exercised to select and tie up the different qualities by themselves, not tying too many leaves in a hand. Be sure and see that after tying the leaf into hands, that it is in good keeping order, for should it be put away in wet order mould will very likely destroy the leaf.

GROWING TOBACCO LEAF FOR SPECIAL PURPOSES.

For Plug Tobacco Wrappers.—Should be dark, heavy bodied waxy leaf, cured without heating, so as not to make it tender, but rather cured so as to make it as tough as possible, and free from broken leaf or leaves having holes in them.

For Plug Tobacco Fillers.—This should be grown with a heavy body, not thin or papery in texture. It is really necessary that the leaf should be of good, bright, rich colour, as dark fillers are not acceptable. White Burley is the best for fillers, but thin, bright, yellow leaf Burley is not acceptable, as it is usually bitter; while it might be used for smoking tobacco, it is not suitable for plug chewing.

Cigar Wrappers.—Should be grown thin and as silky as possible. The leaf should be free from white or large veins, and be of a glossy nature, so as to give the cigars a handsome appearance when covered; must not be tender, but of a good “stretchy” nature.

Cigar Binders.—Should be about the same as wrappers, but need not be free of white veins, nor glossy, as dry colours can be used for that purpose.

Cigar fillers should, I think, be grown from Havana seed, and for this purpose it would be better to have the leaf of a much smaller size than the leaf used for other purposes. In fact, if it could be grown from 6 inches to 10 inches long, it would be better than a larger leaf.

All should be free of sand. This is most important.

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REPORT OF THE CHEMIST

(FRANK T. SHUTT, M.A., F.C.S., F.I.C.)

OTTAWA, 15th December, 1896.

Dr. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith the tenth annual report of the chemical division of the Dominion Experimental Farms.

Many of the investigations begun in previous years have been continued, and several new lines of experimental research have been entered upon. The results now given add considerably to our store of knowledge, and it is believed will prove of value to Canadian agriculturists, for it has been our constant aim to make the work undertaken both accurate and practically useful. That which is now reported on may be outlined briefly as follows:—

Soils.—Data are presented showing the composition of certain virgin soils in British Columbia. Six of the samples are from a comparatively large unmanured, uncropped and practically unsettled area, extending over two degrees of latitude and lying between the Rocky Mountains and the Coast Range, and known more particularly as the Cariboo district. Three of the samples were from Chilliwack, on the Fraser River, and are indicative of the character of certain soils of that district. The analytical results are accompanied by an explanatory account of the data, together with suggestions for economic methods of treatment of the soils.

As in past years, very many samples of soil have been received during 1896 from farmers. Since these, for the most part, were taken from cultivated fields, their complete analysis was not undertaken. They were, however, submitted to an examination, which in most instances consisted in a determination of humus, nitrogen and lime and the relative proportions of clay and sand. The physical condition or tilth under varying circumstances is also usually ascertained. None of these samples are here reported, but the senders have been furnished with the particulars of the examination, together with methods of manuring and tillage that seemed best suited to the soil under consideration.

The question of the improvement of muck soils has received some attention. Results obtained in pot experiments, using various mineral manures, are stated, which go to show the value of potash and lime for these soils. This chapter is illustrated by reproductions of the photographs of the growing vegetation.

Mucks and Muds.—The analyses of eleven samples of muck are given. The character and uses of this material as a nitrogenous fertilizer are stated for the guidance of those to whom muck deposits are accessible. Several samples of pond mud have also been examined and their fertilizing value here commented on. The composition of an alluvial deposit occurring in large quantity at the mouth of the Desbarats River, Algoma, has been ascertained and forms the subject of a chapter.

Manures and Fertilizers.—Some instructive results obtained by fermenting manure for one year in a shed are given. This investigation shows that there was considerable loss of fertilizing constituents during that period.

An experiment to ascertain the effect upon finely ground mineral phosphate by mixing it with strongly fermenting manure was made. The results show that practically no phosphoric acid was thereby made available.

A further contribution to our knowledge concerning the value of the clovers as green manures is made. The data give the composition of the foliage and roots, as well as the approximate amounts per acre of the essential constituents contained therein. Alfalfa, Crimson Clover, Mammoth Red Clover and Common Red Clover are the varieties now reported on.

An analysis of the foliage of Prickly Comfrey is given, and the amounts of nitrogen, phosphoric acid and potash abstracted from the soil by the plant per acre stated.

The percentages of potash and phosphoric acid in commercial samples of Maple and Basswood ashes have been determined and are here recorded. While the former is richer in potash, the latter contains the larger amount of phosphoric acid. The quantities of these elements soluble in 1 per cent citric acid, as showing the probable percentage of availability, has also been ascertained,

Three samples of garbage ashes as produced at city crematories have been analysed and their fertilizing value is herein discussed.

The percentages of potash and phosphoric acid in wheat bran ash, as obtained from the use of bran as a fuel in mills in Manitoba, have been ascertained. This material is shown to be exceedingly rich in the mineral elements of plant food.

The agricultural value of broken oyster shells is discussed, data respecting the composition of this material being presented.

Fish meal or guano is treated of; its composition and best methods of use being stated.

To answer frequently occurring inquiries, the composition of commercial fertilizers, other than manufactured brands, is presented in tabular form.

Fodders.—It is with no little satisfaction that we are able to present in the present report an account of the chemistry of the Indian Corn plant. This work has been in progress during the past three years. It is thought that the results obtained, and here discussed, will be found of practical value to those who grow this fodder plant, for preservation either in the dried condition (as in stooks) or in the silo.

The relative feeding value of certain varieties of turnips has received attention, and interesting data on this subject are herein set forth.

The composition of several brands of oil cake and germ meal has been determined, and a chapter is devoted to the consideration of these concentrated feed stuffs.

We have also reported on Lactoo-Vitulene, a calf-meal imported from France, regarding which requests had been made as to its composition and value.

The analysis of dried hop vine, undertaken by special request, shows it to be of no value as a fodder.

Well Waters from Farm Homesteads.—As in past years, this useful and, I may add, educational work has been continued. The results show plainly that on many farms polluted water is being used. The interest in the question which we have served to awaken by this investigation, however, continues to grow and we may confidently believe that a better condition of the farm water supplies is being brought about.

Foundation Comb.—The results of the past year's investigation into the relative merits of certain brands of foundation comb will be found, as usual, incorporated in the Report of the Botanist and Entomologist.

Tuberculin.—The diluted tuberculin supplied by the Department of Agriculture has been, as in the past, prepared and forwarded from the farm laboratories. From 6th July to 30th November 10,230 minims were sent out. The record of the amount sent out previous to July was destroyed in the fire.

Fire in the Laboratories.—About 6 o'clock on the evening of 6th July a disastrous fire broke out in the special laboratory, caused by the accidental breaking of a flask containing boiling sulphuric acid—the operation being the determination of nitrogen in an organic substance by the Kjeldahl process. Although strenuous efforts were made to confine the fire to the room in which the accident occurred, they were without avail, and the flames, owing to the inflammable character of the contents of the laboratory and of the lining or sheeting of the walls and ceiling, soon spread to the general laboratory.

Experimental Farms.

Within a few minutes after the outbreak a large number of farm men were working hard to extinguish the flames, which, thanks to the active efforts of this volunteer fire corps and the fact that a hydrant was conveniently located outside the building, were soon overcome. Most unfortunately, Mr. Wm. Taylor, foreman of the Horticultural Division, who worked assiduously and bravely from the first, was very badly burnt about the face and hands; so serious indeed were his burns that he has not yet fully recovered therefrom.

Nearly all the apparatus that was on the shelves and tables was destroyed and the special laboratory completely gutted. The general laboratory was severely damaged—and for the time being was rendered useless for work. A special appropriation being at once made for the temporary fitting up and equipment of the laboratories, we were able to resume analytical work within a few weeks of the date of the fire, and, although much crippled, we have accomplished a considerable amount of useful work during the latter half of the year.

Our greatest loss was in records and samples. Of the former, those of the analyses of grasses—probably over 100—grown on the Central Farm, comprise the most serious. Many other valuable data of work in progress were also burnt. The samples of soils, fodders, &c, the accumulation of nine years, being kept in the special laboratory, were for the most part destroyed.

It seems highly desirable, from all points of consideration, that a separate building of a fire-proof character should be erected for the chemical work. Our own experience and that of experiment stations and universities all support this as the safest and best plan. It may be added that the erection of a separate laboratory building on the Central Farm would give that increased accommodation in the general building now so greatly needed by the other officers of the staff.

Samples Received.—Owing to the destruction of the records by the fire referred to, it is impossible to state how many samples were received for examination during the past year. Since the date of the fire, 6th July, to 30th November 123 samples have been received.

Correspondence.—The answering of correspondents' inquiries continues to be an important branch of the work of the Division. Between November 30th, 1895, and November 30th, 1896, 1,116 letters were received and 1,047 letters despatched. Since many of the questions necessitate consultation with works of reference and modern agricultural literature, the writing of letters involves a considerable expenditure of my time.

Meetings Attended.—Among the more important agricultural conventions addressed in 1896, were those of the Ontario Creameries Association, held at Cornwall, Ont.; the District of Bedford Dairymen's Association at Cowansville, Que.; the Dairymen's Association of the province of Quebec at Waterloo, Quebec. A lecture reviewing the work accomplished by the Chemical Division since the institution of the farm, was delivered as one of the Somerville course in Montreal. Several Farmers' Institute meetings were attended and papers were specially prepared for the conventions of the Horticultural Societies of Ontario and Quebec and the Beekeeper's Association of Ontario.

Many of the analytical data contained in this report, are the result of the labours of the Assistant Chemist, Mr. Henry S. Marsh, Associate of the Institute of Chemistry. In acknowledging my indebtedness and thanks to Mr. Marsh for efficient help in the laboratory, it gives me much pleasure to again record my testimony to the interest he has taken in the work of this Division.

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

FRANK T. SHUTT,
Chemist, Dominion Experimental Farms.

VIRGIN SOILS OF CANADA.

BRITISH COLUMBIA.

The analytical data obtained from an examination made in laboratories during the past year of certain soils from the province of British Columbia are here presented in tabular form.

Soils, Nos. 1 to 6 were forwarded by Mr. H. P. Bell, C.E., of Victoria, B.C., who writes that the samples "belong to a very large uncropped, unmanured and practically unsettled area, extending from the Rocky Mountains to the Coast Range through more than two degrees of latitude being part of what is known as the Cariboo District." They were obtained on an exploration survey made in the summer of 1895, and Mr. Bell adds: "their analysis would furnish useful information for the report of the exploration referred to." On account of the thoroughly representative and important character of these samples, (as vouched for by Mr. Bell), it was deemed advisable to submit them to complete analysis.

The following information respecting these soils is furnished by Mr. Bell: "the depths of surface and sub-soils are variable. In natural meadows—of which there is a large area, particularly west of the Upper Fraser River and east of the Coast Range—the surface soil is deep, and in other places (high plateaux, for instance), it varies from six inches to several feet in depth, as seen by upturns of trees and natural exposures." There is no drainage other than that of nature within the district referred to. Mr. Bell proceeds, "Throughout the settled portions of British Columbia, along the upper benches of the Fraser River Valley, all the farmers that I have spoken to say that the upper benches of the river afford the best soil and grow the heaviest crops, and that the lower benches require irrigation in order to farm them profitably." The writer here no doubt refers to the valley of the Upper Fraser in the Cariboo District.

Regarding the suitability of the soils as grazing lands Mr. Bell writes: "There are many kinds of indigenous grasses in British Columbia, many of which I have seen grown from seed near Tatla Lake, in a natural meadow, the growth being very luxuriant. I have seen a thick growth of clover upon soil that appeared to be the same as the samples sent, so far as an unskilled person could judge. I may add that if the soils I have sent you prove to be suitable for the growth of indigenous grasses of the kind referred to, or others of good quality, the fact would have an important bearing upon the future prospects of a large area of grazing country."

Soils Nos. 7, 8 and 9 are from Chilliwack, in the valley of the Fraser, and were furnished by Mr. H. Kipp, of that place. In my report for 1893 will be found the results of an analysis of a muck soil and its sub-soil from the farm of Mr. Chapman, of Chilliwack, lying between the mountain range and the river. The upper layers of that soil, varying from two feet to four feet, proved to be exceedingly rich in humus and nitrogen; and the sub-soil was a heavy clay containing nitrogen above the average found in sub-soils, a fair amount of mineral plant food, but somewhat deficient in lime. I then reported concerning the soil: "Good drainage, a certain admixture of the sub-soil and an occasional application of wood ashes and lime or marl, are all that are necessary to ensure abundant crops, providing the climatic influences are favourable." The surface soils analysed this year, and now reported on, are of a widely different character from the one just referred to, possessing much less humus and nitrogen and containing a larger proportion of sand and clay. There are, however, resemblances between the soil underlying the surface muck soil (examined in 1893) and those whose composition is now given, the chief being the very high percentage of oxide of iron and alumina possessed by these soils.

The analytical data are now presented in tabular form:—

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ANALYSES OF SOILS (air-dried), 1896.

No.	Soil.	Locality.	Water.	Organic and Volatile Matter.	Clay and Sand.	Oxide of Iron and Alumina.	Lime.	Magnesia.	Potash.	Soda.	Phosphoric Acid.	Soluble Silica.	Carbonic Acid. (Undetermined.)	Total.	Nitrogen.	Clay and Fine Sand.	Coarse Sand.
1	Surface...	Fraser River benches, east side of Quesnelle mouth...	3.26	11.62	46.95	7.65	17.19	1.55	.37	.16	.21	.09	10.95	100.00	.886	25.71	21.24
2	Sub-soil...	do do	2.05	4.51	74.50	10.94	3.73	1.88	.52	.20	.19	.17	1.31	100.00	.106	35.78	38.72
3	Surface...	Cottonwood River, near Bond's House, 10 miles past Cariboo Road	2.45	8.08	77.97	8.08	1.11	1.15	.31	.07	.33	.11	.34	100.00	.228	17.62	60.35
4	Sub-soil...	do do	1.00	3.00	83.90	9.63	.98	.75	.36	.15	.28	.05	.....	100.10	.057	9.17	74.73
5	Surface...	Farm at Cottonwood House	5.38	12.34	65.80	12.59	1.01	1.89	.54	.07	.23	.06	.09	100.00	.390	12.02	53.78
6	Sub-soil.	do do	.83	2.99	82.10	10.34	1.21	1.83	.46	.12	.10	.11	.....	100.09	.049	6.07	76.03
7	Surface...	Chilliwick	1.80	7.58	71.41	17.50	.96	.12	.62	.19	.21	.05	.....	100.44	.163	33.71	37.70
8	Sub-soil...	do do	1.70	5.81	73.90	16.80	.89	.05	.50	.21	.22	.05	.....	100.13	.106	26.10	47.80
9	Surface...	do do	2.66	5.32	75.39	14.00	1.20	.33	.39	.21	.22	.07	.21	100.00	.115	24.19	51.20

For a proper understanding and interpretation of these results, it will be necessary, even at the risk of repetition, to present a statement respecting the amounts and functions of soil ingredients and the factors that conduce to a soil's fertility. This will be made as brief as possible, the reader being referred to previous reports for a more detailed account.

CHEMICAL COMPOSITION OF SOILS.

Organic Constituents.—Humus or semi-decayed vegetable matter, though not in itself direct plant food, plays a most important part in soils. Its presence in right proportions improves the physical condition of a soil, chiefly in that it regulates its temperature and degree of moisture. By the decomposition of humus, carbonic acid gas is liberated, which in turn sets free mineral plant food in the soil. Further, it has recently been shown that it is in combination with humus that certain of the mineral constituents of plant food are more particularly available to crops. It would appear that we have not in the past duly recognized the fertilizing value of these humic compounds.

Nitrogen.—An element of great value agriculturally, and contained to a very large extent in the humus in a condition not immediately available for plant use. Nitrification, or the conversion of this nitrogen into soluble forms, is brought about by the agency of micro-organisms known as bacteria, ferments, &c. The presence of lime, good tilth and suitable climatic conditions of moisture and warmth, are the factors that are favourable to their development. The total nitrogen in a soil of good average fertility lies between .2 per cent and .5 per cent—though there are many soils yielding lucrative crops, the nitrogen of which falls below .2 per cent. Very rich soils contain between .5 per cent and 1.0 per cent of this element.

Inorganic Constituents.—These comprise principally lime, magnesia, oxide of iron, alumina, potash and soda, combined with silica, phosphoric, sulphuric, hydrochloric and carbonic acids. They are present in a soil by reason of the disintegrating action of atmospheric and other agencies upon the rocks, which at one time entirely covered the earth's surface, the material so formed being now the inorganic and mineral portion of the soil.

Of the above named elements, potash and phosphoric acid must be regarded by the farmer as the most important, since, although the others are equally essential to the life of the plant, it is the available store of these two that continuous crop growth more particularly depletes, and, therefore, that the agriculturist must seek to restore in order to maintain and increase the soil's fertility.

Potash is present in the soil as a result of the decomposition of the originating granite or other felspathic rock. It exists there chiefly in an insoluble condition. Digestion of a soil with hot, strong hydrochloric acid, by the method agreed upon by the Association of the Official Agricultural Chemists of the United States, yields, as a rule, potash between .1 per cent and 1.5 per cent. Good agricultural soil possesses on an average between .25 per cent and 1.0 per cent; soils in which clay predominates are usually the richest in potash.

Phosphoric Acid.—Also derived from the disintegration and decay of the rocks forming the inorganic basis of the soil. The percentage of this constituent, as determined by the method already referred to, varies usually between .15 per cent and .5 per cent.

Lime ranks next in importance amongst the inorganic elements of plant food. Directly and indirectly, lime is of great service to growing crops, and many agricultural authorities place the minimum limit in a soil for good returns at 1.0 per cent. The presence of lime encourages nitrification of the humus and also sets free inorganic elements of plant food.

Tilth.—The degree of availability of plant food is no doubt largely regulated and controlled by the soil's tilth, since the rendering assimilable of the mineral and nitrogenous compounds is due chiefly to bacterial and atmospheric agencies, which for

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their action are dependant upon a soil's mechanical condition. Concerning tilth, it may be well, therefore, to make the following abstract from our report of 1895 :—

This is a factor of great importance to a soil's productiveness. A good tilth includes the following qualities : retentivity of moisture, of warmth and of soluble fertilizing material, permeability to air and water, freedom for root extension, stability and strength with friability.

These properties are largely dependent upon the relative amounts of a soil's ingredient's—clay, sand, humus, &c. Dr. Fream, in his work entitled "*Soils and their Constituents*," says (page 101) that "experience proves that a soil is best adapted for the purposes of cultivation when it contains of :

Sand (siliceous and calcareous)	50—70 per cent.
Clay	20—30 "
Pulverized limestone	5—10 "
Humus (semi-decayed vegetable matter)	5—10 "

"It thus contains enough sand to make it warm and pervious to air and moisture ; enough clay to render it moist, tenacious and conservative of manures ; enough limestone to furnish calcareous material and to decompose organic matter, and lastly, sufficient humus to assist in supplying the alimentary needs of the plant and to aid in maintaining the carbonic acid in the interstitial air of the soil."

Finally, the culture that a soil receives has necessarily much to do with its tilth. Underdraining, ploughing, harrowing, rolling and other mechanical operations are the means that the skilful farmer uses in bringing about a favourable and fertile seed bed. These operations must be considered as equally essential with the manuring of the land, for they not only conduce to improved tilth but indirectly add to the soil's store of available plant food.

REPORT ON SOILS EXAMINED.

Soil No. 1.—Fraser River benches, east side of Quesnelle River mouth. Upper or surface soil. When air-dry, a dark gray, sandy loam, friable, easily crushed, apparently rich in humus, homogeneous and of good tilth.

This soil, as judged from its chemical composition and mechanical condition, should prove exceedingly fertile. In potash and phosphoric acid it contains good averages ; of lime it has an abundance, and humus (semi-decayed vegetable organic matter) and nitrogen are present in amounts equal to those found in some of our finest Canadian soils, and indicative of excellent crop-producing power.

Soil No. 2.—Is stated to be the sub-soil of the above. In certain marked particulars it differs from No. 1, so that there is some doubt in the writer's mind as to whether it was taken from the same spot as No. 1. The principal feature in this connection is the much smaller percentage of lime in No. 2 sample. Considered as a sub soil, this sample possesses very fair amounts of plant food, both mineral and organic ; in potash it surpasses the surface soil, though probably the potash in the latter is the more available.

Soils Nos. 3 and 4.—Upper and lower soils, respectively, from benches on the Cottonwood River, near Bond's house, 20 miles past Caritoo road. No. 3 consisted of yellowish sand with lumps of darker coloured sand and some root fibres. The sample was not homogeneous, and from appearance would be said to be a poor soil.

The chemical data, however, show it to be tolerably rich in all the essential elements of fertility. From the standpoint of its composition, this soil compares well with many from British Columbia, examined in our laboratories, that have proved, under favourable climatic influences, capable of producing paying yields.

The sub-soil No. 4 has the appearance of being almost pure sand ; it, nevertheless, contains notable amounts of mineral plant food, though very poor in humus and nitrogen. In lime, both these soils approximate the lowest limit generally given by agricultural chemists for good results ; in this respect they differ materially from the soils already considered.

Soils Nos. 5 and 6.—Are the upper and lower soils from the farm at Cottonwood house. No. 5, a dark gray, sandy loam, but not homogeneous throughout, containing some undecomposed root fibres. Its appearance would indicate a somewhat larger percentage of clay than that in No. 3. In humus and nitrogen it is very similar to soil No. 1, being above the average. It contains a good store of potash and a fair amount of phosphoric acid. The percentage of lime, however, only reaches the limit already referred to. The chief differences between No. 1 and this sample are that the latter contains less clay and lime and more potash and iron.

The sub-soil No. 6 is of a yellowish gray colour, and appears from a near inspection to be almost pure sand. The chemical results corroborate this conjecture, for with the exception of potash which is present in a fair quantity, this sample is very poor in all those constituents which go to make a soil fertile. An inspection of the figures show that in many respects there is a strong similarity in composition between this sample and sub-soil No. 4.

Soils Nos. 7 and 9, from Chilliwack, are of medium quality, the former being slightly the richer of the two in nitrogen and potash. Both are deficient in humus and its concomitant nitrogen, and consequently would be benefited by organic manures, *e. g.*, barnyard manure or the turning under of a green crop, preferably, one of the legumes. The addition of lime would probably give a profitable return, as the percentage of this element is low in both soils. Soil No. 7 is heavier, *i. e.*, contains more clay than No. 9, and I should judge would be better adapted for cereals and fruit crops.

The sub-soil No. 8 presents no striking features. It possesses much less lime, more iron and more sand than sub-soil No. 2, but in potash, phosphoric acid and nitrogen they are almost identical.

It is to be regretted that our disastrous fire destroyed the data obtained on the availability of the plant food in these soils, which had being determined according to the citric acid method of Dr. Bernard Dyer, as outlined and explained on pages 201 et seq. of my last report.

THE IMPROVEMENT OF MUCK SOILS.

These soils consist chiefly of vegetable organic matter, and are further characterized by a high percentage of nitrogen. Frequently, the sand, clay and other mineral matter together do not exceed 12 per cent of the air-dried soil, and indeed many samples examined by us proved to contain much less. It is very evident, therefore, that organic and nitrogenous fertilizers, such as barnyard manure, are not needed by these soils, and experience has shown that it is not economical to apply them. Their chief deficiency is in the mineral constituents of plant food, and consequently they are found to respond to dressings of wood ashes, lime, &c.

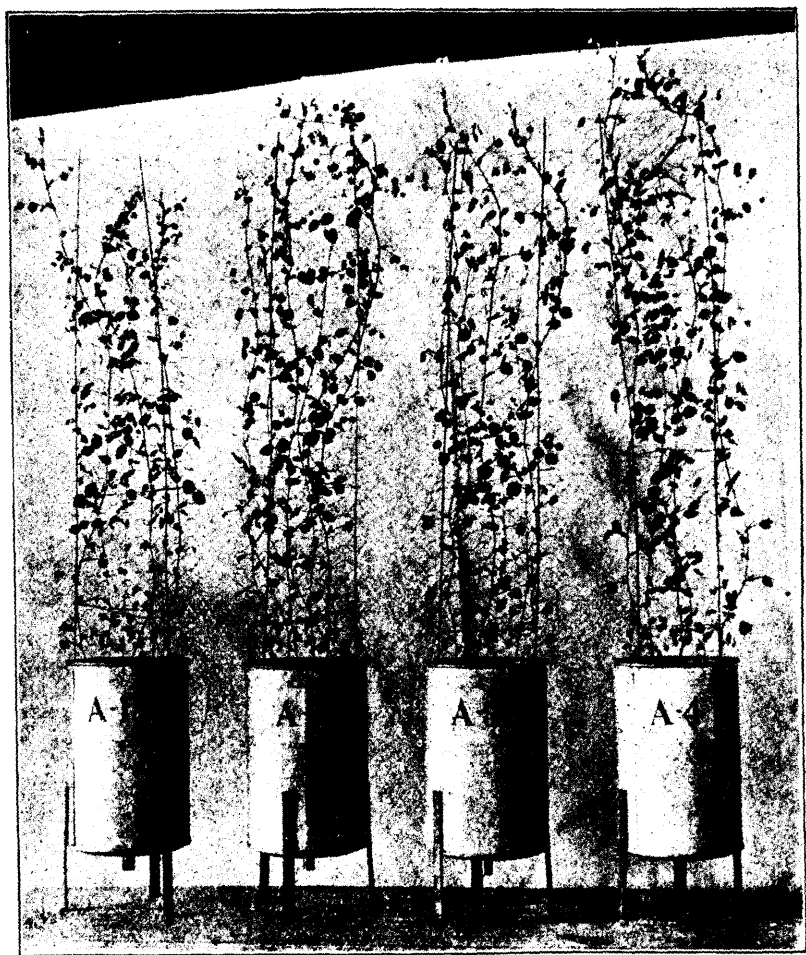
Such fertilizers not only furnish the necessary and lacking elements for vigorous growth, but correct the natural sourness of these soils by supplying a salifiable base for the organic acids present in the muck. Since agricultural crops cannot flourish in an acid soil, the part that lime, potash and other bases play in this respect is by no means an unimportant one.

Further, an application of these fertilizers encourages the nitrification of the organic matter of the soil. The minute organisms that convert the nitrogenous matter of the muck into the nitrites and finally into nitrates—the form in which plants can utilize soil nitrogen—only flourish in a neutral or slightly alkaline soil.

To illustrate the value of this treatment a series of pot experiments has been carried on during the past two years.

The soil used in this investigation had the following composition when received:—

Water	67.50
Organic matter	24.99
Mineral matter or ash	7.51
	<hr/>
	100.00
Nitrogen	71



Pot experiments with peas sown in muck soil, with and without wood ashes.

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To the pots were added wood ashes and lime according to the subjoined scheme, pease being sown in all cases. At the close of the experiments the weights of the crop were ascertained and the photographs, here reproduced, taken. The first trials were made in the winter of 1895, the pease being sown in November and the crop harvested in March. The second series were conducted out of doors from May to July of the present year. The annexed table gives the particulars of the investigation :—

	WEIGHT OF PRODUCE IN GRAMS.	
	First Series.	Second Series.
Pot A. 1.—Muck soil, no fertilizer.....	21	79
" 2.—Muck soil + wood ashes at the rate of 100 bushels per acre.....	32	83
" 3.—Muck soil + wood ashes at the rate of 50 bushels per acre + marl at the rate of 50 bushels per acre.....	28	82
" 4.—Muck soil + wood ashes at the rate of 200 bushels per acre.....	35	87

A similar number of plants was grown in each pot.

The figures and the photographs both confirm the opinion already stated that muck soils may be much improved in fertility by the addition of potash and lime.

It may be well to again emphasize the importance of thorough drainage of these soils. This is absolutely essential. The soil thereby becomes firmer and more compact, and thus better adapted to the growth of crops. Wherever possible, a mixture of the sub-soil should be made. If this is not practicable, a dressing of clay and sand will be attended with profit.

With rational treatment, muck soils give excellent returns with vegetable and root crops ; oats, timothy and other grasses also thrive well.

Wood ashes may be obtained cheaply in many parts of Canada ; but, if so desired, kainit or muriate of potash may be used to supply potash. With such, superphosphate should be applied to furnish phosphoric acid. Marl occurs in large deposits in many districts, but when difficult to obtain, lime may be applied as such without involving any great expenditure.

SWAMP MUCK.

The value and uses of this material, after proper treatment, as a nitrogenous fertilizer, have been stated in former reports ; but since there is a keen interest in this subject, in many parts of Canada, at present, it will be well that the table given of analyses of mucks made during the past year, should be accompanied by a short account of the various ways in which this naturally occurring fertilizer may be employed with advantage.

The terms swamp muck, black muck or, simply, muck, have been applied on this continent to the partially decayed vegetable matter, originating and accumulating in low places and hollows, by the death of successive generations of aquatic and semi-aquatic plants and preserved by the presence of water. During the growing season muck swamps usually are thickly covered with a luxuriant vegetation, principally moss and ferns, which as the year proceeds will die down and add to the underlying store of humus, making way for a new growth the following spring.

These deposits are frequently many acres in extent and vary in depth from a foot or two to ten or fifteen feet, or even more.

As regards composition, muck is largely organic matter, a part of which, by decay, has passed into that condition known as humus. The percentage of clay, sand or other inert matter is usually small, frequently less than 2 per cent in the air-dried material. As dug from the swamp, the amount of water is not unusually between 70 per cent and 80 per cent.

The agricultural value of any particular sample of muck is dependant upon the percentage of nitrogen and the amount of humus it contains and its state of decomposition. In the air-dried material, the water is usually below 15 per cent, organic matter between 50 per cent and 70 per cent and the nitrogen between 1.5 per cent and 2.0 per cent. The limits are so wide that these data are given merely to indicate the general character of the average sample.

The data about to be presented corroborate the statement made last year, namely, that the percentage of organic matter (humus) is not always a safe indication of the sample's richness in nitrogen. It is by no means an invariable rule that a large amount of vegetable matter means a high percentage of nitrogen, and, therefore, as we must consider the chief value of muck to be in its nitrogen content, the importance of chemical analysis to determine this constituent becomes apparent.

The functions of humus in the soil are many. Chemically, by its decay, it furnishes food for crops; mechanically, in right proportions, it serves a most useful purpose in bringing about good tilth and improving a soil's absorptive power for moisture. These questions are discussed fully under the caption of Green Manures in my report of 1895.

Since the organic matter in mucks is found in many stages of decay, it follows that the fertilizing effect of different samples is very variable, but in none of them can we suppose the nitrogen to be in such combinations as to be *immediately* available to crops. Further, the deposits are often distinctly acid or sour (due to the method of formation) and consequently it is frequently necessary to render them alkaline with lime or wood ashes before the process of nitrification (whereby the nitrogen is made available for plants) can be induced. This consideration leads us to the conclusion that while in muck there is a large store of very valuable plant food, but a very small part of it is immediately assimilable and, therefore, it is advisable that some preliminary treatment of the muck be employed to bring about a greater solubility of the elements of fertility before its application to the land.

THE COMPOSTING OF MUCK.

The muck should first be mellowed or seasoned by exposure to the air. By this means a large quantity of useless water may be got rid of, and the muck rendered more friable and less sour. There are occasions when it may be desirable or advisable to apply this crude but mellowed muck directly to the soil, but if circumstances permit it is always wise to first induce nitrification by some process of fermentation.

There are several ways of doing this, and we shall first allude to the treatment by composting with ordinary barnyard manure, as it is a method applicable on all farms and one whereby the weight of manure is increased, and loss of nitrogen from the dung largely prevented. On farms insufficiently stocked or where the soil is light or deficient in humus, composting in this way is strongly to be recommended. The amount of muck best to use depends upon the strength of the manure and the condition and character of the muck, and may vary from two to four loads of the partially dried-out muck to each load of manure. It is not advisable to have so much muck present as to prevent all fermentation—for this would frustrate the chief object in making the compost.

Rich muck composts can also be made with animal refuse of all kinds, fish waste, vegetable matter, garbage and other easily putrescible materials—the object to be attained being preservation of the plant food in these substances and the rendering more available of the elements of fertility in the muck. The compost heap should be kept moist, but not fully saturated with moisture. The more frequent the forkings over, the more rapidly will the rotting be effected.

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MUCK AS AN ABSORBENT.

The high absorbent power of air-dried peat makes it an exceedingly valuable material for use in the barnyard, pig-pen and other places about the farm buildings, where there is liquid manure likely to go to waste. By the employment of muck in this way much plant food could be saved on many of our Canadian farms—and not only so, but the buildings and inclosures kept clean and probably the well saved from pollution. Regarding its use as an absorbent, a good plan seems to be the spreading or scattering of the peat behind the cows before cleaning the stable in the morning. It will be found that the work of cleaning is thereby facilitated and the amount of manure—which will really be a rich compost—considerably increased. It will be unnecessary to multiply instances of how muck may thus be used upon the farm; they will occur to all who give the matter any thought.

COMPOSTS WITH LIME AND WOOD ASHES.

Fermentation of muck may be induced and injurious acidity got rid of by the addition of certain alkaline materials, such as lime and wood ashes. An old formula, which may serve as a guide, says, for every 100 bushels of peat take 12 bushels of unleached wood ashes. The same composting work may be effected with 10 bushels of quick-lime, but the resulting compost does not contain any potash. The lime should be slaked immediately before use, and for this purpose brine is better than water. When brine is employed (or salt is added to the compost mixture) a small quantity of caustic soda is formed and its presence materially hastens decomposition. Wood ashes furnish potash and, to a less extent, phosphoric acid, thus making the compost a more complete fertilizer. If wood ashes are not to be easily obtained, muriate of potash or kainit should be used. Ground bone will be found an excellent form in which to add phosphoric acid and a readily nitrifiable source of nitrogen to the compost.

It frequently occurs that marl deposits are found in conjunction with muck. When this happens, or marl is otherwise cheaply obtained, it can be used to advantage in the place of lime to compost with muck. Marl (carbonate of lime) is frequently termed mild lime, since its action is slower and less vigorous than quick-lime, nevertheless its alkalinity affords to the muck a condition favourable to the nitrification of the latter.

It may be of interest to append a few formulæ for concentrated composts, since many correspondents have made inquiries for such during the past year. They have been gleaned from several sources and bear the recommendations of practical agriculturists. They should be considered as guides rather than formulæ to be strictly followed, since varying circumstances necessitate, and conditions allow, considerable latitude in making the mixtures.

CONCENTRATED COMPOSTS WITH MUCK.

A—Peat or muck (air-dried).....	800 lbs.
Muriate of potash.....	200 “
Superphosphate.....	200 “
Bone meal.....	200 “
 B—Peat or muck (air-dried).....	 800 “
Kainit.....	200 “
Bone meal.....	200 “
Quick-lime.....	150 “
Common salt.....	50 “

MUCKS ANALYSED, 1896.

Of the many samples of muck received for examination during 1896, eleven have been quantitatively analysed as regards their important constituents. They comprise four specimens from Ontario, one from Quebec, one from Nova Scotia and five from Prince Edward Island.

In cases where a qualitative examination sufficed to indicate the approximate value of the muck, further analysis was not undertaken. Reports on these were, however, forwarded to the senders, together with directions for the best use of the muck.

ANALYSES of Swamp Muck (air-dried) 1896.

Number.	Locality.	Sender.	NITROGEN.		Organic and Volatile matter.	Sand and clay.	Mineral matter soluble in acid	Water.
			Per cent.	Pounds in one ton of air-dried muck.				
1	London, Ont	V. Cronyn	2.58	51.6	53.52	2.77	11.69	32.02
2	Ompah "	A. Watt	2.37	47.4	69.59	12.26	10.26	7.89
3	Glen Roy "	W. D. McCrimmon ..	2.38	47.6	77.85	0.24	9.86	12.05
4	" "	"	2.43	48.6	81.44	0.16	6.72	11.68
5	Lawrenceville, Que.	Gervais et frere	0.90	18.0	24.65	39.14	12.11	24.10
6	Antigonish, N.S.	D. G. Kick	2.19	43.8	80.80	1.22	8.30	9.68
7	Albany Station, P.E.I.	W. M. Toombs	1.10	22.0	91.71	0.47	1.46	6.36
8	"	"			89.02	4.29	1.74	4.95
9	Trilby "	Chas. Holman	0.63	12.6	85.50	5.37	1.95	7.18
10	" "	"	0.96	19.2	89.31	0.37	1.79	8.53
11	Alberton "	J. B. Champion	0.73	14.6	92.02	1.14	0.79	6.05

No. 1.—An excellent sample, rich in nitrogen; suitable for compost or as an absorbent when air-dried.

No. 2.—Dug from the bottom of a dried-up lake. Above the average in its percentage of nitrogen, and would undoubtedly furnish a valuable manure with proper treatment. It could be used to advantage to soak up liquid manure about the farm inclosures and buildings or wherever there may be such material going to waste.

Nos. 3 and 4.—Very similar in composition, containing large amounts of nitrogen and very little inert matter, clay, sand, &c. Representative good samples.

No. 5.—Should prove a very fertile soil, as it appears to be excellent, both physically and chemically.

No. 6.—A very good sample, but requires thorough composting in order to make its plant food available. Clay, sand and other insoluble material present only in very small quantities.

Nos. 7 and 8.—Very fair specimens and could be used with benefit, when previously fermented, to furnish available nitrogen on soils poor in humus.

Nos. 9 and 10.—From a deposit four acres in area and three to four feet in depth. No. 9 from surface; No. 10 from a depth of 12 to 15 inches. Though containing a high percentage of humus, the nitrogen falls below the average in both samples.

No. 11.—From a moss covered bog; moss about one foot thick; muck not run out at a depth of seven and a half feet. Almost entirely composed of semi-decayed vegetable matter. The percentage of nitrogen is below the average, but quite sufficient to make the muck of value as an absorbent and for compost.

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POND MUDS.

The agricultural value of these substances is dependent not only upon their composition, but also upon their mechanical effect on the tilth of the soils to which they are applied. None of the samples hitherto examined in the laboratories of the farm have possessed large quantities of plant food, though certain of them have contained nitrogen, humus and lime in fair amounts. The facts in our possession prove that it is exceedingly difficult to pass an opinion upon these materials as a class, since they differ so widely in their composition; their effects on soils of varying character have been found to be widely divergent. Not infrequently has the same mud given good results on one soil and had no effect in increasing the yield when applied to a soil of a different nature, the latter result probably due in part to an injury of the soil's mechanical texture. I am of the opinion that where profitable results have been obtained from the use of these muds it has been due to two causes. First, the somewhat extreme poverty of the soil to which they have been applied, and, secondly, to the availability, rather than to total amounts, of the plant food they possess. This latter awaits corroboration by chemical investigation.

MUD FROM MIMINEGASH POND, P.E.I.

This deposit is said to be 15 feet in depth. While still wet it is of a yellowish-brown colour; when air-dried, it becomes gray. It appears to be free from all acidity or sourness. The analysis of the air-dried sample afforded the following results:—

Water	2.24
Organic and volatile matter	13.52
Clay and sand	61.52
Lime . . . . .	.85
Phosphoric acid . . . . .	.16
Potash . . . . .	.48
Nitrogen, in organic matter . . . . .	.46

The amount of plant food it contains is not large; indeed, it cannot be said to possess any of the essential elements of fertility in notable quantities. Its judicious use, however, more especially on light soils, might give fair returns, but the fact that the mud on drying becomes excessively hard would have the effect of injuring the tilth if applied in heavy dressings to certain soils. The character of the soil has so much to do with the value of a material of this nature, that it is advisable to try it at first on a small acreage.

MUD FROM NEAR SUMMERSIDE, P.E.I.

Many of the analytical data obtained on this sample were lost in the fire; those saved are as follows:—

Water, on air-dried mud	2.45
Clay and sand	72.09
Nitrogen, in organic matter . . . . .	.37

It is evident that this cannot be regarded as a fertilizer rich in nitrogen, since it only contains 7.4 pounds per ton, even after drying the mud. It is quite possible, however, that the small quantity of plant food it contains may prove more or less available to crops. No great expense should be incurred in obtaining this mud before first ascertaining if it gave profitable results on a small area, since it is in no way comparable to barnyard manure or commercial fertilizers, as supposed by the sender.

POND MUD FROM KINSMAN'S CORNERS, N.S.

Our results of the examination of this sample (air-dried) may be tabulated as follows:—

Water	2·26
Organic and volatile matter.....	14·20
Mineral matter soluble in acid ..	16·57
Clay and sand	66·97
	<hr/>
	100·00
Nitrogen	·54

The percentage of nitrogen is not high, but the mud undoubtedly contains notable quantities of plant food. Upon soils poor in humus it should, if obtained cheaply, give a fair return, but it should be supplemented by some richer and more quickly acting manure.

DEPOSIT AT THE MOUTH OF THE DESBARATS RIVER, ALGOMA.

A sample of this material was forwarded by Mr. L. O. Armstrong, Colonization Agent of the Canadian Pacific Railway, with a request for an examination as to its fertilizing value. He reports it as occurring in vast deposits. Mr. Armstrong, who has given it a trial on house plants, states that it has been used with marked results.

The chemical data are stated in tabular form as follows:—

ANALYSIS OF AIR-DRIED MATERIAL.

Moisture	4·04
Organic and volatile matter.....	17·14
Insoluble matter (clay and sand)	63·64
Oxide of iron and alumina.....	11·64
Lime (equivalent to 2·39 per cent carbonate of lime).....	1·34
Magnesia.....	·74
Phosphoric acid.....	·24
Potash	·61
Soda	·11
Carbonic acid, &c. (undetermined).....	·50
	<hr/>
	100·00
	<hr/>
Nitrogen.....	·61

In appearance, when fresh, it resembles a soil rich in organic matter. On drying, by exposure to the air, it becomes a hard mass, which can only be broken with difficulty into lumps. Under the microscope these are seen to be composed of agglutinated sand particles in a matrix of clay, together with roots, leaves and other organic debris.

While not in any measure approaching commercial fertilizers in richness of plant food, the amounts of nitrogen and potash present, it is to be noted, are somewhat above those in average fertile soils. This material should, therefore, be regarded as an "amendment," rather than a fertilizer. On account of its poor physical condition when dry, its application could not be made with safety or advantage to all classes of soils. The best results from its use would most probably be obtained on light, sandy land.

In many respects this material resembles the muds from the mouths of certain rivers in the maritime provinces, many samples of which we have analysed during the past nine years. The exact agricultural value of these deposits is as yet a matter of some dispute. The experiences of intelligent, practical farmers are widely divergent on this matter, and it would appear that the nature of soil to which the "muds" are applied, the amount used per acre, the season, the quantity and character of the fertilizer employed and the kind of crop, are all factors which have largely to do with results. It is possible, however, that the plant food in these deposits is more immediately available

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than in an ordinary soil of similar composition, and if this is true their value as fertilizers would be greater than indicated in an analysis which states only the "total" percentages of plant food constituents. It is further probable that the muds differ in the degree of availability of their fertilizing constituents; and, if so, we can readily understand why opinions as to the efficiency differ so widely.

PRESERVATION OF BARNYARD MANURE.

In the annual report of the farms for 1894 (page 42) the director gives the details of an experiment carried on for nine months to ascertain the loss of weight that resulted on keeping manure in a partially closed shed. This sample consisted of equal parts of cow and horse manure, and weighed four tons (8,000 pounds) when the experiment began in March. It was reduced to 3,480 pounds by July. In February, one year after the commencement of the trial, the weight was 2,659 pounds.

Though no analysis was made of the fresh manure, we may, I think, safely assume the sample, when put in the shed, to have had the following proximate composition, since these figures were obtained as averages from several analyses of similar manures made on the Central Farm :—

AVERAGE COMPOSITION OF FRESH (MIXED) MANURE.

	Per cent.	Pounds per ton.
Nitrogen.....	52	10·4
Phosphoric acid.....	32	6·2
Potash.....	76	15·2

A sample taken in February, 1895, that is, after the manure had been in the shed one year, was submitted to analysis, with the following result :—

ANALYSIS OF ROTTED MANURE, ONE YEAR OLD.

	Per Cent.	Pounds per Ton.
Nitrogen.....	888	17·76
Phosphoric acid.....	733	14·66
Potash.....	1·496	29·92

Comparing these data with those of the preceding table, it will be seen that the rotted manure, weight for weight, is much richer in the essential elements of plant food than the fresh manure. To ascertain what losses, if any, had occurred during the year's rotting, the total weights of these constituents at the beginning and end of the experiment have been calculated, as follows :—

	Nitrogen.	Phosphoric Acid.	Potash.
	Lbs.	Lbs.	Lbs.
8,000 pounds of fresh manure.....	41·6	24·8	60·8
2,659 pounds of rotted manure.....	23·6	19·5	39·8

These results show that under the conditions of experiments considerable loss of fertilizing ingredients had resulted. The experiment is being repeated this year under somewhat different conditions. Two lots equal in weight and alike in composition, one in an open bin, the other in a closed shed, are being weighed and analysed month by month. The total percentages of the phosphoric acid and potash as well as the amounts immediately available for plant use are being determined. It is expected that when the investigation is completed, we shall be in possession of some interesting and instructive information on this important question.

THE FERMENTING OF MANURE WITH FINELY GROUND MINERAL PHOSPHATE.

It has been repeatedly urged in certain quarters that the phosphoric acid of finely ground mineral phosphate may be rendered soluble and available by fermenting with barnyard manure. To ascertain to what extent this assertion might be true, the experiment now to be described was made.

On April 29 finely ground mineral phosphate was mixed with strongly fermenting manure (composed of equal parts of horse and cow manure) at the rate of 50 pounds of the phosphate per ton of manure. The sample, weighing 11 pounds, was put in a glass jar and covered with two thicknesses of stout canvas. The jar was then placed in the middle of an actively fermenting manure heap and allowed to remain there until August 20, when the contents were quite dry and crumbly. The weight of the sample at this date was three pounds one ounce, showing not only a loss of moisture, but that decomposition involving the destruction of organic matter similar to that which always takes place in rotting manure, had taken place. A portion of this sample was then treated for five hours with a 1.0 per cent solution of citric acid, and the phosphoric acid determined in the filtrate. The solution here mentioned is that largely used in estimating the percentages of available plant food in the soil, since Dr. Dyer, by careful research, has shown it to have a solvent effect approximately equal to that of root sap and the exudations of rootlets. Phosphoric acid to the extent of .237 per cent was found, when calculated to the original manure.

A sample of the same manure, fermented under the same conditions, but without the addition of mineral phosphate and for the same period, gave, when calculated to the original weight of manure, .241 per cent phosphoric acid.

These figures may be considered identical, since the difference is such as may be easily accounted for by the usual errors of experiment; consequently there would appear to be no solvent action, or at most a very slight one, on the mineral phosphate exerted by the manure during the process of fermentation.

CLOVERS AS GREEN MANURES.

The practice of green manuring or the turning under of growing crops is coming more into favour, as its merits become better known. Experience has shown it to be often the best and most economical method of improving a soil, both chemically and mechanically. It furnishes humus and nitrogen, both necessary to fertility, and does an excellent work in preparing soil food for future crops.

The humus thus supplied increases the retentive power of light soils for moisture ameliorates the condition of heavy clays and regulates the soil temperature. By the carbonic acid liberated in its decay, the inert plant food of the soil is dissolved. Briefly stated, these are the chief physical advantages of green manuring.

The elements that compose humus, with the exception of its nitrogen, are derived entirely from the atmosphere, so that in the benefits conferred by the presence of humus and its decomposition there is a distinct gain.

Further, we may well suppose that the mineral matter or ash constituents of the green crop are, by the decay of the latter in the soil, set free in a condition more or less

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immediately available to plants. Hence, although, such a method of manuring has not added to the total store of mineral food in the soil, it has materially enhanced its value by conversion into more assimilable form. But it is in supplying nitrogen that green manuring has its principal value. When employing rye, buckwheat or other plants not legumes, the nitrogen stored within the tissues of the crop has been obtained from the soil, but with the legumes (clover, pease, &c.) the case is different. They, under favourable conditions, have the power of appropriating the larger part of their nitrogen from the atmosphere; on account of this property they have, therefore, been termed "nitrogen collectors." Since nitrogen is the most expensive of all the elements when fertilizers have to be purchased, the value of green manuring with the legumes, which are exceedingly rich in this constituent, becomes apparent.

The whole question of green manuring is discussed somewhat fully in my report for last year (page 210-213); it will not, therefore, be necessary to again emphasize in all its bearings the advantages of this practice. It will, however, be of considerable interest to supplement the analytical data given last year regarding the value of the clover crop, by those obtained during the past season.

In an experiment carried on this year, Mr. Craig, the Horticulturist, has ascertained the relative merits of certain clovers as "cover" crops for orchards. The data and conclusions from this aspect are to be found in Mr. Craig's report, page 151. We now append the chemical data, comprising the composition of these clovers in the fresh condition, together with the amounts of organic matter, mineral matter and nitrogen, as ascertained to be present in the leaves and stems and the roots, to a depth of two feet, per acre.

ANALYSES OF CLOVERS, 1896.

Clover.	COMPOSITION.			Nitrogen.	Weight of Crop Per Acre.		AMOUNT OF CERTAIN CONSTITUENTS PER ACRE.		
	Water	Organic Matter.	Ash.		Tons.	Lbs.	Organic Matter.	Ash.	Nitrogen.
(Sown July 13th, 1896, Cut October 20th, 1896).									
Crimson Clover, stems and leaves...	83·32	13·91	2·77	0·382	11	234	2,093	602	85
" roots.....	83·87	12·92	3·21	0·304	3	201	801	199	19
Total.....					14	435	2,894	801	104
Alfalfa, stems and leaves.....	71·63	23·81	4·56	0·671	5	1,192	2,664	510	75
" roots.....	64·74	20·47	5·79	0·557	5	558	3,120	613	61
Total.....					10	1,750	5,784	1,123	136
Mammoth Red, stems and leaves...	79·13	17·05	3·82	0·620	6	1,310	2,269	508	82
" roots.....	77·57	19·41	3·02	0·662	3	1,260	1,409	219	48
Total.....					10	2,570	3,678	727	130
Common Red, stems and leaves....	76·24	18·84	4·92	0·718	4	1,779	1,842	481	70
" roots.....	71·22	25·61	3·17	0·784	2	1,445	1,394	172	47
Total.....					7	3,224	3,236	653	117

The following measurements were recorded when the photographs, from which the accompanying engravings were made, were taken:—

Crimson Clover, tops.....	11 inches.
" roots.....	6 "
Alfalfa, tops.....	18 "
" roots.....	32 "
Mammoth Red Clover, tops.....	7 "
" " roots.....	6 "
Common Red Clover, tops.....	9 "
" " roots.....	7 "

The weights of seed sown were:—

Crimson Clover.....	20 lbs. per acre.
Alfalfa.....	15 "
Mammoth Red Clover.....	15 "
Common Red Clover.....	12 "

The weight of crop was calculated from the yield of one square yard—the roots being taken to a depth of two feet.



CRIMSON CLOVER.

Crimson Clover.—In total weight of green stuff per acre the Crimson Clover gives the highest figures, but, on account of the very large percentage of water, it is seen to furnish less organic matter or humus than any of the other crops experimented with.

As in humus, so in nitrogen, yielding but 104 pounds per acre, while the other crops give considerably higher results. In this connection it is worthy of note that the Crimson Clover roots are very poor in nitrogen, and therefore when this crop is intended as a nitrogenous enricher the whole plant should be turned under.

The amount of mineral matter assimilated stands second in the tabulated results. When turned under, this clover, therefore, furnishes a large amount of ready prepared mineral food for succeeding crops.



COMMON RED CLOVER.

Common Red Clover.—Though giving the least weight of crop, this clover ranks higher than Crimson Clover in its nitrogen and humus content per acre. In ash constituents or mineral matter it possesses about two-thirds the amount in Crimson Clover. Its root system is not so heavy as that of the other clovers of the experiment, but the quantity of plant food contained in it is not far behind that in the Mammoth Red Clover roots.

far behind that in the Mammoth Red Clover roots.

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Alfalfa.—In total yield of crop, Alfalfa stands second. It was from this plant we obtained the largest amount of humus in the stems and leaves, as well as in the roots.

It also afforded the most nitrogen per acre, nearly half of which is in the roots—a feature in which it stands alone among the clovers experimented with and one of great importance when the crop is intended for soiling or curing. The extensive or rather deep root system is of much value in the mechanical improvement of the soil; it serves to bring to the surface layers much plant food ordinarily out of the reach of farm crops.

The mineral matter exceeds by 300 pounds per acre the amount in the Crimson Clover crop—the next best in this respect. More than half of the 1,100 pounds of ash constituents recorded as stored in the yield per acre, is contained in the roots.

Taking into consideration all the important requirements, from a chemical standpoint, of a crop for green manuring, the Alfalfa gave the best results in the present investigation.

Mammoth Red Clover.—In yield per acre, of organic matter and nitrogen this crop stands a close second to Alfalfa. The amount of nitrogen in the foliage is slightly greater than that in the foliage of Alfalfa, but the roots of the Mammoth Clover contain per acre only two-thirds of the amount in the Alfalfa roots in the same area. Although the ash constituents in the foliage of these two crops are almost identical in amount, the roots of the Mammoth Clover possess but one-third, approximately, of that in the Alfalfa roots.

The following table gives the percentages of nitrogen in the organic matter of the foliage and of the roots. The results have been calculated from the amounts of organic matter and nitrogen recorded in the foregoing table:—

PERCENTAGE OF NITROGEN IN THE ORGANIC MATTER OF CLOVERS.

Crimson Clover, stems and leaves	2.74
“ roots	2.35
Alfalfa, stems and leaves	2.82
“ roots	1.92
Mammoth Red Clover, stems and leaves	3.63
“ roots	3.41
Common Red Clover, stems and leaves	3.81
“ roots	3.06



ALFALFA.



MAMMOTH RED CLOVER.

From the figures it is obvious that the organic matter (which with the ash constituents comprise the total "dry matter" of the plant) varies in its richness of nitrogen according to its position in the plant, and that there is a greater percentage of nitrogen in the organic matter of the foliage than in that of the roots. Since the nitrogen is assimilated and elaborated in the roots, this fact points to a more or less rapid migration of the nitrogen compounds from the roots to the foliage. There does not appear to be any relation between the amount of organic matter and the percentage of nitrogen that such organic matter contains; it is more than probable that the differences here recorded are due to the stage of growth or relative maturity of the crops under investigation—a deduction that receives corroboration from our chemical work upon the corn plant.

THE ASSIMILATION OF NITROGEN BY LEGUMES.

So many letters have been received during the past year respecting this question, that it may prove of more than passing interest if I here insert brief replies to some of the more frequently occurring and important inquiries.

1. Do the legumes absorb nitrogen by the leaves?—A. There is no nitrogen assimilated by the leaves of the legumes. All absorption of free nitrogen is by means of the bacteria in the nodules on the roots.

2. Do the legumes use nitrogen other than that in the air?—A. Legumes, like all other plants, can make use of soil nitrogen (not free nitrogen), and this they specially do when young. Unless the soil is somewhat poor in nitrogen—when it is said to be "nitrogen hungry"—there appears to be but little assimilation of free nitrogen and but a poor development of nodules.

3. How can it be said that the free nitrogen of the atmosphere is utilized by the legumes when it is stated that assimilation is by the roots?—A. The free nitrogen made use of by the micro-organisms in the nodules is in the air occupying the interstices of the soil. In all soils, but especially in well drained and light soils, there is a large quantity of air.

4. How do the organisms in the nodules make use of the nitrogen, and what becomes of the nitrogenous compounds formed in the roots?—A. It is not known how the legumes utilize free nitrogen and convert it into organic compounds. It is, however, evidently a life function.

The nitrogen compounds elaborated in the nodules migrate (most probably as amides, soluble compounds afterwards converted into albuminoids) into the stems and leaves. This, as a rule, leaves the roots poorer in nitrogen than the foliage. The ratio of the nitrogen in the roots to that in the foliage is a fluctuating one, depending chiefly on the stage of growth or maturity of the plant.

5. When is the best time to turn under a crop of clover or other of the legumes?—A. After the time the seed has begun to form there will not be much more assimilation of free nitrogen. If, therefore, it is wished to enrich the soil, in addition to the nitrogen, with a large quantity of humus capable of ready decomposition in the soil, the ploughing should be done soon after the flowering of the plant, and before the fibre becomes hard and the nitrogen for the most part gone into the seed.

If sown after cereals as a "catch" crop, it will usually be the best practice to plough it under in the autumn, at the end of the growing season. If sown as a "cover" crop, as in orchards, it should be left till the following spring.

6. What loss of nitrogen would ensue on allowing the clover to freeze down and remain uncovered all winter?—A. There would in all probability be some loss, but unless the winter were an open one, it would be very slight.

7. Is green manuring with the legumes as profitable as purchasing commercial fertilizers?—A. Under ordinary circumstances it is the cheapest and most economical means of supplying nitrogen and humus—both essential constituents to soil fertility. Green manuring not only enriches the soil composition in these elements, but adds largely to the store of available mineral food and greatly improves the tilth of heavy clays, light and sandy soils and all soils deficient in humus.

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FERTILIZING CONSTITUENTS IN PRICKLY COMFREY

(*Symphytum asperrimum*).

This forage plant is a rank growing, succulent, but somewhat harsh perennial. It is not in general favour as a fodder, as it is harvested with considerable difficulty, and cattle must become accustomed to it before eating it readily. It appears to have given better satisfaction as a soiling crop than when preserved as hay or in the silo. At the Wisconsin Station, U.S.A., the second year's growth of prickly comfrey was cut four times, yielding at the rate of nearly 34 tons per acre. They, however, concluded that this plant cannot compare in value as a cattle food with red clover.

It being generally believed that prickly comfrey quickly exhausts the soil, an analysis of the plant, as grown in the experimental plots under the care of Dr. Fletcher (who furnishes me with the above note), has been made during the past year. The data obtained show the proximate composition and the chief fertilizing elements withdrawn from the soil:—

ANALYSIS OF PRICKLY COMFREY.

(Cut while in flower, 26th July; 2nd crop, C. E. F.)

Water	87·05
Organic matter	10·09
Ash or mineral matter	2·86
	100·00

Fertilizing Constituents.	Per cent.	Pounds per ton.
Nitrogen	413	8·26
Phosphoric acid	164	3·28
Potash	186	3·72

Presuming that 20 tons of the green material could be obtained per acre, the following figures would represent the essential fertilizing ingredients taken from that area of the soil:—

Nitrogen	165 pounds.
Phosphoric acid	65 “
Potash	74 “

It is thus seen that this crop makes a considerable draught upon the soil store of plant food. In feeding such crops, care should be taken of the resulting manure, which contains from 60 per cent to 80 per cent of the fertilizing constituents taken from the soil. No permanent harm is done by the cultivation of the so called exhausting crops, provided that this care is exercised, and that the manure is returned to the soil.

WOOD ASHES.

The following data were obtained on two samples forwarded by Mr. J. H. Wismer, of Port Elgin, Ont. They purported to be pure ashes from the incineration of maple and basswood, respectively, but were found to contain a considerable amount of charcoal together with a small percentage of sand and other inert matter; consequently the percentages of phosphoric acid and potash here given must not be considered as representing the quantities of these elements in the pure ash, but as indicating those present in good commercial samples prepared from these woods.

ANALYSIS OF WOOD ASHES.

	PHOSPHORIC ACID.		POTASH.	
	Total.	Soluble in one per cent Citric Acid.	Total.	Soluble in one per cent Citric Acid.
Maple ashes	1.60	0.69	6.54	4.35
Basswood ashes	2.85	0.63	3.68	2.12

We are aware that the various woods differ considerably in the amounts of ash or mineral matter and in their respective potash and phosphoric acid content, but exact data from Canadian sources have not as yet been obtained. There is a common impression that soft wood ashes are poorer in potash than those from the hard woods, and this opinion receives some corroboration from the above results. It should be remembered, however, that soft wood ashes are lighter, bulk for bulk, than hardwood ashes and, therefore, a bushel measure of the former would necessarily contain less potash than the same quantity of the latter. As time permits, it is proposed to continue this investigation with carefully prepared ashes from various Canadian grown woods, so that we may be able to give reliable information on this subject. Though, perhaps, not generally known, the ashes from twigs and young boughs are richer in potash than those from the older wood. This fact may in some measure account for the varying amounts of this element as found in different commercial samples, some being from brush, while other being from trunks and large boughs.

Potash is a constituent required in comparatively large amount by all leafy crops. Good wood ashes are therefore an excellent, and in many parts of Canada, a very cheap source of potash. Farmers and orchardists will do well to use them more generally—more especially on light sandy soils, than they have been in the habit of doing in the past. If a good rotation of crops is followed, green manuring with the legumes occasionally resorted to and the barnyard manure carefully looked after, wood ashes will supply all additional plant food necessary to keep up the fertility of the soil.

It is sometimes stated by those interested in the sale of German potash salts that all the potash in wood ashes is not immediately available for plant use. To ascertain what truth there might be in that assertion, the percentage of potash and phosphoric acid soluble in one per cent citric acid solution were determined—this solution having, according to Dr. Dyer, a solvent action approximately equivalent to that of root sap. The results obtained by this means show that 43 per cent of the phosphoric acid and 66 per cent of potash in the maple ashes were brought into solution, and that the basswood ashes by this method yielded 22 per cent of their phosphoric acid and 60 per cent of the potash. It would seem highly probable that the proportion of potash and phosphoric acid soluble in the reagent above referred to would depend on the degree of heat attained in the production of the ashes, and that the higher the temperature the smaller the percentage of the constituents available, as measured by this method. We hope to make a series of experiments to ascertain how far this conjecture may be correct.

GARBAGE ASHES FROM CITY REFUSE.

It has now become the practice in large cities to dispose of the garbage by incineration in crematories. From a hygienic standpoint this is undoubtedly an admirable method, as heaps of decomposing vegetable refuse and similar material in the neighbourhood of thickly populated districts must to a greater or less degree bring about an unsanitary condition. The disposal of the residual ashes raises the question as to their agricultural value, and in order to ascertain this, analyses have been made of samples procured from Toronto and Vancouver, where crematories are in operation. The nitrogen in the refuse is dissipated in the burning, and, therefore, the phosphoric acid and

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potash must be considered as the chief elements of fertility that give the ashes a value to the farmer. In addition to these however, lime, magnesia, and other mineral constituents, of service to crops, are present in fair quantities.

The phosphoric acid in these ashes is not so valuable as that in superphosphate, for it is but slightly soluble in water; we should presume it is about equal to that in bone ash, as regards availability. Nor, do we suppose, that the potash is quite so available as that in wood ashes or the German potash salts. Nevertheless, it will be evident from the subjoined analysis that these ashes have a distinct value in supplying these mineral elements of plant food.

In the following table are the results of our analysis of a sample sent by a correspondent, and said to have been obtained from the Toronto crematory:—

ANALYSIS OF GARBAGE ASHES.

—	Per cent.	Pounds per ton
Moisture.....	2·02	45·0
Phosphoric acid.....	2·20	44·0
Potash.....	2·82	56·4

In wood ashes, the phosphoric acid varies in extreme samples from .5 per cent to 2·5 per cent with an average of 1·9 per cent. The potash in wood ashes may vary between 2·5 per cent in very poor samples to 8·5 per cent in very rich; the usual amount in fair samples is from 4·5 per cent to 6·0 per cent. Comparing these data with the above analysis, it is evident that garbage ashes are much inferior to good wood ashes.

Two samples of garbage ashes from Vancouver, B.C., and stated to be from the crematory at that city, afforded the following results:—

ANALYSIS OF GARBAGE ASHES.

—	“A” Received August 10th, 1896.	“B” Received November 14th, 1896.
Moisture.....	4·70	1·17
Organic and volatile matter (loss on ignition).....	11·08	11·33
Insoluble matter.....	30·82	27·05
Phosphoric acid.....	11·66	13·05
Potash.....	1·74	2·15

“A” contains, per ton, 233 pounds of phosphoric acid and 35 pounds of potash.

“B” contains, per ton, 261 pounds of phosphoric acid and 43 pounds of potash.

In sample “B” many large fragments of burnt bone are to be seen.

From the variable character of this material, made evident by the nature of its production, as well as by the foregoing figures, it is evident that garbage ashes should only be purchased on analysis, the results stating the percentages of potash and phosphoric acid and the condition in which the latter exists, as regards solubility. Sand, clay, coal ashes and other inert matter may be present in considerable quantities, and thus lessen the value of the product; or from insufficient ignition there may be a large amount of charcoal, which would also, to some extent, reduce the fertilizing worth of the ashes.

THE FERTILIZING VALUE OF WHEAT BRAN ASH.

From a communication received from Mr. C. C. Macdonald, Dairy Commissioner for Manitoba, it would appear that "Wheat bran is used as a fuel in the flour mills of the province of Manitoba when its price is as low as \$4.00 per ton. It is then estimated to be a cheaper fuel than wood." It occurred to Mr. Macdonald that the resulting ashes might be valuable as a fertilizer, and accordingly he sent a sample for analysis and report.

The sample was white and semi-opaque, the edges of the lumps being fused, giving it a slag like appearance.

ANALYSIS OF BRAN ASH.

	Per cent.	Pounds per ton
Moisture .....	.87	.....
Phosphoric acid	45.01	900
Potash	24.55	491

It will be seen that this material is remarkably rich in potash and phosphoric acid, the greater part of which is soluble in water, and hence immediately available for plant use. Assigning to these elements the following values:—Phosphoric acid, 6 cents per pound; potash, 5 cents per pound (quite reasonable values), we obtain a value of \$78.55 per ton of ashes.

The question as to whether bran, under certain conditions of price, can be used economically as compared with wood, is one that is outside my province here to discuss, but it should be pointed out that the burning of bran seems an extremely wasteful practice, since thereby all the nitrogen, its most important constituent, is lost. The percentage of ash in bran is approximately 6.8, 15 tons of bran must, therefore, be burnt to produce one ton of ash. Now, since bran contains 2.36 per cent of nitrogen, the amount of this valuable fertilizing element lost in the burning of 15 tons would be 708 pounds, which at 14 cents per pound would amount to \$99.10. In other words, for every \$78 worth of potash and phosphoric acid obtained \$100 worth of nitrogen is lost. Considering bran from the standpoint of a fertilizer, it would be far more profitable to compost it than to burn it, that is, of course, provided there were not sufficient farm stock to feed it to.

BROKEN OYSTER SHELL.

This material was forwarded by Major Theakston, of Halifax, N.S., with a request for a report on its agricultural value. As received, it was in a fairly fine condition, though only a small portion of it was in the form of powder. It appeared to be practically free from foreign matter (sand and clay), consisting, one might say, entirely of the broken shells.

ANALYSIS.

Moisture .....	.33
Organic and volatile matter.....	8.52
Insoluble mineral matter.....	3.13
Mineral matter soluble in acid	88.02
	100.00
Lime (present as carbonate).....	50.01
Phosphoric acid.....	.08
Nitrogen.....	.18

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From the above data it is evident that the composition of the shells is essentially carbonate of lime. The amounts of nitrogen and phosphoric acid are too small to make their consideration necessary, the fertilizing value depending solely on the carbonate of lime present.

Respecting the functions of lime in the soil, it will not perhaps be necessary to repeat what has already appeared in previous reports (see page 161-2, Report of the Experimental Farms, 1894), but it may be well to add that I am of the opinion that unless the shells were finely powdered—the produce being in the form of flour—that the lime would be but slowly soluble in the soil, and hence but slowly available for plant use.

Looking to the immediate usefulness of lime in the soil, burning the shells would be a more economical method of treating them than a reduction to small fragments—though the process would necessarily lead to the loss of the small quantity of nitrogen they contain. Burning would convert the carbonate of lime into caustic or quick lime, a reduction in weight of about 50 per cent resulting, due to the escape of carbonic acid. Since carbonic acid has in such a combination no agricultural value, this plan would effect a considerable saving in freight. Quick lime is more active than the carbonate, giving more immediate and more marked results in soils deficient in lime. Burning could scarcely be more expensive than finely powdering, and therefore, in view of the above, it suggests itself as the way in which to prepare the shells.

For the use of poultry, broken oyster shells have a well marked value. Experienced poultrymen know that not only are they excellent in furnishing material for egg shell formation, but that they also assist in the digestion of the food by supplying the necessary grit for the trituration or reduction of the grain in the fowl's gizzard.

FISH MEAL.

The subjoined analysis of fish waste or meal was made on a sample forwarded by a correspondent in St. George, N. B., who described his method of manufacture as follows: "A quantity of herrings was salted and allowed to stand four days. They were then boiled and pressed to separate the oil. The residue was dried in the sun, broken up and passed through an ordinary coal sieve.

ANALYSIS OF FISH MEAL OR FISH GUANO.

Moi-ture	26·91
Organic and volatile matter	57·04
Mineral matter	16·05
	<hr/>
	100·00
	<hr/>
Total phosphoric acid	4·78
Phosphoric acid, soluble in 1 per cent citric acid	4·04
Nitrogen	10·32

Fish guano (as it is sometimes called) varies much in its composition—the amounts of fertilizing ingredients present depending on its mode of manufacture and condition as regards moisture and decomposition.

Thus, analyses made in the farm laboratories in 1892-93, afforded the following data :—

ANALYSIS OF FISH GUANO.

	From Kentville, N. S.	From Ladner's Landing, B. C.
Moisture.....	29.40	5.19
Organic and volatile matter.....	20.28	46.99
Mineral matter.....	50.32	47.32
	100.00	100.00
Phosphoric acid.....	4.70	17.60
Nitrogen.....	2.39	3.47

A consideration of these figures makes it clear that in fish meal we have, as a rule, a fertilizer rich in phosphoric acid and nitrogen. Moreover, these elements are in a more or less readily available condition for plant growth. This is made evident by the large proportion of the phosphoric acid soluble in a solution of one per cent citric acid—a solution equivalent, as shown by Dr. Dyer, in solvent action to the exudation of plant rootlets. It is on account of the ready availability of its constituents, that fish guano is recognized as a quick-acting, forcing manure; for the value of a fertilizer, it must be remembered, depends not only on the total amounts, but also upon the condition, of its elements. Fish waste is a manure that ferments easily in the soil, and the decomposition that there ensues, sets free its plant food.

Its rational and economical use requires a supplemental application of wood ashes, kainit or muriate of potash—since in potash this fertilizer is almost wanting.

Being a concentrated and quick manure it is often used as a top dressing, but better results are generally obtained by lightly harrowing it in. It has been of special value for grain crops and grass, and, as a rule, gives better returns on light, warm soils than on those that are heavy and cold.

Fish waste may be advantageously employed as a composting material with muck, peat, &c. The resulting fermentation converts much of the plant food of the latter into assimilable forms, and a large amount of a rich, strong manure is obtained. We have received the testimony of many practical farmers, both on the Atlantic and Pacific coasts (where this fertilizer could most easily be manufactured) to the effect that excellent results have attended its use when applied according to the principles and directions here set forth.

COMMERCIAL FERTILIZERS.

The number of inquiries sent to this division during the past year regarding the nature of commercial or chemical fertilizers—the use of which is becoming more extended in Canada—makes it desirable to present to our readers the following table which shows the composition of most of the materials that can be purchased by farmers, and which are largely used by manufacturers in making their various brands of fertilizers. Respecting the latter, it is only necessary to point out that all mixed fertilizers manufactured or sold in Canada are annually analysed, under the Fertilizer Act, by the Inland Revenue Department, and that the results of this examination, published in bulletin form, are to be obtained on application.

It is not the intention at the present time to discuss the various merits of different artificial fertilizers, nor the principles involved in their economic use, but it may be stated that whether the original substance or the ready-mixed fertilizer is bought, an

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analysis should be demanded, for the value of a sample is directly dependent upon the percentages and availability of the nitrogen, potash and phosphoric acid it contains.

Chemically pure nitrate of soda and sulphate of ammonia are not sold for agricultural purposes, but their nitrogen contents have been given for the purpose of showing the difference between them and the commercial article, stated in the second line.

COMMERCIAL FERTILIZERS

FERTILIZER.	NITROGEN.		PHOSPHORIC ACID.		POTASH.	
	Per cent.	Lbs. per ton.	Per cent.	Lbs. per ton.	Per cent.	Lbs. per ton.
Nitrate of soda.....	16.47	329.4				
" 95 per cent.....	15.65	313.0				
Sulphate of ammonia.....	21.21	424.2				
" 95 per cent.....	20.15	403.0				
Dried blood.....	10.5	210.0	1.91	38.2		
Dried fish waste.....	7.2	144.0	8.2	164.0		
Peruvian guano.....	7.85	157.0	15.26	305.2	2.65	53.0
Mono Island guano.....	.76	15.2	21.88	437.6		
Cotton seed meal.....	6.47	129.4	2.33	46.6	1.72	34.4
Bone meal.....	4.01	80.2	23.3	466.0		
Apatite, 85 per cent (phosphoric acid insoluble).....			38.9	778.0		
" 50 per cent.....			22.9	458.0		
Superphosphate of lime (phosphoric acid soluble).....			12 to 25	240 to 500		
Basic slag.....			17 to 23	340 to 460		
Wood ashes leached.....			1.5	30.0	1.2	24.0
" unleached.....			2.0	40.0	5.5	110.0
Muriate of potash.....					63.1	1262.0
" 83 per cent.....					52.3	1046.0
Sulphate of potash.....					54.0	1080.0
" 92 per cent.....					49.7	994.0
Kainit (average).....					13.5	270.0
Farm-yard manure, mixed.....	5	10.0	3	6.0	6	12.0

Most worn and partially exhausted soils respond best to a complete fertilizer, namely, one that contains all three of the essential elements of plant food—nitrogen, potash and phosphoric acid. The peculiar deficiencies of certain soils and the special requirements of certain crops, however, make it often advantageous that some one or two of these elements should predominate. Such information can only decisively be arrived at by carefully experimenting with the soil and crops under consideration, and it is always wise to make trials on small areas before making a large outlay, or an extensive application.

It will be observed that certain fertilizers contain nitrogen only, others phosphoric acid, and yet others potash. Again, there are those possessing two of these elements, while others possess all three. The tabulated information now furnished will prove useful to the intelligent farmer who wishes to supplement barnyard manure (see last line of table) with a special fertilizer rich in one or other of the above named elements.

The home mixing of fertilizers may be conducted upon the farm, and, compared with the purchasing price of commercial brands upon the market, a saving, approximately, of 25 per cent usually effected. This work, however, can only be done to advantage by those possessing some knowledge of the nature of the materials employed and should not be undertaken by the farmer without first ascertaining whether the mixture he proposes to make will deteriorate on keeping. Thus, as an instance, serious loss of nitrogen would result on mixing sulphate of ammonia and wood ashes.

Those desirous of obtaining further information on the subject of fertilizers and their application are invited to correspond with this division.

THE CHEMISTRY OF THE CORN PLANT.

In the report of the Experimental Farms for 1891 and in Bulletin No. 12 of the farm series, data obtained in the Experimental Farm laboratories are to be found respecting the value of Indian corn as a fodder crop. The results there given were, however, incomplete; those now to be stated have been obtained since the publication of the last report and furnish much useful information respecting the composition of this important fodder plant at various stages of growth.

The varieties included in this investigation were Longfellow, Pearce's Prolific, Thoroughbred White Flint and Red Cob Ensilage. Samples of these were taken at the periods of growth mentioned below, from plo's on high and low ground, the weight of the crop on one-twentieth of an acre in each case being ascertained and the results averaged. The portion taken for analysis was from a sample prepared by cutting up an equal number of corn plants from each plot. The weighings were made and samples for analysis taken when the corn was (a) tasselling, (b) silking, (c) early milk, (d) late milk, and (e) glazing. From these data the value of the crop at these periods, per ton and per acre, has been determined.

THE CHEMISTRY OF THE CORN PLANT—Table I.

Composition of Green Material and Water-Free Substance.

No.	Variety.	State of Growth.	IN FRESH OR GREEN MATERIAL.					CALCULATED TO WATER-FREE SUBSTANCE.					
			Water.	Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbohydrates).	Ether extract (Fat).	Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbohydrates).	Ether extract (Fat).
1	Longfellow.	Tasselling.	86.87	1.36	1.61	4.47	4.21	1.48	10.35	12.27	34.05	32.07	11.26
2	"	Silking.	86.02	1.13	1.48	4.27	6.18	0.92	8.05	10.61	30.53	44.25	6.56
3	"	Early milk.	82.84	0.96	1.74	5.13	7.89	1.44	5.62	10.13	29.92	45.93	8.40
4	"	Late milk.	77.51	1.14	1.90	5.57	12.33	1.55	5.06	8.45	24.76	54.82	6.01
5	"	Glazing.	75.28	1.05	1.78	5.51	14.58	1.80	4.23	7.2	22.31	58.97	7.29
6	Pearce's Prolific.	Tasselling.	84.52	1.35	1.97	3.73	7.45	1.08	8.70	12.73	24.12	47.43	7.02
7	"	Silking.	84.91	1.35	1.42	4.93	6.22	1.17	8.99	9.39	32.66	41.21	7.75
8	"	Early milk.	81.90	1.11	1.37	5.31	8.69	1.62	6.14	7.57	29.37	47.96	8.96
9	"	Late milk.	79.09	1.02	1.45	5.03	11.78	1.72	4.85	6.90	23.97	56.07	8.21
10	"	Glazing.	72.36	1.14	1.65	6.74	16.03	2.08	4.77	5.97	24.41	57.33	7.52
11	Thoroughbred White Flint.	Tasselling.	85.84	1.09	1.38	4.66	6.04	0.99	7.72	9.78	32.90	42.58	7.02
12	"	Silking.	85.27	1.21	1.54	4.95	6.11	0.92	8.24	10.49	33.59	41.45	6.23
13	"	Early milk.	81.42	1.02	1.47	5.28	9.2	1.61	5.47	7.91	28.41	49.55	8.66
14	"	Late milk.	77.07	0.99	1.31	6.16	12.4	2.07	4.31	5.74	26.89	54.01	9.05
15	Red Cob Ensilage.	Tasselling.	85.68	1.20	1.20	4.89	5.89	1.14	8.42	8.41	34.18	40.98	8.01
16	"	Silking.	79.14	1.27	1.18	7.20	10.08	1.13	6.12	5.66	34.54	45.77	7.91
17	"	Early milk.	76.06	1.22	1.13	7.10	12.47	2.02	5.12	4.71	29.67	52.04	8.46

NOTE.—The Thoroughbred White Flint and Red Cob Ensilage did not come to the glazing condition before the season closed.

First. We may first draw attention to the diminution of water and the consequent increase of "dry matter" as growth proceeds. This increase of food constituents is a steady one between the periods named, and may be easily ascertained by subtracting the percentage of water from 100.

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Second. It will be noticed that the percentage of ash (or mineral matter taken from the soil) in the corn plant diminishes as the plant matures. This becomes the more noticeable on calculating the percentage of ash on the water-free substance.

Third. There is in some instances a slight increase in the percentage of albuminoids or protein as the corn approaches the glazing condition. The increase, as the season advances, of the other food constituents, is, however, so much greater, that when calculated to the water-free substance the percentage of the albuminoids becomes considerably less in the mature corn than in the dry matter of the earlier growth.

Fourth. The percentage of fibre increases slightly in the fresh material as the season advances, but for the reason just stated it decreases when calculated to the water-free material.

Fifth. The "ether extract," consisting principally of fat or oil, increases somewhat with the growth of the plant.

Sixth. The nitrogen-free extract, sometimes termed carbo-hydrates, and consisting of starch, sugar, gum and allied substances, increases rapidly with the maturity of the crop.

These facts will be the more apparent on studying the next table, which gives the averages of all the varieties at the stages named.

THE CHEMISTRY OF THE CORN PLANT—Table II.

Average Composition at Different Stages of Growth.

Average of the following varieties :— Longfellow. Pearce's Prolific. Thoroughbred White Flint. Red Cob Ensilage.	IN FRESH OR GREEN MATERIAL.						CALCULATED TO WATER-FREE SUBSTANCE.					Percentage of Dry Mat- ter in Green Material.
	Water.	Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbo-hydrates)	Ether extract (Fat).	Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbo-hydrates)	Ether extract (Fat).	
Stage of Growth.												
Tasselling.....	85.73	1.25	1.51	4.44	5.90	1.17	8.80	10.80	31.31	40.76	8.33	14.27
Silking.....	83.84	1.24	1.40	5.34	7.15	1.03	7.85	9.04	32.83	43.17	7.11	16.17
Early milk.....	80.55	1.08	1.43	5.71	9.56	1.67	5.59	7.58	29.34	48.87	8.62	19.95
Late milk.....	77.86	1.05	1.55	5.59	12.17	1.78	4.74	7.03	25.21	54.97	8.05	22.14
Glazing.....	73.82	1.08	1.71	6.12	15.33	1.94	4.50	6.58	23.36	58.16	7.40	26.18

CONCLUSIONS.

First. That cutting the corn before it reaches the glazing condition—a practice quite common a few years ago—is not to be advised, since in the latter stages of the plant's growth there is a large gain in food constituents. All our data, both in the field and laboratory, go to show the wisdom of allowing the corn to come to the glazing condition before harvesting, either for the silo or for drying in stooks.

Second. The mineral constituents (ash) are taken by the plant from the soil, more particularly during its early stages of growth. This points to the advisability of having the soil well manured and prepared previous to planting. By such means the young plant will have immediate access to a large amount of readily available plant food. Thorough cultivation, thereby preserving soil moisture and preventing weed growth, will also tend to have a beneficial effect in this direction. In many parts of Canada wood ashes afford cheap sources of potash and phosphoric acid for the needs of this and other farm crops. In localities where wood ashes are not easily or cheaply obtained, kainit and superphosphate may be used to supply the chief mineral ingredients.

Third. The albuminoids, often termed the flesh-formers, are determined in the laboratory by estimating the nitrogen (their essential element) and multiplying the amount found by 6.25. In the young plant much of the nitrogen, we know, exists in forms of less feeding value than the albuminoids, and we have every reason to believe that as the plant ripens these compounds are transformed into albuminoids. The decrease in albuminoids is, therefore, only apparent and not real, and this consideration lends additional strength to the advice given respecting the best time to cut the corn.

Like the ash constituents, the nitrogen (also taken from the soil) is drawn upon chiefly by the young plant, and the argument already used respecting manuring, tillage and cultivation might well be repeated here.

Fourth. The large percentage of the gain already referred to is due to the storing up of carbo-hydrates. These, by their digestion and assimilation, furnish to the animal heat and energy, most valuable and important functions. Since they are derived exclusively from the atmosphere, the wisdom in allowing the accumulation of these food constituents by simply postponing harvesting to the glazing condition becomes at once apparent.

It will now be of interest to discuss these chemical data in connection with the yields per acre obtained in the experiment, and for that purpose the following table has been prepared. A careful study of its details reveals many points of interest, but it will perhaps be sufficient on the present occasion to remark that all that has been said regarding increased feeding value of the maturer corn received additional emphasis. The last column shows that the gain in food constituents per acre between the tasselling and glazing periods amounted in this experiment to 2 tons 831 pounds.

THE CHEMISTRY OF THE CORN PLANT.—TABLE III.

Weights of the Constituents per Ton and per Acre in Green Material.

Stage of Growth.	POUNDS PER TON.						Total Weight of Green Fodder per Acre.	TONS AND POUNDS PER ACRE.						
	Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbo-hydrates)	Ether extract (Fat).	Total Dry Matter.		Ash.	Protein (Albuminoids).	Fibre.	Nitrogen-free extract (Carbo-hydrates)	Ether extract (Fat).	Total Dry Matter.	
														Tons.	Lbs.	Tons.	Lbs.
Tasselling	25.0	30.2	88.8	118.0	23.4	285.4	22	1318.0	566.0	684.1	121.6	674.0	530.3	466
Silking	24.8	28.0	106.8	143.0	20.6	323.2	24	52.0	596.0	673.1	566.1	1436.0	495.3	1766
Early milk	21.6	23.6	114.2	191.2	33.4	389.0	22	1806.0	495.0	655.1	615.2	379.0	765.4	909
Late milk	21.0	31.0	111.8	243.4	35.6	442.8	21	798.0	449.0	663.1	390.2	1204.0	761.4	1467
Glazing	21.6	34.2	122.4	306.6	38.8	523.6	21	1154.0	466.0	738.1	641.3	615.0	837.5	1297

It is well understood that it is the digestible part of a fodder which is of service to the animal in keeping up the vital heat, in producing energy and the formation of tissues. It, therefore, becomes of importance to inquire as to whether the digestibility of the food constituents of the corn plant becomes impaired in the latter stages of growth. Though we have no Canadian data on this point, experimental research in the United States would go to show that there is no marked decrease in digestibility until after the corn has passed the glazed period. We may, therefore, safely assume that no deterioration in feeding value has occurred if the corn is cut at that stage. Taking the usually accepted

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co-efficients of digestibility in connection with the data already given, we have the following figures:—

THE CHEMISTRY OF THE CORN PLANT.—TABLE IV.

Digestible Matter in Corn Fodder at Different Stages of Growth.

Stage of Growth.	Digestible Matter in One Ton.	Digestible Matter per Acre.
	Lbs.	Lbs.
Tasselling.....	186 2	4,220
Silking.....	211 0	5,069
Early milk.....	256 5	5,873
Late milk.....	285 9	6,012
Glazing.....	339 2	7,308

Summing up these details, there is an increase of 153 pounds per ton, or 3 tons 88 pounds per acre, of digestible constituents stored up within the five weeks preceding the glazing condition.

There appears to be little, if any, assimilation of plant food after this period is reached, and the probability is that the fibre becomes dry and hard by over-ripeness, thus impairing the digestibility of the fodder.

THE RELATIVE FEEDING VALUE OF CERTAIN ROOT CROPS.

Of the many interesting and as yet unsettled questions in cattle feeding, our attention has, this year, been directed towards the solution of one that relates to the relative feeding value of certain roots. The work accomplished is by no means complete, but the data obtained furnish some facts which will be helpful in coming to a decision on this subject. In January last we received, through the kindness of Messrs. Ewing & Co. of Montreal, samples of the following turnips: Pomeranian White Globe, Elephant Purple Top Swede and Green Top Yellow Aberdeen. The roots were grown on the farm of Mr. Duncan McLachlan, Petite Côte, near Montreal, in the same field. They were sown at the same time, and stored in the same cellar. The soil is reported as "medium loam and rich," and "the season as a dry one." The analysis of the roots was put in hand on their arrival, and the following data obtained.

NOTE.—Much of this information was brought before the Select Committee on Agriculture and Colonization, but as the printed proceedings of the committee have only a limited distribution, it has been thought advisable to present them here for the general information of the agricultural public.

ANALYSIS OF ROOTS.

	Pomeranian White Globe.	Elephant Purple Top Swede.	Green Top Yellow Aberdeen.
Water.....	91·86	88·56	90·36
Dry matter.....	8·14	11·44	9·64
	100·00	100·00	100·00
Protein or albuminoids.....	1·04	1·09	1·01
Fat.....	0·05	0·06	0·04
Carbo-hydrates.....	4·58	8·25	6·06
Fibre.....	1·30	1·13	1·45
Ash.....	1·17	0·91	1·08
	8·14	11·44	9·64

Taking these data as a basis for comparison, we must conclude that, weight for weight, the Elephant Purple Top Swede is the best, the Green Top Yellow Aberdeen ranking second, and the Pomeranian White Globe, third, as regards feeding value. This conclusion is based on the relative amounts of carbo-hydrates, for the percentages of the other food constituents are so close as to be approximately the same.

The contention of Mr. Ewing is that "the Green Top Yellow Aberdeens will produce 25 per cent more crop (in weight) than Swedes, and that an acre will, therefore, produce more nutriment, on account of this excess of crop, than an acre of Swedes. He further states that in a cool cellar "the Aberdeens will keep perfectly well till May, at least."

The fact must not be lost sight of that both the yield and composition of roots are markedly affected by the character of the soil and the nature of the season, and therefore ultimate conclusions must be drawn with care from analyses covering diverse conditions.

OIL-CAKE MEAL AND GERM MEAL.

The development of the dairying industry in recent years has given rise to much thoughtful inquiry as to the relative nourishing values of those concentrated foods now upon our markets, and which are used to supplement the coarse home grown fodders. Such feed stuffs are principally the various grains and certain milling and manufacturing by-products. These are rich either in albuminoids (flesh formers) or fat—and sometimes in both, consequently their price is high. Their economical purchase and profitable use, therefore, necessitates a knowledge of their composition; and this is more especially true of the by-products, since their methods of preparation and the forms in which they are sold allow considerable latitude to the manufacturer or vendor, who, unlike the fertilizer manufacturer or vendor, is not compelled by law to give any guarantee as to purity or composition.

In former reports we have considered the composition of foods in general and given an account of the functions of their constituents in the animal. (See reports, 1890–1893.) To these the reader is referred for information regarding the fundamental principles of the subject.

In the subjoined table the composition of two brands of oil-cake meal and one of germ meal analysed last May is shown. These data are supplemented by figures obtained in the farm laboratories in 1890, now added for the sake of comparison.

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COMPOSITION OF OIL-CAKE MEAL AND GERM MEAL.

No.	Material.	Water.	Albuminoids.	Fat.	Fibre.	Carbo-hydrates.	Ash.
1	Oil-cake meal	6.88	33.79	3.93	8.02	41.36	6.12
2	do	6.59	38.12	5.03	6.62	38.47	5.17
3	do	7.49	29.71	5.71	9.70	39.87	7.52
4	do	8.64	34.89	5.21	9.13	36.86	5.27
5	do	10.06	33.19	5.59	8.41	37.01	5.74
6	Germ meal	10.20	17.37	6.95	8.59	56.20	0.69
7	do	8.64	10.25	8.39	7.77	62.32	2.63

No. 1.—Oil-cake meal, sent by D. James, Thornhill, Ont.; bought from Steele, Briggs & Co., and manufactured by Body & Noakes, Winnipeg, Man.

No. 2.—Oil-cake meal, sent by D. James, Thornhill, Ont.; bought from Steele, Briggs & Co., and manufactured by Wright & Hill's Linseed Oil Company, Chicago, U.S.

No. 3.—Oil-cake meal, from J. Livingstone, manufacturer, Baden, Ont. This and the two following samples were analysed in 1890.

No. 4.—Oil-cake meal, manufactured by Mann & Co., Buffalo, U.S.

No. 5.—Oil-cake meal, manufactured by Wright & Hill, Chicago, U.S., old process.

No. 6.—Germ meal, forwarded by Mr. L. Simpson, Valleyfield, Que.

No. 7.—Germ meal, purchased by Wm. Blair from A. Gunn & Co., Halifax, N.S.

Oil-Cake Meal—In oil-cake meal and cotton seed meal we have the most concentrated foods upon the market, *i.e.*, they possess the largest proportion of albuminoids (or protein) and fat. Oil-cake (or linseed cake, as it is frequently called) is a by-product in the manufacture of linseed oil. It varies in composition according to the kind of linseed used and the pressure and temperature at which the oil is extracted. To illustrate the use of chemical data in arriving at comparative nutritive value, we may examine the first two meals given in the foregoing table. This is very simply and, for practical purposes sufficiently accurately done by adding together the percentages of fat and of the albuminoids and multiplying the total by two and a-half. To the result is added the percentage of carbo-hydrates. This final amount represents the percentage of so-called "food units." These latter percentages, of course, indicate the relative nutritive values of the foods under comparison.

This method of interpreting analysis, while omitting the matter of the digestibility of the various constituents, gives within small limits the manurial as well as the feeding value. It is taken from Dr. Bernard Dyer's work "Fertilizers and Feeding Stuff," page 81 et seq.

	No. 1.	No. 2.
Albuminoids	33.79	38.12
Fat or oil	3.93	5.03
	-----	-----
	37.62	43.15
	2.5	2.5
	-----	-----
	18.810	21.575
	75.24	86.30
	-----	-----
Carbo-hydrates	94.050	107.875
	41.36	38.47
	-----	-----
Food units	135.41	146.345

No. 1 therefore contains 135 food units; No. 2, 146 food units, or one ton of No. 2 is equal in food value to 1 ton 166 pounds of No. 1. This difference is seen to be due to the larger percentages of albuminoids and oil in No. 2. If No. 1 were valued at \$20 per ton, No. 2 would be worth \$21.63 per ton.

Germ Meal.—This is a by-product from Indian corn in the glucose and starch factories, and usually consists of the husk and germ ground together. It is richer in albuminoids and fats than corn meal. Samples differ very much among themselves as regards composition, owing to the various methods of separation employed.

LACTEO-VITULINE (CALF MEAL).

A sample of this material was forwarded at the instance of the Hon. Louis Beau-bien, Minister of Agriculture, Quebec, with a request for an analysis and report as to its feeding value.

It was imported from France, being sent by the Comptoir de l'Élevage at Tours, and the price stated is \$12 per 100 kilos, or nearly five and a half cents per pound.

It is intended to be used, according to certain directions, as a substitute for milk in the feeding of calves. Of the several substances now upon the market for this purpose it is impossible to speak generally, some appearing to be almost worthless and others again while possessing a high nutritive value are sold at such exorbitant prices as to place them outside the category of economical feeding stuffs.

The basis or chief bulk of such concentrated feeds is in most instances ground Indian corn, linseed meal and pea meal, supplemented by shorts, oatmeal, &c., and frequently by some soluble saccharine material, such as glucose. To increase palatability, flavouring materials, such as anise seed and fennel are often incorporated.

Lacteo-vituline is a finely ground yellow meal with a distinctly sweetish taste and showing under the microscope abundant evidence of corn, linseed and pea meals.

Its analysis affords us the following data:—

Water	9.87
Albuminoids (nitrogenous substances).....	16.00
Fat or oil	8.38
†Carbo-hydrates (starch and sugar)	61.68
Fibre (cellulose).....	1.17
*Ash (mineral matter).....	2.90

For the purpose of comparison, the composition of some of the more common meals in use is given in the following table:—

	Corn Meal.	Wheat Shorts.	Wheat Bran.	Pea Meal.	Linseed Meal (old process).
Water.....	10.9	11.8	12.0	10.5	9.2
Albuminoids.....	10.5	14.9	16.1	20.2	32.9
Fat.....	5.4	4.5	4.2	1.2	7.9
Carbo-hydrates.....	69.6	56.8	53.7	51.1	35.4
Fibre.....	2.1	7.4	8.4	14.4	8.9
Ash.....	1.5	4.6	5.6	2.6	5.7

Considering it from the standpoint of its composition, Lacteo-vituline appears to be a well balanced, nutritious and readily digested food, though the relative proportion of its constituents is not such as exists in whole milk. This is made the more obvious by

†Containing 9.76 per cent soluble saccharine matter.

*Composed chiefly of the phosphates, chlorides, sulphates and silicates of lime, soda and potash.

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comparing the analysis of milk with that of the artificial milk prepared with this meal according to directions, which are as follows :—

Mix 200 grammes (about 7 ounces) with 3 litres ($3\frac{1}{10}$ quarts) of hot water and add to 3 litres of fresh, unskimmed milk, to be fed, lukè warm, in three parts during the day.

AMOUNTS of principal food constituents, in grammes per litre in artificial milk prepared with Lacteo-vituline and in cow's milk.

	One litre of artificial milk, prepared by adding 200 grammes of Lacteo-vituline to 3 litres of water.	One litre of cow's milk.
Albuminoids.....	10·7	34·0
Fat.....	5·6	37·0
Carbo-hydrates.....	41·1	49·0
Ash.....	1·9	7·0

Respecting the relative food value and cost we can establish a comparison in the following manner, using the generally accepted co-efficients of digestibility and the proportional value of 1 : 2·5 : 2·5 for the respective values of carbo-hydrates, fat and albuminoids. One litre of the artificial milk prepared as above, cost eight-tenths of a cent, and we may assume the cost of producing one litre of milk to be one and a half (1·5) cent.

Artificial Milk.	Cow's Milk.
$\frac{41\cdot1 \times 93}{100} \times 1 = 38\cdot22$	$\frac{49 \times 95}{100} \times 1 = 46\cdot55$
$\frac{5\cdot6 \times 75}{100} \times 2\cdot5 = 10\cdot50$	$\frac{37 \times 99}{100} \times 2\cdot5 = 91\cdot57$
$\frac{10\cdot7 \times 89}{100} \times 2\cdot5 = 23\cdot81$	$\frac{34 \times 94}{100} \times 2\cdot5 = 79\cdot90$
<hr style="width: 50%; margin: 0 auto;"/> $72\cdot53$	<hr style="width: 50%; margin: 0 auto;"/> $218\cdot02$
$\frac{.8}{72\cdot53} = \cdot011 \text{ cents} = \text{cost of food unit.}$	$\frac{1\cdot5}{218\cdot02} = \cdot007 \text{ cents} = \text{cost of food unit.}$

Though no claim is made that the factors used in the above calculation are strictly correct (indeed they are necessarily but approximate), their application to both materials under consideration allows us to make a fair comparison as to the relative values of these foods. Valuing milk at 75 cents per 100 pounds (the value used in the above calculation), we find that the price of the food unit in the artificial milk, prepared according to directions, is one and two-thirds greater than that in the same quantity of cow's milk. It is quite possible that practical experience might alter this ratio, but it is scarcely to

be expected that at the price quoted for lacteo-vituline it will be in favour of this preparation.

The directions furnished state that at the end of 45 days milk may be altogether discontinued and an artificial milk prepared by mixing 500 grammes (about 17½ ounces) with 9 litres (9¼ quarts) of water. The cost of this quantity would be six (6) cents.

After the first three weeks of the calf's life, substitutes, at all events in part, for whole milk can profitably be fed, but, with the comparatively low price of concentrated feeds now prevalent in Canada, it would seem that a judicious mixture of linseed meal, shorts, pea meal, corn meal, &c., together with saccharine refuse from the sugar refinery or glucose factory, could be prepared at much less cost than the material here under consideration.

THE FEEDING VALUE OF BROKEN HOP VINES.

The material was received from the farm of Prof. R. Carr-Harris, in Bathurst, N.B., who was anxious to employ it for feeding purposes if it proved to have any nutritive value, since large quantities were procurable at the close of the hop season, which hitherto had been put to no use. Mr. W. E. Serson, the manager of the farm referred to, had made some trials with it and reported against it.

The sample consisted of dry, hard fragments of vine, from one-sixteenth of an inch to half an inch in length, and exceedingly woody in nature. Our analytical results are as follows:—

ANALYSIS—HOP VINE—*Air-dried and Ground.*

Water	8.69
Fat . . . . .	.70
Albuminoids	2.53
Fibre	50.16
Nitrogen free extract (carbo-hydrates)	33.31
Ash or mineral matter	4.61
	100.00
	100.00

It is very apparent that the feeding value is exceedingly low. It certainly contains small amounts of nutritive constituents, but these are associated with such a large quantity of fibre, which is of a particularly hard and woody character, that I consider this material, as regards digestibility, as much inferior to straw.

Unless the material were well soaked and fermentation induced, it is more than probable that the hard and sharp nature of the fragments would cause considerable irritation to the animals' digestive organs, possibly with fatal results.

Since the hop vines contain considerable amounts of nitrogen, potash and phosphoric acid, it is suggested that they should be composted with barnyard manure, thus liberating in available form the plant food. If the vines prove too woody to succumb to this treatment, they could be burnt. This would result in the loss of the nitrogen, but all the potash and phosphoric acid would be present in the ashes.

WELL WATERS FROM FARM HOMESTEADS.

For a number of years we have been calling attention to the necessity of more care being exercised in the protection of the farm water supply from contamination. In the past we have observed that a very large proportion of the samples of well waters sent for analysis has been polluted and unfit for household use, and the same is true of this year's results.

It is difficult to add anything further to what we have written in previous reports regarding the grave risk to health incurred in using polluted water. It has been

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repeatedly shown that water containing excrementitious matter is decidedly injurious to the general health and that it is often the means of spreading typhoid and other serious and infectious diseases. To those who value their health and that of their family, to those who would have strong and thrifty animals, to those who desire pure milk and first-class butter, we would say that it is of primary importance that the water supply should be from a source beyond suspicion, and that this source should be carefully guarded against pollution by infiltration of drainage matter.

The waters analysed this year and reported in the following table were received from the various provinces, as follows:—British Columbia, 6; Manitoba, 1; Ontario, 28; Quebec, 7; New Brunswick, 2. Of these waters 45 per cent were very seriously contaminated and condemned as quite unfit for use; 20 per cent were returned as suspicious and, in all probability, unsafe; while 35 per cent proved to be unpolluted and wholesome.

From a consideration of the information sent with the samples respecting these wells and their environment, there is no doubt in the writer's mind that, in the majority of instances, the pollution, as shown by the chemical data, is derived from the drainage of the farm buildings and barnyard, and is consequent upon two causes—the location of the well and the dirty condition of its surroundings. When that most pernicious practice of sinking the well in the stable or barnyard is followed, provision is really being made to collect, as in a cesspool, liquid manure. The amount of manure, the rainfall and the porosity of the soil are the chief factors that will determine the date of the contamination of such wells; it is only in *very exceptional cases* that they can escape pollution. Let those about to sink wells, therefore, remember that they should not be dug in or near the barnyard nor under of the farm buildings. Not a little of this rural well-water pollution is due to the filthy state of the buildings and yard. Much of it could be prevented by a more liberal use of absorbents (see article on air-dried muck) and by a greater carefulness in keeping clean the barnyard. There is room for much reform and improvement in this matter.

The well, being sunk at a safe distance from possible sources of pollution, the brick and stone work should be coated to the ground water line with a cement impervious to water. This will protect the well from infiltration of drainage from the upper layer of the soil. Further, a tight-fitting top should be provided rising to the height of 9 inches or 1 foot above the surface of the surrounding ground. This will prevent surface water, mice, rats and frogs from entering. The household slops, garbage, &c., should never be thrown on the soil in the neighbourhood of the well; their proper place is the compost heap. Finally, the well should never be used as a cold storage receptacle, nor the dairy or other vessels washed at the well unless there is an ample provision by a well constructed drain to take away the wash water.

The sketch of a barnyard on page 220 illustrates the way in which the barnyard well becomes polluted with soakage from the barnyard, manure pile and privy.

ANALYSIS OF

RESULTS STATED

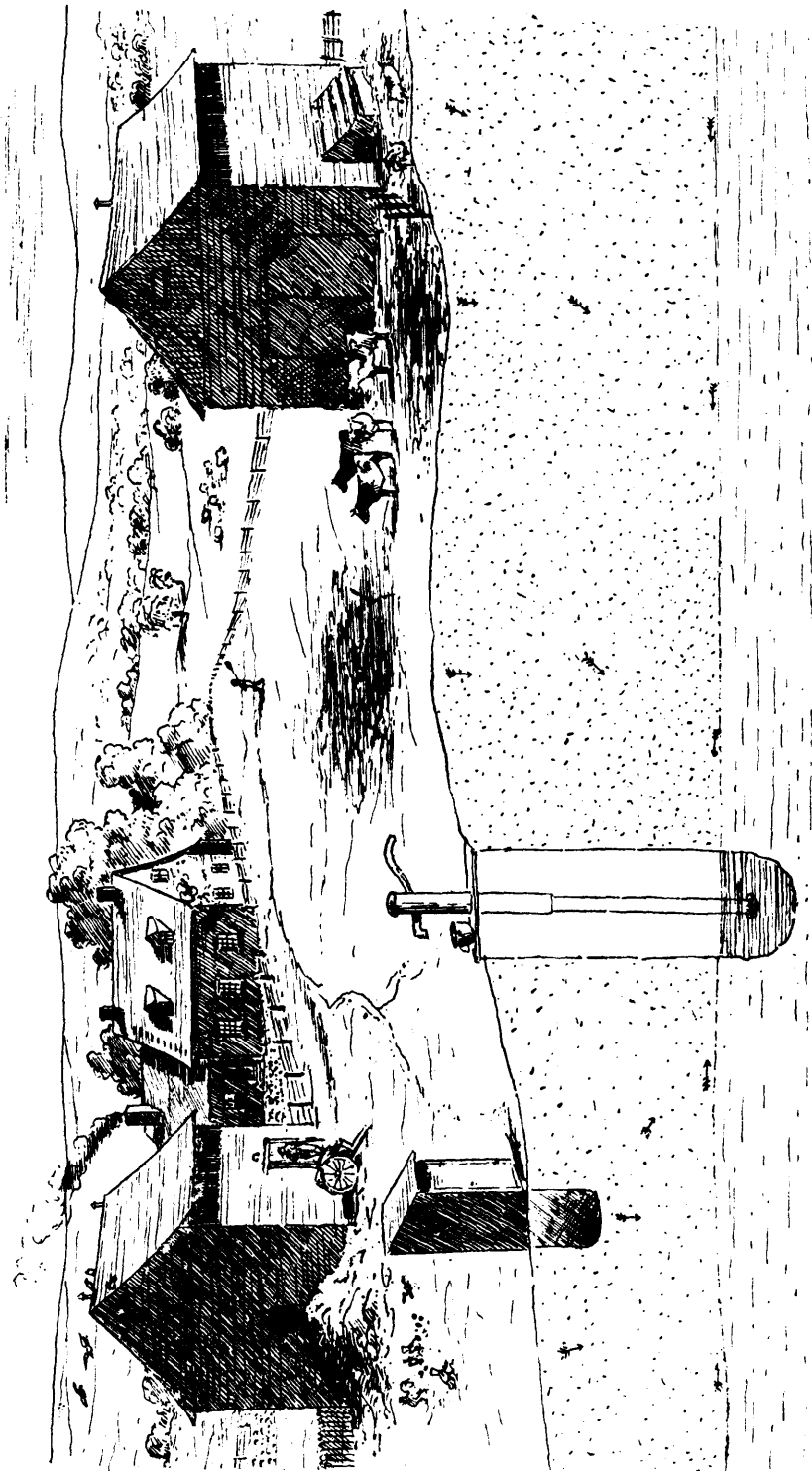
Number.	Locality.	Marks.	Date.	Free Ammonia.	Aluminoid Ammonia.	Nitrogen in Nitrites and Nitrates.	Chlorine.
1895.							
1	Napanee, Ont.	J. B.	Nov. 11.	0.506	0.096	0.064	80.0
2	Nepean Tp., Ont.	J. H. S.	" 22.	0.03	0.175	0.118	1.8
3	Barton Tp., Ont.	W. G. W. (J. C.) No. 18.	" 22.	1.846	0.05	0.087	850.0
4	"	W. G. W. (No. 19).	" 22.	0.012	0.04	0.01	7.4
5	"	W. G. W. (J. C.) No. 20.	" 22.	trace.	0.032	0.0263	18.6
6	"	W. G. W. (W. M.) No. 21.	" 22.	trace.	0.058	0.0873	4.8
7	Hillier, P. E. Co., Ont.	L. P. H.	Dec. 20.	20.0			1020.0
8	Almonte, Ont.	J. B. W. (No. 1).	" 4.	1.16	0.178	0.0412	7.8
9	"	J. B. W. (No. 2).	" 4.	trace.	0.09	0.066	2.4
10	"	J. B. W. (No. 3).	" 4.	0.08	0.067	2.553	264.0
11	Long Lake, Vernon, B.C.	G. G. (No. 1).	" 18.	0.045	0.065	0.0124	1.0
12	"	G. G. (No. 2).	" 18.	0.05	0.076	0.025	1.0
1896.							
13	North Bend, B.C.	J. H.	Jan. 13.	trace.			1.0
14	St. John, N.B.	G. H. E.	" 27.	0.02	0.02	0.9619	21.0
15	Knowlton, Que.	R. W.	Feb. 22.	0.112	0.04	0.6983	12.0
16	Apoahqui, N.B.	G. W. Mc.	" 27.	0.034	0.13	0.0214	10.5
17	St. Jacobs, Ont.	B. & S. (No. 1).	" 27.	0.207	0.02	0.041	5.2
18	"	B. & S. (No. 2).	" 27.	0.27	0.02	none.	4.5
19	Knowlton, Que.	R. W. (No. 1).	Mar. 24.	0.01	0.02	0.8814	1.0
20	"	R. W. (No. 2).	" 24.	0.016	0.024	1.823	28.4
21	"	R. W. (No. 3).	" 24.	0.014	0.065	4.172	29.4
22	Milverton, Ont.	R. R. (No. 1).	April 11.	0.02	0.055	3.864	126.0
23	"	R. R. (No. 2).	" 11.	trace.	0.11	9.187	112.0
24	Vernon, B.C.	L. N.	" 15.	0.05	0.034	1.013	15.5
25	Port Sydney, Ont.	W. E. (No. 2).	" 20.	0.01	0.075	0.19	3.0
26	"	W. E. (No. 1).	May 6.	0.025	0.77	2.631	17.0
27	Chilliwack, B.C.	J. S. M.	June 9.	0.08	0.05	0.033	1.0
28	" River, B.C.	J. S. M.	" 9.	0.4	0.09	0.033	1.0
29	Calumet, Que.	R. L.	July 28.	0.02	0.10	4.21	47.5
30	Hintonburg, Ont.	R. E.	Aug. 5.	0.11	0.324	1.21	11.0
31	Orillia, Ont.	W. S. F. & Co.	" 6.	0.12	0.06	1.103	4.0
32	Aylmer, Que.	A. C. C.	" 13.	trace.	0.08	1.005	3.0
33	Richland, Man.	A. M.	" 17.	0.064	0.045	0.054	1.20
34	Norham, Ont.	J. B. S. & Son	" 20.	none.	0.024	0.05	6.0
35	Bronte, Ont.	W. G. W. (No. 22).	" 20.	4.89	0.04		1350.0
36	"	W. G. W. (M. T., No. 23).	" 20.	0.03	0.026	4.957	6.2
37	Weston, Ont.	W. G. W. (J. W., No. 24).	" 20.	0.01	0.024	0.0247	16.1
38	"	W. G. W. (A. S., No. 25).	" 20.	1.395	0.02	1.207	220.0
39	Welland, Ont.	R. McC.	" 24.	1.002	0.04	0.0477	118.0
40	Billings' Bridge, Ont.	J. K.	Sept. 2.	none.	0.13	0.708	7.0
41	Port Sydney, Ont.	J. E. C.	" 8.	0.030	0.2425	1.363	2.0
42	Tavistock, Ont.	H. R. (Dr. W.).	" 14.	0.06	0.07	6.605	180.0
43	Angers, Que.	J. P.	" 16.	3.286	none.	none.	1680.0
44	Douglas, Ont.	S. F. B.	Oct. 14.	0.43	0.336	0.086	1.5

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WELL WATERS, 1896.

IN PARTS PER MILLION.

Total Solids at 105° C.	Solids after Ignition.	Loss on Ignition.	Phosphates.	Report.
508.0	384.0	124.0	Slight trace	Serious pollution ; not safe for household purposes.
4048.0	3196.0	852.0	.....	Contamination not indicated, but certain suspicious features.
414.0	331.2	83.0	Very slight trace	An exceedingly bad water.
145.2	117.2	28.0	.....	A good water.
516.8	425.2	91.6	.....	Probably a wholesome water, but certain data render it suspicious.
.....	190480.0	.....	.....	A good water ; free from pollution.
445.6	390.0	55.6	Slight trace	Very bad ; exceedingly dangerous to use.
308.8	296.8	12.0	Very slight trace	Polluted from drainage of cheese factory.
1028.0	772.0	356.0	.....	A good and wholesome water.
192.0	153.6	38.4	Very slight trace	Well receives pollution.
190.8	160.8	30.0	Trace	Wholesome and fit for drinking purposes.
.....	"
422.0	385.0	37.0	.....	A good water.
176.0	174.8	1.2	None	Most probably a very good water.
182.8	135.6	47.2	.....	Polluted ; not safe for household use.
2492.4	2043.6	348.8	Heavy trace	Free from organic pollution ; mineral matter very high.
2772.4	2142.4	630.0	None	Not within the limits of good wholesome water.
2171.6	1790.0	381.6	.....	"
60.0	43.6	16.4	Trace	An excellent water in every respect.
252.0	176.0	76.0	Heavy trace	Polluted ; unsafe for household use.
236.0	196.0	40.0	.....	A very bad water ; quite unfit for use.
668.0	438.4	229.6	"	Polluted, cannot be considered a safe water.
632.0	456.8	175.2	Considerable trace	Very seriously contaminated.
406.8	336.4	70.4	Heavy trace	Has suspicious features.
77.0	45.0	32.0	Trace	Free from pollution ; good and wholesome.
200.0	145.0	55.0	Heavy trace	Polluted with drainage matter.
106.5	83.5	23.0	None	Well water ; not first-class.
136.5	98.0	38.0	Heavy trace	Of doubtful purity.
259.0	175.0	84.0	.....	Decidedly suspicious.
402.4	308.8	93.6	Trace	Considered unsafe for drinking purposes.
270.0	234.0	36.0	Heavy trace	Condemned for drinking purposes.
292.0	190.0	102.0	Trace	Suspicious ; its wholesomeness is doubtful.
366.0	283.2	82.8	Heavy trace	Perfectly wholesome and free from contamination.
319.6	283.6	36.0	Trace	Of excellent quality and free from pollution.
3914.0	3463.2	450.8	.....	An exceedingly bad water.
459.3	393.0	66.3	Trace	Probably a safe water
294.0	223.2	70.8	None	An excellent water ; perfectly wholesome.
1029.2	966.0	63.2	Heavy trace	Most seriously polluted.
3832.0	2944.0	888.0	Fair trace	Impure and unwholesome ; polluted.
279.0	209.0	70.0	Trace	Free from pollution ; wholesome.
80.0	35.0	45.0	Heavy trace	Suspicious.
740.0	575.2	164.8	"	Condemned as unsafe ; seriously polluted.
4016.0	3136.4	879.6	"	Very seriously polluted ; use attended with grave risk to health
190.0	160.0	30.0	Trace	Could not be recommended as a wholesome water.



SKETCH showing how the barnyard well may become polluted by soilage from the barnyard, the manure pile and the privy. The arrows indicate the direction of the drainage, the well acting as a cesspit.

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Analyses of well waters are made free of charge, provided the sample is taken according to the directions furnished on application, and the express charges are prepaid. It is absolutely essential that the instructions issued for collection of the water should be faithfully followed. Numbers of samples received at the laboratory are never analysed, owing either to an insufficient quantity of the water, or to the fact that dirty bottles or used corks have been employed.

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REPORT

OF THE

ENTOMOLOGIST AND BOTANIST.

(JAMES FLETCHER, LL.D., F.R.S.C., F.L.S.)

DR. W. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to hand you herewith a report on some of the most important subjects which have been brought officially under my notice during the past season. The correspondence of this division is now very large, which I trust may be taken as an indication of the growing appreciation of the utility of the investigations prosecuted. As heretofore, I have endeavoured to come into direct communication with my many correspondents in all parts of Canada, so as to benefit as much as possible from the observations of practical workers and actual eye-witnesses of the different matters studied. It is of course impossible to treat in the annual report of all the subjects which engage the attention of the Entomologist and Botanist during the year; but the many valuable data and records of observations in letters from correspondents are all carefully preserved and classified for future use when the subjects to which they refer are treated of in full. Included among these are references to various attacks upon crops, of more or less importance by insects, the study of the life histories of which is as yet incomplete. As in previous years, much time has been taken up in distributing information concerning well known injurious insects and plants. Among the insects which cause much loss every year and which are now being studied with the view of arriving at better remedies, the following may be mentioned:—Wireworms, cutworms in grain, the pea moth, the strawberry leaf-roller, the carrot rust-fly, the "fish-bug" (*Silpha Lapponica*, Hbst.), which attacks codfish on the "flakes" during the process of being cured, root-maggots of the onion and cabbage and white grubs.

The experiments with grasses and fodder plants of all kinds have been continued upon the Experimental Farm, and a large number of small samples of seeds have been distributed to farmers living in all parts of the Dominion for testing. The reports from these correspondents are of great interest as proving the suitability of some of the valuable varieties for cultivation over a far wider area in the Dominion than might have been anticipated. The experimental grass plots on the farm continue to be of great interest to visitors. In these plots may be seen growing nearly all the grasses, clovers and other fodder plants suitable for cultivation at Ottawa, of which the seeds are to be obtained from seedsmen as well as a large number of our native Canadian grasses. Seeds have also been procured from botanists in Australia and in the United States. Among these mention may be made of an erect variety of barn-yard grass (*Panicum Crus-galli*) and two early varieties of Soja beans from Japan received from Prof. W. P. Brooks, of the Massachusetts Experiment Station.

During the past year many entomologists and botanists in various parts of the Dominion have availed themselves of the services of the officers of this division in identifying specimens of insects and plants. A large number of collections have been received for this purpose. From these collections several valuable additions have been made to the farm museum. The collections sent in for naming are always returned to the senders with the names of the specimens, but many species which were found to be desirable for our herbarium have been kindly presented to us by their owners upon that fact being made known to them. Through these collections valuable additional information is acquired as to the known distribution of our native insects and plants, lists of the names, localities and dates of all specimens received being carefully kept.

The practical work of the Arboretum and Botanic garden, which was done to a large measure under my direction until last spring, was then, at my request, handed over to Mr. W. T. Macoun, the foreman of forestry, who, having men under his control, was in a better position to look after the necessary labour, such as cultivation, planting, tidying up, &c., than I was, with only one man, whose time is very fully occupied with the grass and fodder experiments. In addition to the above reason, Mr. Macoun is specially well qualified for this work from his natural tastes and knowledge of plants. I had, therefore, very much pleasure in recommending to you that this work should be entrusted to him.

Whenever my official duties would allow of my absence, every opportunity has been taken of attending farmers' meetings to deliver addresses on the work of the division and to meet the farmers. In this way information concerning the work of this division has been spread to many who might not otherwise have known of its utility. Meetings were attended at the following places:—

January 7-10—Campbellford, Ont.
do 14-16—Cornwall, Ont.
February 7- 8—Toledo and Newboro', Ont.
do 10-15—St. Johns and Ormstown, Que.

By instruction of the Hon. Minister of Agriculture, and at the request of the Manitoba government, I proceeded to Manitoba on 23rd June last, and, in company with Mr. Hugh McKellar, Chief Clerk of the Provincial Department of Agriculture and Immigration, or Dr. S. J. Thompson, Veterinarian of the same department, I held a series of twenty meetings in many of the most important wheat growing centres of Manitoba. The subject treated of at all these meetings was "Noxious Weeds, their Nature and Habits, and the best Means to adopt for their Eradication." These meetings were in every case well attended and very great interest was manifested in the subject, large numbers of weeds being brought in at every meeting for naming and information. All arrangements and expenses of these meetings were undertaken by the Provincial Minister of Agriculture, the Hon. Thomas Greenway, who, by associating with me in this work the two above named officers of his department, materially increased the value of the meetings on account of the practical knowledge and long experience of both of these gentlemen in the methods of culture practised in Manitoba, as well as their thorough acquaintance with the capabilities and physical features of the country.

Acknowledgements.—As in previous years, I am under great obligations to my friends, Prof. John Macoun and Mr. W. H. Harrington, for frequent assistance in the identification of difficult plants, insects and other objects of natural history. To Mr. J. B. Tyrrell, of the Geological Survey Department, I am indebted for the identification of specimens of *Arachnide*. I also take pleasure in again gratefully acknowledging the valuable assistance I have received from my many correspondents in all parts of the Dominion, who have much aided the work of this division by making observations and by sending me prompt notice of the occurrence of injurious insects and weeds. My thanks are particularly due to Dr. L. O. Howard, the United States Entomologist, and his staff for many favours in the identification of insects, for the use of illustrations and for valuable publications. The following donations have been received, all of which are most acceptable:—

- J. R. Anderson, Esq., Victoria, B.C.—Botanical specimens and living roots of five species of British Columbian *Ribes*.
- André Bôdy, Esq., Quebec.—Botanical specimens and seeds.
- Rev. W. A. Burman, Winnipeg.—Seeds and specimens of Manitoba weeds.
- F. C. Clare, Esq., Edmonton, Alta.—Specimens of rare plants and insects from the North-west.
- M. G. DeWolfe, Esq., Kentville, N.S.—Living root of *Amorphophallus Rivieri*.
- A. Grant Ferrier, Esq., Sorrento, Florida.—Insects from Florida, including a living specimen of the whip-tailed scorpion (*Thelyphonus giganteus*).
- T. W. Ramm, Esq., Ross Mount, Ont.—Specimens of insects, including a beautiful pair of the Imperial Moth (*Eacles imperialis*, Drury) taken in Ontario.

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W. Scott, Esq., Toronto.—Botanical specimens.

Rev. G. W. Taylor, Nanaimo, B.C.—British Columbian plants and insects.

T. N. Willing, Esq., Olds, Alta.—Rare plants and insects from Alberta.

The Director, Bangalore Botanic Garden, India.—Several packets of seeds.

In addition to the above special mention should be made of a consignment of specimens of the Apricot scale, *Lecanium Armeniacum*, infested by its parasite, *Comys fusca*, Howard. These were sent by Mr. E. M. Ehrhorn, of Mountain View, California, with the hope that they might prove useful in controlling the New York Plum-scale, a species similar to the Apricot scale. Part of these specimens were allowed to escape in an elm tree at Ottawa badly infested by another *Lecanium* very similar to the two above mentioned, and part were sent to Mr. L. A. Woolverton, Secretary of the Fruit Growers' Association of Ontario, to be liberated at Grimsby where the New York Plum-scale was known to exist.

The most important addition to the museum was in the shape of an exchange from the Government of New South Wales, through the Curator of the Technological Museum at Sydney, and consists of a large collection of named botanical and entomological specimens from that colony.

In conclusion, I beg again to acknowledge the great help I have received in all branches of my work from my assistant, Mr. J. A. Guignard, B.A., who has done a great deal to render this division what I trust and confidently hope that it is—a useful branch of the public service.

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

JAMES FLETCHER,
Entomologist and Botanist.

OTTAWA, 31st December, 1896.

CEREALS.

There was not during the past summer any widespread or very serious injury to grain crops by insect enemies. Notwithstanding that in the province of Ontario large areas of fall wheat were ploughed down as being "winter-killed," the crop proved of good quality and an average yield. It is highly probable, from the reports that have since come in from the districts where this winter killing prevailed, that some of the loss,

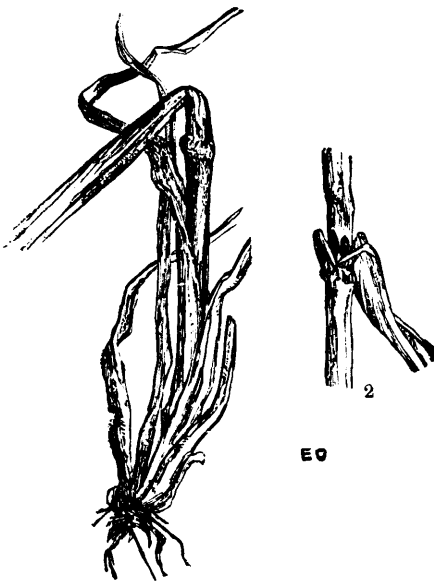


Fig. 1.—Barley stem attacked by Hessian fly.
2, Showing flax-seed-like puparia.

at any rate, was due to the attacks of the HESSIAN FLY (*Cecidomyia destructor*, Say), Fig. 1. Actual reports mention this insect only in Prince Edward Island and the western part of Ontario. In this latter section, however, there is decided evidence that the Hessian fly is increasing, and it is well for farmers to recognize this and adopt the well known methods for preventing its injury. In October last Prof. J. H. Panton, of the Ontario Agricultural College and Director of the Committee on Economic Botany and Entomology of the Ontario Agricultural and Experimental Union, sent out a list of questions to some of the most prominent farmers in Ontario. One of these questions was: "What are the six worst insects in your locality?" And another: "What new insects are likely to be injurious?" In an interesting summary of the replies to these questions, written by Mr. T. F. Paterson for the *Montreal Family Herald* of December 15, 1896, it appears that "forty-three different insects were enumerated. The following list will give a fair estimate as to which are most injurious to the farmer at the present time. The eight worst

ones have been selected, as, from the reports, they seem to greatly exceed the others in numbers and injurious effects:—1. Colorado potato beetle, 39. 2. Grasshoppers, 32. 3. Horn-fly, 25. 4. Cutworms, 18. 5. Tent caterpillars, 15. 6. Army-worm, 13. 7. Cabbage worm, 11. 8. Hessian fly, 10." From the above, it is also clear that the Hessian fly is recognized as the cause of considerable loss in the year 1896, and in the answers to the question as to what insects are likely to prove troublesome in the future it is the fifth of twenty-three kinds mentioned, and the Wheat Midge is the sixth. The following letters are from Ontario:—

"Pinehurst, Kent Co., Ont., 29th June.—In this county the Hessian fly is doing a great deal of damage to the wheat crop; in fact, many fields are ruined, and, unless something can be done to protect the wheat, we think it a great risk to sow any this fall."—J. T. O'KEEFE.

"Delaware, Middlesex Co., Ont., 2nd Nov.—I am told that the prospects for fall wheat are not good in this neighbourhood, owing to the attack of the larvæ of Hessian fly."—J. DEARNESS.

"Verdun, Huron Co., Ont., 1st Dec.—Referring to previous correspondence, I am beginning to think that the Hessian fly may be blamable for the injury to my fall wheat this autumn; and, if so, there is every year here much loss from it. Much complaint was made last spring of fall wheat being killed off after it had apparently come through the winter all right, and I am now inclined to think, since communicating with you, that the Hessian fly was the cause of this loss also. The condition referred to extended over

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all this township, and this fall much of the very early sowing (in August) is noticeably yellow in places. I have, however, examined a few fields, but did not find sufficient pupæ of the Hessian fly as would, I think, account for the whole of it. As to the extent of the damage to the wheat crop, six weeks ago as much as one-third apparently was injured, but this is not so noticeable now, owing to the killed plants having withered and the healthy ones covering the ground."—WM. WELSH.

The life history of the Hessian fly is well known, but fortunately this insect has not for some years required particular attention except in restricted localities. Its work is generally recognized in the spring of the year by dead plants in wheat fields. Upon examining these, the characteristic pupæ, resembling small flax seeds, may be found in the crowns of the young plants; sometimes three or four specimens will occur beneath the leaf sheaths of a single plant. In summer time the same flax-seed-like puparia (Fig. 1) may be found above the first or second joint of the stems of barley, rye and wheat, where they lie beneath the sheath of the leaf, but outside the stem; the larvæ suck the sap of the stems and so weaken them that they frequently fall down. The perfect insect is a tiny blackish midge with smoky wings, expanding only a quarter of an inch from tip to tip, which appears in April and May and again in August, lasting until about the middle of September. The females lay their minute scarlet eggs upon the inside crease of the leaves, and the young maggots, upon hatching, work their way down to the axils of the leaves where the injury to the plant is done.

Remedies.—The remedies for the Hessian fly are as follows: 1. Late sowing. The postponement of seeding until after the third week in September has the effect of delaying the appearance of the young wheat plants above the ground until all the Hessian flies of the second brood are dead.

2. Burning refuse. As a large proportion of the "flax seeds" are carried with the grain and at threshing are thrown down beneath the machine among the rubbish and broken straw, it is of great importance to destroy all rubbish, tailings or fine screenings wherever grain is known to be infested.

3. Treatment of stubbles. As soon as the crop is cut, it is an excellent plan to run a harrow over the fields so as to start a volunteer crop from the grains which have dropped in harvesting. By the time the fields are ploughed, many flies of the August brood will have emerged and laid their eggs on these plants; these will thus be destroyed at the same time as many seedlings of noxious weeds. If fields are conveniently situated away from barns, houses and stacks, much good may be done by burning over the stubbles before ploughing, as the pupæ occur, as a rule, at the first or second joint of the stem. To facilitate the operation of burning, a little dry straw may be scattered lightly over the stubble. It is, perhaps, hardly necessary to say that neither wheat, barley nor rye should be sown again in fields where a crop has been infested the year previous.

The JOINT-WORM (*Isosoma hordei*, Harris).—In my last report I made mention of the occurrence in injurious numbers of a joint-worm in wheat fields at Meaford, Grey Co., Ont. My correspondent, Mr. Thomas Harris, who reported his observations last year, writes that there has been no recurrence of this attack during the past summer on his own fields, nor has he heard of any upon the crops of his neighbours.

The GRAIN PLANT-LOUSE (*Siphonophora avenæ*, Fab.)—As usual, this plant-louse has occurred to some extent in all parts of the Dominion, but only two reports state that actual injury has been done to grain. That the insects were exceptionally abundant is shown by the following:

"Princeton, Brant Co., Ont., July 24.—In this part of the province we have begun to cut our oats, and these insects abound to an enormous extent. They literally cover the table of the binder. One farmer told me to-day that they piled up four or five inches deep under the knotter of his machine. I am sure I do not exaggerate when I say it would not be hard to sweep a good shovelful off a binder after cutting a field of oats."—J. E. RICHARDSON.

"Shakespeare, Oxford Co., Ont., July 27.—I send you some small insects. There are millions of them on my oats. I do not recollect having seen anything like it before."—J. W. DONALDSON.

"Doe Lake, Muskoka, Ont., August 18.—The wheat is very much shrunk here. This was not from rust, as the straw was bright, but the heads while green were covered with lice."—F. C. JUDD.

No special treatment can be recommended for the grain plant-louse, nor, as a rule, is any remedy necessary, for the natural parasites suffice to keep it in check.

The AMPUTATING BROCADE MOTH (*Hadena arctica*, Boisid.).—In the summer of 1895, the moths of this species were so abundant in some parts of Western Ontario as to attract the attention of many people, and complaints were received of their swarming into houses where they gave annoyance by soiling clothes and curtains and also by dying in large numbers in shop windows. As might have been expected, the caterpillars were last summer destructive in the same districts to wheat, oats, corn, &c., complaints coming in from the counties of Middlesex, Grey and Carleton. Writing from Granton, Middlesex Co., Ont., Mr. J. Dearness, President of the Entomological Society of Ontario, on 15th of May, says:—"I am sending you herewith samples of a cutworm that in innumerable force is ravaging spring crops sown on sod. The drill rows are followed, and every blade of grass is cut off, leaving large areas of the field perfectly bare. In this neighbourhood last year,—and from reports, I judge it was pretty general through this part of Ontario,—the Amputating Brocade moth was very troublesome, filling lamps, soiling clothes and pestiferous in other ways. I inclose one of these moths. Is it the same species as the cutworm sent?"

Reply:—"The cutworm and moth sent are both the same species. I am sorry to say that the only measure I can suggest by which infested fields can be turned to good use this year, is to plough up the portions worst affected and plant some crop which can be put in as late as possible, so as to give the caterpillars time to mature before the crop appears. It would be better to use some other crop than a plant belonging to the grass family. As far as my own observation goes, *H. arctica* feeds on grasses, although there are many records of the caterpillars feeding on other plants, such as root crops and even orchard trees; but I have never seen this. They are large whitish cutworms nearly two inches long, with bright chestnut red heads, which exist a long time in the larval form, continuing their ravages almost to the middle of June. They have every appearance of caterpillars which feed normally beneath the surface of the soil."

Serious injury to corn fields, which was probably by the same species, was reported by Dr. T. Sproule, M.P., as occurring in the county of Grey.

The PEA MOTH (*Semasia* sp.) has again this year attracted a good deal of attention by the extent of its injuries. Many of the accounts differ somewhat on important particulars, and it is much to be regretted that, so far, all efforts to breed the perfect insect have failed, so that the exact identity of the moth cannot as yet be given. The following interesting letter adds to our knowledge of its life history:—

"Clifton, King's Co., N.B., February 24.—I have been greatly interested in your report on the Pea Moth. This insect is very destructive here, especially late in the season. Late pease are so damaged by it that they are quite unfit for use as seed unless hand-picked. Indeed I have had about all my late seed repeatedly destroyed. Last season, the late garden pease when picked and being prepared for the table were found to be so affected as to be unfit for market, fully three-quarters of them being destroyed by the worm. Late varieties of pease such as Stratagem were so injured that it was almost impossible to get any that were fit for seed.

"The pea pod is always attacked at the upper end first, and, when the pease are badly eaten up a quantity of granular excrement and silken threads unites the whole. The pods on the under side of vines lying on the ground seem to be most badly affected, and the damage is greater on ground planted in pease the year before, in garden plots, in damp positions and when the weather has been damp.

"I notice in your report that Mr. Cowdry says he found caterpillars only in pods quite matured. I have repeatedly found them in very young pods, too young for table use.

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"This pest has existed here at least forty years, and I can see no appreciable increase or decrease. It causes considerable loss in this vicinity, but so far no remedy seems to be generally applicable. Possibly deep ploughing might do much, or burning the stems in garden plots."—J. E. WETMORE.

THE WHEAT-STEM SAW-FLY.

(*Cephus pygmaeus*, L.)

Attack.—Slender, white grubs. Head rounded, yellowish, with the mandibles darkened. Body swollen at the first two joints after the head and tapering very slightly to the end, which is terminated by a short, blunt tubercle with a darkened and hardened tip. This Monsieur Herpin describes as a tubular appendage, which is capable of being protruded like a telescope, and assists the insect in its progress within the tube of the straw. Beneath the first three segments of the body are three pairs of rudimentary thoracic feet. These larvæ are found inside stems of wheat. When full-grown they are nearly half an inch in length and have by that time bored through all or most of the knots in the stem, leaving a discoloured tunnel extending from the top joint down to the root, where, when mature, they spin thin transparent cocoons in which they pass the winter and change to pupæ the following summer.

In November, 1889, Prof. Comstock published a bulletin (*Cornell Univ. Coll. of Agr., Bull. 11.*) "On a Saw-fly Borer in Wheat," in which he gives a full account of a remarkable outbreak of *Cephus pygmaeus* on the Cornell University farm, when nearly five per cent of the wheat in a field was infested. In the *Canadian Entomologist* for 1890, page 40, Mr. W. Hague Harrington records that in 1887 he took a specimen of this insect at Ottawa, and that he had received specimens taken at Buffalo, N.Y., in the middle of June, 1888, and again at the same place and season the following year. With the exception of these records, I have been unable to find any mention of specimens being taken in America. On the 5th July, 1895, at Indian Head, N.W.T., I collected specimens of the perfect insect by sweeping the flowers of the Tumbling Mustard which grew in the greatest abundance just outside the Experimental Farm. At that time no injury by the larvæ was noticeable on the wheat growing in the district, nor has any report of injury attributable to it been received since from that district; but on the 6th of August last Mr. John Wenman, of Souris, Man., sent a packet of wheat stems containing nearly full grown larvæ which answered in every particular to those of *Cephus pygmaeus*. Mr. Wenman was written to for full particulars of the occurrence, and the following letter was received:—

"Souris, Man., Sept. 2.—In reply to your favour of the 12th ultimo, I beg to inform you that I have looked several times for more specimens of the injured stems of wheat, but the field which was most visibly affected had been cut the day before your letter came, and I could not secure good specimens. You ask how it was that I noticed the injury. I observed that some straws were lying down or lodged here and there, and, upon examining these stems, I found in nearly every instance that the straw was discoloured and broken between the first and second joints. We had had hail a day or two before. On following up inside the affected stems, I found in most cases the grub which you saw in the sample sent, about half an inch long, head brownish and body cream-coloured. In one case I found the grub had worked through all the joints up to the head of grain. I looked for this pest in several of my neighbours' fields. I saw a little in one field. The damage resulting from this attack, however, is so far, I am sure, not appreciable, but precautions must, of course, be taken, and I shall be on the *qui vive* for any further visitation."

The specimens of straw sent by Mr. Wenman contained larvæ which were nearly or quite full-grown on the 12th of August, but only a small proportion of these stems had been tunnelled up to the top joint. The larvæ were some distance above the root, but judging from the state of maturity of the straw, they would have descended very soon to the root to form the cocoons in which they pass the winter.

There is, however, a marked difference in the season of the Manitoban specimens and that of those studied by Prof. Comstock at Ithaca, N. Y., which were in general terms just about one month earlier. By the 19th of July, 1889, all the larvæ examined at Ithaca had descended to the lowest joint, while in Manitoba this year, nearly a month later in the season, some of the larvæ were not full-grown until about the 13th of August. Specimens of the mature insect were flying at Indian Head on the 5th of July, 1895, and it would take from a month to six weeks before the larvæ from eggs laid by these reached full growth, which would occur about the same time as the ripening of the wheat, when naturally the straws would dry up and become unfit for food.

Several European writers have treated of this insect and its habits. Probably the best known account is that of John Curtis in his celebrated work *Farm Insects* (1860). This account includes the observations of Herpin and other French authors. The most complete study of the insect is that by Prof. Comstock presented in the bulletin above referred to.

A summary of the life history of the Wheat-stem Saw-fly is as follows:—

The eggs are laid inside the wheat stem just before the ears appear above the sheath, being inserted into the hollow of the stem through a minute hole cut by the female with its saw-like ovipositor. The egg hatches in a few days, and the young larva grows rapidly and attains full growth before the straw ripens and hardens, by which time it will have eaten its way from the topmost joint of the stem to the lowest, feeding chiefly

on the substance of the knots, but also on the inside tissues of the straw. About the time the grain ripens, it descends to the bottom joint, and, just above the surface of the ground, gnaws away the inside substance of the straw so as to cut a ring almost, but not quite, through to the outside. (Fig. 2.) This is to enable the perfect fly to emerge easily in spring. It then spins a thin, delicate cocoon; and, like the larvæ of most saw-flies, remains torpid until the following spring, when it turns to a pupa only a few days before transforming into the perfect fly. The date of appearance of the perfect insect evidently varies with the season and locality. The adult is a shining black four-winged fly, banded and spotted with yellow, with the abdomen slightly compressed. The head is large, with prominent eyes, and there are also three ocelli or minute simple eyes near the summit of the head. The antennæ are slightly club-shaped and composed of about twenty segments. The female is rather larger than the male and less ornamented with yellow. The average length is about one-third of an inch (male, 8 mm.; female, 10 mm.). This insect is interesting scientifically, as it must be classified between the true Saw-flies (*Tenthredinide*) and the Horn-tails (*Uroceride*), so-called from the fact that the larvæ bear a sharp horn-like appendage at the end of the body.

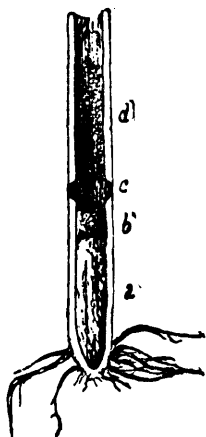


Fig. 2.—Base of straw infested by Wheat Saw-fly: a, cocoon; b, plug of borings; c, circular cut; d, scattered borings. (Figure kindly lent by Prof. J. H. Comstock.)

It is evident from an examination of the different stages, that it is more nearly related to the Horn-tails. The Wheat-stem Saw-fly is a native of most of the countries of Europe, and in some years, particularly in France, it has been the cause of much loss. Miss Eleanor A. Ormerod speaks of it in many of her invaluable reports, and shows that while it occurs in noticeable numbers every year, it is only occasionally a serious enemy to the wheat grower.

The question of the introduction of this European insect into America is one of some interest to entomologists, and it seems difficult to understand how it could have taken place. It has been suggested, however, by Prof. Comstock, who found a few cocoons in the straw above the point where it would have been cut by a reaper, that "a small proportion of the insects are probably removed from the wheat fields in the straw and, consequently, there is danger of the spreading of the species in this way. It is probable that the insect was introduced into this country in straw used in packing, and it may be further distributed here in the same way." (*Bull. No. 11, p. 141*).

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It is, of course, possible that the insect may have been introduced in this way and although recorded only from the above mentioned widely separated localities, from the inconspicuous nature of the injury, it is extremely likely that it has been overlooked in many places where it occurs. It has not yet been found feeding in any other member of the grass family than wheat and rye. With regard to its occurrence at Ithaca, N.Y., Mr. Slingerland writes under date 28th December, 1896:—"Cephus pygmeus has not attracted noticeable attention here in our locality, nor in our State, as far as I know, since Prof. Comstock discussed it in *Bulletin 11*. I do not know that it occurs in any other State, although it is suspected that it occurs in Ohio and West Virginia."

Remedies.—As nearly all the larvæ pass the winter in the base of the straw, it is quite evident that the most practical remedy will be found in treating the stubble, so as to destroy them or the pupæ before the flies emerge. This may be done either by ploughing deeply after harvest, or by burning over, which for another reason also will certainly be a most useful practice in Manitoba, for in that province, on account of the usual plan of growing wheat for several successive seasons on the same land, some bad weeds have increased enormously. The burning over of stubbles in autumn will certainly destroy vast numbers of these and their seeds, as well as at the same time the larvæ of the Wheat-stem Saw-fly. In Manitoba a great deal more straw is produced every year by farmers than they can possibly feed or use otherwise, and as a consequence, as soon as the farmer knows how much he will require, the residue, a large amount, is burnt every spring, simply to get it out of the way. Should the Wheat-stem Saw-fly ever increase sufficiently to affect the yield appreciably, the burning in autumn of the straw not needed would undoubtedly be a wise practice, as it is known that a few of the cocoons, at any rate, are formed in the straw.

THE ARMY-WORM.

(*Leucania unipuncta*, Haw.)

Attack.—Brown, or sometimes blackish, striped caterpillars (Fig. 3), eating the leaves and stripping the stems of grasses and many other low plants. When attacking cereals, frequently cutting off the heads. When full-grown, over an inch and a half in length, and when occurring in large numbers, migrating in bodies from one food patch to another. On reaching full growth, the caterpillars burrow into the ground and turn to light brown chrysalids, from which in about two or three weeks the moths emerge.

These (Fig. 4) are of a warm satiny-brown colour sprinkled with minute black specks, and with a small but distinct white spot in the middle of each upper wing. They are very active. When the wings are closed, the moth measures about an inch in length.

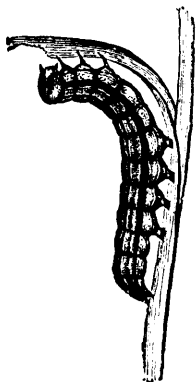


Fig. 3.—The Army-worm.

The life history of the Army-worm in Canada is as follows: There are two broods in the year. Eggs are laid in autumn and hatch in ten or twelve days. After feeding for a short time, the small caterpillars, like many of the cutworms, become torpid and pass the winter beneath tufts of grass and other low herbage. In the following spring they complete their growth, feeding on the young grass and grain crops, and produce the moths in June. These lay eggs for the second brood, which is usually much the more numerous and destructive. By the latter part of July, in this part of Canada, the young caterpillars are large enough, when abundant, to attract attention by their depredations. They are full-grown by about the first week in August, when, burrowing an inch or two into the



Fig. 4.—Chrysalis, moth and eggs of the Army-worm.

ground, they change to chrysalids and emerge as perfect moths towards the end of the month.

It has been noticed by many observers that Army-worms are frequently destructive in seasons following years of unusual drought and that they are seldom abundant in the same place for two successive years. In 1895 collectors of insects were struck by the number of Army-worm moths which flew into houses or were seen in several parts of Ontario. From this it was feared that there might be trouble from Army-worms during the present year. This turned out to be the case, for in July and August reports of serious injury were received from almost every part of the province, from Russell county in the extreme east to Essex in the extreme west, and from Welland to Algoma district. The loss was greatest, according to the *Ontario Crop Report* for August 13, 1896, in Essex, Kent, Haldimand, Welland, Lambton, Huron and Wellington. Nor was loss from the Army-worm confined to Canada, but considerable harm was done in some of the Northern United States. In the *Massachusetts Crop Report* for July, 1896, a good article on this subject appears by Mr. A. H. Kirkland, and at the last meeting of the Association of Economic Entomologists held at Buffalo in August, 1896, injuries by Army-worms were mentioned by other entomologists.

The Army-worm feeds, under ordinary conditions, upon various members of the grass family, having apparently a special preference for oats and timothy, but it also occasionally injures seriously rye, barley, wheat and many grasses, as well as, when such food is scarce, pease, beans, lettuce and other vegetables. Mr. Kirkland records that the loss in the Massachusetts cranberry swamps from Army-worms was very considerable this year. He also made some interesting observations on the periods of occurrence of the different broods and found that this year there were three broods in Massachusetts. As stated above, we have only two broods in Canada, but according to Dr. L. O. Howard, there may be as many as five or six broods in the south. In the *Ontario Crop Report* referred to above, is given a long list of extracts from correspondents in all parts of Ontario. The following from some of my correspondents give interesting information on the subject. Those extracts which bear upon the unusual abundance of the moths again this year are of exceptional interest, and in Mr. Metcalf's experience at Port Hope in catching a large number of the mature moths, we may have the suggestion of a remedy which it would pay to practise on a larger scale when the moths are noticed to be unusually abundant. Of course, when this is the case, not only should the moths be captured as much as possible, but infested lands, whenever possible, should be burnt over in the autumn or early spring and a keen lookout should be kept the following year for the first appearance of the Army-worms, so that the well-known remedies may be applied.

"Marshville, Monk Co., Ont., July 3.—You will find inclosed some most voracious insects which are in my rye in innumerable numbers; they have nearly destroyed it and are now moving on to my corn. What are they? How long will they live? What can be done for them? They seem to have been bred in my fall grain. Are they confined to it? They have eaten the timothy (small) out of my rye, and have left the clover as yet, but I am sure they will eat it when hungry. Please give me as early an answer as possible."—J. E. REAMLY.

"Humberstone, Welland Co., Ont., July 9.—I write in relation to a pest which appeared suddenly in this district one week ago, about the 2nd inst., the Army-worm. This place is a village on the Welland Canal, one mile north of Port Colborne and Lake Erie. About a mile below this place, and extending two or three miles, is a tract of low land, the soil being a black loam. It was in this tract of land, on the farm of James Phillips, two miles north of this place, that the Army-worms were first noticed in countless numbers destroying principally oats and corn. In the oats, these worms first take the leaves, then the head, afterwards the stalk. Some farmers are applying Paris green to their corn crop. Is that safe or desirable? What is it advisable to do, in order to prevent their destroying the oat crop? Can anything be done to prevent their entering any field? The worms are of various sizes, from half an inch to one inch and a half in length, and are of a dark colour. All the information the farmers can give in relation to their origin is that on the night of the 1st of July there had been a slight

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frost and when they examined their crops the next morning they found countless numbers of these worms in their oats and corn. They come in such numbers that they make a clean sweep of all before them, and unless some way can be found to check their ravages the damage they will do will be exceedingly great. The most of the destruction, so far, has been in the tract of low land referred to. We are anxious to hear from you as soon as possible."—C. E. THOMPSON.

"Diamond, Carleton Co., Ont., December 8.—I received your letter and report *re* the Army-worm, and thank you most sincerely for the promptness with which you answered my inquiries. I followed your directions, rolling and ploughing, and found that it destroyed them greatly. I used a three section roller, and where the ground was level it did good work. Where the surface was rough I ploughed three trenches and in the third I sank holes, as you described, and there did not half a dozen succeed in crossing. It was pasture land, and they were heading for the grain, but never reached it, so that I am unable to say anything with regard to fighting them in the grain. They did considerable damage in some parts of this township, Fitzroy, in the grain."—JOHN GREENE.

"Jermyn, Peterboro' Co., Ont., August 10.—I send some moths which came into our house last night in thousands."—SAMUEL ARMSTRONG.

"Toronto, August 18.—The Army-worm moth (*L. unipuncta*) has been very numerous this fall, literally swarming everywhere during the first three weeks in August."—JAS. H. McDUNNOUGH.

"Port Hope, Durham Co., Ont., August 11.—Several large honeysuckles are growing in my garden covered with berries which attract hundreds of Army-worm moths at night."—REV. C. J. S. BETHUNE.

"Port Hope, Durham Co., Ont., Nov. 11.—I have been doing some collecting this fall that may be of economic value, viz., the collecting of over six hundred Army-worm moths, mostly females, at sugar. Would not killing the moths thus attracted be a very effective way of fighting them?

"While collecting larvæ last spring, the Army-worm did not appear as common as usual, and so I was surprised at the large numbers of the moths that were flying about the first week in June. They swarmed on the under side of pine branches and hovered about the bloom of the barberry in small clouds. No armies appeared in my immediate vicinity, the larvæ not being in such numbers as to get ahead of the supply of their natural food. They fed on Quack Grass (*Agropyrum*), Fox-tail (*Setaria*) and Wild Buckwheat. After the pease were pulled, the caterpillars sheltered under the bundles and I had a good opportunity to examine them. The bulk were plentifully dotted with the eggs of a Tachina fly. Those very useful beetles, *Calosoma calidum* and *Harpalus caliginosus*, were busily feasting on them. These beetles were innumerable, and, when the wind changed after a land breeze, would be washed up on the lake shore in bucketfuls.

"About August 10, I commenced sugaring; the bait was smeared on the supports of an open shed facing the north, this, of course, being an unfavourable position, but, notwithstanding, the moths came readily to the sugar. The largest catch was made on the evening of August 17, when I took over a hundred before nine o'clock. Over six hundred were taken before August 25. The mixture used was made by dissolving sugar in hot water and adding enough rum to give an attractive odour."

"Port Hope, Ont., Dec. 1.—Many of our common beetles are washed up in great numbers on the shores of the lake here, at Toronto and at Grimsby, as well as members of the other orders. After a north wind of one or two days' duration the wind usually shifts till it blows from a southerly direction, and then is the time for a harvest of beetles on the lake shore here. While at Grimsby (on the other side of the lake) in the summer of 1894, on only two or three occasions did the wind blow on shore, the balance of the time it blew almost continuously from the south. I found many good things on the rare occasions of a north wind."—W. METCALFE.

Remedies.—Under this head I have nothing to add to what appeared in my annual report for 1894 as follows:—

"Although only occurring occasionally in excessive numbers, and then in but few localities, this moth is very widely distributed in Canada, and may generally be found

in most parts in low lands where the caterpillars have suitable conditions for growth and an abundance of food. It has also been observed that the Army-worm is most abundant in wet seasons following a dry autumn, the damp weather giving them the same conditions over a large area as they would find in their own special habitat, viz., low, swampy, and grassy places.

“When the caterpillars appear only in moderate numbers, they have an abundant food supply, and do not then acquire the habit of ‘marching,’ which is merely moving from one place where all the food has been devoured, to a fresh pasture. When, however, their occurrence is excessive, they must of necessity move on to some other place or starve. They may be prevented from marching from one field to another by ploughing a deep furrow across their path. This should be cleared out so as to leave the edge nearest to the field to be protected, perpendicular or slightly overhanging. Along the trench so formed, pits must be dug about 12 feet apart. When the caterpillars come to the trench, they are unable to climb up the opposite side, and after a few trials, walk along until they fall into the pits, when they may be destroyed by covering them with earth and tramping it down, or, as Prof. Luger, of Minnesota, suggests, ‘with a liberal dose of kerosene oil and water. Even a shallow ditch will answer this purpose if the earth is made friable enough to keep the worms from ascending. If a log is dragged continually through such a ditch, nearly all the worms collected there are either killed or maimed.’

“If pits are not dug, when the caterpillars occur in large numbers, the trench will soon be filled, and they will walk over on the bodies of their fellows. In case any of the worms succeed in crossing the ditch, a narrow strip of the plants on the opposite side of the trench should be dusted or sprinkled with a strong mixture of Paris green diluted either with 25 times its weight of flour, ashes or land plaster, or mixed with water as strong as one ounce to a pailful of water.

“When an attack has been very severe in any locality, much good may be done by burning the old grass and stubble in autumn or spring; in this way, many of the young larvæ are destroyed, as well as the old stems, which it seems are the favourite place for the spring brood of moths to lay their eggs upon.

“An encouraging feature in connection with an invasion by the Army-worm, is the fact that it is extremely rare for the insects to appear in large numbers two years running in the same place. This is due to the fact that they are almost invariably attended by parasitic foes, which destroy them so effectually that the occurrence of two consecutive ‘Army-worm years’ in the same locality is almost unknown.”

FODDER CROPS.

The injuries to fodder crops during the summer of 1896 were chiefly by the Army-worm and Grasshoppers. Occasional mention was made of the work of the Clover Seed Midge, which, however, is found to be far wider-spread over the Dominion than is indicated by reports, because this insect is mentioned only by correspondents in the seed-growing districts. Undoubtedly much clover was killed out by the droughts of 1895 and 1896 and by the severe cold of December, 1895, and January, 1896, which came when there was no snow on the ground. The work of the Clover-root Borer (*Hylesinus trifolii*, Miller) was reported by Mr. R. A. Harvey, of Laskay, York Co., Ont.

WHITE GRUBS, the larvæ of the different species of June beetles (*Lachnosterna*), have been reported as injuring meadow lands and lawns. The good work of robins and high-holders (golden-winged woodpeckers) in destroying the grubs on an infested lawn is mentioned by Mr. J. F. McDonald, barrister, of Dunnville, Ont. Another instance involving considerable injury was on the land of Mr. Caius M. C. Hubble, of Sand Hill, Ont., who writes:—“I dug up these grubs all the season among potatoes, carrots, corn and turnips; but they are most numerous in the carrots. The last I found was on November

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6. They were in the same condition as those I dug up in the summer. There are a number of tall poplars bordering my garden which, no doubt, were the cause of my having such a number of these grubs. For a piece of ground adjoining mine, where there are only three or four apple trees near it, had very few. About one-tenth of my ground where I had white carrots was badly infested, but I found them scattered among other crops. It is a very unusual occurrence for them to be so abundant here."

COTTONY GRASS-SCALE (*Eriopeltis festucae*, Fonsc.).—There has been little reference during the past summer to this insect, treated of in my last report. Mr. D. G. Crawford, of Sydney Mines, C. B., N. S., says:—"I noted that the egg-sacs began to be formed about 21st July, and they were not nearly so numerous as last year, but appeared in other localities to a limited extent. I believe they will disappear in a year or two."

GRASSHOPPERS.—The three species of grasshoppers which have this year committed depredations on fodder and grain crops throughout the Dominion, are the same as were injurious last year, namely, the Common Red-legged Locust (*Melanoplus femur-rubrum*, DeG.), the Lesser Migratory Locust (*M. atlantis*, Riley) and the Two-striped Locust (*M. bivittatus*, Say). These were reported as very abundant in some parts of Ontario and Quebec early in the season. In the *Ontario Crop Report* for August 13th, there is frequent mention of their attacks upon spring and fall wheat, barley, corn, pastures, and even on hops.



Fig. 5.—A Locust.

Locusts are generally spoken of by correspondents as Grasshoppers, and I cannot see the least objection to using the words "Grasshopper" and "Locust" indiscriminately, for although entomologists claim that the word "Locust" is the more accurate name for those species with short antennæ (the Acridiidae), the name "Grasshopper" is so universally used and understood for these insects by the public in general that it is certainly wise to recognize this word, at any rate, in these reports prepared especially for farmers or those who, with very few exceptions, are not entomologists. Particularly is this the case as it seems difficult to understand why the word "Grasshopper" should be restricted to the Locustidae, or long-horned grasshoppers, while the word "Locust," which we might naturally suppose would most aptly apply to the Locustidae, should be considered the accurate popular name for the Acridiidae, or short-horned species. Possibly, it may have been because the plague of locusts mentioned in the Bible was known to have consisted of a short-horned species, and the application of the word for that reason has become so well known as applied to those forms with short antennæ that, to some, it has seemed unwise to change it.

The correspondence during the past season, concerning grasshoppers, their injuries and their enemies, is too extensive for us to give more than a few extracts.

"St. Lin, L'Assomption Co., Que., June 7.—Please tell me the best and most economical plan for destroying grasshoppers. They threaten to destroy the whole crop."—J. P. ARCHAMBAULT, *Secretary of Agricultural Circle*.

"Mastai, Quebec Co., Que., August 19.—Grasshoppers eating up cabbages."—H. F. HUNT.

"Port Elgin, Bruce Co., Ont., June 16.—During the past few weeks there has been a plague of grasshoppers in this vicinity. They follow the roadsides, eating the grass so closely that it has the appearance of being singed by fire. At intervals they enter the fields, starting at one point and sweep everything clean before them, such as oats, hay and pasture,—pease, so far, being the only exception. In the evening they gather in countless numbers on the fences of the field they intend to devour, and actually eat into the rail-posts and boards, staying there until the warmth of the day comes, when they again begin their work of destruction. Is there a remedy to stop this fearful plague and save the crops? Could they be scattered when they commence their inroads on a field, or destroyed on the fences at night?"

"June 26.—Fields have been destroyed by grasshoppers. Pastures are singed as if by fire, and the cutting of oats and fall wheat in the green state has begun in some places. A small red insect is to be found under their wings, which is destroying some

of them, but there are many young hoppers coming in their place. If the present state of things continues much longer, there will be very little of anything left. I fear it is now almost too late to try the hopper-dozer, as the grasshoppers can fly well. Of all the pests this is the worst we have ever seen."—A. BEATON.

"Ashgrove, Halton Co., Ont., Sept. 14.—Grasshoppers this year were very numerous in some sections, but were not so general over the country as I have seen them. In some parts that were stony they appeared at one time as if they would take everything. They were particularly destructive on grass, spring wheat, oats and turnips."—GEORGE HARDY.

"Osnabruck Centre, Stormont Co., Ont., Nov. 23.—The worst pests we had to contend with in this section were grasshoppers and Colorado Potato-beetles. With regard to the grasshoppers, they were very bad for a while, but disappeared from this part, as far as I can remember, about August 1st. They were particularly destructive to grain fields adjoining pastures or grass lands."—A. S. HODGINS.

Remedy.—When locusts appear in enormous numbers, they frequently become a serious scourge to the agriculturist. The most efficient remedial measure which can be adopted is the use of the hopper-dozer, which has been described in previous reports. In the case of restricted swarms, much good may be done by the use of poisonous mixtures. As an instance, I cite the following experience:—

"Princeton, Brant Co., Ont., June 23.—I am trying to get rid of the locusts by mixing bran, Paris green and molasses together and putting it in heaps in different parts of a field. Can you recommend any better way of exterminating them? They are doing considerable damage to my crops already.

"July 7.—As to the result of the mixture I used, viz., bran, Paris green and molasses, I applied it in a similar way to that in which the mixture you mentioned in your letter was applied. I put it around six acres of beans which the locusts were destroying as fast as they could. In the next field I had another six acres of beans which were sown a week later. After putting the mixture on the first field the locusts did no further damage to that piece, but started at the beans in the next field. Noticing this, I put the mixture round the second field and they did no further damage to either piece afterwards. I noticed several dead around the heaps and suppose several hopped away to the fences and died there. Whether the poison stopped them eating the beans or whether the beans got too tough for them, I cannot say. Only, I am quite sure they did not bother either lot after it was applied. Alongside of the first lot of beans I had nearly five acres of potatoes just coming out in flower. There we put Paris green on for the potato bug, a few days after putting the poison on the second lot of beans. We then noticed that the locusts were cutting the potato stems off. Some of the stems cut I noticed were a foot in length. When walking through the patch lately I saw hundreds of locusts lying dead. The Paris green was applied to the potatoes mixed with land plaster. At the present time there are millions of grasshoppers or locusts on my farm, and they are doing an enormous amount of damage to my oats. I am afraid it is too late to stop them, although I intend to scatter the poisonous mixture about the fields. My opinion, so far, is that the mixture should be put on, especially on grass land, early in the season before the locusts get their wings and before there is much for them to eat, and continue to apply it at certain intervals."—J. E. RICHARDSON.

From the answers received to the questions sent out by Prof. Panton, grasshoppers were rated as second in the amount of injury caused by insects in Ontario during the past year. There is no doubt but that early in the season there was a considerable amount of damage done by locusts; nevertheless, one of the remarkable occurrences of the year was certainly the widespread and sudden diminution in the numbers of these insects, beginning about the 1st of August.

A curious fact affecting the sudden disappearance of locusts in August last was brought to my notice by Mrs. J. Cunningham Stewart, of Ottawa, who, when travelling on Lake Huron, saw large numbers of grasshoppers floating in the lake. Mrs. Stewart also kindly referred me to Mr. Wm. Lockerbie, engineer of the Canadian Pacific Railway Co.'s steamship "Athabasca," who had observed them on a previous trip. Mr. Lockerbie writes: "As to how numerous these insects were, I can only say they were

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collected in patches that would probably cover half an acre or perhaps more, and there seemed to be a very great number of these patches, so much so that when the wind blew off the bay (Georgian Bay), they would float up the Owen Sound River and collect in any shelter that was open." Mr. Lockerbie suggests that they may have been blown off the shore by a high wind.

Judging from a great many letters of correspondents, as well as my own observations, I feel sure that the sudden disappearance of locusts over large districts in Canada was due almost entirely to four kinds of well known parasites—a fungus, intestinal worms, the maggots of two or more species of flies and the locust mite. All of these active friends are well known to entomologists and have been frequently observed before, but, as there has been so much interest evinced in the subject, I give herewith a short account of each, which I feel sure will be acceptable to many.

GRASSHOPPER PARASITES.

Fungous Disease of Grasshoppers.—A most potent ally in the destruction of locusts when they exceed their normal numbers is a parasitic fungus known by the name of *Empusa grylli* (Fresenius) Nowakowski. This produces a very infectious disease, the effects of which are frequently observed, but the cause of which is seldom recognized. Diseased locusts were received from Princeton and several other places in Ontario. The disease seems, too, to have been very virulent near Montreal. Mr. T. A. Crane writes from that place, under date of 1st August: "A few days ago the grasshoppers were vigorously attacking my oats. Last evening, when I examined them again, I noticed that they were clinging fast to the tops of the stalks, but they were all dead. Some were minus their heads and some minus their entrails." This describes well the appearance of locusts which have succumbed to this disease.

During the month of August, and later, it was a common thing to see around Ottawa and in almost all other places visited, numbers of different species of locusts, but particularly the Two-striped Locust, hanging motionless, generally near the tips of stems of grasses and other plants. (Fig. 6.) Upon examining these, they were found to be dead and the bodies frequently dried up, brittle and containing a powdery material. This powder is in reality the spores of a parasitic fungus very nearly allied to the well-known and frequently observed *Empusa musca*, which every year destroys so many house flies, leaving them dead on windows, curtains, plants, &c., with a cloud-like deposit of the spores of the fungus around them. Under certain conditions, probably much affected by weather—warm, foggy weather being considered favourable—the disease of grasshoppers above mentioned frequently becomes a most fatal epidemic. Each of the mummified bodies is a centre of infection containing myriads of spores, each one of which, blown away by wind or washed down by rain, if it fall upon a locust in a suitable condition, is capable of causing death. This useful parasite, which does such efficient service, had attention first drawn to it by Prof. Herbert Osborn in Iowa, who published his observations, with Prof. Bessey's original description, in *Bulletin No. 2*, Iowa Agr. Coll., 1884, under the name of *Entomophthora calopteni*. The accompanying original illustration, kindly loaned by Prof. Otto Lugger, of the University of Minnesota, shows admirably the attitude of a Two-striped Locust killed by the fungus.



Fig. 6.—Two-striped Locust killed by fungus. (O. Lugger.)

The Tachina Flies.—Mr. J. E. Richardson, of Princeton, Ont., who, I find from several letters received on this subject, is a close and accurate observer, writes:—

"July 7.—I have of late noticed, more especially the other day after a rain, flies attacking the locusts. About half a dozen would fly after one, and as soon as it settled down they would alight upon it."

Prof. Riley graphically describes what this meant, in the *First Report* of the United States Entomological Commission on the Rocky Mountain Locust, page 319: "The most common of the parasites which prey on the locusts internally are the larvæ of certain flies belonging to the genus *Tachina*, gray-coloured, two-winged flies having very much the general appearance of house-flies.

"These *Tachina*-flies firmly fasten their eggs—which are oval, white, and opaque, and quite tough—to those parts of the body not easily reached by the jaws and legs of their victims, and thus prevent the eggs from being detached. The slow-flying locusts are attacked while flying, and it is quite amusing to watch the frantic efforts which one of them, haunted by a *Tachina*-fly, will make to evade its enemy. The fly buzzes around, waiting her opportunity, and, when the locust jumps or flies, darts at it and attempts to attach her egg under the wing or on the neck. The attempt frequently fails, but she perseveres until she usually accomplishes her object. With those locusts which fly readily, she has even greater difficulty; but though the locust tacks suddenly in all directions in its efforts to avoid her, she circles close around it and generally succeeds in accomplishing her purpose, either while the locust is yet on the wing, or, more often, just as it alights from a flight or a hop. The young maggots hatching from these eggs eat into the body of the locust, and after rioting on the fatty parts of the body—leaving the more vital parts untouched—they issue and burrow in the ground, where they contract to brown, egg-like puparia, from which the fly issues either the same season or not till the following spring. A locust infested with this parasite is more languid than it otherwise would be; yet it seldom dies till the maggots have left. Often, in pulling off the wings of such as were hopping about, the bodies have presented the appearance of a mere shell filled with maggots; and so efficient is this parasite that the ground in parts of the Western States is often covered with the Rocky Mountain Locusts dead and dying from this cause."

There are several species of these *Tachina*-flies, and we have bred two kinds during the past summer, one from specimens sent by Mr. Richardson, and another much larger species, *Ecorista flavicauda*, Riley (Fig. 7.), from several localities. This last named species is of great interest from the fact that it is the enemy of the Army-worm, which, above all others, brings down the numbers of that plague when it increases unduly. There are also, in addition, parasitic species of flesh-flies (*Sarcophaga*) which resemble the above very closely, but may be distinguished by their antennæ being hairy instead of smooth.

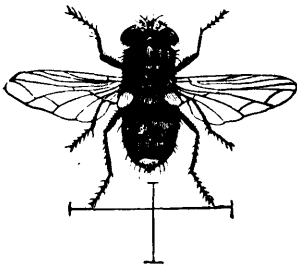


Fig. 7.—*Tachina*-fly.

Hair-worms.—Hair-worms, or Hair-snakes, as they are sometimes called, are objects of great curiosity, not only to those who know nothing of their habits, but also to all who have studied their remarkable life history. Their great abundance in some places during the past summer has been remarked by many correspondents, and the good work they have done as parasitic enemies of many kinds of grasshoppers, crickets and other injurious insects, renders it advisable to give a short outline of what is known about them. There are many misapprehensions as to the true nature of these creatures, notably the erroneous ideas that they are related to the true snakes or that they are horse-hairs which by some mysterious process have become capable of living and moving. Snakes, however, belong to the much more highly organized Vertebrates, or animals with backbones, while the Hair-worms are members of the Entozoa, or intestinal worms, a section of the Articulates which have their bodies merely divided into joints.

The supposition that a horse-hair or any other dead organic matter can ever become a living creature, is too absurd to need more than mention.

Fig. 8.—Egg of *Gordius* containing a fully developed embryo, highly magnified. (After Leidy.)



It must be acknowledged that there are some gaps in our knowledge of the life history of Hair-worms concerning which it seems impossible to make any suggestion. It is known positively that the eggs (Fig. 8.) are laid in water and that the young worms begin their lives as free-moving animals, which have been actually seen to

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penetrate through the delicate skin at the joints of the legs of aquatic insects and live for some time inclosed within a cell inside the bodies of these. The next stage is as parasites in fish, the food of which consists largely of aquatic insects. When the latter containing young Hair-worms are eaten, the cells are broken or dissolved by the process of digestion and the young worms at once work their way, by means of special hooks around the head (Fig. 9.), into the stomach of the fish, where they again become encysted in the mucous layer. After a time they bore through their cells and are passed out from the fish's stomach into the water. Subsequent to this, nothing is known, until they are found as parasites inside insects of various orders, and it is difficult to conceive how it is possible for these worms to enter the bodies of such active insects as locusts and crickets, which also, besides, live mostly in dry places. It is true, though, as has been pointed out, that ground beetles, spiders and locusts which live in low, moist places are most infested. Certain it is, however, that Hair-worms are parasites inside the bodies of many insects, and that specimens have been seen to lay eggs from which young emerged which passed through the stages described above. These worms are of two kinds, which, when only examined superficially, differ chiefly in colour: dark ones, from 6 inches to a foot in length and with a diameter not reaching at the thickest part one twenty-fifth of an inch, belonging to the genus *Gordius*, with the above life history; and others, white in colour, much longer and slenderer, belonging to the genus *Mermis*, which, although similar in their parasitic habits to the *Gordius* worms, have a quite different mode of development, as well as a different internal structure. Both kinds of these parasitic worms are frequently found associated within the body of the same host. The eggs of *Mermis* are laid in the ground and the young on hatching resemble their parents in form. On emerging from the egg they make their way to the surface of the ground and enter at once on their parasitic life in some insect. They acquire full growth inside their host and then bore out through the skin and bury themselves in the ground. It is not until this period in their lives that the genital organs develop. They pass the winter in the ground at varying depths, and eggs are laid in the spring. I received from Mr. T. Pearson, of Knowlton, Que., gardener to the Hon. Sydney Fisher, a large specimen 17 inches in length, which he had found in December under a stone six inches beneath the surface of the ground.

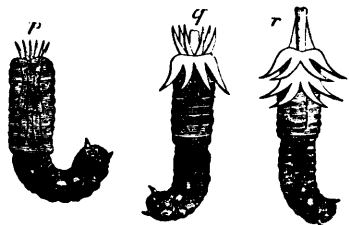


Fig. 9.—Young Hair-worms after escaping from the egg, highly magnified, showing the circles of hooklets (*p*); drawn in, and (*q*) partially and (*r*) wholly protruded.

As stated above, these parasitic worms infest insects of various orders. Mr. W. Hague Harrington, of Ottawa, writes to me:—"I have frequently obtained *Gordius* from locusts, and on one occasion I obtained two small specimens of *Mermis* from a lady-bird (*Hippodamia 13-punctata*). In the *First Report* of the United States Entomological Commission is a full account by Prof. Riley of almost all that has been found out concerning these strange creatures. I quote the following:—

"These Hair-worms are not only very frequently found in different locusts, but Prof. Leidy even has one from a cockroach. They likewise occur in many other insects and small animals, as beetles, moths and butterflies, bees, two-winged flies, spiders and snails. As a rule, the worms forsake Lepidoptera while these are in the larva state or more rarely in the pupa state, whereas they generally issue from Coleoptera and Orthoptera only after these have acquired the perfect state."

While they are inside the bodies of their hosts, Hair-worms are folded and coiled up so as to occupy a surprisingly small space. When seen, as is frequently the case, on the ground, they move in a snake-like manner, sometimes with a part of the body raised up and swaying from side to side. When in the water, they are either knotted together and tangled like a piece of black cotton or swimming with an undulated motion close to the surface of the water.

When referred to in correspondence, it is seldom that species of *Gordius* and *Mermis* are separated, though they are frequently mentioned. In no year do I remember so many inquiries to have been made as during the past summer, which, of course, was due

to their unusual numbers. Mr. J. H. Vivian, of Toronto, reports a remarkable occurrence of Hair-worms in Toronto, as follows:—"October 14.—On the occasion when I first saw them there were millions of them both white and dark-coloured. I have a large garden, and it was almost impossible to find a space of two inches between the spots occupied by these worms. A very heavy rain fell on the night preceding. The special peculiarity about them to me was their snake-like movements; standing almost on their tails, they swayed the upper two inches of the body in the air."

During the past autumn they were very abundant, as could frequently be seen on sidewalks where crickets and grasshoppers had been crushed. Sometimes as many as five specimens were found inside a single host. There is no doubt that these parasites materially affect the increase of the insects which they infest, but the statement that grasshoppers so infested never lay eggs is not always at any rate correct. In October last I found a female of the Two-striped Locust which had been trodden upon while laying her eggs between two boards of the sidewalk; upon pulling her abdomen from between the boards, I found she had laid five or six eggs and the abdomen contained several more ready to be laid, and also one specimen of *Gordius* and two of *Mermis*.

The Locust Mite.—The parasite of grasshoppers which has probably been most frequently noticed and which has been very widespread during the past summer, is the small red mite, *Trombidium locustarum*, Riley, which, in its larval form, is often a conspicuous object on the bodies of grasshoppers. The larvæ are small, bright red, bug-like, six-legged mites (Fig. 10a.), most frequently found attached,

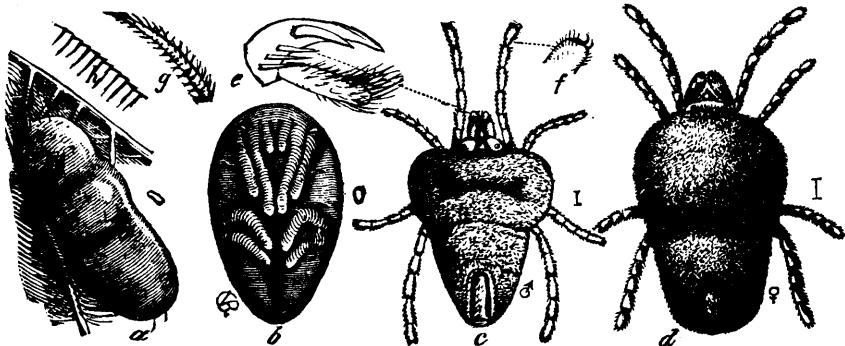


Fig. 10.—Locust Mite: *a*, mature larva when about to leave the wing of a locust; *b*, pupa; *c*, male adult when just from the pupa; *d*, female—the natural size indicated to the right; *e*, palpal claw and thumb; *f*, pedal claws; *g*, one of the barbed hairs; *h*, the striations on the larval skin. (After Riley.)

in varying numbers, on or near the base of the wings of the perfect grasshoppers, but also sometimes abundant on the pupæ. When full-grown, these are about one-twentieth of an inch in length and about half as wide. The life history of these useful allies,

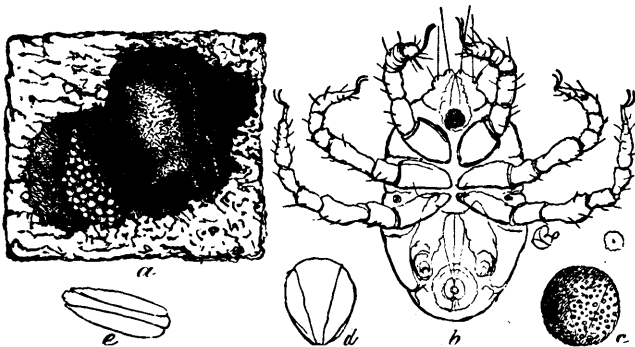


Fig. 11.—Locust Mite: *a*, female with her batch of eggs (after Emerson); *b*, newly hatched larva—natural size indicated by the dot within the circle; *c*, egg; *d, e*, vacated egg-shells. (After Riley.)

which, although so small, destroy many injurious locusts, has been worked out fully by Dr. Riley. The eggs are laid in spring in clusters of between 300 and 400, an inch or two beneath the surface of the ground. From these eggs hatch little orange red mites (Fig. 11b.), which, being very small, crawl out easily between the particles of the soil and fasten themselves to their future hosts, generally selecting a spot near the base of the wings from which they

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cannot be dislodged. Sinking their minute jaws into the tissues of the body of their victim, they remain firmly attached, sucking its blood and living entirely at its expense, until the full larval growth is reached. Dr. Riley thinks that the full period of development of the larvæ, after attachment, seldom exceeds a fortnight. When distended with food, these mites are so swollen that their short legs are almost invisible, and many people who notice them mistake them for the eggs of some parasite. When examined closely, however, their legs can be seen and are found to be six in number, which is now known to be one of the characters of the larvæ of the genus of mites called *Trombidium*. As soon as the larvæ are full-fed, they let go their hold of their hosts and fall to the ground, where, under some temporary shelter, they gradually change to pupæ inside the larval skin. Finally, both the old larval skin and the new one inside it, which incased the pupa, burst, and the perfect form, an eight-legged mite, emerges. These are common objects in the country, drawing the attention even of people who do not study insects, by the intensity of their velvety scarlet colour. They pass the winter in the perfect state, and are frequently conspicuous on the ground in early spring before vegetation has made much growth. Not only is this insect useful in the larval form, when it preys upon locusts, but also in the perfect state it does good service by seeking out and devouring their eggs.

I give below a few extracts from letters of correspondents who have noticed these mites:—

“Craighurst, Simcoe Co., Ont., Dec. 19.—We had this year the same experience with grasshoppers as you mention. They hatched out in immense numbers, and at one time we were afraid they would do great damage, but they seemed to disappear early in August or the latter part of July. The parasite that lays its eggs on their backs under the wings was abundant. Most specimens examined showed their presence.”—G. C. CASTON.

“Princeton, Brant Co., Ont., June 23.—On examining some locusts or grasshoppers, I find on the underside of the wings some minute insects—I suppose, parasites. They are now on nearly all the locusts I have looked at. The majority are about $\frac{1}{10}$ of an inch in length, but many much smaller, of a bright red colour.”—J. E. RICHARDSON.

“Doe Lake, Muskoka, Ont., August 18.—Grasshoppers damaged both grass and grain. They have done much harm on light sandy soil; there are many of the red eggs under the wings. Are they parasites?”—F. C. JUDD.

“Omeme, Victoria Co., Ont., Aug. 3.—I send you a common grasshopper, with red insects on it. They appear to be very numerous this year, but I fear came too late to prevent the grasshoppers doing harm.”—E. S. MORGAN.

“Louise, Grey Co., Ont., September 26.—Grasshoppers came along about the 1st of June in massive flocks and destroyed nearly all the hay. They were by far worst on spring wheat and barley; in fact, there was hardly any of either grain in this part. Oats turned out about 10 to 12 bushels per acre. Pease were a fair crop. The hoppers all disappeared about the 1st of August.”—GEORGE LAST.

“London, Middlesex Co., Ont., December 7.—I never saw grasshoppers worse than in a part of McGillivray about the middle of June, but within two or three miles on each side they were scarce. Where they were very numerous, I found none of the locust mites; where scarce, almost every one was infested.”—J. DEARNESS.

THE GRAY BLISTER BEETLE.

No account of the common parasitic enemies of grasshoppers would be complete without some mention of the Blister Beetles, which in their larval stage prey upon the eggs. During the past summer, as is usually the case in years following excessive locust presence, Blister Beetles have done considerable damage to potato and bean crops and several kinds of garden plants.

“Grenville, Argenteuil Co., Que., June 11.—I send by mail specimens of a new (to me) potato pest. On a potato patch 20 feet by 40 feet there were many thousands of them. I was through the patch two days ago, and there was no appearance of anything unusual. Now the plants on which they are feeding are almost leafless.”—ROBERT HAMILTON.

“Staynerville, Argenteuil Co., Que., June 18. I have a field of horse beans which came up and are growing nicely, but during the last two or three days a kind of bluish fly is stripping off every leaf.”—WM. NICHOLS.

“Chêneville, Labelle Co., Que., June 16.—I send you some insects which are in very large numbers on my potatoes, eating the leaves rapidly. I have sprayed the plants with a mixture of 1 pound of Paris green in 200 gallons and the insects are already disappearing.”—H. LEFEBVRE.

Specimens were also sent from Mr. L. Lepage, from Minerve in the same county.

“Port Arthur, Ont., June 23.—I mail you herewith insects captured on a potato patch near Port Arthur, wherein they were stripping the vines of their leaves. These are apparently a far worse destroyer than the Colorado Potato-beetle. This is the first time an enemy of the leaf of the potato has appeared in this district.”—JOSEPH G. KING.

“Montreal, Que, June 25.—I send you beetles which did a little harm on my farm last year, and this year they have done a good deal. Their preference seems to be for tender, delicate foliage, but when this is not handy they take what they can get. They began with *Caragana gracilis*, *Aralia spinosa* and *Clematis flammula*, and ended with potatoes and tomatoes. They come in hundreds and make a clean sweep of any branch they attack.”—THOS. A. CRANE.

“Montreal, Que., June 24.—I send specimens of a beetle which attacks the Windsor Broad Beans. We have grown these beans for three years at Lachine. The first year they produced well, the next year this beetle pest appeared in swarms and ravaged them severely. Tired of picking them off, we tried a weak mixture of Paris green, with flour or water, I forget which, but it killed the crop and we did not have a dressing. This year we have more beans growing than usual, but they have been attacked incessantly by the pest which is a voracious eater. A neighbour not knowing our experience tried Paris green and killed his plants. We have been picking and knocking the pests off into a mixture of coal oil and water in a broad, shallow vessel, which seems to kill them. Last year a small cloud of them settled down on the potato vines and ate to some extent, but did no damage. This year they have left the potatoes alone for the beans. They do not breed in our place, but settle down in small swarms, full-sized, and it seems to us that nothing but a strong mixture, dangerous to the plant, would kill them, but perhaps you can tell us a remedy. It is necessary to pick them off at least once a day (earlier in the season, perhaps oftener), but they are not diminishing much. The labour is so tiresome that we shall be little disposed to grow our favourite bean another year, and others no doubt feel the same.”—A. H. CHAMBERS.

“Previck Hall, Port Arthur, Algoma, Ont., Sept. 5.—In July my horse beans were infested with black beetles which I have sometimes seen on potatoes. I do not think they have podded quite so well. I did not dare to use poison for the beetles, as it would have spoiled the fodder. I killed as many as possible by hand, but they stripped many stalks of the leaves.”—WILLIAM WILSON.

“Petitcodiac, Westmoreland Co., N.B., Dec. 9.—The black blister beetles were on my horse beans in about the same numbers as last year.”—D. SINCLAIR SMITH.

All the specimens sent in this year were the gray blister beetle (*Macrobasis unicolor*, Kirby). Here on the Experimental Farm the same species was abundant and troublesome on Caragana hedges, some other leguminous shrubs in the botanic garden and *Aralia chinensis*, L. Although the attack is severe while it lasts, the period during which blister beetles injure vegetation is not of long duration. Moreover, these insects do not appear in injurious numbers every year. They are seldom noticed except in seasons following those when locusts of different kinds have been unusually abundant, a fact which is easily understood when we remember that the larvæ feed upon the eggs of locusts. For the same reason we may confidently hope that next year we shall have little complaint of the ravages of blister beetles on beans and other crops, owing to the marked diminution in the numbers of grasshoppers after the 1st of August last. In localities liable to be visited by blister beetles a sharp watch should be kept for their appearance during July, and as soon as they are seen efforts should be made to fight them, either by sweeping the crops with a net mounted on a handle or by beating them into a pan containing some

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water, with a little coal oil on the top. When the area attacked is too large for this, spraying promptly with Paris green, one pound to 100 gallons of water, or dusting with one pound of Paris green to 50 of flour, would destroy them.

Referring to Mr. A. H. Chambers's experience above mentioned, I think there must have been some other cause than the Paris green which destroyed his crop, for a very much stronger mixture than he mentions has been used by some of my correspondents and by myself without injury on the same crop.

LOCUSTS ON SABLE ISLAND.

In my reports for 1894 and 1895 I have referred to serious injury by locusts on Sable Island, off the coast of Nova Scotia. This was so severe last year that it was necessary to purchase 50 tons of hay to keep the horses and stock through the winter. During the past summer the loss has been far less. The Superintendent of the island writes: "September 7.—In a few days we shall have finished harvesting the hay crop, which this season is large, owing to the unusual continuous fogs and heavy rains from June till the middle of August. The locusts have done but little damage, although plentiful. Vegetation nearly everywhere kept ahead of them." In an earlier letter dated the 12th of June, the Superintendent expressed the opinion that hopper-dozers could not be used satisfactorily on Sable Island, owing to the uneven surface and loose sand in places. He invested in turkeys and raised a large number of chickens, which doubtless were useful in destroying many locusts. The young locusts first appeared at No. 4 Station about the 24th of May, but none appeared at Main Station until the 12th of June.

ROOT CROPS AND VEGETABLES.

Few complaints of injuries by insects to root crops during the past season have been received. There were, of course, the usual applications for remedies against the TURNIP FLEA-BEETLE (*Phyllotreta vittata*, Fab.) from all parts of the Dominion, but the loss was not extensive. The best remedy—dusting the young plants as soon as they appear with land plaster and Paris green (50 to 1)—is now well known. During June this insect, both in the mature and larval forms, was troublesome in gardens at Ottawa upon cress, particularly the curled varieties. When the plants were young, a mixture of Paris green and flour was used successfully; but later, when the crop was ready for the table, dusting with powdered tobacco waste was substituted, and the cress was kept closely picked. The larvæ, which are slender, dark brown grubs, dotted with black, are from one-eighth to three-sixteenths of an inch long, and for the most part mine inside the tissues of the leaves, but frequently, when nearly full grown, burrow out through the thin epidermis and feed for a time on the surface. I have been unable to find these feeding, either on or in the roots. When full-fed they enter the ground, sometimes to a depth of three inches, and emerge nearly three weeks later as the well known perfect flea beetles, which are about one-eighth of an inch long, with two wide waved yellow stripes down the back. As a rule, the larvæ are not often noticed, because by the middle of June the demand for garden cress as a salad or table relish has ceased, owing to the abundance of radishes and similar vegetables. Injury to the leaves at this time is, therefore, of small importance, as the larvæ are never abundant enough to affect the formation of seeds on such plants as are left for that purpose. When green leaves are required, the best method is to encourage a quick growth by watering frequently and cutting as soon as the leaves are fit for use. A weak solution of nitrate of soda (one ounce in three gallons of water) applied carefully to the roots twice a week was found to be a quick-acting stimulant. In this way succulent leaves are produced abundantly before the larvæ have time to develop. When, however, a bed is badly infested, the only plan is to cut the whole bed and water freely; the new growth will also start more quickly if the beds are shaded.

In the North-west Territories and Western Manitoba the RED TURNIP BEETLE (*Entomoscelis adonidis*, Fab.) did some harm to cabbages and turnips, but the beetles were easily disposed of where Paris green was applied.

The STRIPED CUCUMBER BEETLE (*Diabrotica vittata*, Fab.) was the cause of much loss on melons, squashes and cucumbers in several parts of Ontario. The injury is done by the perfect beetles to the flowers and leaves, and by the grubs to the roots in which they burrow. The remedies which have given the greatest satisfaction are dusting the plant with Paris green and dry ashes (1 to 50) or covering them, until the runners are produced and the plants become too large, with a piece of gauze or cheese cloth, supported by two or three sticks stuck into the ground, and with the edges held down by a handful of earth on each side. This means of protection was first suggested by Dr. Clarence Weed in a bulletin of the Ohio Experiment Station for September, 1889, and has been used with much success by some of my correspondents, particularly in garden culture. For preventing egg-laying and also for killing the young larvæ, putting a small quantity of tobacco dust or sand, impregnated with coal oil, close round the base of the stems, is useful if the gauze covers above mentioned are not used.

THE CLOVER CUT-WORM (*Mamestra trifolii*, Esp.).—During the month of August I received from a few localities in Peterborough county, Ont., specimens of caterpillars of the Clover Cut-worm, with the information that they were damaging pease and turnips severely, and some other crops. They were so numerous that they had assumed the Army-worm habit of marching from field to field in search of food. The Clover Cut-worm is a thick, green, smooth caterpillar with black or gray markings extremely variable both in the depth of the ground colour and the shape and extent of the markings, some specimens appearing to be all green, while others have the dark markings so extensive as to cover the whole of the upper surface. Length, about one and a half inches. A more exact description of the full-grown caterpillar is as follows:—

“A dark-green noctuid caterpillar with a very narrow dorsal stripe, a broken sub-dorsal stripe of yellow, edged above by velvety black blotches (the black line not quite as continuous as the yellow); below the breathing pores, a broad pink band, narrowly edged with white above and below. Above the upper white line is a black one which spreads out into a black blotch around each spiracle. The whole body mottled with white on a smooth green surface, giving a somewhat glaucous shade to the green. The narrow dorsal stripe consists of an aggregation of these mottlings, and the dorsal space has them shadowed with black, giving that area a darker appearance than the rest of the body. Legs and pro-legs green, like the body. Head green, bearing on the upper part of the face and on the cheeks clouds of white mottlings. Some of these caterpillars were simply pale green with fuscous markings, others were green, with clear brownish or black markings, some had the mottling all over the body so shaded with brown as to suggest the appearance of the Army-worm. Specimens intermediately tinted between all these colours occurred.”

“Birdsall, Peterborough Co., Ont., August 10.—By this day's mail I send you a box with half a dozen worms that have nearly destroyed a field of pease for me. Kindly tell me the name of them, and if it would be safe to sow the field with fall wheat next month, or would they be apt to come and destroy it next year or this fall? The ground is nearly covered with them. They first appeared about two weeks ago. They have destroyed several patches of turnips in the neighbourhood. I also send you a sample of the pea vine as partially eaten by them.

“August 17.—Thanks for your prompt answer to my letter in regard to the caterpillar. It may be as you state, that the damage to the pease will not be as great as I at first expected, as they hardened up so quickly that the worms had to leave. They all started off in a south-eastern direction and will by this time have all fallen into the river or lake. They have not attacked my turnips, as they are to the west of the field, but many of my neighbours to the north and west are having their turnips destroyed by them.”—F. BIRDSALL.

“Birdsall, Peterborough Co., Ont., November 25.—The turnips injured grew right besides a field of pease, and for a time we thought some new insect pest had made its appearance, but when we came to cut the pease the mystery was explained, as they were

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evidently the same kind of caterpillars as are always found on pease ; only, this year they were very much more numerous than usual and crossed over from the pease to the turnips. The green leaves near the ends of the pea vines and the ends of the vines themselves were eaten, but the pease were too nearly ripe when they were attacked to be injured much. I never before saw anything like it. The ground was literally alive with the crawling insects. We put Paris green on the turnips, and this doubtless helped, but the insects were so numerous that one set after another took the place of those killed. The turnips near the pease were injured most and as you receded from the edge of the pease the injury lessened. The turnips put forth a new set of leaves, but the growth of the roots were stunted and they were only about half a crop. There seemed to be about half a dozen different kinds of caterpillars. I could see no difference between some of them and the ordinary cabbage worms. Then there were all shades of green and brown with various markings, some with two rows of yellow stripes, others with two rows of yellow dots along the back, others with black dots, and some simply a shade of green, brown or black. I did hear of caterpillars being plentiful in some parts of adjacent townships, but in this immediate neighbourhood I do not think the injury caused by them was very great. They were on no crops near here, only pease and turnips, and the turnips alone were greatly injured.”—ROBERT TUDHOPE.

“Villiers, Peterborough Co., Ont.—The green caterpillar which destroyed our turnips did not touch our pease, but there were thousands of them on turnips and carrots, doing much injury. One of my neighbours, Mr. James Fife, says there were millions on his turnips and carrots, injuring the crop about half. Mr. George Webber used Paris green on his turnips, but with little effect, as the numbers were so great.”—PHILIP W. ELM-HIRST.

Remedies.—When these caterpillars assume the habit of the Army-worm of marching from field to field, ploughing a deep furrow across their path is a useful check. If sufficiently abundant, as will rarely be the case, to fill up the furrow, they may be easily destroyed by dragging a heavy log over them. When they occur on roots and other crops, the only practical method of destroying them is dusting or sprinkling the plants with a Paris green mixture. Ploughing late in the autumn is also recommended. As the Clover Cut-worm passes the winter in the chrysalis stage inside a slight cell a short distance beneath the surface of the soil, late ploughing will disturb many and expose them to the frost and to predaceous enemies.

THE ZEBRA CATERPILLAR (*Mamestra picta*, Harris).—A good many letters of complaint have been received concerning the work of the well known Zebra Caterpillar, which was abundant in the eastern parts of Ontario. There are two broods of this insect every year. The moths of the first brood issue from the chrysalis during May and lay their eggs in large clusters on the under sides of leaves of many different plants. These hatch in a little more than a week, and the young caterpillars for a time feed gregariously, devouring all the green cellular portion and making large conspicuously white patches on the leaves. As they grow larger, they separate and feed singly. The caterpillars of the first brood are full grown about mid-summer, when they are large caterpillars, two inches in length, beautifully ornamented, velvety black on the back, with two golden yellow stripes connected by narrow white lines along the sides. The head, thoracic feet and pro-legs are bright reddish brown. When full-grown these caterpillars spin slight cocoons just beneath the surface of the ground and the moths emerge about the first week in August ; they are rather dull-coloured, purplish-brown moths, with white under-wings, expanding about one and a half inches across the opened wings.

The eggs for the second brood are laid throughout August and into September, and the caterpillars are to be found, as a rule, later than those of any other of our moths. Being conspicuously coloured, they are often noticed crawling about looking for food late in the autumn when most kinds of plants have been frozen and killed. The winter season is passed in the chrysalis state beneath the ground.

The crops most attacked by the Zebra Caterpillar last season were pease, and particularly sweet pease in gardens, turnips, clover, potatoes and cabbages. In addition to these, however, these insects levied heavy toll in the flower garden attacking indiscriminately almost all annuals. The eggs and clusters of young caterpillars of the second

brood were found in remarkable numbers at Ottawa during August on lucerne, and on lily and gladiolus leaves.

The eggs were much infested by two minute parasites, *Trichogramma pretiosa*, Riley, and *Telonomus* sp., noticed in the same connection in 1892, and the young caterpillars were also destroyed by an *Apanteles* which occurred both at Ottawa and at Birdsall, Ont.

"Birdsall, Peterborough Co., Ont., August 18.—There are two kinds of caterpillars which are doing a good deal of harm on my turnips, a green one and a yellow and black striped one. I suppose a little of the Paris green and plaster mixture would be the best thing for them. Kindly let me know if you think there would be any danger in feeding roots so treated to stock."—F. BIRDSALL.

"Omeme, Victoria Co., Ont., August 18.—I send you some striped caterpillars which I find in numbers on the turnips, a great many together on a single leaf; they seem to eat the upper surface principally. There are with them, also abundant but occurring singly, some green ones which eat the edges of the leaves, No. 2, and besides a few of the smooth green ones with dark marks, No. 3, which feed like No. 2."—E. S. MORGAN.

The green caterpillars mentioned by Mr. Birdsall and the No. 2 of Mr. Morgan's sending were those of the small White Cabbage Butterfly (*Pieris Rapæ*, L.). Mr. Morgan's No. 3 were specimens of the Clover Cut-worm (*Mamestra trifolii*, Esp.).

"Peterborough, Ont., September 3.—The inclosed worm is very abundant in this neighbourhood this season; it feeds on the leaves of turnips."—J. A. FIFE.

Remedies.—The best remedy for these caterpillars is spraying or dusting with arsenical mixtures, but they seem to be rather resistant to the action of those poisons generally used, such as Paris green. Mr. T. W. Ramm, of Ross Mount, Northumberland Co., Ont., writes: "You know the yellow-striped caterpillars of *Mamestra picta* which are sometimes plentiful on pease. It took almost two days to kill some of these which were on pease, although I almost buried them in dry Paris green of full strength tested with ammonia and then it destroyed the pease as well." A weaker mixture distributed evenly over the food plant would probably have been more fatal to the caterpillars without injuring the pea plants—1 lb. of Paris green to 200 gallons of water or to 50 lbs. of dry land plaster was quite satisfactory at Ottawa.

No danger need be apprehended from feeding roots to stock which have been dusted or sprayed with Paris green mixtures. There are always several weeks—and this at a rainy season of the year, too—between the time that this is likely to be necessary and when the roots are fed to stock. If there is any doubt, however, about all the poison being washed off the roots, the tops can easily be cut off closer to the root than usual, which will remove all possibility of danger. The poison could only lodge in the axils of the leaves, of which a clean sweep will be made when the leaves are cut off.

Owing to the gregarious nature of the caterpillars when young, good work can be done in August and September by picking off the leaves bearing the young broods and destroying them.

SMALL WHITE CABBAGE BUTTERFLY (*Pieris Rapæ*, L.).—It will be noticed in the above extracts that this insect was twice mentioned as injurious to turnips. There were other reports of the same nature, but the chief injury mentioned by correspondents was to cabbages. There are few insects more easily controlled than this, if prompt action be taken at the proper time.

The best remedy for this insect, as far as my experience goes, is undoubtedly pyrethrum powder diluted with four times its weight of common flour and then kept in a tightly closed vessel for twenty-four hours until the poisonous principle has permeated the whole mixture. If a small quantity of this mixture be dusted over infested plants, the caterpillars are all destroyed, and in a surprisingly short time. Pyrethrum or insect powder kills by contact, both in a dry condition and as a decoction, so that such caterpillars as are not actually reached by the powder are destroyed by the poisonous principle of the pyrethrum carried farther among the leaves by rain or condensed dew. This remedy is so effective and so cheap that I do not think it well to recommend any other.

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It has also the very great advantage of being perfectly safe, because, although so fatal to all insects, it has no poisonous effect on man and the higher animals.

The COLORADO POTATO-BEETLE (*Doryphora 10-lineata*, Say) seems to be, on the whole, the most troublesome farm insect in the country. Prof. Panton, of Guelph, Ont., expresses the same opinion in his report on answers received to the questions he had sent out to the farmers of Ontario as to which were, in their experience, the insect pests most injurious to farm crops. In most places, however, growers have generally adopted the easy and cheap means of keeping it in check by spraying or sprinkling the potato plants with Paris green mixed with water or some dry powder as a diluent. This remedy, when applied with ordinary care, answers its purpose most effectively.

"The potato-beetle was reported as numerous by some correspondents, while others stated that it was not nearly so bad as usual."—*Ontario Crop Report, Aug. 13.*

"Point de Bute, Westmoreland Co., N.B.—The potato-beetle did less damage this season than last."—HOWARD TRUEMAN.

"Alberton, P.E.I.—The Colorado beetle came out of winter quarters later than usual this spring and many were congratulating themselves that it would not show itself, but it soon got to work, and if the potatoes were late in coming up, it stood right by, waiting their arrival, utilizing the blades of grass for egg laying in the meantime. Good Paris green saved the crop. Farmers have improved ways of 'greening' now. As a general thing, a cask on a cart or truck, provided with a sprinkler at each side, thus covering quite a number of drills at a time, made the work light. The acreage under potatoes is restricted now. A farmer seldom plants more than a couple of acres. They are low-priced, and the bug has raised the cost of production. I really think, though, that this bug is running its course."—REV. A. E. BURKE.

"That great potato pest, the Colorado potato beetle, seems to be much less dreaded than formerly. It seems to have been well kept in check by the use of Paris green, either sprayed on the vines or dusted on after being mixed with gypsum or land plaster."—*Nova Scotia Crop Report, November.*

According to the notes from the different districts of Nova Scotia, contained in the above crop report, the potato-beetle was particularly troublesome in the north-western counties, but much less in the others.

"Yarmouth, Yarmouth Co., N.S.—I have not yet seen a potato-beetle in my county. A few have appeared in widely separated localities since 1893, when the first were noticed, but this is the fourth year since, and there has not been at any time a marked increase in serious injuries from them in this county."—CHARLES E. BROWN.

"Glace Bay, Cape Breton, N.S.—Insects this season did much less damage to vegetation. Chief among them is the Colorado Potato-beetle, which made things pretty lively for the farmers round my home. Some used Paris green, others hand-picked them. The beetles do not seem, however, to be so numerous as at first."—JAMES W. EDWARDS.

"Upper Baddeck, Victoria Co., N.S.—The potato bugs were very plentiful. I did not learn that any in this district used Paris green, as they are somewhat afraid of its poisonous effects. We, however, find that if we commence early, when the beetles first show themselves, to spray the fields carefully three or four times in as many weeks, it leaves them powerless to do much injury when the vines get strong."—ALLAN McMILLAN.

"Berwick, King's Co., N.S.—The potato bug has become so general that it is taken quite as a matter of course, and the farmer expects to use Paris green quite as much as he expects to plant his seed."—S. C. PARKER.

CUT-WORM injuries in garden and field crops have this year been frequently reported. The most severe depredations were committed in New Brunswick, Nova Scotia and in Alberta District; strange to say too, it was by the same species the Red-backed Cut-worm (*Carneades ochrogaster*, Gn.). It is seldom that correspondents trouble to send in cut-worms, but when this was done, in almost every instance, the species was found to be the above which gave trouble during the spring of 1896. Although there are so many different species of cut-worms, their general habits are now so well known that a wide-awake gardener or farmer can by prompt attention and a little trouble, as a rule,

do a great deal to prevent serious loss. Cut-worms are the caterpillars of dull-coloured active moths belonging to the *Noctuidæ* or Owlet Moths (Fig. 12), of which there are upwards of 400 different kinds in North America. The caterpillars of these different kinds vary somewhat in their habits, but, on the whole, they are very similar, being smooth, almost naked, gray-looking caterpillars (Fig. 13) of some dull shade of colour similar to the ground in which they hide during the day. The head is smooth and shining as well as a small horny plate on the segment next to the head. Their habits are almost always

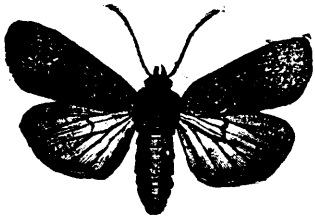


Fig. 12.—A Cut-worm Moth (*Agrotis clandestina*).



Fig. 13.—A Cut-worm (*A. clandestina*).

nocturnal; lying hid by day just beneath the surface of the soil, they come out at night to feed. When they occur in large numbers, they change their habits somewhat and feed by day as well, owing to the reduced food supply consequent upon their ravages. The eggs from which cut-worms hatch are laid by some species in the autumn and by others in the spring or summer and, as a consequence, cut-worms of all sizes can be found in the spring; for these insects, according to the species, may pass the winter in the state of either a perfect moth, a chrysalis, a partially grown caterpillar, or an egg. This last habit is that usually, if not always, followed by the Red-backed Cut-worm. Eggs laid in Ottawa in October did not hatch until the end of the following April, and the caterpillar took 6 weeks to reach full growth; they were then large cut-worms over $1\frac{1}{2}$ inches in length, gray, with a broad sienna-red stripe down the middle of the back. The moths did not emerge until 5 weeks after the caterpillars buried themselves to turn to chrysalids. This cut-worm is particularly injurious. It is a large voracious species with an exceptionally wide territorial distribution and feeds upon almost all kinds of succulent vegetation. Nearly all the references in the following extracts were to the Red-backed Cut-worm.

“Edmonton, Alta.—Cut-worms as busy as ever in the Peace River District.”—C. BURTON.

“Edmonton, Alta., June 16.—Everbody about here is troubled with cut-worms, which have done great damage, necessitating the sowing of gardens over again.”—FRANCIS C. CLARE.

“South Edmonton, Alta., July 13.—I send you a box containing cut-worms. They are most destructive, cutting off cabbage and all root crops just under the ground. If you remove the earth from a bitten off plant, you find the grub buried just beneath. They are general throughout this district.”—I. L. ANDREWS.

“Lacombe, Alta.—I tried alsike clover here; it came up splendidly; but the ground was so full of cut-worms that they took almost the whole of it, although I sowed about six acres.”—HARRY SARGENT.

“Cochrane, Alta.—This summer for the first time cut-worms were very bad on my cabbage crop; they cut the plants off close to the ground.”—JOHN DARTIGUE.

“Calgary, Alta.—I have a fair-sized vegetable and flower garden here. This spring my garden swarmed with cut-worms, as did gardens of others in the neighbourhood. The worm is just the colour of the soil; it burrows into the ground by day and comes up at night to feed. These insects gave no trouble after the first or second week of June. I had to plant three crops of every thing before I could get the start of them. The vegetables the worms went for were onions, beets, parsnips, carrots, peas, beans, turnips, radishes, lettuce. Can you advise me what to do to rid my garden of this pest?”—E. D. H. WILKINS.

“Victoria, B.C., June 12.—Cut-worms have been hard at work about Victoria. One grower lost all his onions, and I have heard complaints from many others.”—J. W. TOLMIE.

At the same time specimens were also received from Mr. Mont. McDonald, of the same place.

“St. John, N.B., May 27.—Please send me some information about cut-worms. Last year in the garden at my summer house out of town we were very much troubled

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with them. It seems impossible to destroy them. Can you give us a remedy?"—W. WATSON-ALLEN.

"Sussex, N.B.—Cut-worms in the spring were a terrible pest, and several men who make a habit of growing some hundreds of barrels of onions in this section were unable to grow any at all."—W. W. HUBBARD.

"Fredericton, N.B.—We had a regular plague of cut-worms last spring. Our root crops, and to some extent the corn and grain, were much damaged by them. I knew a field that was re-seeded four times."—PERCY C. POWYS.

"Petitcodiac, N.B.—The cut-worm is our worst enemy and is worst on sod, even if ploughed fall and spring."—B. SINCLAIR SMITH.

"Halifax, N.S., June 27.—How can I destroy cut-worms? It is impossible to grow anything in some lands in this neighbourhood, even in newly turned up soil. They are destroying my ensilage corn."—R. HUNT.

"Berwick, King's Co., N.S.—Cut-worms were very destructive in Nova Scotia this summer; many fields of beans, turnips, cabbages and tomatoes were much injured. Our cabbage and tomato crop was only saved by wrapping the stems with paper as the plants were set."—S. E. PARKER, *Secretary, Fruit Growers' Ass., N.S.*

"Nappan, Cumberland Co., N.S.—Cut-worms bothered us a good deal, but were extremely destructive in Yarmouth Co."—W. S. BLAIR.

"Yarmouth, Yarmouth Co., N.S.—Cut-worms abounded throughout the county, destroying successive sowings of vegetable crops. They are estimated to have reduced mangels by 15 per cent."—C. E. BROWN.

"Bear River, Digby Co., N.S.—Cut-worms did a great deal of harm in the spring to all kinds of vegetables."—R. G. TURNBULL.

"Chester, Lunenburg Co., N.S.—Cut-worms destroyed gardens."—E. D. LORDLY.

In the Nova Scotia *Crop Bulletin* for November, 1896, cut-worm injuries are recorded in the counties of Digby, Lunenburg, Pictou and Yarmouth.

"Alberton, P.E.I.—We were much troubled with cut-worms in our gardens in late May and June. Some people lost all their young vegetable plants, having been, I think, too careful to pull out all the weeds early. The dry weather suited the worms. At night in June and July you could hardly see out of the windows from the numbers of the clumsy brownish gray moths of this pest."—REV. A. E. BURKE.

Remedies.—The remedies for cut-worms are active or preventive. The chief active remedies are, poisoning the caterpillars, which may be done effectively in two ways, or hand-picking:

1. Traps.—Large numbers may be destroyed by placing between the rows of an infested crop, or at short distances apart on infested land, bundles of any succulent weed or other vegetation which have been previously poisoned by dipping them into a strong mixture of Paris green (2 ounces to a pailful of water). The cut-worms eat the poisoned plants then they bury themselves and die. In hot dry weather these bundles should be placed out after sun-down, and a shingle may be laid on each to prevent fading.

2. Poisoned Bran.—Striking results have been obtained during the last two years by putting along rows, or at the base of such plants as tomatoes and cabbages, a small quantity of the following mixture which is mentioned in Prof. J. B. Smith's excellent new *Manual of Economic Entomology*:—

Thoroughly mix together in a dry state 50 pounds of bran and 1 pound of Paris green; then add water a little sweetened with sugar until the whole is thoroughly wet but not sloppy. Prof. Smith says: "This mixture is extremely attractive to cut-worms, being preferred to plants in all the instances which have come under my notice. It takes about ten pounds of this mixture to an acre of potatoes as ordinarily planted."

The same mixture has been used dry by Mr. F. A. Serrine of Geneva, N.Y., with, he claims, even better results than the wet mixture, which is apt to get mouldy.

3. Hand-picking, or digging up the cut-worms whenever a plant is seen to be cut off, should, of course, always be practised.

Preventive remedies consist of:

4. Clean culture, by which all vegetation is removed, upon which the young caterpillars could feed in the autumn or which would attract the moths to lay their eggs.

5. Banding.—Cut-worms are heavy-bodied insects unable to climb over smooth surfaces; therefore, surrounding a plant or tree with a band of tin or even of paper in the case of such plants as cabbages and tomatoes is an effective means of protection. Tin bands may easily be made by taking pieces of tin six inches long by two and a half wide and bending them around a spade or broom handle so as to form short tubes. In placing them around a plant, the two ends can be sprung apart to admit the stem and then the tube should be pressed a short distance into the ground. I have found this a useful means of disposing of tomato and other cans. To prepare these easily the cans need only be thrown into a bon-fire, when the tops and bottoms fall off and the side becomes unsoldered. The large piece of tin can then be used whole or may be cut down the centre with a pair of shears so as to form two bands. It may be well to mention here that the two remedies so often recommended in newspapers, salt and lime, have proved quite worthless in our experiments for preventing cut-worm injuries.

FRUITS.

The fruit crop of Canada, particularly of apples, has this year been enormous, and compared with other years, there has been little complaint of insect injuries. Wherever spraying with Paris green, either alone or mixed with fungicides, has been practised, marked results have been obtained. These would, of course, have been much more noticeable in a year of less abundant fruitage. It is to be regretted that this most useful means of saving money is not more universally adopted by the fruit growers of the Dominion.

Two new pests of the apple, the Apple Fruit-miner in British Columbia, and the Apple Maggot in Ontario, have demanded attention on account of their injuries during the past season. These are treated of at some length later.

The CODLING MOTH (*Carpocapsa pomonella*, L.) has, as usual, been mentioned frequently in correspondence, but, on the whole, owing to the enormous apple crop and also to the more general adoption of spraying, has not done much harm.

“Berwick, King’s Co., N.S.—Codling Moth did but little injury. Fruit seldom was so free from worms.”—S. C. PARKER.

The only mention of this insect in the *Nova Scotia Crop Report* for November, 1896, is the following:

“Lawrencetown, Annapolis Co.—Very few wormy apples.”—J. W. WHITMAN.

In the *Ontario Crop Returns* for August, 1896, there are only two correspondents who mention this insect as follows:—

“Plympton, Lambton Co.—There are no worms in the apples so far this year, even where spraying has not been done.”

“Ashfield, Huron Co.—Spraying was little practised and yet the fruit is almost free from fungi and worms. This is unusual, and spraying with proper mixtures should not be disregarded, for this exemption may not occur again.”

“Grimsby, Wentworth Co., Ont.—The second brood of Codling Moth has been very troublesome this year in some orchards, particularly where spraying has been neglected. One of my orchards on the hill-side was very difficult to reach with the spraying waggon, and, therefore, it was neglected. As a result, a very large proportion of the apples were affected and had to be thrown out as seconds. Although spraying for fungi has not been so necessary this year, yet spraying for Codling Moth has been as necessary as ever.”—L. WOOLVERTON.

“St. Catharines, Lincoln Co., Ont.—The Codling Moth has not been quite so bad as usual, though the enormous crop of apples pointed to by the sceptical as evidence of the futility of spraying is rather misleading. The number of Codling Moths active this year would have made a very different showing if the crop of apples had been a small instead of an abnormally large one.”—MARTIN BURRELL.

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"Freeman, Halton Co., Ont.—In the younger apple orchards the Codling Moth did a great deal of damage, a large proportion of otherwise very fine apples being injured. The thinner the crop on a tree, the greater was the proportion of wormy apples. Some varieties seem more liable to attack than others. With me the Greening seems always to be the worst infested. The Baldwin, too, suffers a great deal, as well as the Roxbury Russet. The Ribston Pippin, Blenheim, King and Cranberry appear to get off better."
—A. W. PEART.

"Craighurst, Simcoe Co., Ont.—Little damage from Codling Moth this year."
—G. C. CASTON.

"Hamilton, P.E.I., Sept. 14.—Where spraying is attended to, the Codling Moth is a thing of the past."
—H. A. STEWART.

TENT CATERPILLARS (*Chisocampa*).—These easily destroyed caterpillars have caused much loss in several parts of Canada this year.

"Freeman, Halton Co., Ont.—The Tent Caterpillars have not been troublesome in the Burlington district this year, but some ten or twelve miles north of here they almost amounted to a plague, whole orchards, in some cases, being stripped of their leaves before the owners realized the fact. There was then a general attack made on them, chiefly by crushing their nests in the evenings and mornings. Spraying effectually disposes of them with me."
—A. W. PEART.

"Berwick, King's Co., N.S.—The Tent Caterpillar seems to thrive best in the villages. It seldom becomes numerous in isolated orchards. I think the ornamental trees in towns and villages prove a good breeding ground for this insect. The usual formula—4 ounces of Paris green to 40 gallons of water—applied twice will exterminate this enemy."
—S. C. PARKER.

"Alberton, P.E.I., Aug. 3.—The Tent Caterpillars seemed to be more numerous than ever. They were the chief leaf-eaters this season."
—REV. A. E. BURKE.

"Hamilton, P.E.I.—The most troublesome insect this season has been the Tent Caterpillar."
—H. A. STEWART.

"Victoria, B.C.—Tent caterpillars have been very destructive to the foliage of fruit trees in many places, especially Chilliwack, and I notice that the eggs are numerous everywhere in the orchards."
—R. M. PALMER.

Effective remedies for Tent Caterpillars are hand-picking of the eggs in winter and the destruction of the colonies of young caterpillars when the young leaves are unfolding, at which time they are conspicuous by reason of the copious white silky web upon which they rest. If not attended to at this time, spraying with Paris green disposes of them easily.

THE EYE-SPOTTED BUD-MOTH (*Tmetocera ocellana*, Schiff.) has been troublesome in certain districts.

"St. Catharines, Lincoln Co., Ont.—I inclose a peach pest which I consider the most dangerous insect I have met with."
—A. GLASS.

"Olinda, Essex Co., Ont.—I send you a number of peach twigs injured by a pest which I have not noticed before. This spring a great many trees are badly infested, the young shoots even being attacked, the insect boring down through them."
—J. O. DUKE.

"St-Henri de Montréal, Que., June 8.—I notice the bud-moth and leaf-roller have been very bad in some orchards in this neighbourhood. I have kept them subdued by the use of Paris green and the Bordeaux mixture."
—R. BRODIE.

"Victoria, B.C.—I have found the Bud-moth is increasing in numbers in our orchards. I hope that the use of Paris green in combination with the Bordeaux mixture will soon become general in lower British Columbia, as the numerous leaf-eating pests are becoming much more destructive."
—R. M. PALMER.

This insect is certainly a difficult one to cope with and also, from its habits of attacking the flower buds and boring down into the fruit spurs, its injuries are frequently very serious. The remedy which has given the best results is to spray very early, just when the buds are bursting. The partially grown caterpillars pass the winter snugly ensconced in silken shelters on the twigs of trees which they infested the previous autumn. About the time the buds open, they leave these shelters and crawl out to the tips of the twigs where they do much harm to the unfolding buds.

CANKER-WORMS have been complained of as usual in many localities, and the importance of early spraying while the caterpillars are very small has been again shown. Two or three correspondents mention that they have been unable to control this insect, even when spraying with a mixture strong enough to burn the foliage. A very serious out-break occurred in Pelham township, Monck County, Ont., and another near Fredericton, N.B.

THE CIGAR CASE-BEARER (*Coleophora Fletcherella*, Fernald) has been mentioned by correspondents in all provinces in Eastern Canada, but no complaints of serious attack have been received. Mr. Harold Jones, of Maitland, Grenville Co., Ont., noticed the young Case-bearers moving from their winter resting places out to the buds on 2nd May last. He sprayed at once with the kerosene emulsion (Riley-Hubbard formula), 1 to 12, with the result of practically clearing his orchard of this insect.

THE OYSTER-SHELL BARK-LOUSE (*Mytilaspis pomorum*, Bouché) continues to trouble the apple grower in many districts. It occurs in every province of the Dominion and spreads rapidly, particularly in neglected orchards.

"Baddeck Forks, Victoria Co., N.S.—The scale insect is the greatest pest. All our apple trees will be killed in a few years more if we cannot stop its ravages."—A. B. WATSON.

"Nappan, Cumberland Co., N.S.—The apple tree bark-lice give me the most trouble I used kerosene emulsion twice in June, but there are still many on the trees. Do you think the application now of a mixture made up as follows would not be advisable: concentrated lye, 3½ lbs.; fish oil, 1 gallon; water, 8 gallons? It seems impossible to get kerosene emulsion to all parts of the tree when in foliage. I do not think they are troubled much with this pest in the Annapolis valley; at least, I never noticed many there. But, all through the country where I have been, trees are being killed or at least stunted by the bark-louse."—W. S. BLAIR.

"Berwick, King's Co., N.S.—As usual the bark-louse gains ground on trees that are not in good cultivation. Alkaline washes which are recommended will clean the trees up completely, and I think that the thorough applications annually will also prevent the work of the shot-borer (*Xyleborus dispar*, Fab.)."—S. C. PARKER.

"Alberton, P.E.I.—If we cannot soon get means to destroy the Oyster-shell Bark-louse, we shall have to give up raising apple trees."—JOHN T. WEEKS.

"Lakeville, P.E.I.—Please send me receipt for wash to destroy bark-lice on apple trees. They are fast destroying our trees."—JOHN J. MCINNIS.

"Freeman, Halton Co., Ont.—The Oyster-shell Bark-louse has had its day in this district. There are but few left, and these only on neglected trees. Ten years ago they threatened to sap the life out of the orchards."—A. W. PEART.

The recognized remedies for the Oyster-shell Bark-louse are spraying the trees, before the buds burst and again in June when the young are moving, with the Riley-Hubbard kerosene emulsion (1 to 9). At the same time a healthy, vigorous growth should be induced by judicious pruning of the trees, manuring the roots and cultivating the soil.

Several instances have been brought to my notice, which would indicate that trees badly infested with the Oyster-shell Bark-lice, after having been sprayed with Bordeaux mixture, were much freer from these insects. This was possibly due to the fact that twigs bearing a coating of Bordeaux mixture were thereby rendered distasteful or unsuitable for the young bark-lice when seeking a spot to settle.

THE PEAR-TREE SLUG (*Eriocampa cerasi*, Peck), has been very abundant in Ontario, Quebec and British Columbia. I cannot help thinking that the reason this pest of the pear, plum and cherry is so prevalent every year, is that the late broods are neglected. Spraying with the standard mixture of Paris green (1 pound in 200 gallons of water with 1 pound of fresh lime) is always fatal to the larvæ.

"Grimsby, Ont.—The Pear-tree Slug has been more destructive than usual. It has skeletonized the leaves of the pear, plum and common cherry trees, and, where it has been left unchecked, has done a great deal of damage in stunting the growth of the

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trees. The second brood is more troublesome to us than the first, because at that season fruit-growers are so busy that it is almost impossible to find time to spray with Paris green."—L. WOOLVERTON.

"St. Catharines, Lincoln Co., Ont.—The Pear-tree Slug has done more damage than most pests in this district, familiar as it is and easy to fight as it is. I think I am well within the mark in saying that it has been far more destructive than in any season for the past decade. The second brood worked very freely on the plum as well as on the quince, cherry and pear, and thousands of young trees—particularly cherry—had their leaves skeletonized."—MARTIN BURRELL.

The PLUM WEB-WORM (*Lyda rufipes*, Marlatt).—When travelling through the Mennonite country in Southern Manitoba in the first week of July last I noticed a great deal of damage done to plum trees by the gregarious false-caterpillars of a saw-fly which webbed together the leaves of small branches and soon stripped them of all green cellular portions in a very similar manner to the larvæ of the Cherry-tree Tortrix (*Cacocia cerasivorana*, Fitch). Upon examining the webs I found them to be filled with enormous numbers of a false-caterpillar of a species of saw-fly belonging to the genus *Lyda*, which was quite unknown to me. The larvæ were nearly $\frac{3}{4}$ of an inch in length, grayish above, yellowish or pinkish below; head yellow, thoracic shield and feet as well as the tip of anal segment, black; pro-legs wanting. They have two seven-jointed antenna-like appendages, protruding from the front of the head, and also two others three-jointed, from each side of the last segment. I was unable to rear the perfect insects, but I find a description of what is evidently the same species by Prof. T. A. Williams in *Bulletin 38*, April, 1896, of the South Dakota Experiment Station, in which the insect is described and figures are given of the perfect insect, the cluster of eggs and a bunch of sand cherry infested by the larvæ. It is described as one of the most destructive insects attacking plums and cherries. It feeds upon all the common forms both wild and cultivated. It is found most often on the common wild plum (*Prunus Americana*, Marsh) and the sand cherry (*Prunus pumila*, L.). Prof. Williams describes the mature insect as much flattened, with body, head, antennæ and feet shining black, legs reddish. He gives as the date of appearance of the flies the second week of June. The larvæ which I found in Manitoba were full-grown in the first week of July, and at that time most of the plum trees in the gardens of the Mennonites over an area of many miles were almost entirely defoliated.

The eggs are deposited in close masses along the under side of the mid-rib of the leaf, the long axis of the eggs lying parallel with the mid-rib. The younger leaves are invariably selected, and the eggs laid before the leaf has expanded. Immediately on hatching, the young larvæ begin to spin a web and feed through or crawl over to the upper surface of the leaf. As they continue to grow, they travel to other leaves and envelop all in a tough web not unlike that of the tent caterpillar. A large colony will spread over the whole side of a tree before the insects become full-grown. When ready to pupate, the larvæ go to the ground and gradually envelop themselves in cocoons, turn to pupæ and emerge again [the next year] in the late spring or early summer as mature insects."—(*South Dakota Experimental Station, Bulletin 48*).

As a remedy, plum trees should be sprayed with Paris green or dusted with white hellebore as soon as the webs appear.

It is just possible that this insect may be the *Lyda fasciata* of Norton, described and figured by Prof. A. S. Packard on page 524 of his *Forest Insects* under "Cherry Insects." But, until specimens are secured of the Manitoba insect, it will be impossible to identify the species with certainty. From the manner of occurrence of the colonies seen in the Mennonite villages, the idea of an imported species is suggested, such as *Lyda pyri*, Schrank, mentioned in Miss Ormerod's last report, as having caused a similar injury in English orchards. Synonyms of the latter are also *L. clypeata*, Klug; *L. fasciata*, Curtis and Westwood, and *Pamphilius flaviventris*, Cameron.

The SAN JOSÉ SCALE (*Aspidiotus perniciosus*, Comstock).—An important discovery has been made by Mr. R. M. Palmer of undoubted specimens of the San José scale in Vancouver Island. From the appearance of infested wood forwarded, the pest must have



Fig. 14.—Pear attacked by San José Scale;
b, scale much enlarged.

but when fresh the characteristic marking of the twigs, leaves and fruit, due to the work of the insect, was very evident, and there was no doubt as to the identity. It was the bright discoloration of the fruit which first drew my attention to the presence of the insects in both the cases found. A microscopic examination was also made on my return to Victoria, which confirms this opinion.”—R. M. PALMER.

The limits of distribution of the San José Scale, like those of all other insects, are undoubtedly controlled to a large extent by climate. It has been found from long-continued observation that both animals and plants are restricted in their distribution to what have been called “life zones,” which are determined, according to Dr. C. H. Merriam, the eminent zoologist, “by the total quantity of heat during the season of growth and reproduction.” The San José Scale occurs more or less in all the States lying to the south of the great lakes, and although the data upon which life zones could be laid down accurately in Canada are too meagre to be of use in consideration of the question whether this insect would be likely to spread and become a serious enemy of the fruit grower in Canada, there is no doubt that it must be regarded as a very possible danger, at any rate in those parts of Ontario which lie along the north shore of Lake Erie, extending perhaps from the County of Essex to the County of Wentworth. It was supposed at one time that the San José Scale would not thrive east of the Rocky Mountains, but we now know that this supposition was erroneous; therefore, all fruit growers, particularly in that part of Ontario mentioned above, are urged to be keenly on the alert to watch for and report promptly any occurrence of this or any other scale insect which resembles it, either in their orchards or upon young nursery stock imported from the United States. In cases of doubt, specimens should be forwarded for examination, as soon as detected.

* Since the above was written two other instances have come to my knowledge of trees in Canada being infested with San José Scale, and samples have been received and examined. One infestation is at Chatham, Ont., the other at Niagara, Ont. Every care is being taken in both places, to eradicate this serious enemy of the fruit grower.—J. F.

existed for some years on the trees where it was found. So that there might be no mistake as to the identity of the species, specimens were sent to Dr. Howard, United States Entomologist, who confirmed Mr. Palmer’s opinion.* In a most interesting report sent to me by Mr. Palmer on the insect injuries of the year, he writes of the matter as follows:—

“Victoria, B.C., Dec. 10.—I am sorry to report that I have found San José Scale in two orchards on Vancouver Island. The infested trees have been destroyed, and, of course, trees and bushes in their vicinity will be closely looked after the coming season. I may say that the popular opinion that San José Scale will kill the trees in three years, is not borne out by observations made here on these infested trees. One of them, at any rate, had apparently been infested for a much longer period, and it was still growing. I find it difficult to detect the presence of the scales on the trees, or, rather, very close observation is required. In both of the above cases my attention was drawn to them by the characteristic marking of the fruit growing on the trees, caused by the insect.”

“Victoria, B.C., Dec. 29.—*Re* San José Scale: I send you part of the infested wood and twigs I have. It is rather dried up now,

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Remedy.—A very complete series of experiments was conducted, not only at Washington, but also in many other parts of the Eastern United States, in which every material known as an insecticide for scale insects was tried, and Dr. Howard's final conclusions are now of value to us. He says: "With the San José Scale the most satisfactory work can be done only with a winter wash; for this species may be found in various stages of development at any time through the summer months, and an emulsion spray at any given time will kill only a small proportion. Moreover, the young larva of the San José Scale settles almost at once and immediately begins secreting a dense scale which after 48 hours is practically impervious to the ordinary emulsion diluted so as not to injure the foliage."

As stated above, the only satisfactory treatment for this insect is a winter wash, and the question naturally arises. Which is the best? Dr. Howard answers this for us: "But one absolutely satisfactory winter wash has been found. This is whale-oil soap (not containing more than 20 per cent of water) a pound and a half or two pounds to a gallon of water. This mixture killed every insect upon the trees to which it was applied, as was proved by a very thorough examination. Good whale-oil soap can hardly be bought for less than four cents a pound by the barrel, and this makes a thorough winter treatment an expensive matter. The best recommendation that can be made from the present outlook, however, is to use this mixture soon after the leaves fall in the autumn, and then, if examination reveals any survivors, to repeat it shortly before the buds open in spring."

The San José Scale is one of the most injurious insects which have been found on fruit trees, and, should it be allowed to establish itself in our Canadian orchards, it will be the cause of great loss to our fruit growers. It is, therefore, imperative that all should exercise the utmost care in examining their trees if they have been lately imported, and in buying trees only from nurserymen whose stock is known to be free of infestation. The home-grown trees of all of our Canadian nurseries are certainly much safer in this respect than those of any in the United States.

The San José Scale is a small flat scale insect, only about $\frac{1}{8}$ of an inch in diameter and so hard to detect on the bark of trees that it can hardly be recognized without a magnifying glass. The best indication of its presence is the dirty grayish appearance of the bark as if ashes had been dusted over the trees.

The PLUM CURCULIO (*Conotrachelus nenuphar*, Hbst.).—Many reports from all parts of Eastern Canada referred to the Plum Curculio as abundant, but the injury was not appreciable this year, owing to the enormous crop. Mr. L. Wolverton says: "The Plum Curculio has not been quite as troublesome this season, perhaps because of the abundant crop in this section, which made its attacks less noticeable." Mr. S. C. Parker, of Berwick, N.S., also says: "The Plum Curculios were plentiful, but could not destroy enough to lessen materially the enormous crop of plums. Some of our plum growers pick up carefully all the dropped plums, and claim that they can thereby keep their plum orchards free from the Curculio."

The GRAPE PHYLLOXERA (*Phylloxera vastatrix*, Planch.).—This insect, so well known by name from its enormous injuries to the vineyards in Europe, is seldom the cause of serious injury in Canada. It, however, attracted much attention in the Grimsby district last summer. Mr. Wolverton reported it as "unusually abundant on the leaves of grape vines throughout this district. In many cases hundreds of vines on one plantation had their foliage covered with the galls of this louse. I examined some sections of these galls under the microscope and could see great numbers of the eggs and several fully developed insects. I have not recommended any special remedy, because I note what you say—that the Phylloxera is not to be looked upon as an important enemy in our Canadian vineyards, as, although a native, it has not in the past caused serious loss. I have never observed any of the variety which affects the roots, nor have I had any one report it to me."

The PEACH-BARK BORER (*Phloeotribus liminaris*, Harris).—I have referred in previous reports to the extensive injuries due to this minute insect in the peach orchards of the Niagara district, and also to some successful experiments carried out by Mr. Carl E. Fisher, of Queenston, Ont., with an alkaline wash, to which Paris green, lime and

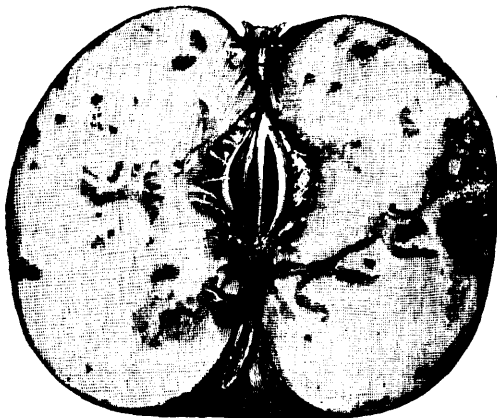
carbolic acid were added. This wash has been again used successfully during the past season by Mr. Fisher, who writes: "The last wash I used for the Peach Bark beetle was the dead shot remedy. Every tree it was tried on is free from the little beetles." This remedy is applicable for many other bark-boring beetles, such as the Shot-borer of the apple and plum. The formula, as last used by Mr. Fisher, is as follows:—

Washing soda, 5 pounds; soft soap, 3 quarts (or hard soap, 3 pounds); water to make 6 gallons; air-slaked lime sufficient to give the mixture the consistency of thick paint; finally, add 4 ounces of Paris green and 1 ounce of carbolic acid. To be applied with a whitewash brush, thoroughly covering the trunk of the tree and a few inches up the limbs. The first application should be made as soon as the beetles appear in the spring, sometimes as early as the middle of March. Two or perhaps three applications, a month apart, may be necessary.

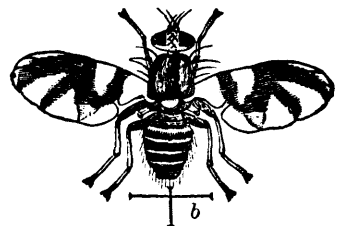
The BLACK PEACH APHIS (*Aphis persicæ-niger*, E. F. Smith).—Letters from Essex County and a single one from St. Catharines show that a good deal of injury is being caused in young peach orchards by the Black Peach Aphis. Up to the present no satisfactory remedy has been applied, but experiments have been arranged to be carried out next season. The application of kainit, as advised by Prof. J. B. Smith and mentioned in my last report, is specially commended to the attention of peach growers. Prof. Smith says: "In our State, on light soil I advise about 10 pounds of kainit per tree, covering the probable extent of the root system—this for a tree 4 to 6 inches in diameter and in bearing—the application to be made in spring, when the trees are leafing out. In our orchards the kainit has proved successful wherever used. Dr. Erwin F. Smith recommends ground tobacco, and so does Prof. Alwood, of Virginia."

THE APPLE MAGGOT.

(*Trypeta pomonella* Walsh.)



Infested Apple.



Perfect fly.

FIG. 15.—APPLE MAGGOT.

Attack.—Slender, white or greenish white footless maggots; when full-grown, about $\frac{1}{4}$ of an inch in length by $\frac{1}{2}$ of an inch in width, tapering gradually to the head and cut off abruptly behind; burrowing in all directions through the flesh of apples, feeding upon the pulp and leaving brown channels. There are sometimes as many as a dozen maggots in a single apple, but one is enough to render it worthless. The eggs are inserted beneath the skin of the fruit by a two-winged fly with a sharp ovipositor. The young maggots which hatch from these become full-grown in about six weeks, causing the fruit to ripen prematurely and drop to the ground, when the maggots work their way out and entering the soil a short distance, change to pale coloured puparia, inside which the maggots remain unchanged until the following spring. The pupa state is assumed only a few days before the perfect insects appear.

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The fly of the Apple Maggot (Fig. 15, *b*) is a pretty little insect described as follows by Prof. Harvey, of Maine, who published a most complete study of this pest in the "Annual Report of the Maine State College for 1889": "The perfect insect is a two-winged fly somewhat smaller than the house-fly, readily recognized by its general black colour; yellowish head and legs; dark feet; greenish prominent eyes; white spot on the back and upper part of the thorax; three white bands across the abdomen of the male and four across the abdomen of the female, and four black bands across the wings, resembling the outline of a turkey."

The injury done to the apple crop by the Apple Maggot in the states of New York, Massachusetts, Connecticut and Vermont are well known, but, outside of these States, although the insect is common and feeds in the larval form upon the fruit of the hawthorn (*Crataegus*) over a large area of country, there is no record of its having attacked cultivated apples to any appreciable extent. During the past summer, however, infested apples were received from Dr. D. Young, of Adolphustown, Lennox Co., Ont., north of Lake Ontario, with the following letter, which is the first record of its injurious occurrence in Canada:—

"Adolphustown, 31st October.—I send you apples injured by worms of some kind from a tree that heretofore always produced very clean and smooth fruit. Kindly tell me what the worm is and what remedy to apply. I spread round the trees which bore the infested fruit ten or twelve wagon loads of barn-yard manure in the spring of 1895 and again in 1896. I fear this may have enticed the insect. What gives me this idea is that I have two trees, a Golden Russet and a Winesap, that always produced clean fruit till we put a pig pen and yard right between them, the roots running under the pen and yard where the soil is immensely rich. Since the pigs were kept there, the fruit on these two trees has been very poor, and this year was entirely worthless on the Golden Russet. Although heavily loaded, there was not on the tree one good apple, and the Winesap was nearly as bad. It was heavily loaded too, but I think not one in fifty was good for anything. Yet the apples on the other Golden Russet and Winesap trees near by were very fine."—Dr. D. YOUNG.

A little later Dr. Young sent me a good supply of infested apples, with the statement that the maggots were working in other varieties than those mentioned. No living maggots were found in these, but two dead specimens served to identify the species in confirmation of the opinion formed from the very characteristic work of the larvæ in the fruit.

There is only one brood of this insect, but the eggs are laid by the females during a very long period, namely, from the beginning of July till frost sets in. The flies, which are produced from early ripening varieties of apples, appearing at a correspondingly early season the following year, and those from late varieties lay the eggs which produce the maggots found in the stored apples during the winter. Prof. Harvey says: "We have never seen the exit holes in hanging fruit, and believe the maggots do not drop, but go into the ground from the fallen fruit. Their presence causes the fruit to mature earlier. Fruit picked from the tree may contain larvæ, and often stored or marketed fruit is alive with maggots. Apples apparently sound when gathered may, by the presence of eggs or young larvæ, afterwards become hopelessly involved. The development of the maggot is slower in late and hard fruits."

When infested fruit is stored, the maggots emerge as they become full-grown and turn to puparia inside the barrels or bins.

Remedies.—As the egg of this insect is laid beneath the skin of the apple, it is evident that spraying with poisonous applications would be useless. The remedy which is most relied on by those who have had experience with the insect, is the prompt destruction of windfalls, so as to prevent the maggots going into the ground. This can be done by keeping a sufficient number of pigs, sheep or other stock in the orchard. If this is inconvenient, the more expensive operation of collecting by hand and destroying or feeding to stock must be rigorously practised if this pest is to be controlled. The refuse from bins or barrels should, of course, also be dealt with in some way to prevent the insects coming to maturity. Prof. Harvey says emphatically: "The gathering of wind falls for the express purpose of checking *Trypeta* has been tried and found effectual. We firmly believe we have in the careful destruction of the windfalls, the means of

destroying the pest. If windfalls are left lying in an orchard, the maggots will leave them and enter the ground; but they always remain near the surface, so that deep spading or ploughing would bury most of them so deeply that the flies would be unable to emerge. A most useful practice also is the penning up of poultry beneath infested trees; these will scratch out and devour large numbers of the insects."

It is hardly likely that the flies were attracted by the odour of the manure applied by Dr. Young to some of his trees or by the pig-pen beneath others, but the observation is well worthy of being remembered in case the Apple Maggot spreads and becomes more destructive in Canada. A characteristic of the occurrence of this insect is its slowness in spreading from one locality to another, from orchard to orchard, or even from variety to variety and from tree to tree in an orchard. It is said to be largely confined to sheltered locations and sandy soils.

THE APPLE FRUIT-MINER.

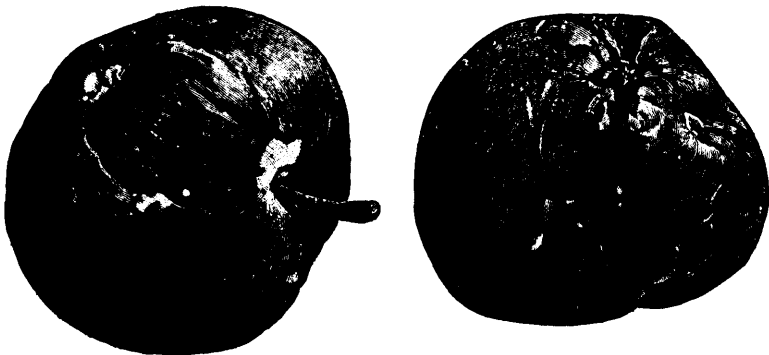


Fig. 16.—Apples injured by Apple Fruit-miner.

Attack.—Small caterpillars tunnelling in all directions through the flesh of apples, discolouring them and rendering the fruit unfit for use; when full-grown, they are a little over a quarter of an inch in length, dirty white in colour, tinged with pink just before spinning their cocoons. Head and a small shield at the end of the body, dark brown, somewhat resembling the caterpillar of the Codling Moth, but only about half its size when full-grown, and with the body much more tapering to each end. When ready to spin up, these caterpillars leave the fruit and make cocoons which in nature are probably placed in crevices of the bark in the same way as those of the Codling Moth.



Fig. 17.—Apple injured by Apple Fruit-miner (inside).

Nothing is known of the egg-laying habits of the moth from which the caterpillars spring, but, from the appearance of the infested fruit at the entrance of the tunnels, it would appear possible that the young caterpillar may live at first for a short time on the foliage or beneath a leaf attached by it to the fruit. A point of entry is frequently marked by several very small tunnels opening over the surface of a comparatively large area one-eighth of an inch to one-quarter of an inch in diameter, as if the insect had fed

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there for some time. With the growth of the fruit, this point becomes the centre of one of several—sometimes 3 or 4 on a single apple—conspicuous depressions, by which the apples are much distorted; the blackened skin at the bottom of these depressions is also frequently further discoloured by a white deposit, probably consisting of dried-up juice from the apple, which has oozed from the wound.

This is a most serious enemy of the apple grower on the Pacific coast, and it is to be hoped that every effort will be made next June to discover the method of egg-laying and the early habits of the young caterpillar. As the injury is done chiefly inside the fruit where the insect cannot be reached, it is probable that any practical active remedy will require to be applied at or soon after the time the eggs are laid.

It is strange that this insect, which injures the fruit of the apple in such a very similar way to that of the Apple Maggot (*Trypeta pomonell.*, Walsh), should have broken out in British Columbia just at the same time as the latter insect was discovered in Ontario as a pest of cultivated apples.

It is probable that both of these insects are native species which are abundant in their wild food plants, the Apple Maggot in the fruit of hawthorn, and the Apple Fruit-miner in the wild crab (*Pirus rivularis*, Dougl.), and that the habit of attacking cultivated apples is exceptional with both; but, as *Trypeta* has shown that when once this bad habit is acquired it is very persistent although local, no effort should be spared to find out as soon as possible with regard to this new enemy, all that can be known of its life habits, so as to arrive at a remedy.

As far as reports have been received, the injuries of this insect have not been noticed in the interior of British Columbia. Mr. Thomas G. Earl, the owner of a beautiful orchard at Lytton, on the Fraser River, just within the limits of the arid climate which characterizes the Interior Plateau of the province, says:—"I am happy to say I am not troubled with the worm you mention. I have seen it at Chilliwack and Agassiz."

The following interesting letters will show the serious nature of this new pest, and also give all that is actually known of the life history:—

"Victoria, B.C., July 17.—I send two specimens of infested apples forwarded to me from Chilliwack. Can you let me know what has caused the injury?"—R. M. PALMER.

"Victoria, B.C., Aug. 20.—Mr. Gibson has been looking after a number of specimens of the apple caterpillars from Chilliwack, and has succeeded in getting some cocoons. I hardly think the moths will emerge till spring."—R. M. PALMER.

"Agassiz, B.C., Aug. 12.—I send you, under another cover, some apples infested with a worm. This appears to be very prevalent in some districts in British Columbia this year. I noticed a few cases in previous years, but these were so few that I did not trouble about them, but this year it is a pest."—THOS. A. SHARPE.

"Spence's Bridge, B.C., Sept. 15.—I collected another box of apples infested with that new pest and have mailed them to you from Agassiz. I spent last Friday in Victoria, most of the time in the Department of Agriculture and with Mr. Anderson at his house. Mr. Anderson's assistant showed me several of the cocoons of this new pest in the apple, which seems to me to be much more injurious than the Codling Moth. It is a lepidopterous insect which, judging from the larva and cocoons I have seen, is about half the size of the Codling Worm. The cocoons are closely spun inside, with an outer covering of whitish silk of a neat and open pattern. The larva, as you will see, eats channels all through the flesh of the fruit, completely spoiling the apple for use. At the Department of Agriculture here the cocoons had been obtained by putting the apples uncut into a large glass jar and tying it over with gauze. As the larvæ matures, it finds its way out and spins its cocoons at the sides of the bottom of the jar."—DR. WM. SAUNDERS.

"Agassiz, B.C.—I sprayed when the blossoms had fallen and once when the fruit was as large as a small crab. I dealt effectually with the caterpillar, and if Paris green were a remedy for this pest, I should have expected it to be killed at the same time, but it was not, or at least there were a great many left. I gathered a number of apples that I knew were infested and put them in a glass jar, covering it with thin muslin. I also mounted specimens, but have found out nothing definite. Of some varieties of apples, such as St. Lawrence, Wellington, American Pippin, Stark, Maiden's Blush and Fall Pippin, more than half the crop was injured. Other varieties suffered less, though to a considerable extent; and some varieties, like Winter St. Lawrence, Salome, Mann,

Yellow Bellflower, Scott's Winter and Sutton Beauty, were practically uninjured. I hear from some purchasers that many apples sold are injured by the maggot, which goes to show that in some cases at least they are taking no care for next year, as in late picked specimens I found very few worms, but evidence of their having been in the fruit."—THOS. A. SHARPE.

"Victoria, B.C., Dec. 10.—Your valued favour of the 30th ult. to hand and contents noted. In reply *re* Apple Fruit-miner, Mr. E. A. C. Gibson has been making a special study of this pest, and any information or specimens which I have obtained have been turned over to him. As I know he intends sending you a full account of his work, I do not wish to anticipate him, so will only say that the insect has been specially destructive in the Chilliwack valley, and in the Mission City and Agassiz districts, but to a lesser extent is widely distributed in the lower part of the province, as I have received or observed specimens and their injuries at Ladner's Landing, Victoria, Cowichan and the Islands, as well as the lower Fraser valley. I am of opinion that it is a native insect. Its proper food is the fruit of the native crab apple. This Mr. Gibson's observations will determine."—R. M. PALMER.

"Victoria, B.C., Dec. 11.—I remember having seen these insects in the native crabs for a long time, but apparently they did not attack cultivated apples until recently, or if they did it was not noticeable. At Chilliwack, however, last summer I saw the effects of their ravages on the orchards of that place."—J. R. ANDERSON.

"Victoria, B.C., Dec. 16.—This insect has certainly occurred and been noted before this year, but I do not think it has till now caused any material damage. I secured most of my infested fruit from Mr. Kipp, of Chilliwack, who says: 'It is general throughout the upper end of my district,* and I noticed it at Agassiz as well on August 8th.' Mr. Kipp also says, in answer to some questions I addressed to him: 'I noticed it first about June 20th, found the worm, which was very small at that time, with blackish head, the other extremity the same, the body the same colour as the flesh of the apple (Gravenstein). Later in August the worm was about one-eighth of an inch long; body, brown. I found worms from time to time through September. In October I could find no more worms, but late in October or about the first of November hundreds of small moths (white) were flying about mostly all day. Gravenstein, Ben Davis, Russets, Baldwin (slightly), Lady's Sweet, and various other varieties I cannot name, were attacked. * * * Seventy-five per cent of my fruit was affected.' I myself have received specimens of fruit attacked by this insect from Hornby Island as well as Chilliwack. I am sending you by the present opportunity under separate cover specimens of wild crab apples which have been altogether spoilt, as I think, by this same insect, and a piece of an apple, inside which I found the cocoon, which you say you would like to have. I found cocoons in several others as well."—E. A. CAREW-GIBSON.

Mr. Carew-Gibson has also kindly prepared the following interesting note on the subject:—

"NOTE ON A NEW APPLE FRUIT PEST IN BRITISH COLUMBIA.

"The new apple pest which has this summer more strongly forced itself upon our notice than previously, owing to the loss it has occasioned to the fruit crop in some parts of this province, is, I believe, an indigenous insect, as I have traced it back to what I believe is its original home, *i.e.*, the wild crab apple swamps. In the larval stage this insect is very small, when full-grown only measuring a quarter of an inch in length. The larvæ are of a dullish white colour tinged with brownish green, excepting the head, a broken line on the top of the first segment, thoracic feet and last segment with hind pro-legs, all brown. These larvæ diminish in size towards their extremities and can in this way be easily distinguished from the larvæ of the Codling Moth, which, besides, are very much larger when full-grown. A nearly full-grown larva on being caged on the flesh of a freshly cut apple soon disappeared from view; it started by chewing the apple pulp till it had a large mouthful, when it drew back its head from the hole thus made and disgorged the pulp, thereby giving the body room to get farther into the apple, this

* A rich district on the Fraser River extending from Sumas Lake to Popcum, a distance of about 20 miles, with the town of Chilliwack on the Fraser River situated almost centrally.

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operation was repeated continuously and the insect was buried out of sight when looked for eighteen hours later. The larvæ apparently enter the fruit from the side, and eat their way into the interior by tunnelling the fruit in all directions. They sometimes reach the core and feed on the apple pips, but more often keep to the more fleshy part of the fruit, which is thus entirely spoiled, as the passages made by these insects soon turn brown and start decay throughout the fruit. When fully grown the larva emerges at the side of the fruit, and probably lowers itself to the ground before spinning up. I judge this to be the case, as by holding the spinning thread of a fully grown larva which had just emerged from the fruit I induced it to lower itself by its thread over six feet. It then spins a very beautiful white cocoon of an open-work pattern, and inside and separate from this, it spins another close-fitting white covering. These cocoons measure about three-eighths of an inch long. I have found cocoons of this insect spun up inside the core of several apples. It will be easily seen, however, that this is only possible in the more open cored varieties of fruit, and the chances of survival are very slight for those following this plan. I have specimens of this insect which spun up as early as August 6th, and also had samples of fruit containing larvæ apparently not full-grown on November 9th. The only sign that the fruit is infested at an early stage of its attack is by the exudation of juice from the fruit at the point where the insect entered, which generally dries up in the form of a little bubble; later, when the larva has left, the small hole in the side of the fruit through which it escapes can be readily seen on a close examination. The rotting of the fruit along the passages made by this insect may be caused by spores of fungi lodging where the apple skin is pierced, and thereby decay working its way along the open passages. My reason for thinking that this insect is indigenous is because I have several cocoons from infested fruit of wild crab apple trees. I have often in previous years noticed that a great deal of the fruit of the wild crab apples is completely spoiled, and have arrived at the conclusion that it is our new enemy which is responsible for the damage. I took some infested wild crab apple fruit and placed it in a jar on September 13th, and on September 25th I had three nicely spun cocoons in the bottom of the jar. The wild crab apple fruit which is affected, when ripe, turns quite black, instead of being of the ordinary brown colour, and one sometimes sees a whole tree with scarcely a sound berry on it."—E. A. CAREW-GIBSON.

The fruit of *Pirus rivularis* is borne in bunches of about a dozen together on slender stalks over an inch in length; each individual fruit is a small, berry like, ovate, oblong pome, about half an inch in length by three-eighths in width.

Besides the above insects, there are some other caterpillars which injure apples, the life histories of which require working out, owing to the possibility of their becoming of economic importance. At Victoria in 1895 I found specimen of a small caterpillar feeding on the surface of the fruit, particularly at the calyx end eating the skin and mining a short distance beneath it; very similar larvæ were also received during the past summer from Mr. C. P. Newman, of Lachine Locks, Que., but some of these worked entirely beneath the skin, making large blotch mines, but not running nearly so deeply into the flesh as the British Columbian Apple Fruit-miner.

Mr. Palmer says as follows on the subject of the insect enemies of fruit in British Columbia: "The Codling Moth has been reported from several places, but after careful examination of infested or damaged specimens of fruit, I have failed up to the present to find the true Codling Moth. Still considerable damage was caused by worms in apples (distinct from the Apple Fruit-miner) of two or more different species and I hope with Mr. Gibson's aid and your special knowledge that we shall be able next season to determine what the pests actually are (as by that time we ought to have specimens of the perfect insects) and the proper methods of dealing with them."—R. M. PALMER.

As up to the present, owing to the energy of the provincial Department of Agriculture of British Columbia, the Codling Moth has been prevented from being introduced, as far as can be learnt, into that province, and, as larvæ of the Apple Fruit-miner have been mistaken for those of the Codling Moth and its work for that of the Apple Maggot, it may be well to point out some of the important characters in which these three insects differ. There should be no trouble in distinguishing them in all their stages

The Apple Fruit-miner and the Apple Maggot injure apples in a very similar manner, tunnelling the pulp of the fruit in every direction, leaving brown coloured channels with here and there rather large chambers. The injury of the former is generally rather less extensive than that of the latter.

The two insects, however, are quite different in appearance: the Apple Maggot is as its name implies a footless maggot which changes beneath the surface of the ground to a smooth whitish puparium, inside which it remains unchanged until the following spring; while on the other hand, the Apple Fruit-miner is a caterpillar with a distinct head, three pairs of thoracic feet on the segments next to the head, four pairs of short fleshy pro-legs under the middle segments and a similar pair of pro-legs at the end of the body. This turns to a chrysalis in autumn inside a close white cocoon which further is surrounded by an outer web or loose net work of white silk.

The Codling Moth, again, differs as to its work from both of the above. Instead of tunnelling in all directions through the flesh and destroying the whole apple, the caterpillar always works to the core and feeds upon the seeds, in most cases entering the fruit from the calyx end, and emerges through a hole straight from the core to one side. The larvæ of the Apple Fruit-miner and of the Codling Moth are both caterpillars, but that of the Codling Moth when full-grown is nearly three times the size of the Apple Fruit-miner, and is spotted with black, bristle-bearing points. The cocoons, too, are very unlike; while that of the Apple Fruit-miner is one-quarter of an inch long and surrounded by a white, lace-like outer netting, that of the Codling Moth is half an inch long and brown and close, with many particles of the bark upon which it is spun worked into it.

Specimens of the Apple Fruit-miner confined in a jar upon moist earth and with pieces of bark, invariably chose the latter to spin upon, the cocoons being generally placed deep in a crevice or under a flake of bark.

Remedy.—Until more is known of the habits of this insect, it would not be wise to make more than general suggestions as to a remedy. Mr. Sharpe mentions that he sprayed his trees for caterpillars, and that the fruit was badly infested on trees so treated, but no comparison is drawn with trees that were not sprayed. From so much of the life history as is known, spraying with Paris green, lime and water, in the same manner as for the Codling Moth, soon after the flowers fall, with two or three applications a week apart later, would seem to be the most reasonable method, and certainly would, at any rate, have the great advantage of destroying several other kinds of biting insects.

Description of caterpillar of the Apple Fruit-miner from Chilliwack, B.C., made August 3, 1896, after it had emerged from apple:—

Nearly cylindrical, slender, almost three-eighths of an inch long when extended, by $\frac{1}{8}$ in diameter. Head small, fuscous. Thoracic shield fuscous, with a white stripe in centre. Anal plate conspicuous, and on the anterior half of segment 13 is a long, narrow chitinous blotch, similar to the anal shield and probably representing the expanded bases of tubercles. Body whitish, washed all over with pink; bristles white and slender; spiracles inconspicuous; surface of the body uneven; intrasegmental folds deep, as also a median transversal fold on each segment. There is a row of deep depressions above and below the stigmatal fold.

When received on July 24, 1896, the above larva was white in general colour, with black head and thoracic feet. Two larvæ spun on 4th and 5th of August.

A cocoon crushed by accident on October 31 showed that the pupal stage had been assumed. The cocoon is double, consisting of a close, dense, white, spindle-shaped inside cocoon, one-quarter of an inch in length, inclosed in a loose bag of open network of large meshes; this is three-eighths of an inch by one-eighth. The inside cocoon is apparently open at one end, for, although no opening can be seen, in nearly every instance the larval skin and head are pushed out into the outer cocoon.

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THE HORN-FLY.

(*Hamatobia serrata*, Rob.-Desv.)

The invasion of Canada by this pernicious insect was first noticed in 1892, and every year since that date losses from the irritating bites of the Horn-fly have been complained of by cattle owners in some new parts of the country. The hope expressed in my annual report for 1893 that the numbers of the flies would after two or three years become less and less in any invaded district, has, to a large measure, been realized. In the province of Ontario, where the first Canadian specimens of the Horn-fly were noticed, there is a decided diminution of the numbers of this pest. Among answers to the questions sent out by Prof. Panton of Guelph, to farmers in different parts of the province, 25 reports were received of its increase and 46 of its decrease, and 25 correspondents noticed no change in the numbers. The following extracts are also of interest:—

“London, Ont., Dec. 7.—The Horn-fly was very conspicuous in its season, but the alarm concerning it seems to have abated.”—J. DEARNESS.

“Sackville, Westmoreland Co., N.B., July 13.—I mail to your address under separate cover several specimens of a very troublesome fly known here as the Horn-fly. They gather in large clusters about the base of the horns and around the root of the tail, also under the flanks. They are evidently the cause of a very decided decrease in the flow of milk among the cows of this place. If you have a remedy for them, please let me know as soon as possible.”—JOHN L. FAWCETT.

“Pointe de Bute, Westmoreland Co., N.B.—The Horn-fly was not quite so troublesome to the cattle this year in New Brunswick as last, but for several weeks was very active. Very little was done to protect the cows. The impression is growing that the fly will disappear in a short time.”—HOWARD TRUEMAN.

“Yarmouth, N.S.—The prescription I used for the Horn-fly was taken from the *Country Gentleman*:—‘Take equal parts of lard and coal oil with a few drops of carbolic acid, and apply every few days as needed.’ Any soft grease may be used instead of lard. I observed drinking at a public fountain near my place two yokes of oxen, the bodies of one yoke covered with thousands of these flies, while the others were entirely free from them. ‘What do you use for the Horn-fly?’ I asked from the driver of the former yoke. ‘Fish oil,’ was the reply. Whale oil soap would, no doubt, be effective. Along the sea coast fish oil is cheap and easily procured, and it is probably more durable than coal oil and grease.”—CHARLES E. BROWN.

“Berwick, King’s Co., N.S.—The Horn-fly was very abundant. I found an English sheep dip (E. Liddle & Co.’s. I think,) applied to the cows with a brush about once in three days the cheapest and best preventive I have yet tried.”—S. C. PARKER.

“Sydney Mines, Cape Breton Co., N.S.—The Horn-fly was not nearly so numerous nor blood-thirsty as last year, and I hope will disappear in a year or two.”—DAVID G. CRAWFORD.

“Glance Bay, Cape Breton, N.S.—The Horn-fly continues to give us some trouble, but not quite as much as at first. Various methods are adopted to defeat them, all fairly successful.”—JAS. W. EDWARDS.

“Charlottetown, P.E.I.—The Horn-fly did a great deal of damage here during the summer of 1895. I think a reasonable estimate for milch cows would be about one-sixth shrinkage in the milk flow, and fattening cattle did not do well. Last season (1896) they were not nearly so bad. I hope they have had their day and will not show up in the spring.”—THOS. J. DILLON.

“Alberton, P.E.I.—The Horn-fly was, many say, as bad as last year. My own personal observation points to a decrease, but others say to the contrary. Our farmers are at a loss for a cheap effective remedy. Kerosene emulsion, fish oil, vegetable oils are all ineffectual to completely keep off the pest.”—REV. A. E. BURKE.

Remedies.—There is nothing new to record in the way of remedies. As previously stated (*Experimental Farm Report*, 1893, page 186), almost any greasy substance rubbed on the animals will keep the flies away for several days. A number of experiments were tried in the field with the result that train oil alone and train oil or lard

with a little sulphur, oil of tar or carbolic acid added, will keep the flies away for from three to six days, while with a small proportion of carbolic acid it will have a healing effect upon any sores which may have formed. Train oil or fish oil seem to be more lasting in their effects than any others experimented with.

The safest and most convenient way of using carbolic acid is in the shape of carbolized oil, which can be prepared by dissolving one ounce of crystallized or liquefied carbolic acid in 1 quart of oil. Train oil, fish oil, tanner's oil, olive oil or any other fixed oil will answer; but not coal oil, as carbolic acid is not soluble in this liquid. The crude carbolic acid does not dissolve easily in fixed oils, and, therefore, must not be used. Instances have been reported to me of injury to animals and the hands of operators, when the crude has been substituted for the purer form of carbolic acid.

Mr. Robert Elliott, the herdsman at the Central Experimental Farm, finds that the most convenient mixture which is effectual is 10 pounds of lard mixed with one pound of pine tar.

THE APIARY.

The practical management of the Apiary during the past season, as heretofore, has been satisfactorily carried on by Mr. John Fixter, the farm foreman. Mr. Fixter has been of great service in showing visitors over the bee-yard and explaining all matters connected with bee-keeping when consulted. All details with regard to this branch are given in Mr. Fixter's report appended hereto. Mr. Shutt has also kindly prepared a report in continuation of that of last year upon further experiments with different brands of "foundation," which I feel sure will be read with much interest by all bee-keepers.

In May last four colonies of thoroughbred Italian bees were purchased from Mr. M. B. Holmes, of Athens, Ont. Two of these were sent to the Experimental Farm at Brandon, Man., and one each to the farms for the North-west Territories and British Columbia. These bees were very beautifully marked, and the queens were all young imported stock, with the exception of one of those sent to Brandon, which was two years old, but also imported. The colonies all arrived at their destinations in good order, and will be found mentioned in the reports of the various branch farms.

I was much pleased to be able to arrange for a joint mid-summer meeting of the Bee-keepers' Associations of the counties of Russell, Prescott and Glengary. This meeting was held at the Central Experimental Farm on the 12th of June last, and was attended by many of the leading members of the various associations, who expressed themselves as much pleased with what we were able to show them of the work being done in the Apiary.

REPORT OF MR. JOHN FIXTER.

EXPERIMENTS IN WINTERING (1895-96).

The experiments begun last year as explained in the report for 1895 were repeated this season and some others were undertaken. Following is a report on these:—

Experiment No. 1.—Seventeen colonies put into winter quarters in the cellar on the 20th of November, 1895. Empty hives were placed on the floor, with 3-inch blocks of wood on the top of them, at the back, and the hives piled up three tiers in height. In addition to the 3-inch blocks, by which the back was raised higher than the front, so as to give free ventilation, each hive was raised from its own bottom board with small blocks $\frac{3}{4}$ inch in height. All front entrances left wide open. The wooden covers of all these hives were removed and replaced by chaff cushions, four inches thick. Above the cushions strips of wood, one along each side, prevented them touching the bottom of the hive immediately above them, and also allowed air to circulate freely under each hive.

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This mode of wintering was, on the whole, very successful. One swarm, however, died from an unknown cause. When put into the cellar it had plenty of honey and weighed 58 pounds. In spring its weight was found to be $47\frac{3}{4}$ pounds.

The average weight of the 13 other colonies was before winter $50\frac{1}{4}$ pounds, and in the spring $40\frac{1}{4}$ pounds, each colony having consumed an average of only 10 lbs. of their stores against 12 pounds 9 ounces the preceding winter, and 20 lbs. in 1894-95. During the winter scarcely any humming could be heard in the hives, and there was no sign of dampness nor of dysentery.

The product from the 16 hives during the season was, on an average, 47 sections of honey from each, besides 17 pounds in "extracting-frames" reserved for winter and spring feeding. The 16 hives gave 5 new swarms.

Experiment No. 2.—Two colonies put into the cellar, with tops and bottoms of the hives left on, just as they were brought in out of the bee-yard. These were to be watched for dampness.

By the 30th December, some mould was noticed at the entrance of one hive, and a fortnight later both were very damp, one even had water on the bottom board. In this hive, however, the bees kept very quiet and scarcely any hum could be heard, while those of the other hive were very restless, some coming out at the entrance from 30th January; consequently, on 10th February, a little ventilation was provided by displacing somewhat the wooden cover; nevertheless, on 1st March, there were signs of dysentery, and about half a pint of dead bees was removed. By 16th March signs of dysentery appeared also on the other hive, and on the 1st April both seemed to be in a very bad condition, a considerable number of dead bees having to be removed from them.

On 15th April the two hives were taken out and placed on their summer stands; there were many dead bees and mould on the bottom board; but the colonies were still fairly strong. The bottom boards were removed and clean ones put in place of them.

On 27th April the hive that had been the quieter one during winter, was found deserted; its frames were very mouldy and soiled with fæces. The other hive, on the same date, had two frames partly filled with brood and with new honey. The product of this hive and of one swarm which it gave, was 92 sections of honey.

Experiment No. 3.—One colony was placed in a packing case in the cellar, on the 22nd November, 1895, and packed with four inches of dry sawdust all round the hive; brood chamber raised from bottom board by four small 1-inch blocks; wooden cover of hive replaced by a 4-inch chaff cushion, and the packing case filled up with four inches of dry sawdust above the cushion. For ventilation a small shaft of the same size as the opening to the Langstroth hive, led from the opening of the hive to the outside of the packing case. Case placed on the top of another case, three feet high, in the stone cellar beneath dwelling house.

About the 21st of January, this colony began to be uneasy; some bees were coming out. On 30th January, the top was somewhat displaced to give ventilation; nevertheless bees kept coming out, though the cellar was perfectly dark, and on 14th February a piece of thin netting was placed over the entrance to stop them. On 1st March, there were many bees dead about the entrance which was much soiled with fæces. The number of dead bees then became less and less, and on 1st April the colony was perfectly quiet. On 15th April it was taken out of the cellar and found to be in a very weak condition with no more than one frame of bees; the other frames were much soiled with fæces. The weight of the hive, 55 pounds on 22nd November, was now reduced to 39 pounds, the bees having consequently consumed 16 pounds of honey.

On 1st May the bees though weak were gathering pollen actively; on 15th May the hive contained two frames with brood and much new honey, but no eggs and no queen. One queen cell only was capped. On 25th May, all the brood had emerged and flown away leaving scarcely a dozen bees in the hive. On 30th May, the hive was deserted, the queen cell not being uncapped; 7 pounds of fresh honey had been gathered into the brood chamber.

I am of the opinion that this colony perished from being kept too warm and for want of sufficient ventilation.

Experiment No. 4.—This experiment is very similar to the last, but no ventilation was provided, it having been claimed by one of our correspondents that he had always wintered bees satisfactorily in this way.

The bottom board of the hive was removed and the hive was stood on four blocks $1\frac{1}{2}$ inches high, one under each corner, placed right on the bottom of the packing case, which was then filled in with dry saw-dust, four inches all round and above, as in Experiment 3, except that no shaft for ventilation was cut through to the outside of the packing case; but immediately beneath the hive there was a narrow crack between the boards of the packing case, not $\frac{1}{16}$ of an inch wide. The packing case itself was raised about an inch off the earthen floor in the stone cellar by means of small blocks.

On 22nd November the hive weighed 49 pounds. No sound could be heard in it all winter. On 15th April the bees were found all dead on the bottom board and appeared to have died early in the winter, as scarcely any honey was consumed and the combs were dry and clean. Weight on 15th April, $47\frac{1}{4}$ pounds. It is plain that this plan cannot be recommended.

Experiment No. 5.—One colony was placed in a packing case large enough to allow of 4 inches of cut straw and chaff being packed all round the hive, and the box was left out of doors in a sheltered place on the ground in the yard. Bottom board loosened and 1-inch blocks put at each corner between bottom board and brood chamber. Wooden cover also replaced by 4-inch chaff cushion, and box filled up with 4 inches of chaff and cut straw. No ventilation.

The case was, besides, buried under a foot of snow shovelled upon it. No sound could be heard from this hive during the winter till it was taken out on 15th April; the weight had been reduced from 57 pounds in November to $49\frac{1}{4}$ pounds, the bees having consumed $7\frac{3}{4}$ pounds. On being taken out, the hive was found very wet and mouldy with a thickness of about two inches of dead bees on the bottom; two frames only were partly filled with bees. Water had evidently come in from the outside, which would have been avoided if the hive had been raised about one foot from the ground, and the results might then have been much better.

On 1st May the bees from this hive were gathering pollen, but were few in number. May 14:—Colony very weak, but queen apparently in good condition; two frames with brood and eggs and new honey. June 1:—Hive deserted, though plenty of stores remaining; $11\frac{1}{2}$ pounds of new honey in the brood chamber.

Experiment No. 6.—One colony packed exactly as No. 5, but with ventilating shaft from entrance to the outside of the case which was placed three feet from the ground on the top of an empty case out of doors.

No sound could be heard from this hive all winter up to the 1st April, when a slight hum was perceptible. On 8th April the first bees made their appearance, some flying in the evening; there were many dead bees at the entrance; outside temperature, 44° F. From the 8th to 14th April, on warm days, a few bees were noticed flying. On 15th April the hive was taken out of the packing case and found to be deserted; many dead bees lay at the back end of the hive; the frames above were all dry and clean.

The hive when put into the case on 22nd November, weighed 51 pounds; when taken out on 15th April, $39\frac{1}{4}$ pounds, $11\frac{3}{4}$ pounds of honey having been consumed.

Conclusions :—The mode of wintering that has given most satisfaction is No. 1.

Hives put in the cellar as they came from the bee-yard with the tops and bottoms on (No. 2), had not sufficient ventilation. Dampness caused dysentery.

In the hive packed in saw-dust with no ventilation (No. 4,) the bees were smothered; in the hive similarly treated but with ventilation (No. 3,) the colony was much weakened by heat, dampness and insufficient ventilation.

The hives packed in chaff and left out of doors, one on the ground without ventilation (No 5) and the other with a ventilating shaft (No. 6), seem to have both been

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insufficiently protected with packing, but the former one probably suffered most from the water that found its way into the hive.

The temperature of the cellar during the winter 1895-96 was:—

November	38° to 40° F.
December	40° to 44° F.
January	38° to 44° F.
February	38° to 43° F.
March	40° to 41° F.
April	40° to 47° F.

SEASON OF 1896.

- April 13, 1896.—The weather being very fine, bright and calm (temperature in the cellar 42° F., out of doors, 55° to 59° F.), three hives were taken out of the cellar at noon and placed on their summer stands, which were set on about one foot of snow. The bees began to fly at once, but at night there was a considerable number of dead bees about the entrances.
- “ 14.—Weather very cool; very little flying.
- “ 15, 16.—Very warm, bees actively gathering pollen on willows in the swamps.
- “ 16.—Remaining colonies taken out. Temperature in cellar 47° F.; out of doors, 75° to 78° F.
- “ 16–30.—Bees working well, gathering pollen on willows and soft maples. Some bees seen attempting to rob; entrances of threatened hives were contracted so that only one bee could pass at a time.
- May 1–7.—Bees gathering pollen. Two days were cold and windy; some dead brood was carried out before the entrance of the hive.
- “ 8–13.—Bees began to work on cherry and plum blossoms.
- “ 13.—Apple blossoms provide abundance of pollen and honey.
- “ 14.—Dandelions in full bloom and very attractive to bees.
- “ 15–20.—Very fine; bees working well.
- “ 20.—White flowers of *Viburnum Lantana* covered with bees gathering honey.
- “ 20–31.—Bees working well; buckthorn hedges (*Rhamnus frangula*) thronged with them. This, like the *Viburnum*, appears to be a very valuable shrub for bees, as it comes in bloom so early in the season, before the clovers. Both these shrubs, especially the buckthorn, make also good and useful hedges and can be grown from seed.
- June 4.—Bees clustering for the first time. Removed all cushions and propolis quilts. Placed supers on all hives requiring them.
- “ 5.—Clover and Mock Orange (*Philadelphus*) beginning to bloom.
- “ 13.—First swarm of the season.
- “ 19.—Bee-moth grubs found in some of the hives, of which the colonies had died or deserted in the spring. These hives were taken into a closed room, and fumigated with sulphur. For this purpose the brood chambers, after removal of the top and bottom, were piled on the top of each other, and raised sufficiently from the floor to allow of an iron vessel standing on legs, containing half a pound of sulphur to be placed under the lowest; the sulphur was ignited, and the fumes rose through all the frames and killed every grub.
- “ 22.—Inspected every hive; a considerable number of sections were capped.
- July 1.—First honey taken off from the hives this season.
- “ 3.—Noticed bees very thick on mustard and basswood, of which the blossoms are just opening. Marked all supers, and removed those that were full.
- “ 21.—Bees working still on clover and basswood, and beginning on the English horse-beans.
- “ 23.—Basswood blossoms just finished.
- “ 24.—Noticed bees abundantly attracted by the following flowering plants:—*Asclepias tuberosa*, *Aster sibiricus*, *Centaurea macrocephala*, *Linaria spectabilis*, *Veronica spicata*.

- July 26.—Bees very thick on St. John's wort.
 " 27.—Buckwheat plot No. 1 in bloom ; bees working well.
 Aug. 4.—Workers first noticed killing drones.
 " 6-18.—Very hot and dry ; this weather lessened the flow of buckwheat nectar considerably, so that the bees worked on this plant only early in the morning.
 " 18-Sept. 1.—Weather very fine, with occasional showers ; bees flying well, but no increase in weight of honey.
 Sept. 1.—Removed all supers, and weighed brood chambers ; all the hives of a weight less than 55 pounds were given extracting frames with good sealed stores, so that they might go into winter quarters weighing about 50 pounds. For this, the frames that were empty, or nearly empty, were taken out and replaced by full frames with well-capped honey. When it was not found advisable to replace the frames, but feeding was necessary, a super containing partly-filled sections, or extracting frames, was placed on the top on the propolis quilt, a corner only—about one inch—of the quilt being turned back to provide a passage for the bees, so as to make the bees believe they were taking the honey from another hive. It is important to uncap the whole of the sections or frames in the super, or the bees will not take the honey down to their own combs so readily. If this mode of feeding is followed, there is little danger of the bees robbing.

The above excellent plan of placing a quilt under the super, as explained above, was suggested to me by Mr. William McEvoy, of Woodburn, Ont., Foul Brood Inspector, and proved perfectly successful. This plan prevents robbing, and uses up any sections which may be only partially filled.

Those who have no extra sections or frames of honey should feed granulated sugar of the best quality, two parts, by measure, in water, one part. The water should first be boiled and then, while still on the stove, kept thoroughly stirred while the sugar is put in and until all is dissolved. This syrup is to be fed lukewarm, great care being taken not to allow any to leak or be spilt around in the hive. We generally use a Miller feeder.

BUCKWHEAT.

Two plots of Silver-hulled buckwheat were sown last season on the Experimental Farm, primarily as pasturage for the bees, but also for the grain.

Plot No. 1.—The ground was partly sandy, partly clay loam. A dressing of wood ashes—about 150 bushels to the acre—was applied during the early part of the winter and ploughed under in spring. The buckwheat was sown on 20th June, three pecks to the acre. It came up 27th June, was in bloom 26th July, when the bees began at once to work on it ; its growth was strong and even, and the seed was ripe on 25th September. A heavy frost on 22nd September injured this plot so that it was of no further use for the bees. Yield of threshed grain per acre, 29 bushels 26 lbs.

Plot No. 2.—Soil similar. Sown, 29th June ; came up, 5th July ; in bloom, 30th July and 1st August, when the bees began at once to work on it ; it made a strong and even growth. It was injured by frost on 22nd September, and cut on 25th September. Yield of grain per acre, 23 bushels 32 lbs.

FIVE-BANDED ITALIAN BEES.

There is in the apiary but one colony of pure Five-banded Italian bees. It has again this year given very good returns. It was one of the colonies of the wintering experiment No. 1, and came out of winter quarters fairly strong, having consumed only 7½ pounds of honey. During the summer it made 20 sections of honey and 53 pounds of extracted honey, and swarmed once in July. A swarm from another hive, which came out at the same time, was very much mixed with this one, but the Italian queen came through safely. These two swarms together made 22 sections and 37½ pounds of extracted honey.

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HIVE IN A WOOD SHED.

Many inquiries having been received from the city, where space is scarce, about the possibility of keeping bees in sheds, we tried last season by placing one in a wood shed. A small hole, 6 inches by 6, was cut in the side wall of the shed, on a level with the floor, facing the south. The entrance of the hive was close to this. From 15th April to 1st May bees from other hives tried very hard to rob this hive; so the entrance was contracted so as to allow only one bee to pass in and out at a time. This hive and the swarm which it gave produced 93 sections of honey. This hive has been left in the shed for the winter. (See Experiments in wintering, 1896-97, No. 5.)

HIVE KEPT ON SCALES TO SHOW DAILY GAIN.

Records of the daily weighing of one colony were kept during the summer. This was a first swarm secured on 13th June, and weighed at that date $6\frac{3}{4}$ pounds. It was put into a hive with four frames of drawn comb and four frames of foundation, placed alternately.

1st week from	17th June,	gain.....	22 $\frac{3}{4}$ lbs.		
2nd "	24th "	"	20 $\frac{1}{2}$ "		
3rd "	1st July	"	12 $\frac{1}{4}$ "		
4th "	8th "	"	15 $\frac{3}{4}$ "		
5th "	15th "	"	15 $\frac{1}{4}$ "		
6th "	22nd "	loss		4 $\frac{1}{4}$ lbs.	
7th "	29th "	gain.....			
8th "	5th August	"	11 $\frac{3}{4}$ "		
9th "	12th "	loss		$\frac{1}{4}$ lb.	
10th "	19th "	"		2 lbs.	
11th "	26th "	"		1 lb.	
			98 $\frac{1}{4}$ lbs.	7 $\frac{1}{2}$ lbs.	

Making a total gain in weight of 90 $\frac{3}{4}$ pounds. Ninety-four sections of honey were taken from this hive. Some of the difference represents the weight of brood, &c.

The largest gain on any one day was 6 $\frac{1}{4}$ pounds, on two occasions, one during the clover flow and the other during the basswood flow.

RETURNS.

The total returns of the Central Farm Apiary for the season of 1896 show an average of 50 sections, and 16 pounds and $\frac{1}{2}$ ounce of extracted honey for each colony.

THE BEE CELLAR.

The winter quarters are a chamber boarded off from the cellar of a private house. In former winters, it was found to be too cold and damp and the ventilation was not satisfactory. There was only an upright ventilator, 3 inches by 3 inches, passing through the ceiling up to a stove pipe, and provided with a damper with which to regulate the draught; but no air could be let in from the outside.

Several important improvements have been made in this cellar during the last summer: a cement floor, shelves and an entrance from the outside. It is also larger than before, being 11 feet 6 inches by 15 feet, which allows 3 tiers of shelves above each other, and two passages. It is boarded off from the remainder of the cellar by a partition of tongued and grooved lumber. The floor is concrete over 8 inches of small stones. The lowest shelf is 18 inches from the floor, the second 20 inches clear above and the third again 20 inches clear above that; neither the hives on the third shelf nor the uprights supporting the shelves reach the ceiling, so that no vibrations can reach the hives from the ceiling above.

Outside air can be let in at any time by slides into both the bee-chamber and the large cellar. Adjoining the bee-chamber is a smaller one provided with ventilators and having a coal stove, so that, whenever necessary, fire can be made to raise the temperature or purify the air of the whole cellar by increasing the ventilation.

EXPERIMENTS IN WINTERING (1896-97).

Colonies put into winter quarters, 16th November, 1896.

No. 1.—A repetition of experiment No. 1 of the former winter, with 15 colonies of an average weight of 50 pounds and 15½ ounces each.

No. 2.—A repetition of experiment No. 2 of former winter, with two colonies weighing respectively 49 pounds and 56 pounds.

No. 3.—Two colonies weighing 60½ pounds and 63 pounds were placed in the root house of the Central Experimental Farm, which is 100 feet long, 25 feet wide and 10 feet deep. They are on a shelf nailed up against the side wall about 3 feet from the ceiling and projecting about 2 feet. A curtain is hung from the wall over the top and front of the hives, so as to keep out all the light. The propolis quilt of one of these hives had been removed on 2nd November and a cushion put in its place. That of the other hive has been left and a cushion placed above it, but the front of the hives has been raised half an inch more by means of an inch block in the middle of the entrance.

No. 4.—Two colonies weighing 50 pounds and 52 pounds, have been put into a pit dug in the side of a hill 3 feet deep by 3 feet in width and 10 feet long, so that the ventilators at both ends should not be immediately above the hives which are in the middle of the pit. The hives rest on two cedar poles laid along the full length of the pit. A third cedar pole of the same length is laid in front of the entrance of the hives and insures the necessary circulation of the air from the ventilators. These ventilators which are 3 inches by 4, are made of boards, three of which reach down to the bottom of the pit, the fourth only to the top of the pit, and they rise 3 feet above the ground.

In each hive half-inch strips of wood have been laid under both sides and under the back end, between the brood chambers and the bottom boards, so as to provide more space at the bottom of the hive in case a quantity of dead bees should accumulate there.

The pit is filled up with loose straw up to four inches from the top, which is made of cedar poles along the length of the pit, the middle ones higher than the others, covered with a layer of straw and one foot of soil.

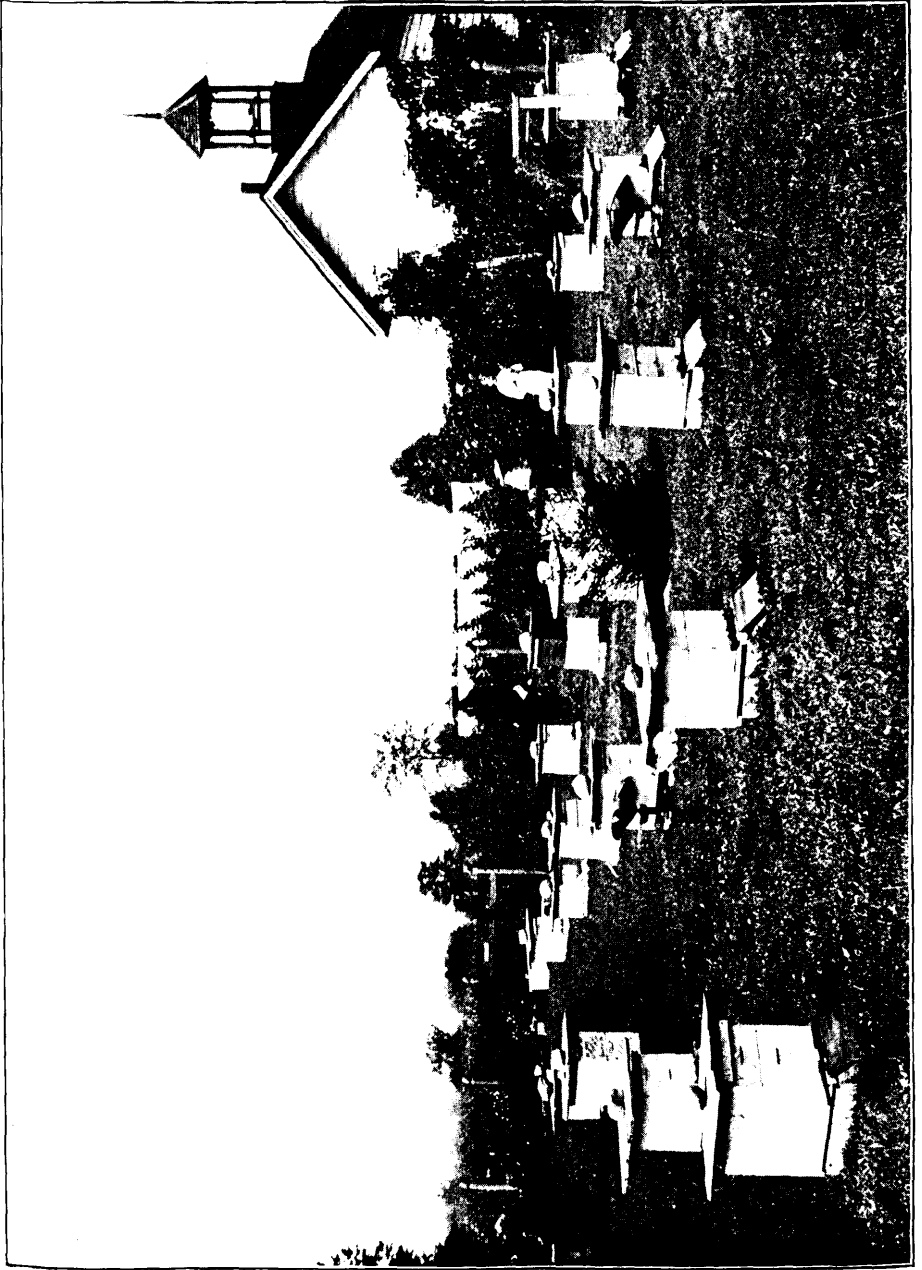
A small shaft has also been arranged between the hives, down which a thermometer can be let by means of a string, so that the temperature of the pit may be ascertained. The thermometer is examined once every week. If the temperature rises too much, some of the covering may be removed; and if the contrary, some may be added.

No. 5.—Two colonies, weighing 54 pounds, and 63 pounds., were put in a wood shed, the walls of which are double boarded, with an air space of four inches. The floor, which is about one foot from the ground, is also double-boarded, and there is no draught under it. The hives are about one foot from the wall, resting on a double thickness of sacks laid on the floor, and are covered above and all round with a double thickness of the same sacking. No ventilation is provided for one hive. For the other, which is the one that was kept in the shed during the summer, a small shaft, ½-inch square, extends from the opening of the hive to the outside of the shed, and ½-inch strips of wood are put under both sides and under the back end, between the bottom boards and the brood chambers, so as to give more space at the bottom of the hive in case a quantity of dead bees should accumulate there.

A FEW SUGGESTIONS TO BEGINNERS IN APICULTURE.

Locate your bee-yard in a well sheltered place, where no cold wind can chill the brood. It will pay to build a high board fence if you cannot provide shelter in any other way.

Have no high trees near the apiary, for it is very difficult to get the swarms down from them.



View of the Apiary at the Central Experimental Farm, Ottawa.

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Shade may be obtained by the use of a second cover to the hives, made of boards one foot wider and one and a half feet longer than the cover of the hive.

Do not use propolis quilts during the honey season.

Do not allow your sections to be travel-stained by leaving them in the hives too long ; remove them to a warm room.

If the outside sections are not well filled, put them back in the next super.

Use 4-piece sections in preference to 1-piece sections.

Use full sheets of foundation in your sections ; the bees will go up sooner and work better on full sheets.

In the same way, in the brood chamber use full sheets of foundation ; this will be found a saving of time and do away with much drone comb.

Wire all brood frames and extracting frames.

Always sort your sections and clean them thoroughly before sending them to customers. Send them always in a clean super or in a neat crate.

Let the bees always have a supply of water as near as possible to the apiary, for in cool weather they require a great deal of water, especially when they are rearing a brood or if the honey flow is light.

Always handle your bees with the greatest care and gentleness.

JOHN FIXTER.

REPORT UPON FURTHER EXPERIMENTS WITH CERTAIN BRANDS OF COMB FOUNDATION, BY FRANK T. SHUTT, M.A., F.I.C., CHEMIST, DOMINION EXPERIMENTAL FARMS.

This investigation, commenced in 1894, and continued from year to year since that date, has for its chief object the determination of the relative usefulness in comb building of certain brands of "foundation." It was supposed that those brands of wax of which the bees used the most, or, in other words, to which they added the least amount of wax, in the building of the cell walls, would prove to have the greater value to the bee-keeper. It is argued by most practical bee-keepers that, in supplying the bees with wax that they can readily draw out and utilize in cell formation, a greater store of honey may be expected. This, indeed, seems to be the main reason for furnishing bees with artificial comb, though there are others of perhaps somewhat less importance. On the other hand, however, there are some bee-keepers who think that there is but little advantage in this respect, the chief benefit being a more regular structure of the cells in the section. At my suggestion, Mr. R. F. Holtermann, editor of the Canadian Bee Journal, has kindly furnished the following statement respecting the objects to be attained in supplying the bees with comb foundation :—

"As to the object of using comb foundation, brood foundation is used to save the bees time and material, to get all worker cells, and to secure straight comb. The foundation in the sections is first of all to aid in enticing bees into the supers, to save them material by the giving of wax, to save time, as they can begin storing more quickly in the supers ; also to get an evenly-filled section, and to have it attached to the sides and bottom of section. Bees are much less likely to do this well when they build the comb themselves. Again, it is desirable to have the cells of a uniform size ; by giving them the foundation, this is secured."

In connection with the question of wax utilization and deposition, Mr. Holtermann is also of the opinion that bees utilize the wax in the foundation to a greater extent when the honey flow is light ; in other words, that, when gathering large quantities of honey, bees manufacture or produce more wax than when the honey supply is light. It might be urged that this argument, carried to its logical conclusion, would in a large measure go to show that, in seasons of a heavy honey flow, there is little economy in supplying foundation. In these considerations, the fact must not be lost sight of that wax is not a material gathered by the bees, but a true secretion, the result of the physiological functions of certain glands in the bee, and is produced to a large

extent at the cost of the honey consumed by the insect. Wax, is, therefore, in a sense, a physiological concomitant of honey, and consequently it is improbable that all the wax necessary for the construction of the comb can be furnished the bees; indeed, our past results all point in this direction. It is, however, at the same time true that a portion of this wax can be economically supplied in the foundation, and within certain limits it would appear that the wax added by the bees is inversely proportionate to that furnished as foundation. I am further inclined to the belief that the weight of the comb varies somewhat with the season; the reason for this may be accounted for by Mr. Holtermann's theory already referred to.

For the details of the method of procedure, the reader is referred to page 171, Report of the Experimental Farms for 1895. An additional experiment has, however, been made this year, namely, that of ascertaining directly the weight of foundation after it had been drawn out by the bees. This was done by carefully shaving away the empty cells on both sides till the foundation was left. The great difficulty experienced in doing this with any degree of accuracy, owing to inequalities and to the fact that the foundation is not always in one plane, renders the results but approximate. Indeed, it will only be from oft-repeated experiments in this matter that safe conclusions can be drawn.

In Table I, we present in detail the data showing the weight and percentage of wax added by the bees in building the comb:—

TABLE I.
EXPERIMENTS with various Brands of "Foundation," 1896.

Designating Letters.	Name of Wax and Mill.	Section.	Milling Temperature.	Weight in grammes			Percentage of wax added by bees.	Gathered from
				of "Foundation," 2 inches square.	of empty honey-combs, 2 in. square.	of wax added by bees per 2 in. square.		
			F.					
A 1	Choice wax, Root mill.	Outer	89°	1 401	2 655	1 254	89 5	Clover.
A 2	" "	Inner	89°	1 401	2 735	1 334	95 2	"
B 1	" "	Outer	120°	1 204	2 691	1 487	123 5	"
B 2	" "	Inner	120°	1 204	2 647	1 443	119 9	"
C 1	Foundation in general use, 1896	Outer		1 215	2 946	1 731	142 4	"
C 2	" "	Inner		1 215	3 003	1 788	147 1	"
D 1	" " 1895	Outer		1 215	2 761	1 546	127 3	"
D 2	" "	Inner		1 215	2 700	1 485	122 2	"
D 3	" "	Outer		1 215	3 082	1 867	153 6	Buckwheat.
D 4	" "	Inner		1 215	3 182	1 967	161 9	"
E 1	Heavy sheet, Root mill.	Outer	120°	1 315	3 062	1 747	132 8	Clover.
E 2	" "	Inner	120°	1 315	3 069	1 754	133 3	"
F 1	Inferior wax, Root mill	Outer	89°	1 224	2 823	1 599	130 6	"
F 2	" "	Inner	89°	1 224	2 771	1 547	126 3	"
G 1	" "	Outer	120°	1 167	2 664	1 497	128 2	"
G 2	" "	Inner	120°	1 167	2 666	1 499	128 4	"
H 1	Choice wax, Given process	Outer		1 801	3 538	1 737	96 3	"
H 2	" "	Inner		1 801	3 567	1 766	98 0	"
I 1	Poor wax, Given process	Outer		1 582	3 739	2 157	136 3	"
I 2	" "	Inner		1 582	3 771	2 189	138 3	"
J 1	Patent process, 12 sq. ft. per lb.	Outer		1 004	3 193	2 189	218 0	"
J 2	" "	Inner		1 004	3 311	2 307	229 7	"
K 1	" " 15 sq. ft. per lb.	Outer		1 093	3 555	2 422	221 6	"
K 2	" "	Inner		1 093	3 329	2 236	204 6	"
L 1	Heavy sidewall, R. F. H.	Outer		1 257	2 792	1 535	122 1	"
L 2	" "	Inner		1 257	2 875	1 618	128 7	"

Although in some instances there would appear, comparing the above results with those of last year, to have been less wax added than in 1895, there are so many exceptions that no conclusions can be safely drawn, either as regards variation in weight of

The weight of wax utilized by the bees from 2 inches square of foundation varies from .079 grams to .813 grams. The latter amount of wax was taken by the bees from the heaviest brand of foundation supplied, while the former was from the lightest brand. If we exclude the heaviest and lightest foundations, however, it will be seen that the amounts of wax utilized in cell formation are not subject to much variation, though it should be remembered that the method employed did not allow of any great degree of accuracy in the determination. It will, therefore, be wisest to consider average results before making deductions.

A study of the data of *A 1*, *A 2*, *B 1*, *B 2*, might appear to favour the view that the milling temperature exercised an influence upon the relative ductility of the wax and go to show that wax made at 89 degrees F. is more easily drawn out than that milled at 120 degrees F. This view, however, receives no corroboration from *F 1*, *F 2* and *G 1*, *G 2*,—a parallel case; and I am inclined to the belief that the larger amounts utilized in *A 1*, *A 2*, are due to the foundation supplied being heavier than *B 1*, *B 2*, (see table.)

On calculating the "per cent of wax added," it becomes apparent that in 18 cases (or 70 per cent of the trials made) this percentage was between 30 and 40; in three trials, more than 40 per cent, and in 5 instances, less than 30 per cent. As remarked in considering the "weight of wax added," the higher numbers were obtained from the heavier foundations.

Table III, which presents the averages of the foregoing data, was prepared for the purpose of making clearer the features already alluded to and to assist in the more ready comparison of the data from the various brands.

TABLE III.

TABLE of Averages, 1896.

Designating Letter.	Name of Wax and Mill.	Milling Temperature.	Average weight in grammes of 2-in. sq. of empty comb.	Average weight in grammes of wax added by bees.	Average percentage of wax added by bees.	Average weight in grammes of "foundation" after removal of cells.	Average weight in grammes of "foundation" wax utilized by bees.	Average percentage of foundation wax utilized by bees.	
<i>A 1</i>	Choice wax, Root mill.	F.	2.695	1.294	92.3	.671	.729	52.0	
<i>A 2</i>		89°							
<i>B 1</i>	" "	120	2.669	1.465	121.7	.802	.401	33.3	
<i>B 2</i>		89°							
<i>C 1</i>	Foundation in general use, 1896. ....	.....	2.974	1.759	144.7	.791	.423	35.0
<i>C 2</i>									
<i>D 1</i>									1895.
<i>D 2</i>								
<i>D 3</i>	" " 1895. ....	.....	3.132	1.917	157.7	.756	.459	37.7
<i>D 4</i>									
<i>E 1</i>	Heavy sheet, Root mill.	120°	3.065	1.750	133.0	.878	.437	33.2	
<i>E 2</i>									
<i>F 1</i>	Inferior wax, "	89°	2.797	1.573	128.4	.788	.435	35.6	
<i>F 2</i>									
<i>G 1</i>	" "	120°	2.665	1.498	128.3	.719	.448	38.3	
<i>G 2</i>									
<i>H 1</i>	Choice wax, Given process .....	.....	3.552	1.751	97.1	1.087	.713	39.5
<i>H 2</i>									
<i>I 1</i>	Poor wax, " .....	.....	3.755	2.173	137.3	1.121	.461	29.1
<i>I 2</i>									
<i>J 1</i>	Patent process, 12 sq. ft. per lb. ....	.....	3.252	2.248	223.8	.883	.121	12.0
<i>J 2</i>									
<i>K 1</i>	" 15 "	3.442	2.329	213.1	.933	.159	14.5	
<i>K 2</i>									
<i>L 1</i>	Heavy sidewall, R. F. H	2.833	1.576	125.4	.777	.480	38.1	
<i>L 2</i>									

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There would not appear to be any definite relation between the weight of wax added and that of the wax utilized, though the data of *I 1*, *I 2*, and *K 1*, *K 2*, make it evident that in very light foundations the amount of wax utilized is very small and the amount added correspondingly large. This would point to economy in supplying heavier foundations than the brands just referred to, if the question resolves itself into one of furnishing wax that can be utilized by the bees.

The average weight of "foundation" after the removal of the cells, is, all things considered, seen to be fairly constant. The greatest weight was from "Choice Wax, Given Process"—the heaviest foundation experimented with—, the least weight was obtained from "Choice Wax, Root Mill, temperature 89 degrees F." by no means the lightest brand used, but the brand from which the bees utilized the most wax.

In considering the average weight of foundation wax utilized, the largest amounts were from *A 1*, *A 2*, and *H 1*, *H 2*, the Choice Wax of the Root Mill and Given Process, respectively. The least amounts so utilized were from "Patent Process" 12 square feet and 15 square feet per pound.

In summing up the results of this year's work, we may conclude that, considering the values of the comb foundations to be dependent upon the extent to which they are utilized by bees in cell formation, the Choice Wax, Root Mill, temperature 89 degrees F., gave the best, and the "Patent Process," 12 square feet and 15 square feet per pounds, the poorest results. Both the Choice and Poor Wax of the "Given Process" give very heavy "fishbones." Concerning the other brands on these points, the differences are not sufficiently well marked to allow of any emphatic statement being made respecting them.

F. T. SHUTT.

NOXIOUS WEEDS.

The subject of weeds is one of burning interest all over Canada, and is too large to treat exhaustively in this place. Farmers, as a rule, are not well informed even with regard to the common species of aggressive weeds occurring on their land. Figures have already been given in former reports of some of the plants, the appearance, name and nature of which it was important, from their injuries, should be known so as to be eradicated whenever noticed. I submit herewith a figure of one of the new pests of Manitoba, namely the Cow Cockle (*Saponaria Vaccaria*, L.), also known locally under the different names of Cow Herb, China Cockle and Soapwort. This plant has been noticed as an aggressive enemy in field crops only during the last two years, and so far only in the province of Manitoba, where it has spread very rapidly, particularly in the Mennonite settlements and other parts of Manitoba, the pretty porcelain-pink flowers sometimes occurring in such numbers as to give a reddish tinge to many acres of crop. The Cow Cockle belongs to the Pink or Carnation family. It is an annual herb with pale green, fleshy, sessile leaves, borne in pairs at each joint of the stem. The flowers first appear in Manitoba in July; they are about $\frac{3}{4}$ inch in diameter and are borne in large numbers, but each singly at the end of the thread-like branchlets of the many times divided flowering stems, as shown in the excellent figure herewith, which is engraved from a photograph taken by Mr. R. G. Mackay at Indian Head. Strong plants will frequently grow over two feet in height, with a diameter almost equal. The smooth

pod is inclosed in a five-angled calyx which enlarges with it. When the seeds are ripe the apex of the pod opens, forming a four-toothed orifice. Each of the pods with its enveloping five-winged calyx, measures about $\frac{1}{2}$ inch in diameter, and contains an average of 16 round, black, slightly roughened seeds. This plant, together with the Tumbling Mustard (*Sisymbrium altissimum*, L. ;=the *S. sinapistrum*, Crantz, of former reports), Ball Mustard (*Veslia paniculata*, Desv.), Hare's-ear Mustard (*Erysimum orientale*, R. Br.*), and False Flax (*Camelina sativa*, Fries.), has spread with almost incredible



Fig. 18.—Cow Cackle.

rapidity through the wheat-growing districts of Manitoba and the North-west Territories. The indications are that all of these were introduced from Europe in flax seed, and, although in the case of the Cow Cackle and Ball Mustard, there was little in their appearance from which it might be anticipated that they would become troublesome, the rapidity with which they have spread shows how important it is that every one of these plants should be destroyed by hand pulling or summer fallowing as soon as detected on land in a new locality.

*This plant is now known under the name of *Conringia orientalis* (L.), Andr. *Conringia* is quite a different genus from *Erysimum* and certainly should be separated from it.—J. F.

Experimental Farms.

REPORT OF THE POULTRY MANAGER.

(A. G. GILBERT.)

To DR. WILLIAM SAUNDERS,
Director Experimental Farms,
Ottawa.

SIR,—I have pleasure in submitting to you the ninth annual report of the poultry department of the Central Experimental Farm.

I am happy to say that the results of the past year have been more satisfactory—both as regards the yield of eggs and health of stock—than in any previous one. It is worthy of note that in this connection the rations were reduced in quantity, the fowls kept in greater activity and a much greater quantity of vegetables given than ever before. The noon ration of previous winters was dropped. Briefly stated the rations of the present winter consist of two, viz., morning and afternoon, with plenty of vegetables or green stuff, grit and egg shell forming material. After morning ration a hand-full or two of grain was scattered in the litter on the floor to start the hens searching for it. As a result more eggs were laid, and the health of the laying stock was better.

As in the two previous years, care was taken of the laying stock during the moulting period. Indeed, effort was made to shorten the period of non-production by feeding of cooked meat waste, or cut bone, with a run in a small field containing clover and grass. As a result 563 eggs were laid in November, and 1,466 in December.

The foregoing subjects, with many others pertaining to the proper care and management of poultry, are treated in full in the following report.

I have to acknowledge the present of a White Leghorn cockerel of the Wyckoff strain, from Mrs. A. L. Jack, of Chateauguay Basin, P.Q., and a setting of Coloured Dorking eggs, from Mr. E. D. Dickenson, Barrie, Ont.

During the year addresses were delivered by me at many different points in the Dominion. The demand for instruction, by the farmers, on all points in connection with the rearing, managing, proper caring for and marketing of poultry, is very great. Equal interest is taken in the obtaining of eggs in winter, when prices are high and the best paying markets therefor. A point to be impressed upon the farmers, and which I have endeavoured to do, at the meetings referred to, is the necessity of getting the new laid eggs into cold storage warehouse, or brought to the consumer in the summer season, with flavour intact. There are far too many ill flavoured eggs brought to market, or placed in the consumers' hands, during the summer months. Knowledge and a little energy and care are all that is necessary to prevent such eggs reaching market or consumer. Care on the part of the middleman, or dealer, is also necessary.

During the past year numerous inquiries have been made by letter and in person as to the best methods of artificial incubation and rearing of early chickens; the most reliable machines; the best treatment and care of the chicks, &c.

I cannot close without testifying to the zeal, care and energy displayed in the proper manipulation of laying stock and rations by Mr. George Deavey, who, in response to my request, was allotted to my department. It is to the faithful carrying out of the instructions given and the interest taken by him in his work that much of the marked success of the year is to be attributed.

I am, sir,

Your obedient servant,

A. G. GILBERT,
Manager Poultry Department.

REPORT OF THE POULTRY MANAGER.

IMPROVED METHODS.

The aim of investigation and experiment by experts, breeders and others interested in poultry culture is to convert as much as possible of the waste of the farm—of the country—into money in the shape of poultry and eggs. And if this object can be attained when the products are worth most, so much more satisfactory will the result be. In my reports of 1893 and 1894, a good deal of space has been given to the consideration of rations best calculated to produce eggs in the winter season, when they are at their highest value. The importance of the subject fully warranted the attention given to it and as new, cheap and effective rations are being discovered from time to time, it is likely that experimental work in this line will continue and be of unabated interest for a long period. It should be said that in giving the rations mentioned in the reports of the years stated above only such constituents were named as were convenient and cheap to farmers and calculated to utilise the waste of kitchen, table and barn. The experience of the past year has gone to confirm, or to a certain extent modify that of previous years. It is this comparison of the experimental results of one year with another that leads to conclusions of value to all concerned in agricultural work. It may be of interest then at this point to compare the past and present methods of housing, feeding and managing the laying stock, during the period of artificial life and treatment. All with the object of obtaining the best results at the least cost.

DIFFERENCES IN PAST AND PRESENT POULTRY HOUSES.

Taking first for consideration the difference in past and present methods of construction of poultry houses we find the requirements of to-day are :—

1. That the poultry house, while cheap must be so constructed that the laying stock will be comfortable, particularly at night. In previous years the notion prevailed that any sort of a shelter was good enough for the hen. In too many cases, it is to be regretted, that idea is entertained to-day. Experiment has demonstrated that, if the farmer wishes to have eggs in paying quantity in winter his hens must be comfortably housed. It should be remembered if the laying stock are kept in a cold house the food is first drawn upon to supply animal heat. It is the residue over and above that requirement which goes into eggs. The house need not be positively warm. What then is the right temperature to have? If possible have it so that the water will not freeze. This has been said before, but it is an important point to remember.

In cases where the water does freeze the chill should be taken off three or four times daily. Pure water in regular supply is an important item in the daily bill of fare. A few degrees below freezing will do the Asiatic and American breeds no injury. It means economy to have the house fairly comfortable, at any rate. Experience has proved that a house with the living, or scratching room, facing the south, is the most comfortable. A window of goodly size on the south side will admit sunshine on bright days. In cold districts the window can be doubled. In this way warmth and light, two important factors, will comfort and incite the layers to exercise.

2. A modern poultry house will be so constructed that the laying stock will be disturbed as little as possible. With that object in view the platform and roost, with nests under platform will so be placed that the eggs may be gathered, the platform cleaned and the feeding and watering done from the passage way without the necessity of farmer or attendant going among the layers. Plan of a building embracing all the facilities mentioned is given further on.

3. The house should be so arranged as to prevent egg eating, a vice that is far too prevalent among winter layers. It is hoped by having the nests darkened and arranged as above described to prevent the eggs from being seen after they are laid, at the same time affording facility for their being easily gathered. In diagram No. 1 a plan of house with that object in view is shown.

4. Other requisites in a modern poultry house are, a board floor, which is best because it has been found to be dry at all periods of the year ; a dust bath whereby the fowls are enabled to keep themselves free from vermin ; a narrow trough wherein to feed

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soft mash, &c., which may be V-shaped to be placed under the nests; a small box divided into two partitions, one for grit of some sort, the other for oyster shells, old mortar, &c.; a fountain or pail to hold the drink water. A fountain with a quarter-inch lip around, or partly around it, has been found the best for winter use, because the narrow lip permits of the fowls dipping their beaks into it to reach the water, but prevents their wattles from getting wet and so becoming frozen. A hen with comb or wattles frozen is not likely to be as good a layer as one that is free from frost bite. Small matters, it may be said, but nevertheless of very great import in obtaining desired results.

SUMMARY OF REQUISITES.

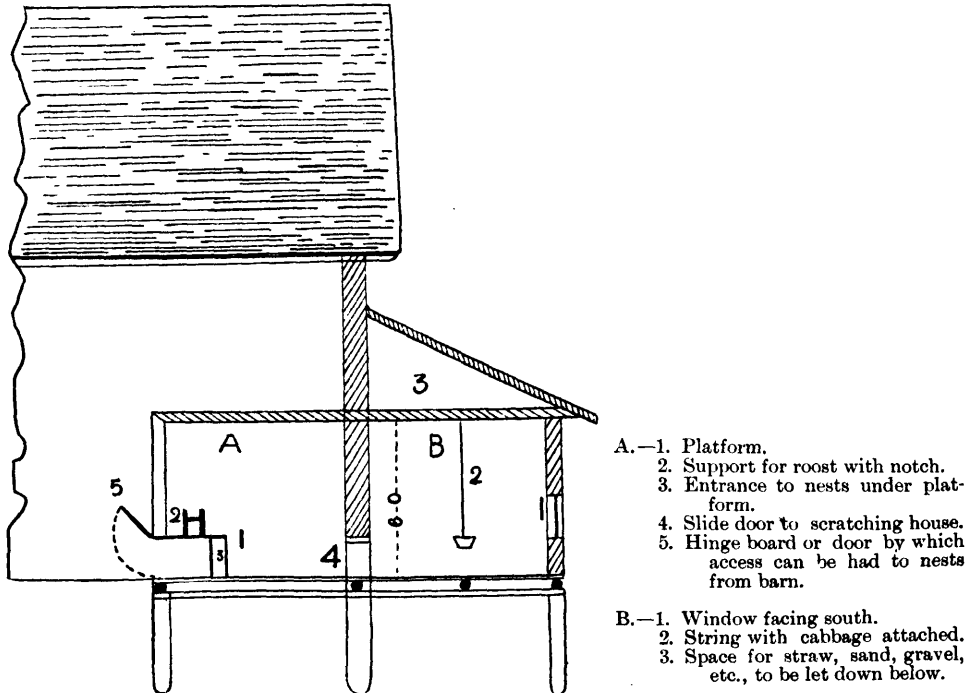
Summed up the points to be embraced in a cheaply constructed, up to date poultry house are:—

1. A comfortable house, if possible, divided into roosting room and scratching apartment.
2. Living or scratching room with a window of goodly size facing the south.
3. House so arranged that the laying stock will be disturbed as seldom as possible.
4. By admission of as much sunshine as possible into scratching room to incite to exercise.
5. By arranging nests so that they will be dark and secluded to prevent egg eating.
6. By attention to little requisities to secure paying results.

PLANS OF POULTRY HOUSES.

With the object of embracing the desirable points mentioned the following plans of easily constructed poultry houses, or, plans whereby portions of old buildings, barns, &c., may be adapted to poultry keeping, are given.

In report of 1893 a diagram of a poultry house intended to embrace many points of usefulness was given. The same diagram improved and modified in internal arrangements, with reasons for making alterations, is reproduced and shown below. It may be stated that the plan of 1893 has been adopted by several persons in the construction of poultry houses, with the most satisfactory results. First is given the plan of 1893 altered, so as to be more modern, and the reasons for making the changes:—



The above diagram represents a house and addition that can be added to the end or side of a barn facing south. A small portion "A" of the end of the barn is partitioned off for the roosting and laying room. The ceiling is made low, and under this low ceiling is the platform and roost so placed as to economise the animal heat of the fowls during the cold nights, and keep them as comfortable as possible during that period. The roost should be a 2 x 4 inch scantling, broadside down and placed 10 or 12 inches over a platform which should be 2½ feet wide and 18 inches from the ground. Under this platform should be the nests so arranged that by boarding the front of the platform, they (the nests) will be kept dark. The partitions of the nests will support the platform. The object of keeping the nests dark is to offer no inducement to the hens to stay in, or about them after the egg is laid, and to keep the other hens from seeing the eggs. Egg eating is so prevented and prevention is a great deal easier than cure. After keeping themselves comparatively warm by scratching busily all day in the scratching room, the layers require some warmth during the night, and in most poultry houses that is the very time they are coldest.

"B." This is an addition that can cheaply be made to the barn and should be to the south. A slide admits the fowls from A to B.

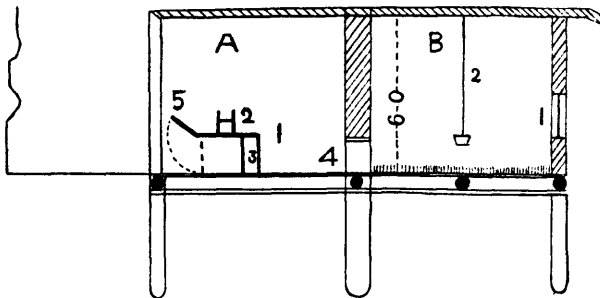
The floor may be of boards or earth, but it must be kept perfectly dry. On the floor should be placed chaff, oat hulls, straw, dry leaves or other material suitable, and in which the grain fed should be scattered so as to make the fowls actively search for it. A board flooring is preferable, as it is more likely to be dry. A narrow trough 2 or 2½ inches wide should be attached to the wall so as to permit of the proper feeding of soft food, if given. The object of this scratching house is to keep the layers busy all day and as much as possible out of house A, where they are only wanted to go to roost in and to lay. A fair sized window or windows should be in the south wall so as to admit as much sunlight as possible.

The houses can be made as large or as small as the number of hens require, always allowing 6 square feet for each hen, at the least, in the scratching room, and 10 to 12 inches roosting room for hens of medium and large size.

The alteration in the original diagram consists in making access to the nests and platform possible from the barn by the hinged door 5. The object of the alteration is to permit of the eggs being gathered and the platform cleaned from the barn. Diagram No. 2 shows an arrangement that may be more suitable to the colder parts of the Dominion. Another modification is that in the instructions as to what should be placed on the floor of B compartment. Straw, chaff or other kindred substances have been found superior to sand for reasons given in report of last year, and which briefly summed up are that the straw was a better incentive to exercise, was healthier, not so cold to the feet of the layers, and was much more easily removed. A correspondent stated that he had found ashes mixed with the sand a good deodoriser. But such was not found to be the case in the pens of the poultry houses where sand had been placed, and from time to time a small quantity of coal ashes. Where straw or chaff is used on the floor, a dust bath will be absolutely necessary, for it is the means whereby the hens keep themselves free from lice.

DIAGRAM NO. 2.

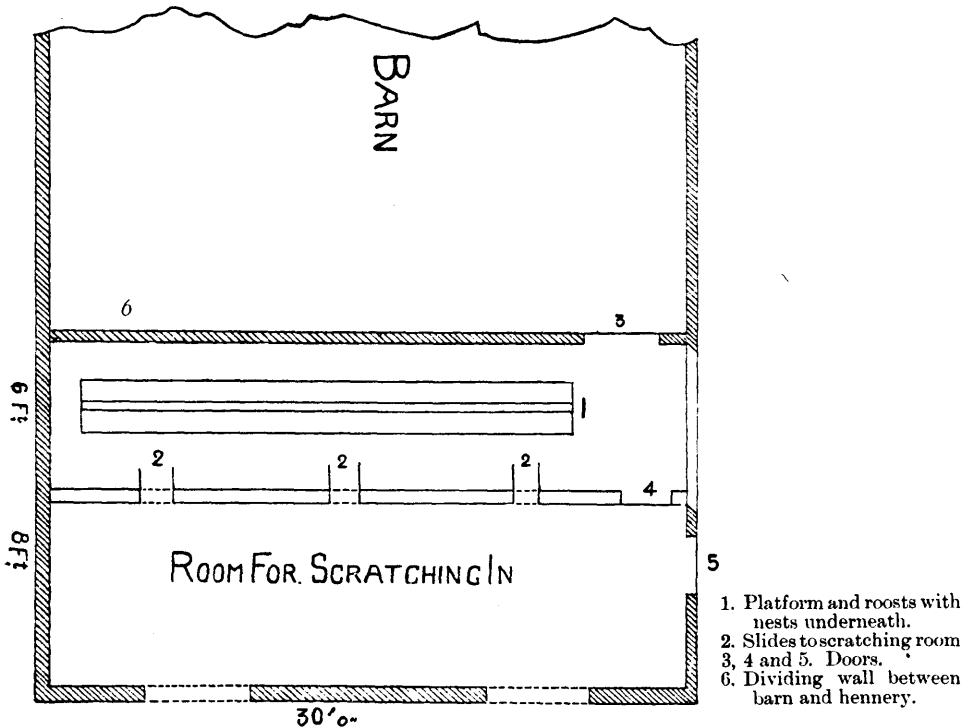
Showing arrangement of an hinged door to platform and nests, better suited to cold districts.



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The above diagram, No. 2, shows the two sections, A and B of No. 1 diagram. It might be found impracticable in the portions of the Dominion where the winters are cold to have an entrance from the barn direct to platform and nests. In such cases entrance can be had to A compartment from the door 3 as shown in the following diagram No. 3. In the above diagram (2) the nests are reached by the hinged board 5 for the purpose of gathering the eggs, renewing the straw in the nests or spraying them with coal oil to prevent lodgment of vermin, &c.

DIAGRAM NO. 3.



The above plan, No. 3, shows the end of the barn with the roosting and laying room and scratching room attached.

The numbers are explained as follows:—

1. Is the platform and roost with the nest boxes underneath. If the nests and platform are reached as in diagram 1, the platform will have to be put back so as to rest against the rear partition wall (6).

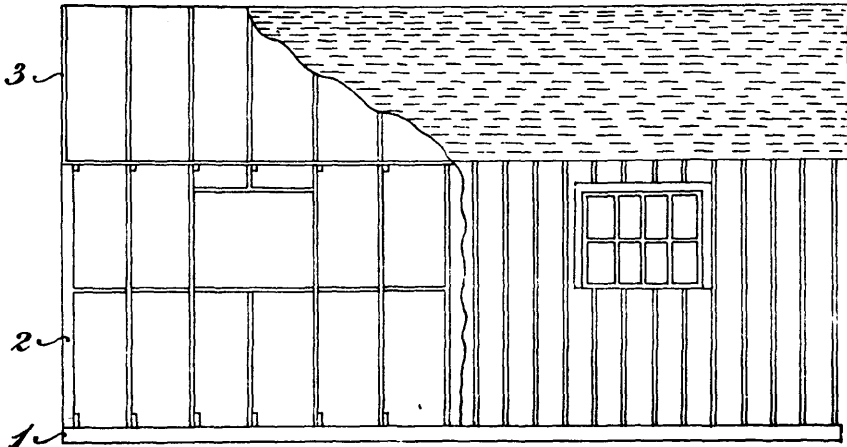
2. Are the slides to allow access to scratching-room. In a smaller house one or two would answer.

3 and 4. Are doors to get into apartments.

5. Is a side door to get in and out of the room for scratching, to clean up, &c. If it can be managed without, there need be no necessity for this door as the fewer openings the less cold the premises are likely to be. When cleaning up, the old material on the floor of the scratching room could be taken away through doors 3 or 4. The new litter for the floor could be let down from the loft 3 as shown in No. 1 plan.

OTHER PLANS.

The following diagrams have been prepared by Mr. Anderson, carpenter, Central Experimental Farm, in accordance with figures submitted by me.

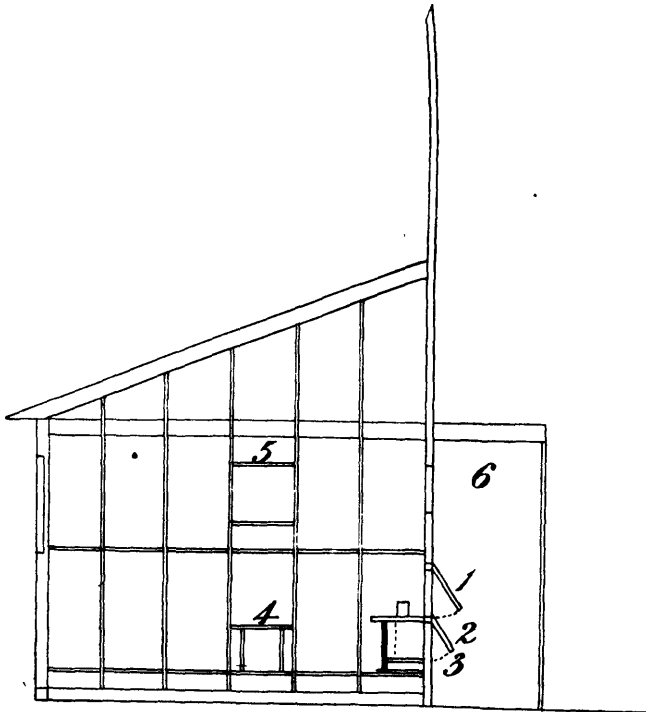


1. Sill 6x6. 2. Studding 2x4. 3. Rafters 3x3.

SECTION 1.

FRONT ELEVATION, FACING SOUTH.

The above is the front elevation of a poultry house to adjoin a barn. From a passageway inside the barn (not shown in No. 1 section) the nests and platform may be reached,



1 and 2. Hinged doors permitting access to nests and platform. 3. Sliding feed trough. 4. Slide. 5. Window, if required. 6. Passage-way.

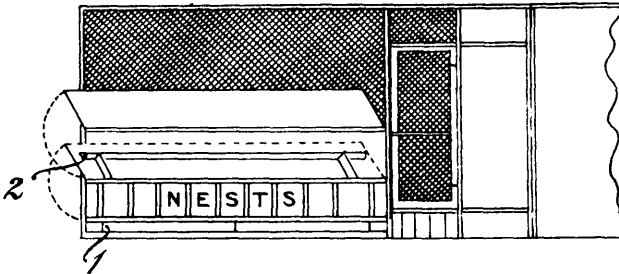
SECTION 2.

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the first named to gather the eggs from, and the latter to clean. The passage-way is shown in diagram No. 2 and need not take up much room. Where the lean-to is not attached to a barn, it will require a pitched roof, and the passage-way will be at one side. It is sometimes more convenient for a farmer to have a "lean-to" to a barn than to have a separate building.

SECTION 2.

Shows' frame work, the hinged doors leading to nests and platform and the feed troughs, small door and ventilating window if required. The object of the hinged doors is to permit easy access to platform to clean it and also to nests from which to gather the eggs, from the passage way without entering the pens and disturbing the laying stock.



1. Feed trough. 2. Roosts above platform. 3. Platform under roosts, 2 feet wide.

SECTION 3.

The above section 3 shows the hinged doors, permitting access to platform and roosts and nests underneath, open. It also shows the feeding troughs underneath. As already explained, the object in cleaning, collecting the eggs, and feeding soft food from passage-way, is to prevent unnecessary disturbance of the laying stock. Ample opportunity is also afforded for renewing straw in nests, spraying with coal oil, &c., from passage-way.

SIZE OF PENS.

The size of the pens is calculated at 12 x 12 feet, with two feet off for nests and platform. If 15 fowls are put in a pen of above dimensions, it will allow 8 square feet to each bird. No less than 6 square feet, under any circumstances, should be given to each fowl. The more room allowed the laying stock the better will results be.

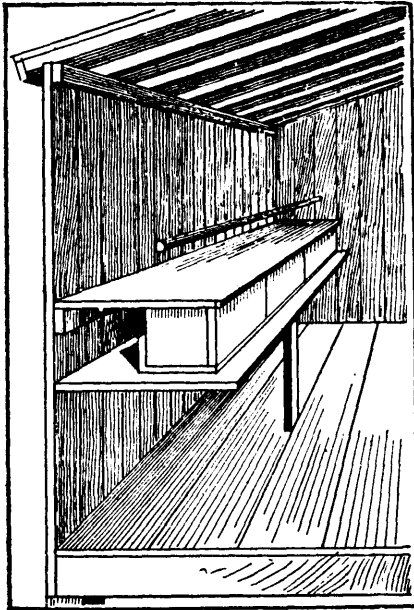
HOW TO BUILD.

The sills should be 6 x 6 ; studding, 2 x 4 ; rafters, 2 x 6 ; joists, 2 x 8 ; flooring, double inch boards, with paper between.

The sheeting outside to be tongued and grooved with battens ; to be sheeted with dressed or rough lumber inside and outside. Paper inside and outside on studding under the sheeting.

The following diagram is taken from the Reliable Poultry Journal of recent issue. It is well calculated to prevent egg eating, and has the platform and roost above the nests. It can be adapted so as to be reached from the passage-way and if laths are fixed in the partition behind the nests, the feeding of the soft mash and cut bone may also be done from the passage-way.

The diagram was prepared by A. S. Gish, Esq., M.D., of Abeleno, Kan, who writes the following description of it:—"Herewith is illustrated a combination roost, droppings-board and row of nest boxes. Where darkened nests like these are used there is far less liability of the hens contracting the habit of egg-eating. As to size, build the nests according to the size of the hens. If intended for Leghorns or medium-sized hens, nests 12 x 12 inches will do; if for Brahmas, Cochins, &c., do not fail to have the nests 15 x 15 inches in size. Be governed also in the height of the nests by the size of the fowls. Seven to eight inches will do for Leghorns, while for the big breeds they will need to be ten inches high. Fill in enough nest material so that the hens can only creep on and off the nest, without being able to stand up in them and get at the eggs to eat them."



NEST BOXES TO PREVENT EGG EATING.

for eggs in winter the farmer should utilize as much waste as possible. It is by the judicious composition of the ration that much of the waste may be used. The aim is to have the rations both cheap and effective. To be effective the rations must be well balanced, that is they should embrace the constituents that go to make both egg and shell, at the same time keeping the layers in proper condition and health. What then are effective egg producing rations?

CUT GREEN BONE.—So far, no ration has been found to so nearly fill the requirements for egg and shell, at the same time utilizing what is to a great extent waste, as the green bones of the butcher shops, or the farm. These should be cut up by small mills, made for the purpose, or broken up into fine pieces and fed in the ratio of one pound to every sixteen hens, three times per week. Cut bone, is also excellent to fatten chickens intended for market. But careful handling is necessary in feeding it, in other than judicious quantity for our experience last winter in the poultry house was that fed every day, although in small quantity, it made White Java and White Plymouth Rock hens so fat, towards the end of the season, as to lay malformed eggs with thin shells. Mr. M. E. Taffa of the California Experiment Station and Agricultural College in a recent address before the Petaluma Poultry Association endorses the value of cut bone, as follows: "Shells are not the only source for the lime necessary for egg shells. Bones also contain a large percentage of lime, as is seen from the following analysis of clean, dry bones of oxen and sheep.

Carbonate of lime.....	6 to 7 per cent.
Phosphate of lime.....	58 to 63 "
Phosphate of magnesia.....	1 to 2 "
Fluoride of calcium.....	2 "
Organic matter.....	25 to 30 "

Fresh green bones also contain besides the lime compounds, some proteins or flesh formers, which add to their value as a poultry food. The best means is to have them broken up by means of the bone cutter. One pound of the green bones is generally considered enough for sixteen hens."

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The quotation is certainly valuable testimony to the worth of green bones as a winter ration. The question is often asked "Where are bone mills to be had?" Bone mills are made, to be used by hand, at a cost of \$5, \$7 to \$15; to be run by machinery from \$15 upwards, according to capacity. They are manufactured in Montreal and Toronto and will no doubt be heard about through agents and the advertising columns of newspapers. In a previous report farmers who object to the cost are advised to club together, purchase a power machine, place it in, or adjoining a creamery, or factory to which they take milk and utilize the power to be generally found in such buildings to cut the bones. It is the work of a very few minutes to cut up bones sufficient for 100 hens. Where there is a will, no doubt, a way will be found.

KITCHEN AND TABLE WASTE.—Another form of waste which may be used with good effect is that of the kitchen and table. No better or more effective ration can be made than that composed of the peelings of potatoes, turnips or other vegetables thoroughly cooked and with it mixed the bits of bread, meat and vegetables of the table, the whole to be stirred into a stiff mass by the addition of provender, ground wheat, oats, bran, or steamed and cut clover. Unmarketable vegetables boiled and used instead of ground grain, in the mash, will make a wholesome and welcome change. Mrs. Joseph Yuille of Ramsay Township, near Carleton Place, the well known butter maker claims to have reduced the cost of her hens to 58 cents per annum each, by using the dairy and barn waste and ensilage. When at a meeting in South Huron some time ago the writer was assured by a farmer that he fattened his chickens for market by feeding them in great part with ensilage.

OTHER CHEAP EGG INCENTIVES may be had in places where animals are killed for home use, or, sale on the markets in the shape of livers, lights, heads, &c., &c., which may all be boiled or fed raw, if the hens are accustomed to the latter. If not the feeding of raw meat is apt to scour them. Boiled livers fed in the quantity of one ounce per diem to each layer has been found safe and effective. If the layers are yielding a regular supply of eggs and are provided with other material to supply lime for shell the allowance may be doubled. Dr. Twitchell, of Maine, in addressing a meeting of farmers in Sussex, N.B., in October last, on poultry keeping said, "Sheep heads are always handy and they can easily be broken up with an axe. No bone mill is required to cut them up. They are an excellent form of bone for laying hens." It may be asked if it is possible to get egg production without feeding bone or meat? It is certainly possible to secure eggs in paying quantity in winter by feeding a warm mash, as given in a previous page for the morning ration with green food and whole grains so long as lime for the shell is supplied. In the matter of rations it seems after all as if the farmers will have to be governed by situation and circumstances.

A farmer who is in the neighbourhood of a town or city with a winter market of prices ranging from 25 to 35 cents per dozen for new laid eggs is favourably situated. He is not only near a market of high prices, but the slaughter houses and butcher shops, where green bones can be purchased at cheap cost, or if he likes to arrange for it he can secure the waste of the hotels, &c. On the other hand the farmer who is distant from such markets and who sells to a middleman, must be content with smaller profits, and to him the less costly the ration the more valuable will it be. To him also should the experimental work going on with the view of discovering cheaper and more effective rations be more interesting. It might be economy after all in his case, if there is difficulty in obtaining bone or meat, to purchase some form of the blood or meat preparations; granulated bone or ground oyster shells for supplying lime. Blood meal is fed in the proportion of one ounce to every ten hens, and costs from \$3.50 to \$3.75 per 100 pound bag. The cost of granulated bone is \$2.25 per 100 pounds, and ground oyster shells \$1.25 per 100 pounds. A bag of blood meal of 100 pounds fed at the rate of 5 ounces to 50 hens every day would last 300 days or two winters of nearly 5 months each. One hundred hens would of course take twice the quantity or consume it in half the time. At our poultry house green bones are delivered at a cost of one to one cent and a half per pound. In early summer a bag of 100 pounds weight of deodorized blood meal was purchased to try its effect on moulting hens as compared with cut bone, and results will be found under subhead "moulting hens."

GREEN STUFF.—Laying hens require a liberal amount of green stuff and here is another opportunity to turn waste to good account in the shape of unmarketable vegetables. A market gardener who kept a flock of Barred Plymouth Rocks informed the writer that his hens during winter did better laying and were more healthy on oats and plenty of cabbage, than on any ration he fed them. In such a case some kind of grit would have to be supplied with regularity and in liberal quantity, or the continued feeding of oats without it, would be very apt to make the hens "crop bound." In the poultry house during last winter lawn clippings, which had been cut and dried during the previous summer and carefully put away, on being cut into small lengths and steamed were very much relished by the hens. It was fed by itself, or, mixed in the morning mash. The clovers preserved and treated in the same way were equally satisfactory. An occasional mash of turnips or carrots mixed with ground grains is a wholesome change. Mangels, carrots or turnips may be fed raw and will be carefully picked by the hens. Speaking of the value of green stuff in the winter production of eggs, Mr. D. J. Lambert, a well known poultry writer says:—Green foods, as has been often said, are too sparingly given. The majority of poultry-keepers feed too much grain. Less grain and more grass should be the watchword. Cabbage, turnips, cut clover, onions or anything of a vegetable nature, cheapen the cost of feeding, tend to keep the fowls more healthy and that means increased egg production and consequently more profit." This extract is given in report of 1894, but it will bear repetition. In cases where vegetables are scarce, a substitute may be found in oats, barley or wheat boiled and fed, occasionally, in the shape of a warm mash, alone, or mixed with small potatoes.

MINOR REQUISITES.

GRIT wherewith the hen may grind up her food must be supplied in some form. The sharper and harder the grit the better. There are many and cheap kinds of grit on the market. Broken crockery, flint stones, hard limestone, sharp gravel are all to be had in different localities. The old crockery must be broken into pieces, small enough to be swallowed easily. The hen at large supplies herself with what grit she requires, but must be supplied with it in winter quarters.

THE DUST BATH is necessary to allow the hens the means of keeping themselves free from lice. Lice infested hens are not profitable, hence the necessity of keeping them free from these undesirable tenants. Material for the dust bath can be found in the majority of cases in the shape of dry, fine sand, earth or road dust.

A small quantity of sulphur or insect powder mixed with the contents of the dust bath will be found beneficial. Mr. Fred V. Theobald, in "Feathered World," of London, England, who has given the subject of "Poultry Parasites" some study, writes:—"Lice will not flourish on birds, as a rule, if they are kept in a clean, healthy condition. Several notable exceptions have, however, come to my notice. Still they are always worse in damp, dark and ill ventilated houses. Lice get into parts of the fowl that they cannot readily reach. Naturally birds try to rid themselves of these parasites by dusting in sand, &c. Dust baths are best made of wooden boxes filled with sand soaked in paraffin, about a pint of paraffin to a bushel of sand. Finely divided gypsum with a small quantity of paraffin or carbolic acid added is also serviceable. This latter is said to be especially effectual, the smell of the paraffin when mixed with gypsum remaining for a considerable time. Sulphur added is also of much benefit. Finely powdered lime is also effectual." In the poultry house, finely sifted coal ashes mixed with sand in the dust bath has been found useful.

HOW TO FEED THE RATIONS.

Of almost as much importance as the foods, is a knowledge of the proper way to feed them. To over-feed is actually worse than the opposite treatment. But with proper knowledge and thorough appreciation of that which is being aimed at, the two

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extremes will be avoided. It is in the medium course that success lies. The beginner is tempted to give more food to his hens, which are beginning to lay well, under the impression that he will get better results in so doing. The experienced poultryman will tell you that to avoid overfeeding is one of the hardest rules to observe. It is the cause of much of the ills that poultry suffer. More, it is fatal when practiced for any length of time. To further stimulate hens that are doing their best, is to thrash the horse going at his top speed to make him go quicker. The twin factor in judicious feeding is exercise. The three great factors in the winter production of eggs are cut bone (or meat), green stuff and exercise. Cut bone should be fed in quantity of one pound to every 16 hens, or one ounce to each hen. Feed three times per week or once daily if hens are laying well.

Green stuff—Cabbages can be hung from the ceiling to within $2\frac{1}{2}$ feet of the floor. Feed mangels, carrots, turnips, &c., raw, or boil the latter and mix with ground grains into a stiff mash. Clover hay should be cut into quarter inch lengths and steamed by placing in a pail and pouring boiling water over it, the night before it is wanted for use. Cover the pail after pouring in the boiling water. So steamed it may be fed alone or mixed in with mash. Lawn clippings may be similarly treated.

Exercise—Use all ingenuity to keep the layers in exercise from morning till they go to roost. Throw all grain fed into litter, composed of chaff, straw, cut hay, oat hulls, dry leaves, &c., which should be on the floor to the depth of 4, 5 or 6 inches.

AN IMPORTANT FACTOR IN WINTER MANAGEMENT.

An indispensable factor in successful winter management is to have the proper fowls of the proper age. This is not a new subject, as it has been treated at length in previous reports, but it is one regarding which inquiries are yet frequently made, showing that its importance is either not understood, or not appreciated. Experience has proved that hens over three years of age moult slowly; that it is late in winter before they begin to lay. Meanwhile, they will have eaten up much, if not all, of the profit they afterwards make in the remaining short period of high prices. It is true that occasionally a three year old thoroughbred is to be found that is a valuable breeder, on account of certain good points she possesses, but that is a matter more directly appertaining to the breeder of exhibition stock than to the farmer, whose sole aim is to obtain as many eggs as he can from productive hens. But it is quite possible and sometimes desirable that a farmer should utilize a valuable breeder and how he can do so is told in a following page. The most profitable winter layers have been found to be one and two year old hens and robust pullets. During the winter of 1894-95, four early White Java pullets laid more eggs than any four pullets, or hens of any other breed. And what was still more gratifying the eggs laid by the same pullets in spring, proved fertile in most cases and the chickens strong and robust, showing descent from a strain of undoubted constitutional vigour. And it is stock of such quality that the farmer will find his best money makers. Again, three year old hens are not so profitable for the reason that they are disposed to put on fat, that is the food which will go into eggs in younger birds, is more likely to go into fat with them and fat hens are useless as layers or breeders. Another important consideration in selecting winter layers, is to choose such breeds, as are more likely to put the stimulating rations into eggs, rather than fat. It is well known to experienced breeders that pullets will stand more forcing than older stock; that rations calculated to go into eggs in the case of the Spanish class, viz.: Leghorns, Minorcas, Andalusians, &c., are more likely to go into fat in Brahmas, Cochins, Langshans, Javas and Plymouth Rocks, and certainly so, if the birds are old. But the main points for the farmer to be guided by in the selection of his laying stock are:—

1. Keep no hen for an active winter layer over two years of age.
2. Weed out the non-productive fowls from the money makers. There are, in all flocks, likely to be some drones. To keep them is to detract from the profit made by the active layers.

A SUMMARY OF POINTS.

In the foregoing pages the factors which experience of many years have proved to be the most important in the successful winter management of poultry, have been considered at length, and summed up are as follows:—

1. Winter houses of easy construction and latest design.
2. The beneficial results likely to accrue from a comfortable temperature and bright interior.
3. By easy and convenient arrangement to avoid unnecessary disturbance of the laying stock, and prevent possible egg eating.
4. Foods for egg production and how to feed them.
5. The different requisites for successful winter management.
6. Various forms of cheap incentives to egg production.
7. Proper fowls and their proper age for profitable winter laying.
8. Instructions as to feed and housing which if followed will prevent egg-eating and feather picking.

SHORTENING THE SEASON OF NON-PRODUCTION.

The moulting period, that is the season occupied in the shedding of the old and the growth of the new feathers, is one of comparative non-production. If we can shorten the time of non-production an important point will be gained. Experiments for some seasons have been conducted with that object in view and have taught:—

1. Young hens moult earlier and easier than old ones.
2. That a run in a field or fields, where clover, grass and insect life are to be found are very important essentials.
3. Where the layers are confined to limited runs that meat, in some shape, and green stuff must be regularly supplied.

The treatment of the farm laying stock for some seasons past, and from which the foregoing experience has been gained, may briefly be stated as follows: At the beginning of July, when eggs were no longer sent out for hatching purposes, the male birds were removed to separate runs, and the hens were allowed to run promiscuously in small fields in rear of the poultry buildings. During the month of July, they were lightly fed twice per day, with occasionally a light feed at noon. Wheat was principally used. When buckwheat was fed, it was mixed with oats. During August, a mash composed of ground grains and deodorized blood meal—the latter in the proportion of one ounce to every ten hens—was fed three mornings of the week, with a light feed at noon, and a more liberal ration at late afternoon. The mash was mixed, or partly so, with any milk that was left over from the rations for the young chicks, which were in fields in front of the buildings. Occasionally a feed of cut bone was given. This treatment was continued until the new feathers were fairly well grown, when the noon ration was dropped, and precautions taken to prevent the fowls getting too fat. Towards the end of October, the feeding of cut bone in the proportion of one pound to 15 hens was resumed. It was fed three times per week, and a less quantity every day from middle of November. The rations were two in number per diem, with vegetables at noon. The fall was unusually open, and all the stock had a free run outside until the 18th November, when a slight fall of snow necessitated their confinement indoors. The snow and cold did not last many days, when all the stock were allowed out to the runs in connection with the different pens. The result of the foregoing treatment was that the yearling hens were first over their moult, and laying, while the older stock, although well advanced, did not commence to lay until later.

As the subject is one of considerable importance, the following from Dr. N. W. Sanborn's work on "Poultry Diseases" will be of interest. "So many birds pass through the moulting process with difficulty, if not disease, that it is well to call attention to it. Moulting is done during the late summer and fall months, when the weather is warm. A moulting hen is easily fattened. Hence, at this time of the year, feed lightly of those foods which produce fat. Corn, cornmeal, middlings, potatoes, must be

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used sparingly. Increase the amount of green bone, bran, and skim-milk. A run in a field of clover will be of help in moulting. Do not try to hasten the time of the moult by keeping in a warm pen or by feeding cotton seed or linseed meal. Keep all males by themselves during the moulting season. If hens are not well fed at this period of their life they may learn the habit of feather pulling or egg-eating. They should also be housed so as to give them shelter from hot sun or cold storms. The ideal place for a run is in an apple orchard, where, in addition to the grass, may be found insects in fallen fruit, &c. If the orchard be added to the scratching-pen house, we have an arrangement suited to all conditions of sun or temperature, and a place where birds will safely pass through the exhausting process. Hens, during moult, lay few eggs, unless in perfect condition at its commencement, and fed the right foods. Birds should go into the moult not fat, free from lice, and with no red mites in the house." If necessary, the writer quoted from, recommends as a tonic one-half tea-spoonful tincture nux vomica to 2 quarts drinking water, or twenty grains citrate iron and quinine to same quantity water. Mr. W. A. Kinney, of Yarmouth, N.S., wrote, that he fed boiled beef heads, crushed in a bone-cutter, as the sole ration to his laying hens, with a result of shortening the moult to a remarkable extent, and hardly any stoppage of egg-laying. It is presumed his hens had free run. Miss Ryan, of Barriefield, near Kingston, Ont., writes a very interesting letter, dated Oct. 7th, ult., on "Shortening the Moult," from which the following extract is taken:—"In regard to helping the moult, I beg to say that on 13th August I plucked a year-old hen and six days later plucked eight more. They were all laying at the time. The fowls did not seem to suffer the least inconvenience, but on the contrary seemed more lively. Some of the down was left on their bodies. They kept on laying for ten days after being plucked, and then ceased until Saturday last, 3rd of October, when the first one plucked, on the 13th August, laid, and has continued to do so since. A week after being plucked the body of the first one was entirely covered with new pin feathers. Before releasing them from my hold I dusted each one liberally with insect powder. All the hens plucked are now (7th Oct.) entirely covered with beautiful, glossy, new feathers, wings and all. In marked contrast are the older hens and rooster, which are unplucked just beginning to mope and look drowsy in their first stage of moulting. There is not a doubt that in this case the forced moulting was a success. I do not intend to let another hen or rooster I own suffer with cold or discomfort from moulting in the old fashioned way. I should add that the fowls experimented on got no extra care."

It will be seen from the foregoing that greater attention is being paid to the laying stock while going through the critical period of moulting. There is no doubt that any extra care and attention bestowed at this period, will be well repaid by an earlier and more generous egg yield.

THE PROPER METHOD OF SELECTING BREEDING STOCK.—As it has been frequently urged in different quarters, apart from previous reports that, the male bird be kept separate from the winter layers, the farmer may ask, how is he to manage so as to have fertile eggs in spring? It would be better if circumstances would permit him to do so, to keep by themselves during the winter and without stimulating them to lay, seven or nine of his best fowls, with which he should mate a vigorous male in early spring. Not having laid during the winter these fowls would begin to lay early in the season and then eggs would likely be much more fertile on that account and the progeny be strong and vigorous. Or, the farmer can select in late February, seven or nine of his largest, best shaped and most prolific layers and mate with them a vigorous male, which has come from a well-known strain of good laying fowls. So starting with his best the farmer is likely to better the quality of his stock and will really be going from good to better. As a consequence of the usual careless and haphazard methods of breeding poultry; the inferior rather than the superior—in both egg layers and market chickens—are too frequently seen in the barnyards of the country. By a little trouble, taken at the right time and in the manner described, a superior quality of poultry throughout the country could be had in one season. If possible have thoroughbreds and if it cannot be, by all means introduce thoroughbred blood by mating a Barred or White Plymouth Rock, a Wyandotte, Brahma or Langshan male with the pick of your mixed breeds in the manner described.

It will not take long to save sufficient eggs for hatching and selling, and then the male bird should be removed and kept apart until wanted again, or sold if so desired. The breeding stock should be kept in their pen for a week after the removal of the male and then allowed to run with the other hens. Every farmer, who wishes to have new laid eggs, of superior flavour, to sell during the summer on market, to dealers or to special customers should make it a rule to allow no male bird with the laying stock. The reasons for so doing are given at length in report of last year.

WORK OF THE SUMMER.

The principal work in the poultry yard in summer is, pushing the rapidly growing chicks so that the cockerels will make as much weight, in as few months, as possible.

With proper care and food, Plymouth Rock, Wyandotte, Java, Langshan and Brahma cockerels will make gain at the rate of one pound of flesh per month. That is at the end of four months cockerels of the above named breeds should weigh 4 pounds each, or 8 pounds per pair. The gain may not be had in the first 5 or 6 weeks of the chicken's life, but the weight will be had in the time mentioned. Every farmer who takes the trouble to properly push his chicks can have this result. The requisites are the breeds and the proper food. The pullets, if at all early, will repay any care and feeding by rapid growth and early laying. As the cockerels attain the desired weight they should be killed, carefully plucked by hand and taken to market. Nicely dressed, well fattened birds are certainly more inviting in appearance than the blue black looking and bruised scrubs too often to be seen. If the farmers intend to benefit by the shipment of choice poultry, in cold storage to England, attention will have to be given to the conditions necessary to success.

THE WORK OF THE PAST YEAR.

At the beginning of the year the fowls of all kinds were in good condition, and the output of eggs was fairly satisfactory. Experience of past years has shown that it is better on the approach of warmer spring weather to reduce the stimulating rations, to underfeed rather than overfeed. In the case of a farmer who has but one breed, and who can take advantage of a fine day to allow his stock a run outside, this precaution may not be necessary. But where a number of breeds are and have been side by side, in pens of limited size, during the winter season, and most of them are to be used as breeders, it is better to lessen the quantity of stimulating food. It is best at all times to vary the diet, but at this time as much change as possible in the rations are desirable. It is also at this time that the fowls seem most predisposed to egg eating and feather picking. The benefit of having a scratching room, or shed as shown in diagram will be apparent at this period.

MAKING UP THE BREEDING PENS.

Date.	Breed.	How mated.	Remarks.
March 2.	Barred Plymouth Rocks	1 cock 9 hens	
" 2.	White "	1 " 8 "	
" 2.	Silver L. Wyandottes.	1 cockerel 9 "	
" 2.	Light Brahmans	1 cock 7 "	
" 2.	Black Minorcas	1 " 9 "	
" 2.	White "	1 " 8 "	
" 2.	Andalusians	1 " 9 "	
" 2.	Coloured Dorkings	1 " 8 "	
" 2.	Houdans	1 " 3 "	
" 2.	Black Minorcas	1 cockerel 4 "	Second pen.
" 11.	White Leghorns	1 " 11 "	
" 11.	White Wyandottes	1 " 7 "	
" 13.	Langshans	1 " 9 "	

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The delay in mating the Langshans was occasioned by awaiting the arrival of a cockerel. There was a greater demand for eggs of all kinds for hatching than could be supplied, but more especially eggs of White and Barred Plymouth Rocks, Black Minorcas, Silver Laced Wyandottes and White Javas. As soon as the weather permitted the fowls were all allowed out in the outside runs and were much benefited thereby.

EGGS SET AND CHICKENS HATCHED.

When Set.	Description of Eggs.	Chickens Hatched.
April 2.	13 Coloured Dorking.....	3
" 7.	11 White Java.....	2
" 9.	13 " Wyandotte.....	6
" 21.	15 Silver.....	10
" 22.	11 Coloured Dorking.....	8
" 29.	11 White Minorca.....	6
" 29.	13 Light Brahma.....	7
" 30.	13 Barred Plymouth Rock.....	7
" 30.	13 Andalusian.....	9
" 30.	13 White Wyandotte.....	13
May 1.	13 Langshan.....	8
" 7.	13 White Minorca.....	7
" 12.	13 White Leghorn.....	9
" 16.	11 White Plymouth Rock.....	7
" 27.	13 S. L. Wyandotte.....	8
June 6.	11 Black Minorca.....	8
" 13.	11 White Plymouth Rock.....	7
" 19.	11 Golden Poland.....	5
" 8.	13 Silver L. Wyandotte.....	8
" 9.	13 White Leghorn.....	5
	248	143

In two or three of the early hatches several eggs were broken by the hen in the nest, owing to the shells being somewhat thin.

SITTERS.

For early sitters, when opportunity offered, Wyandottes or one of the cross-bred hens were chosen, as they are lighter and not so clumsy as those of the heavier breeds. A comfortable nest was made of straw, and well dusted with carbolic disinfectant powder. Three or four china eggs were placed in the nest, and on these the hen was allowed to sit for two or three days, receiving meanwhile a dusting of the powder named. The powder in the nest and in feathers of the sitter probably rid her of any lice. At end of the two or three days the valuable eggs were given to her. Food, water, grit and dust bath were convenient to the sitters at all times. The eggs were examined when the sitters were feeding, or at other convenient periods to see that none were broken. The shells of early eggs—particularly those from hens in limited runs—are apt to be thin, and should one be broken and allowed to contaminate the others, no satisfactory results need be anticipated from that hatch. In the event of an egg being broken it is necessary to at once remove it and the dirty straw, and to wash gently the others in moderately warm water, and replace them with care. If the breast feathers of the sitter is very much soiled, it is better to clean them, or the newly washed eggs will be again soiled. All this may be avoided by having eggs with solid thick shells, careful sitters and properly arranged nests. It is best, if circumstances will permit, to set two or four hens together, and at the end of five or six days test—by means of egg tester—all the eggs, removing the clear or unfertile ones, that is those without any germ, and the added eggs, or those in which the germs have started, and ceased from some cause

to progress. The fertile eggs may then be given to the one or two hens, and the spare hen or hens re-set. Experience will soon teach the difference in the unfertile, added and fertile eggs. Of course when an incubator is used, full instructions as to testing the eggs will accompany it. Egg testers may be had from any of the incubator manufacturers, or may be made by a local tinsmith, if pattern is furnished.

PROGRESS OF THE CHICKS.

For the first few weeks of their existence the chicks of both land and water fowl require care, the young turkey chicks requiring the greatest care until they are partially feathered, or "shoot the red." Many thousands of young chickens of fowls and turkeys and an equal number of ducklings and goslings are lost every year from carelessness, or want of knowledge how to care for them. The young chicks of the fowls in the poultry house were allowed to remain in the nest, after hatching out for 24 hours, or until thoroughly "nest ripe." If a chicken has been crushed in the nest it should be removed and so may be the broken egg shells, if you are expert. But it is best for the beginner to leave the nest alone, or, more damage may result by disturbing the mother hen, who is sometimes inclined to be fussy on the occasion. In one case last spring the hen mother was seen to pick and kill two or three of the newly hatched chicks. She was of course removed and her family given to another brooding hen which fortunately happened to be on hand. In another case the fussy sitter was discovered crushing the chicks as soon as they began to "peep," in their efforts to break through the shell. She had also to be removed. All those who hatch out a number of chickens every year have varied experiences of a similar nature. On removing the family from the nest, the mother hen should be put to one side and allowed to feed and drink. She is voracious after a protracted fast of 36 hours, and if not fed will gobble up the more dainty food of the chicks. This is particularly noticeable in the turkey mother. The first feed of the chicks should be stale bread crumbs or stale bread soaked in milk squeezed dry and fed in small quantity. Weather permitting mother and brood should be removed to a coop outside, on grass, and in the sunshine if possible. If kept indoors the young chicks must run on dry earth, or sand, or both. If they do not they will surely wilt away. After a day or two granulated oatmeal and boiled rice may be given with good effect. Grain should not be fed for 12 or 14 days. The food should not be sloppy nor should any be allowed to remain about the coops until sour. After the youngsters are fairly on their feet the diet should be cheap, but wholesome and in this much of the house and kitchen waste may be used. Feed a little but often, keep the chicks growing. A grass run and insect life will cause robust health and rapid development. The mother hens in our department were kept with the chickens for 4 or 5 weeks or until they were fairly feathered. They were then removed to the runs and if in good condition were either laying, or about to do so.

WEIGHT DEVELOPMENT.

The care of the chicks, from their hatching, told in rapid flesh development and robust health. Watch was kept for symptoms of lice. To avoid possible lodgement of these pests the coops were frequently sprayed or sprinkled with coal oil, and on several occasions the mother hen was wiped under wings, in breast and fluff with a cloth dampened, not wet, with coal oil. Plymouth Rocks, both barred and white; Silver Laced and White Wyandottes with Coloured Dorkings made the most satisfactory weight development as shown by the following:—

Four Barred Plymouth Rock Cockerels hatched on 21st May, weighed on 22nd August following—three months—3 pounds 5½ ounces.; 3 pounds 5½; 3 pounds 4½; 2 pounds 12½. We have thus the gratifying result of two of the first mentioned birds making a combined weight of 6 pounds 11 ounces in three months.

A White Wyandotte Cockerel hatched on the 30th April weighed on the 24th September following—or four months and twenty-five days—5 pounds 15 ounces.

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A White Phymouth Rock Cockerel hatched on the 6th of June weighed on 7th October following, 5 pounds 2 ounces.

Silver Laced Wyandotte Cockerel hatched on 12th May, weighed when sold on 16th October 5 pounds 4 ounces.

Coloured Dorking Cockerel, hatched 28th April, weighed on 6th November following 7 pounds.

CARE OF THE HENS DURING MOULT.

The method of caring for and feeding the hens during their moult has been described in a preceding page. Suffice to say that by the end of October the laying stock were over their moult and in satisfactory condition, The yearling hens were first to have their new feathers. At end of first week in July the male birds were removed from the breeding pens and placed by themselves in pens with runs. They will be so kept until wanted next spring for breeding purposes, of course being kept in doors during winter. During the moulting season a preparation of deodorized blood meal was used in lieu of cut green bone. The object in using the meal was, first to note whether it was as effective in the moult as were cut green bones the preceding season and secondly because it was more convenient to handle, and obtain, during the hot months, than the bone. The conclusion arrived at, after close observation, was that while satisfactory it was not quite so beneficial as the cut green bone. Further experiment will be made, if circumstances permit, another season.

COMMENCEMENT OF WINTER LAYING.

At the end of October rations of cut bone, three times per week, with a mash on two mornings of the week were resumed. Cabbage during November was fed in liberal quantity. The rations numbered two per diem with cabbage at noon. The morning ration was mash twice per week ; cut bone or grain other mornings ; cabbage at noon ; whole grain at afternoon meal. Grit, lime and drink water were supplied in abundance. The hens first to lay at end of October were Wyandottes, Barred Plymouth Rocks, Andalusians, Minorcas.

WHEN THE PULLETS LAID.

The first pullets to lay were White Plymouth Rocks and Silver Laced Wyandottes on the 25th November, followed by Barred Plymouth Rock and Andalusian pullets the day after ; Langshan on the 28th of the same month and a White Leghorn pullet on 22nd December. These pullets were all hatched at different dates in May

EGG RECORD FOR THE YEAR.

The following is the egg record for the year 1896, by months, viz. :—

January	1,469
February.....	1,411
March	1,569
April	1,934
May	1,699
June	897
July.....	682
August.....	395
September	143
October	150
November.....	568
December.....	1,466

Total..... 12,383

LAYING STOCK.

The laying stock numbered 151 hens and 53 pullets. A number of the pullets were rather late hatched to make early layers, and several of the hens were over two years of age. They were kept principally for sitters, while a few were good as breeders, for another year. Close observation led to the conclusion that the active winter layers numbered from 120 to 130. On the 31st December, 1896, the fowls were as follows in numbers and according to description.

	Hens.	Pullets.
Barred Plymouth Rocks.....	8	3
White do	7	5
Silver Laced Wyandottes.....	12	12
White do	8	6
Light Brahmas	10	3
Langshans	11	—
Coloured Dorkings.....	6	—
White Leghorns.....	11	11
Black Minorcas.....	11	6
White do	6	4
Andalusians.....	5	3
White Javas.....	6	—
P. Rock-Dorking Cross.....	14	—
Indian Game-Langshan Cross.....	5	—
Golden Polands.....	4	—
Mixed.....	27	—
	151	53

AN EXPERIMENT WITH FIFTY HENS.

On the 10th of March, 1896, the writer was requested by the Agricultural Committee of the House of Commons, to set apart 50 hens of different kinds and see what could be made out of them in a year. The experiment was commenced on the 1st of April following, and is yet going on. Careful record of cost and revenue is being kept, and it is hoped to make a creditable showing at the end of the year.

MATING THE WILD GEESE.

Early in the season the wild geese were mated. Later on tame geese of the Toulouse cross were procured and mated with the wild ones—a tame gander with a wild goose, and a wild gander with a tame goose. The birds did not agree, and the eggs of the cross proved unfertile.

HEALTH OF THE STOCK.

During the year the birds suffered little from ailment of any kind. The shortened rations were not only productive of greater laying on the part of the hens, but also proved more healthful. Inquiry as to remedies for diseases of poultry, in different parts of the country, was several times made and all necessary information given. There is no doubt that over-feeding in winter, in many cases, is the cause of most of the ailments reported.

REQUIREMENTS OF THE MONTREAL POULTRY MARKET.

On 25th September I went to Montreal and saw the leading dealers in poultry and eggs. My object was to find out the demand; what was best suited to meet that demand and the prices offered.

I found that there was a market of almost unlimited dimensions, for early chickens, called in poultry parlance "early broilers," for which one dollar, and as high as one

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dollar and a half per pair was paid. To supply this demand, artificial incubation would have to be used.

A poultry dealer at Belleville, Ontario, sent a limited supply of broilers every spring to Brown Bros., but the supply was only limited. This breeder understood and regularly used incubators and brooders. Later artificially hatched poultry brought 20 cents per pound, until the poultry hatched out by farmers hens and reared on the farm came in late in August and September for which an average price of 6 cents per pound was paid. The complaint made by the dealers, as to the farmer raised poultry, was that it did not meet the requirements of their city customers.

A SUPERIOR ARTICLE WANTED.

What is wanted, the dealers said, is a superior class of birds, for table use. One dealer said to me "We have any amount of such birds as these", pointing to two large tables on which were a great number of chickens, called "culls" or "barn yard chicks," by the breeder of thoroughbreds. These chicks weighed from $3\frac{1}{2}$ to 4 pounds per pair and no effort had apparently been made to fatten, or dress them, so as to present an inviting appearance.

"Would you call a pair of chickens, weighing 8 pounds per pair, at the end of four or five months and a half—that is 4 pounds each—a superior article?" I asked a dealer. "Indeed we would" he replied, "but we get no such poultry from the farmers." "Why?" I said, "we put that weight on our Plymouth Rock, Wyandotte, Java and Langshan chickens every season on the Experimental Farm."

"I wish the farmers would do the same" remarked the dealer.

I found that for such poultry the dealers would pay 10 cents per pound to the farmer and would rather do so than pay 6 cents per pound for the inferior article.

I came to the conclusion that what our farmers wanted was a knowledge of the *breeds which made quick flesh development*. I think to the lack of this knowledge on the part of the farmer, rather than to any unwillingness or want of ability to furnish the demand, is to be attributed the scarcity of the superior article.

I learned that the poultry from the neighbourhood of Smith's Falls, Belleville and London, was the best that reached the Montreal market, and found most acceptance by the dealers, because of superior quality.

A point made by the dealers was that the poultry bred—that is the chickens reared by the farmers, developed *muscle* and *bone*, but not the quality of *flesh* required.

This has been shown in my reports for years past, to be the result of allowing the chicks to run with the mother hen, and to pick up their own living. Chickens should be carefully looked after from their hatching until they are taken to market.

NEW LAID EGGS.

I was informed that new laid eggs were hard to get in winter, and that farmers were paid as high as 40, 45 and 50 cents per dozen, the latter price being frequently paid between the 15th December and 15th February. A reliable quality of eggs for summer use is also required.

In fact the winter market for eggs is a large one, and the demand for a SUPERIOR QUALITY OF POULTRY for early market is very great.

I also saw some of the newspapers with the view of reaching the farmers through their columns, and so let them know the requirements of the Montreal market.

In conclusion permit me to remark that in view of the shipment of poultry and eggs to the English market by the government, the farmers cannot receive too much instruction as to how to get the superior quality of poultry and larger eggs required for export and home consumption.

EXPERIMENTAL FARM FOR THE MARITIME PROVINCES

REPORT OF G. W. FORREST, SUPERINTENDENT.

NAPPAN, N.S., November 30, 1896.

TO DR. WM. SAUNDERS,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith the following report of the operations on the Experimental Farm for the Maritime Provinces, at Nappan, N.S., during the year 1896.

WEATHER.

On 22nd November, 1895, the thermometer registered 14° of frost. The weather continued broken with intervals of frost and rain until 6th December, when a slight rain accompanied with snow and frost made fair sleighing. The thermometer registered 2° below zero on the 10th, other sleet storms occurred on the 18th and 19th, accompanied with quite heavy frost which made good sleighing. After this there was broken weather again which continued until the 5th January 1896, when the thermometer fell to 3° below zero; on the 6th, 12° ; on the 7th, 5° ; and on the 8th, 9th and 10th, to 3° below zero, with snow on the 13th and 14th, continuing at different periods making good sleighing until the last of March.

The thermometer registered during the coldest days of the winter months as follows:

10th January, 10° below zero; 30th, 20° ; 1st February, 13° ; and the 18th, 27° below zero.

The weather came in warm and the ground dried up fast from the middle of April.

The first seed was sown on the 23rd April, the ground being partially prepared on the previous day, and seeding continued with little interruption until completed. The season continued fine, with slight showers on the 9th, 19th and 20th of May, with quite a heavy rain on the 29th and 30th, being the first one of any note since the last of March. It continued showery at intervals during the whole of the growing season, with heavy rains commencing about the middle of September, continuing more or less until the middle of November, making the fall work very backward.

Frost was noticed in surrounding districts on 14th September. The first registered here was on the 12th of October, keeping mild up to the middle of November.

HAY.

Hay was about an average crop on the upland, but not up to the average on the marsh lands. The acreage in hay on the uplands was about the same as last year. The yield was as follows: upland, 30 loads; marsh (timothy), 46; broad leaf, 10 loads. Making a total yield of about 90 tons.

EPPERIMENTS WITH SPRING WHEAT.

The test plots of spring wheat, which included forty varieties, gave above the average yield. The straw was comparatively free from rust, stout and stiff. The soil was a clayey loam, the previous crop being roots. The plots were one-twentieth acre each. The seed was sown on the 25th of April at the rate of $1\frac{3}{4}$ bushels per acre, and the following results were obtained:—

WHEAT—Test of Varieties.

Name of Variety.	Date of Ripening	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Yield per Acre.		Weight per Bushel.
							Bush.	Lbs.	
			In.		In.				Lbs.
Monarch	Aug. 22	120	48	Stiff	3½	Beardless	56	40	57
Wellman's Fife	" 29	127	48	"	4	"	50	..	57
Stanley	" 22	120	50	"	3½	"	49	60	61
White Russian	" 29	127	46	"	3	"	48	20	59
Goose	" 20	118	46	Medium stiff.	2½	Bearded	47	40	64
Preston	" 22	120	40	Stiff	3	"	47	..	60
Ladoga	" 21	119	48	"	3	"	47	..	62½
Red Fern	" 22	120	42	Medium stiff.	3	"	46	40	60
Old Red River	" 31	129	44	Stiff	3	Beardless	45	40	61
Rio Grande	" 29	127	46	"	3½	Bearded	45	40	60
Huron	" 31	129	45	"	3	"	45	..	61
Dawn	" 21	119	40	Medium stiff.	2½	Beardless	45	..	60
Crown	" 31	129	46	Stiff	3	Bearded	44	40	60
Advance	" 22	120	42	"	3½	"	44	..	63
White Connell	" 31	129	46	"	3	Beardless	44	..	58
Rideau	" 21	119	42	Medium stiff.	2½	"	43	20	60
Blenheim	" 31	129	46	"	3	Bearded	42	40	58
Percy	" 29	127	48	Stiff	3	Beardless	42	20	57½
Alpha	" 20	118	48	"	3	"	42	20	61½
Dion's	" 29	127	48	"	3½	Bearded	41	40	62
Pringle's Champlain	" 22	120	46	Medium stiff.	3	"	41	40	59
Green Mountain	" 29	127	44	Stiff	3½	Beardless	41	20	60
Dufferin	" 21	119	45	Weak	3	Bearded	41	20	62
Beauty	" 31	129	46	Medium stiff.	4	Beardless	40	40	58
Colorado	" 22	120	46	Stiff	3	Bearded	40	20	61½
Black Sea	" 21	119	48	"	3	"	39	40	60½
Campbell's White Chaff	" 29	127	45	"	2½	Beardless	39	20	59
White Fife	" 29	127	46	"	3	"	39	20	61
Gehun	" 20	118	39	Medium stiff.	2½	"	39	..	61½
Captor	" 31	129	46	Stiff	3	"	38	20	59
Red Fife	" 29	127	46	"	3	"	38	..	57
Emporium	" 29	127	48	"	3½	Bearded	38	..	61
Progress	" 31	129	44	"	3	Beardless	37	22	60
Beaudry	" 31	129	42	Weak	3	Bearded	37	20	60
Golden Drop	" 22	120	42	Medium stiff.	2½	Beardless	36	40	60
Countess	" 31	129	42	"	2½	"	34	40	61
Vernon	" 31	129	42	"	2½	Bearded	33	20	61
Herisson Bearded	" 31	129	42	"	2	"	32	..	61
Admiral	" 31	129	44	Stiff	3	Beardless	31	40	59
Hungarian	" 31	129	40	Weak	3	Bearded	31	40	60

NOTE.—The weights per bushel given here, and also in all other grain tables in this report, were taken as the grain came from the threshing mill, and are not the maximum weights that the grain could be brought to by cleaning.

Experimental Farms.

EXPERIMENTS WITH BARLEY.

The experimental plots of barley consisted of thirty-six varieties; nineteen of six-rowed sorts and seventeen of two-rowed.

The straw was comparatively free from rust, but quite a number of varieties were more or less affected with smut. The grain was hardly up to the average in yield, due principally to the young plants being killed back somewhat by a frost in the latter part of May.

The soil chosen for the test of the six-rowed varieties was a clayey loam, the previous crop being roots. For the two-rowed sorts, the soil was a rather sandy loam on which the previous crop was timothy and clover. This was ploughed in the spring and a barrel of complete fertilizer used per acre, being drilled in with the seed and all the varieties were sown 9th May at the rate of two bushels per acre in one-twentieth acre plots. The results obtained are found in the following table:—

TWO-ROWED BARLEY—Test of Varieties.

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.		Yield per Acre.	Weight per Bushel.
					Inches.	Bush. Lbs.		
Nepean.....	Aug. 28..	111	44	Very stiff.....	3	42 4	52	
Prize Prolific.....	do 28..	111	34	Medium stiff.....	3	33 16	52	
Beaver.....	do 22..	105	36	do.....	4	33 16	54	
Thanet.....	do 28..	111	30	Weak.....	3½	32 14	52	
California Prolific.....	do 28..	111	38	Stiff.....	3	31 12	51	
French Chevalier.....	do 28..	111	34	Medium stiff.....	3½	31 12	52	
Duckbill.....	do 22..	105	40	Stiff.....	3	28 36	51	
Pacer.....	do 28..	111	42	Very stiff.....	3½	28 16	52	
Bolton.....	do 20..	103	36	Medium stiff.....	3½	27 44	53	
Victor.....	do 27..	110	36	do.....	3	26 32	53	
Sidney.....	do 27..	110	40	do.....	3½	26 32	52	
Danish Chevalier.....	do 28..	111	34	do.....	3½	26 32	53	
Kinver Chevalier.....	do 28..	111	30	Weak.....	2½	26 12	53	
Newton.....	do 28..	111	36	Stiff.....	3	22 4	52	
Rigid.....	do 28..	111	40	do.....	3	19 8	52	
Canadian Thorpe.....	do 28..	111	40	do.....	2½	17 24	51	
Monck.....	do 28..	111	38	do.....	3	17 10	54	

SIX-ROWED BARLEY—Test of Varieties.

Mensury.....	Aug. 14..	97	40	Stiff.....	3½	61 32	52
Surprise.....	do 27..	110	42	do.....	2½	56 32	52
Nugent.....	do 27..	110	40	do.....	2½	47 44	51
Champion.....	do 11..	94	40	do.....	3	47 44	48
Trooper.....	do 27..	110	42	do.....	2½	47 44	51
Success.....	do 11..	94	33	Medium stiff.....	2½	44 20	45
Sunmit.....	do 27..	110	42	Stiff.....	2½	42 4	51
Stella.....	do 27..	110	42	do.....	2½	42 4	51
Excelsior.....	do 11..	94	34	Medium stiff.....	2½	38 8	42
Oderbruck.....	do 14..	97	33	do.....	3	37 4	53
Vanguard.....	do 14..	97	36	do.....	3½	37 4	50
Baxter's.....	do 27..	110	40	Stiff.....	2½	36 12	53
Pioneer.....	do 22..	105	36	Medium stiff.....	2½	30 ..	50
Royal.....	do 20..	103	34	Weak.....	3	29 8	51
Phenix.....	do 14..	97	40	Stiff.....	2½	26 12	51
Common.....	do 27..	110	36	Medium stiff.....	2½	25 40	50
Odessa.....	do 20..	103	38	do.....	2½	22 44	48
Rennie's Improved.....	do 14..	97	36	do.....	2½	17 44	50
Petschora.....	do 22..	105	34	do.....	2½	17 44	45

SUMMARY.

Average yield of all the six-rowed varieties for 1896—37 bushels 15 lbs. Average yield of all the two-rowed varieties for 1896—29 bushels 8 lbs.

Average yield from experiments conducted with six-rowed varieties of barley for the past three years, of five of the most promising varieties :—

	Bush.	Lbs.
Mensury	46	42
Surprise	41	12
Trooper	39	8
Summit	35	..
Oderbruch	31	45

Average yield from experiments conducted with two-rowed varieties of barley for the past three years, of five of the most promising varieties :—

	Bush.	Lbs.
French Chevalier	38	29
Kinver Chevalier	34	..
Bolton	32	24
Canadian Thorpe	31	84
Sidney	31	41

EXPERIMENTS WITH OATS.

Sixty varieties of oats were sown in plots of one-twentieth acre each, on the 5th of May. The straw, except in a few of the later ripening sorts, was quite free from rust. Some varieties were badly smutted, others only slightly.

The soil on which these varieties were tested was a clay loam, the previous crop being wheat and oats. A barrel of complete fertilizer was used per acre. The results were as follows :—

OATS—Test of Varieties.

Name of variety.	Date of Ripening.	Number of days Maturing.	Length of Straw.		Character of Straw.	Length of Head.		Kind of Head.	Yield per acre.		Weight per Bushel.
			In.			In.			bus. lbs.	Lbs	
Pense	Aug. 21	109	46	Stiff.....	9	Sided.....	104	24	37		
Banner	do 18	106	45	do	8	Branching..	99	14	33½		
White Schonen	do 18	106	46	do	8	do	97	2	37½		
Buckbee's Illinois	do 22	110	46	do	8	do	95	30	36		
Mennonite	do 22	110	42	do	7	do	93	..	36		
Master	do 22	110	48	do	9	do	90	..	36		
Russell	do 22	110	48	do	9	do	89	14	38		
Oxford	do 22	110	48	do	9	do	88	28	40		
Joanette	do 22	110	36	do	7	do	88	8	35		
White Russian	do 18	106	45	Medium do.	8	do	88	8	39		
Olive	do 22	110	48	Stiff.....	9	do	86	..	39		
King	do 18	106	48	Medium do.	8	do	85	10	37		
Wide Awake	do 18	106	45	do	7½	do	84	24	35		
Early Blossom	do 21	109	48	Stiff.....	9	Sided.....	84	24	40		
Oderbruch	do 20	108	45	do	9	Half-sided..	84	24	37		
Early Etampes	do 22	110	36	do	7	Branching..	84	14	35		
American Triumph	do 31	119	50	do	9	do	84	4	38		
Improved Ligowo	do 18	106	45	Medium do.	7	do	84	4	43		
Medal	do 22	110	48	Stiff.....	8	do	83	18	38		
Columbus	do 18	106	50	Very do. .	7	do	83	18	35		
Cal. Prolific Black	do 18	106	50	do	9	Sided.....	83	18	37		
Couloumiers	do 31	119	42	Medium do.	8	Branching..	83	18	37		

Experimental Farms.

OATS—Test of Varieties—*Concluded.*

Name of variety.	Date of Ripening.	Number of days Maturing.	Length of Straw.		Character of Straw.	Length of Head.		Kind of Head.	Yield per acre.		Weight per Bushel.
			In.	In.		In.	In.		bus. lbs.	Lbs.	
Rosedale.....	do	20	108	48	Stiff.....	8	Sided.....	82	32	36½	
Brandon.....	do	22	110	48	do.....	9	Half-sided..	82	12	38	
Wallis.....	do	18	106	40	Medium do.	8	Branching..	82	12	41	
Bonanza.....	do	18	106	43	Weak.....	9	do.....	81	6	39½	
Cromwell.....	do	22	110	42	Stiff.....	8	do.....	79	14	38	
Lincoln.....	do	18	106	42	Medium do.	7	do.....	79	14	37	
Early Maine.....	do	22	110	46	Stiff.....	9	do.....	77	22	37	
Gothland.....	do	21	109	44	do.....	8	Sided.....	77	18	37	
Abyssinia.....	do	18	106	48	do.....	9	do.....	77	2	37	
American Beauty	do	20	108	46	Medium do.	8	Branching..	76	16	40	
Golden Beauty..	do	18	106	44	do.....	8	do.....	76	16	41	
Miller.....	do	18	106	44	do.....	8	do.....	74	4	40	
Giant Cluster..	do	31	119	48	Stiff.....	9	Sided.....	74	4	35½	
Prolific Black Tartarian.	do	18	106	50	Very do..	8	do.....	72	32	35	
Holstein Prolific	do	21	109	48	Stiff.....	8	Branching..	72	..	36	
Golden Giant..	do	31	119	46	do.....	10	Sided.....	71	6	41	
Abundance.....	do	21	109	48	do.....	8	Branching..	70	20	36	
Cream Egyptian	do	18	106	48	Very do..	9	Sided.....	69	14	40	
White Monarch..	do	18	106	44	Stiff.....	9	Branching..	67	22	41	
Imported Irish..	do	11	99	45	Medium do.	10	do.....	67	22	42	
Flying Scotchman.	do	18	106	48	Stiff.....	10	do.....	66	6	42	
Early Racehorse.	do	12	100	48	do.....	9	do.....	65	30	40	
Early Archangel.	do	18	106	46	Medium do.	9	do.....	65	30	40	
Challenge.....	do	21	109	42	do.....	9	do.....	64	24	40	
Doncaster Prize.	do	18	106	40	Stiff.....	10	do.....	62	16	40	
Scotch Hopetoun	do	21	109	48	do.....	9	do.....	62	..	39	
Rennie's Prize..	do	12	100	43	do.....	8	do.....	61	26	42	
Winter Grey.....	do	20	108	44	Medium do.	8	do.....	61	26	40	
Poland White.....	do	12	100	40	Stiff.....	8	do.....	60	20	40	
Hazlett's Seizure	do	21	109	40	Medium do.	8	do.....	58	28	36	
Welcome.....	do	21	109	40	do.....	8	do.....	58	28	36	
Scottish Chief..	do	20	108	36	Weak.....	8	do.....	55	30	37	
Prize Cluster..	do	21	109	42	Stiff.....	10	do.....	50	..	38	
Victoria Prize..	do	21	109	42	do.....	10	do.....	50	..	41	
Siberian.....	do	31	119	48	do.....	9	Sided.....	49	14	39	
White Wonder..	do	18	106	42	Medium do.	8	Branching..	47	2	40	
Bavarian.....	do	18	106	42	Stiff.....	7	do.....	38	28	43	
Early Golden Prolific.	do	18	106	42	do.....	8	do.....	33	18	42	

SUMMARY.

Average yield of all the oat plots for the season of 1896—73 bushels 14 pounds per acre.

The average yield per acre from five years' experiments with seven of the most promising varieties has been :

	Bush.	Lbs.	Weight per bushel.
Early Blossom.....	68	13	39
Prolific Black Tartarian.....	67	6	37
Banner.....	67	2	39
Cream Egyptian.....	65	23	41
Joanette.....	65	4	37
Abyssinia.....	64	22	40
Early Gothland.....	59	4	40

RESULTS OF EARLY, MEDIUM AND LATE SOWINGS.

Experiments to test the relative value of early, medium and late sowing were again carried on this year.

The first of these plots was sown on the 27th April. The size of the plots was $\frac{1}{20}$ acre each; one week intervening between each of the six sowings. The soil was of a sandy loam; the previous crop being corn. No rust was observed in the first four series of plots, the later sown ones were quite badly rusted,

There were two plots each of wheat, barley and oats. The following results were obtained:—

OATS—Results of Early, Medium and Late Sowings.

Name of Variety.	Date of Sowing.	Date of ripening.	No. of days maturing.	Length of straw.		Character of straw.	Length of head.		Yield per acre.		Weight per bushel.	Proportion rusted.
				In.			In.		Bush. lbs.	Lbs.		
<i>No. 1—</i>												
Banner	April 27	Aug. 21	117	48		Stiff	9		108 8	35	None.	
Abundance	do 27	do 21	117	48		do	8		80 20	35	do	
<i>No. 2—</i>												
Banner	May 4	do 25	115	46		do	9		98 8	38	do	
Abundance	do 4	do 25	115	46		do	8		78 37	37	do	
<i>No. 3—</i>												
Banner	do 11	do 29	110	45		do	9		97 22	37	do	
Abundance	do 11	do 29	110	44		do	8		72 32	36	do	
<i>No. 4—</i>												
Banner	do 18	Sept. 5	111	45		do	9		64 24	35	do	
Abundance	do 18	do 5	111	45		do	8		72 32	39	do	
<i>No. 5—</i>												
Banner	do 25	do 10	109	45		do	9		87 2	36	Slightly.	
Abundance	do 25	do 10	109	43		do	8		71 6	38	do	
<i>No. 6—</i>												
Banner	June 1	do 14	106	46		do	9		25 30	31	Badly.	
Abundance	do 1	do 14	106	46		do	8		37 22	32	do	

BARLEY—Results of Early, Medium and Late Sowings.

<i>No. 1—</i>												
Odessa	April 27	Aug. 21	117	36		Med. stiff.	3		33 16	50	Some smut.	
Canadian Thorpe ...	do 27	do 21	117	44		Stiff	3		29 8	52	do	
<i>No. 2—</i>												
Odessa	May 4	Sept. 1	120	32		Med. stiff.	2½		23 16	50	Some smut.	
Canadian Thorpe ...	do 4	do 1	120	36		Stiff	3		21 12	50	None.	
<i>No. 3—</i>												
Odessa	do 11	do 6	118	32		Med. stiff.	2½		19 28	46	Slight smut.	
Canadian Thorpe ...	do 11	do 6	118	36		Stiff	3		24 8	49	do	
<i>No. 4—</i>												
Odessa	do 18	do 10	116	30		Med. stiff.	3		32 24	48	do	
Canadian Thorpe ...	do 18	do 10	116	36		Stiff	3		24 8	54	do	
<i>No. 5—</i>												
Odessa	do 25	do 14	109	30		Med. stiff.	3		36 32	48	Some rust.	
Canadian Thorpe ...	do 25	do 14	109	34		Stiff	3		41	53	do	
<i>No. 6—</i>												
Odessa	June 1	do 16	108	30		Med. stiff.	3		32 24	.....	Badly rusted.
Canadian Thorpe ...	do 1	do 16	108	34		Stiff	3		20 40	.....	do

Experimental Farms

WHEAT—Results of Early, Medium and Late Sowings.

Name of Variety.	Date of Sowing.	Date of ripening.	No. of days maturing.	Length of Straw.	Character of Straw.	Length of Head.	Yield per Acre.		Weight per Bushel.	Proportion Rusted.
							Bush.	lbs.		
<i>No. 1—</i>				In.		In.				
Red Fife	April 27	Aug. 28	125	44	Stiff	3½	34	40	60½	None.
Stanley	do 27	do 28	125	42	d	3	28		60	do
<i>No. 2—</i>										
Red Fife	May 4	Sept. 1	120	46	do	3	30	40	59	do
Stanley	do 4	do 1	120	38	do	3	17	20	59	do
<i>No. 3—</i>										
Red Fife	do 11	do 8	121	46	do	3	23		58	do
Stanley	do 11	do 8	121	40	do	3	18	40	59	do
<i>No. 4—</i>										
Red Fife	do 18	do 12	118	46	do	3	32		57	do
Stanley	do 18	do 12	118	44	do	3	22	20	55	do
<i>No. 5—</i>										
Red Fife	do 25	do 16	114	44	do	3	25	40	57	Slightly.
Stanley	do 25	do 16	114	46	do	3	25		57	do
<i>No. 6—</i>										
Red Fife	June 1	do 21	113	42	Med. stiff.	3	20	40	56	Badly.
Stanley	do 1	do 21	113	42	do	3	23	20	53	do

SUMMARY.

Results for the period of six years' test of the early, medium and late sowings of all varieties :—

	OATS.		BARLEY.		WHEAT.	
	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.
1st sowing, average of eleven tests.....	49	31	26	21	19	47
2nd do do do do	52	9	28	3	20	53
3rd do do do do	58	14	29	16	19	40
4th do do do do	52	17	28	10	16	53
5th do do nine do	47	29	27	2	19	10
6th do do do do	42	20	23	22	18	8

EXPERIMENTS WITH PEASE.

Twenty-five varieties of pease were sown 6th May, on one-twentieth acre plots. The soil was a light clay loam; the previous crop was oats. One barrel of complete fertilizer was used per acre, and the following results were obtained.

PEASE—Test of varieties.

Name of Variety.	Date of ripening.	Number of days maturing.	Character of growth.	Length of straw.		Size of pea.	Yield per acre.		Weight per bushel.
				In.	In.		Bush.	lbs.	
Crown.....	Aug. 22	108	Strong.....	34	2	Small.....	51	64	
Large White Marrowfat.....	do 27	113	Very strong...	46	3	Medium...	47	61	
Bedford.....	do 28	114	Strong.....	44	2½	do ..	47	60	
Carleton.....	do 28	114	Very strong...	56	2½	do ..	45	40	
Daniel O'Rourke.....	do 27	113	Strong.....	36	2	Small.....	45	20	
Paragon.....	do 27	113	do ..	44	2	do ..	45	62	
Creeper.....	do 27	113	do ..	42	2	do ..	45	60	
Agnes.....	do 28	114	do ..	40	2½	Medium...	45	63	
Prince.....	do 28	114	do ..	42	2	do ..	45	62	
Pride.....	do 25	111	do ..	40	3	Large ..	44	20	
Macoun.....	do 27	113	Very strong...	56	2½	do ..	44	20	
Kent.....	do 28	114	do ..	48	2½	Medium...	40	40	
Arthur.....	do 22	108	Strong.....	34	2	Small...	40	40	
Duke.....	do 28	114	do ..	44	3	Medium...	40	20	
Mackay.....	do 27	113	Very strong...	50	2½	do ..	40	63	
Bruce.....	do 27	113	do ..	46	3	do ..	40	63	
Black Eyed Marrowfat.....	do 27	113	Strong.....	46	2½	Large ..	39	20	
Centennial.....	do 25	111	Very strong...	42	2	Medium...	35	40	
New Potter.....	do 25	111	do ..	48	2	do ..	35	20	
Trilby.....	do 22	108	Strong.....	30	2½	Small.....	31	20	
Prince Albert.....	do 25	111	do ..	40	2	do ..	30	63	
Multiplier.....	do 25	111	do ..	35	2	do ..	30	62½	
Golden Vine.....	do 22	108	do ..	30	1½	do ..	27	40	
Mummy.....	do 21	107	do ..	36	2	Medium...	24	40	
Canadian Beauty.....	do 21	107	do ..	34	2½	Large ..	22	62	

SUMMARY.

Average yield of pease per acre, from four years' test of six of the most promising varieties:—

	Bush.	Lbs.
Black Eyed Marrowfat.....	45	15
Crown.....	42	45
Pride.....	40	20
Multiplier.....	38	28
Prince Albert.....	38	28
Canadian Beauty.....	37	

EXPERIMENTS WITH TURNIPS.

Fourteen varieties of turnips were sown in this test. The land used for this experiment was a clayey loam. The crop of last season was oats, the land was ploughed in the fall, and twenty-five 30-bushel cart loads of barnyard manure, and 300 pounds of complete fertilizer, were used per acre. Two sowings were made of each variety. The first set of plots were sown on 22nd May and the second on 5th June.

Experimental Farms.

The yield of all roots per acre has been calculated from the quantity obtained from three rows, each 66 feet long and 28 inches apart. The following results were obtained :—

TURNIPS—Test of varieties.

Name of Variety.	1st Plot Sown.	2nd Plot Sown.	1st Plot Pulled.	2nd Plot Pulled.	Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.	
					Ton. lbs.		Bus. lbs.	
					Ton. lbs.	Bus. lbs.	Ton. lbs.	Bus. lbs.
Purple Top Swede	May 22.	June 5.	Oct. 23.	Oct. 23.	38 1550	1292 30	35 500	1175
Perfection	do 22.	do 5.	do 23.	do 23.	37 1200	1253 20	29 750	979 10
Hartley's Bronze	do 22.	do 5.	do 23.	do 23.	34 150	1135 50	32 1800	1096 40
Mammoth Clyde	do 22.	do 5.	do 23.	do 23.	34 150	1135 50	34 150	1135 50
Selected Champion	do 22.	do 5.	do 23.	do 23.	34 150	1135 50	29 1690	994 50
Carter's Elephant	do 22.	do 5.	do 23.	do 23.	34 150	1135 50	35 500	1175
Skirving's	do 22.	do 5.	do 23.	do 23.	32 1800	1096 40	29 750	979 10
Marquis of Lorne	do 22.	do 5.	do 23.	do 23.	30 1450	1024 10	30 1100	1018 20
Sutton's Champion	do 22.	do 5.	do 23.	do 23.	30 1450	1024 10	30 1570	1026 10
Jumbo or Monarch	do 22.	do 5.	do 23.	do 23.	29 1690	994 50	30 1100	1018 20
Giant King	do 22.	do 5.	do 23.	do 23.	29 400	970 29	29 400	970
East Lothian	do 22.	do 5.	do 23.	do 23.	28 1140	952 30	29 750	979 10
Prize Winner	do 22.	do 5.	do 23.	do 23.	28 400	940 32	1800	1096 40
Prize Purple Top	do 22.	do 5.	do 23.	do 23.	27 990	916 30	31 1450	1057 30

EXPERIMENTS WITH MANGELS.

Thirteen varieties of mangels were under test during the past season. The soil was of the same character as that used for the turnip plots, and two sowings were made of each variety. The following results were obtained :—

MANGELS—Test of varieties.

Name of variety.	1st plot sown.	2nd plot sown.	1st plot pulled.	2nd plot pulled.	Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.	
					Ton. lbs.		Bus. lbs.	
					Ton. lbs.	Bus. lbs.	Ton. lbs.	Bus. lbs.
Warden Orange Globe	May 22.	June 5.	Oct. 23.	Oct. 23.	33 1200	1120 24	1000 816	40
Yellow Intermediate	" 22.	" 5.	" 23.	" 23.	29 1500	991 10	32 750	1079 10
Mammoth Long Red (Evans)	" 22.	" 5.	" 23.	" 23.	29 575	976 15	21 1800	730
Giant Yellow Globe	" 22.	" 5.	" 23.	" 23.	29 400	973 20	24 1285	821 25
Giant Yellow Intermediate	" 22.	" 5.	" 23.	" 23.	28 940	949 25	1100 851	40
Mammoth Long Red (Webb)	" 22.	" 5.	" 23.	" 23.	27 750	912 30	23 720	778 40
Gate Post	" 22.	" 5.	" 23.	" 23.	27 250	904 10	26 500	875
Red Fleshed Globe	" 22.	" 5.	" 23.	" 23.	26 925	882 5	21 1800	730
Mammoth Long Red (Steele)	" 22.	" 5.	" 23.	" 23.	25 1100	851 40	21 1800	730
Champion Yellow Globe	" 22.	" 5.	" 23.	" 23.	24 545	809 5	20 150	669 10
Golden Fleshed Tankard	" 22.	" 5.	" 23.	" 23.	23 550	775 50	26 500	875
Canadian Giant	" 22.	" 5.	" 23.	" 23.	21 1500	725 26	500	875
Red Fleshed Tankard	" 22.	" 5.	" 23.	" 23.	20 1245	687 25	18 1230	620 30

EXPERIMENTS WITH CARROTS.

Fourteen varieties of carrots were under test in 1896. They were sown on land similar in character to that used for the turnip plots and received the same cultivation and manuring. Two sowings were made of each variety. The following results were obtained:—

CARROTS—Test of Varieties.

Name of Variety.	1st Plot	2nd Plot	1st Plot	2nd Plot	Yield per Acre.	Yield per Acre.	Yield per Acre.	Yield per Acre.
	Sown.	Sown.	Pulled.	Pulled.	1st Plot.	1st Plot.	2nd Plot.	2nd Plot.
					Ton. lbs.	Bus. lbs.	Ton. lbs.	Bus. lbs.
Mammoth White Intermediate..	May 22.	June 5.	Oct. 20.	Oct. 20.	19 1950	665 50	18 1600	626 40
Improved Short White.....	" 22.	" 5.	" 20.	" 20.	19 540	642 20	18 1050	650 10
Half Long White.....	" 22.	" 5.	" 20.	" 20.	18 1600	626 40	14 200	470
Half Long Chantenay.....	" 22.	" 5.	" 20.	" 20.	18 1050	650 10	12 1850	430 50
Early Gem.....	" 22.	" 5.	" 20.	" 20.	17 1300	587 80	14 200	470
Guerrande or Oxheart.....	" 22.	" 5.	" 20.	" 20.	17 1250	587 50	14 200	470
Iverson's Champion.....	" 22.	" 5.	" 20.	" 20.	17 1250	587 30	15 550	509 10
White Belgian.....	" 22.	" 5.	" 20.	" 20.	16 900	548 20	12 1850	430 50
Carter's Orange Giant.....	" 22.	" 5.	" 20.	" 20.	16 900	548 20	9 800	313 20
Giant White Vosges.....	" 22.	" 5.	" 20.	" 20.	15 550	509 10	11 1500	391 40
Long Scarlet Altringham.....	" 22.	" 5.	" 20.	" 20.	14 200	470 11	1500	391 40
Giant Yellow Intermediate.....	" 22.	" 5.	" 20.	" 20.	14 200	470 10	1150	352 30
Surrey or Long Orange.....	" 22.	" 5.	" 20.	" 20.	11 1500	391 40	10 210	336 50
Scarlet Intermediate.....	" 22.	" 5.	" 20.	" 20.	10 210	336 50	11 1500	391 40

EXPERIMENTS WITH SUGAR BEETS.

Five varieties of sugar beets were sown on the 22nd of May. These were pulled October 17th. These plots were adjoining the turnip, carrot and mangel plots. The soil was of the same character and the land was prepared in a similar manner. The following results were obtained:—

Name of Variety.	Yield per Acre.			
	Tons.	Lbs.	Bush.	Lbs.
Lane's Sugar.....	20	1250	687	30
Green Top White Sugar.....	19	1875	664	35
Austrian Electoral.....	19	1875	664	35
Red Top Sugar.....	17	375	572	55
Vilmorin's Improved.....	15	250	504	10

EXPERIMENTS WITH POTATOES.

One hundred varieties of potatoes were planted on the 20th May, on a loamy soil, which was in barley the previous season, it was ploughed in the fall of 1895. In the spring twenty 30-bushel cart loads of barnyard manure and 300 pounds of complete fertilizer were used per acre.

All the plots were treated during the season with the Bordeaux mixture, and no rotten ones were found in the plots dug on the 21st and 24th September, but those dug on the 9th and 10th October were in many cases badly rotted.

Experimental Farms.

The yield per acre has been calculated in each case from the weight of tubers gathered from two rows, each 66 feet long. The following results were obtained:—

POTATOES—Test of varieties.

Name of Variety.	Dug.	Yield per Acre.				
		Total.	Sound.	Rotten.	Market-able.	Unmar- ketable.
		Bus. lbs.	Bus. lbs.	Bus. lbs.	Bus. lbs.	Bus. lbs.
Seedling No. 230	Sept. 24	583	583		501 20	81 40
Early Puritan	Oct. 9	560	479	81 40	420	140
Ritcher's Rose	" 9	560	455	105	420	140
Pride of the Market	" 10	560	420	140	361 40	198 20
Green Mountain	" 9	548 20	478 20	70	408 20	140
Holborn Abundance	" 10	536 40	494 40	42	466 40	70
Empire State	" 9	536 40	501 40	35	455	81 40
Irish Daisy	Sept. 24	529 40	529 40		494 40	35
Thorburn	Oct. 10	525	455	70	373 20	151 40
Burbank	" 10	513 20	371	142 20	303 20	210
Late Puritan	" 10	513 20	345 20	168	291 40	221 40
Burnaby's Seedling	" 9	511			469	42
Dreer's Standard	" 10	501 40	424 40	77	350	151 40
Carman No. 1	" 9	501 40			466 40	35
Beauty of Hebron	" 9	499 20	417 40	81 40	359 20	140
Money Maker	Sept. 24	493 40			445 40	28
Crown Jewel	Oct. 9	492 20			452 40	39 40
I. X. L.	Sept. 21	490			429 20	60 40
Charles Downing	Oct. 9	490	467	23	408 20	81 40
Mackenzie	" 9	490	469	21	420	70
Russell's Seedling	" 10	490	469	21	420	70
Northern Spy	" 10	478 20	455	23 20	408 20	70
Rose's New Giant	" 9	478 20	385	93 20	350	128 20
General Gordon	" 9	471 20	389 40	81 40	350	121 20
Daisy	Sept. 24	473 40			408 20	65 20
World's Fair	Oct. 10	466 40	298 40	168	233 20	233 20
Queen of the Valley	" 10	466 40	326 40	140	233 20	233 20
Reading Giant	" 9	462	429 20	32 40	392	70
Pearce's Prize Winner	Sept. 21	459 40			420	39 40
White Beauty	Oct. 9	457 20			410 40	46 40
Lizzie's Pride	" 10	455	361 40	93 20	315	140
Abbott	" 10	455	373 20	81 40	350	105
Rural Blush	" 10	455			408 20	46 40
Seattle	" 9	452 40			410 40	42
Dakota Red	Oct. 9	445 40			408 20	37 20
Troy Seedling	" 10	443 20	373 20	70	326 40	116 40
Prize Taker	" 10	443 20	410 40	32 40	373 20	70
Early White Prize	" 9	443 20	350	93 20	303 20	140
Rural New Yorker No. 2	" 10	443 20			373 20	70
Polaris	Sept. 21	441 40			396 40	35
Stray Beauty	" 24	441			410 40	30 20
Clarke's No. 1	" 21	433 20			373 20	60
Copper	" 21	431 40			338 20	93 20
Stourbridge Glory	" 21	431 40			350	81 40
Chicago Market	Oct. 10	429 20			396 40	32 40
Early Norther	" 9	420			373 20	46 40
Record	" 10	420	373 20	46 40	315	105
New Queen	" 9	420	385	35	350	70
Great Divide	" 9	415 20			361 40	53 40
Victor Rose	" 9	415 20	382 40	32 40	338 20	77
Lee's Favourite	Sept. 21	413			350	63
Delaware	" 24	413			361 40	51 20
Early Six Weeks	" 21	410 40			345 20	65 20
Muchonic	" 21	410 40			387 20	23 20
Dixon's Early	" 21	410			350	60
American Wonder	Oct. 9	408 20			359 20	49
Peerless Junior	" 10	408 20			361 40	46 40
Vanier	" 9	408 20			350	58 20
Early Sunrise	Sept. 21	408 20			373 20	35
Sugar	Oct. 9	399	238 20	60 40	256 40	142 20

POTATOES—Test of Varieties—*Concluded.*

Name of Variety.	Dug.	Yield per Acre.				
		Total.	Sound.	Rotten.	Market-able.	Un-market-able.
		Bus. lbs.	Bus. lbs.	Bus. lbs.	Bus. lbs.	Bus. lbs.
Orphans.....	" 9	396 40	343	53 40	303 20	93 20
Hopeful.....	" 10	396 40	380 20	16 20	326 40	70
Early Harvest.....	" 9	396 40	388	8 40	315	81 40
London.....	" 9	382 40	350	32 40	303 20	79 20
Hale's Champion.....	" 9	382 40	357	25 40	303 20	79 20
Clay Rose.....	" 9	380 20			350	30 20
Maggie Murphy.....	Sept. 24	380 20			338 20	42
Richter's Elephant.....	" 24	380 20			338 20	42
Toronto Queen.....	Sept. 21	380 20			326 40	53 40
Late Goodrich.....	Oct. 10	373 20	330	43 20	280	93 20
Early Ohio.....	Sept. 21	368 40			315	53 40
Jerusalem.....	" 21	364			343	21
Pope.....	Oct. 10	361 40	311	50 40	280	81 40
Freeman.....	" 9	361 40	275	86 40	256 40	105
Vick's Extra Early.....	" 9	361 40	282 20	79 20	245	116 40
Harbinger.....	" 10	361 40	305 40	56	233 20	128 20
Ideal.....	" 10	361 40			326 40	35
Wonder of the World.....	Sept. 21	361 40			315	46 40
Table King.....	Oct. 9	354 40			303 20	51 20
Acadian.....	Sept. 21	350			303 20	46 40
Early Rose.....	" 21	338 20			303 20	35
Home Comfort.....	" 24	333 40			259	74 40
Sharpe's Seedling.....	Oct. 10	332			268 20	53 40
Richter's Imperial.....	Sept. 21	326 40			280	46 40
Brownell's Winner.....	" 24	326 40			291 40	35
Henderson's Late Puritan.....	Oct. 9	308			256 40	51 20
Everett.....	" 10	280	271	9	210	70
Compton's Surprise.....	" 10	280	269	11	210	70
Pride of the Table.....	" 10	273	231	42	186 40	86 20
Satisfaction.....	" 9	273			231	42
Algoma, No. 1.....	Sept. 21	256 40			233 20	23 20
New Variety, No. 1.....	Oct. 9	254 20			233 20	21
Pearce's Extra Early.....	Sept. 21	242 40			200 40	42
Lightning Express.....	" 24	238			210	28
Seedling, No. 214.....	Oct. 9	237	201 40	35 20	151 40	85 20
Brown's Rot Proof.....	" 9	235			210	25
Rosy Morn.....	" 9	233 20			210	23 20
Kidney.....	Sept. 21	224			200 40	23 20
Burpee's Extra Early.....	" 21	168			140	28
Earliest of All.....	" 21	168			140	28

Experimental Farms.

EXPERIMENTS WITH INDIAN CORN.

Twenty varieties of Indian corn were sown on the 22nd of May on a light loamy soil in rows 3 feet apart with the plants about one foot apart in the rows and a duplicate set of plots were planted side by side in hills, three feet apart each way. The following results were obtained :—

INDIAN CORN—TEST OF VARIETIES.

Name of Variety.	Character of growth.	Height.	When tasselled.	In silk.	Early milk.	Late milk.	Condition when cut.	Weight per acre	
								grown in rows.	grown in hills.
		In.						T'ns. lbs.	T'ns. lbs.
Cuban Giant	Very strong.	108	Sept. 4	Sept. 11			Early milk	20 975	21 1010
Thoroughbred White Flint	"	108	" 1	" 10			Late milk	19 1050	18 1510
Sanford	"	96	Aug. 25	" 1 Sept. 8			"	18 850	19 775
Mastodon	"	108	Sept. 10				Silk	18 850	17 1200
Pride of the North	"	108	" 4	Sept. 11			Early milk	17 1310	16 1440
Leaming	Strong.	108	" 15				Tasselled.	17 650	15 1075
Compton's Early	"	96	Aug. 20	Aug. 28	Sept. 1	Sept. 9	Glazed	17 630	21 350
Longfellow	"	90	" 20	" 28	" 1	" 9	"	16 725	18 850
Canada White Flint	Fair	84	" 23	" 29	" 8		Late milk	16 560	20 1030
Angel of Midnight	Strong.	96	" 20	" 28	" 1	Sept. 9	Glazed	16 175	17 1090
Pearce's Prolific	"	90	" 20	" 28	" 1	" 9	"	16 175	17 630
King of the Earliest	Very strong.	96	Sept. 1	Sept. 10			Late milk	15 1350	12 1310
Mammoth Eight-Rowed Flint	Fair	84	Aug. 25	Aug. 31	Sept. 8		Early milk	14 1700	15 1515
Champion White Pearl	Very strong.	108	Sept. 1	Sept. 8			Late milk	14 1590	15 1735
Giant Prolific Ensilage	Fair	84	" 19				Tasselled.	14 1150	12 1300
Early Huron Dent	Strong.	96	Aug. 20	Aug. 28	Sept. 1	Sept. 9	Glazed	12 1850	12 1575
Red Cob Ensilage	Fair	84	Sept. 19				Tasselled.	12 640	16 1825
White Cap Yellow Dent	Strong.	96	Aug. 27	Sept. 8			Late milk	12 640	15 140
Mitchell's Extra Early	Weak	60	" 20	Aug. 25	Sept. 1	Sept. 10	Glazed	11 825	9 1525
Country Gentleman	Fair	72	Sept. 3	Sept. 10			Early milk	7 1840	8 1875

Average yield per acre from corn sown in rows and hills :

	Tons.	Lbs.
Sown in hills, 1896	15	1,253
Sown in rows, 1896	15	1,026

PREPARING OF LAND FOR CORN.

To determine the effect of the different modes of preparing soils for corn crops, a series of experiments were planned in the fall of 1895.

These were conducted on a timothy and clover sod field of $\frac{1}{3}$ acre each plot, except in plot No. 5, when a $\frac{2}{3}$ acre plot was used. The soil was a sandy loam. The corn was drilled in with the "Wisner" seed drill, all of the seed spouts being closed except two, making the rows 3 feet apart. Fertilizer was drilled in through all the spouts, 250 pounds per acre being used. The corn was sown on the 22nd of May, and cut on the 25th and 26th of September.

No. 1.

Fall ploughed.—Worked up in the spring and 250 pounds of complete fertilizer per acre drilled in with the corn. Yield per acre, 12 tons 120 pounds.

No. 2.

Fall ploughed.—Thirty 30 bushel cart loads of barnyard manure per acre was spread on after the land was ploughed in the fall and worked in before seeding in the spring. Yield per acre, 13 tons.

No. 3.

Spring ploughed.—Worked up after ploughing and 250 pounds of complete fertilizer per acre was drilled in with the corn. Yield per acre, 11 tons 680 pounds.

No. 4.

Spring ploughed.—Thirty 30 bushel cart loads of barnyard manure per acre was spread on after ploughing and worked in before seeding. Yield per acre, 14 tons 800 pounds.

No. 5.

Spring ploughed.—Thirty 30 bushel cart loads of manure was applied to this land, being spread on the sod in the fall of 1895. This was ploughed in and worked up in the spring before seeding. Yield per acre, 17 tons.

GRAIN CROPS WITH AND WITHOUT CLOVER.

To ascertain whether the sowing of 10 pounds of Mammoth Red Clover per acre with the grain crop will affect the yield of the grain; also whether after the grain is cut the clover will grow sufficiently strong to furnish a fair mat of foliage for ploughing under, and how the clover will succeed when sown with each of these crops, experiments were conducted on one-quarter acre plots with ten varieties of grain, making a total of 2½ acres sown with clover and 2½ acres without clover. This experiment was conducted on a fairly even piece of land of poor quality; one barrel of complete fertilizer was drilled in with the grain, per acre. The clover made poor growth, no difference could be noticed in the growth when sown with the different kinds of grain except in the pea plots where the clover was almost entirely killed out. The yields obtained are given in the following table. These plots were sown on 7th May.

CLOVER AND CHECK PLOTS OF OATS, WHEAT, PEASE AND BARLEY.

Name of Variety.	Date of Ripening.	SEEDED WITH CLOVER		NOT SEEDED WITH CLOVER.	
		Yield per Acre.	Weight per Bushel.	Yield per Acre.	Weight per Bushel.
		Bush. lbs.	Lbs.	Bush. lbs.	Lbs.
Bolton.....	Aug. 11..	22	12	50	
French Chevalier.....	" 20..	41	40	46	53
Trooper.....	" 11..	20	24	49	46
Odessa.....	" 20..	22	44	46	49
Banner.....	" 20..	61	26	37	42
Abundance.....	" 20..	54	24	37	39
Red Fife.....	" 31..	20	28	59	37
Preston.....	" 31..	21	44	61	20
Crown.....	" 18..	19	32	65	52
Canadian Beauty.....	" 18..	18	8	65	62
				26	12
				28	65
					64

From the results of this course of experiments it does not appear that the sowing of the clover with the grain had any material effect in the way of reducing the yield of the cereal.

Experimental Farms.

EXPERIMENTS WITH FLAX.

Eight one-tenth acre plots of flax were sown on rather a light loamy soil. Two of these plots were sown on the 14th May and two each week following until the whole were sown. The quantity of seed sown was as follows : 4 pounds per plot, or at the rate of 40 pounds per acre on one set of plots ; and 8 pounds per plot, or at the rate of 80 pounds per acre on the other set. The former representing the thin sowing of flax as grown for seed, the latter the thick sowing where it is grown for fibre.

One-half of each plot was pulled when about one-third of the seed was ripe, for fibre ; this was tied up in sheaves and cured. 50 pounds out of each plot was put up in bundles, making in all 400 pounds, which was shipped to J. & J. Livingston, Baden, Ontario, to be tested as to the yield and quality of the fibre.

The other half of each plot was harvested in the usual manner after the seed was ripe. The following results were obtained :—

Name of Variety.	Date of Sowing.	Date of Ripening.	No. of days Maturing	Length of Straw.	Character of Straw.	Weight of Straw.		Yield per Acre.	Weight per Bushel.
						Lbs.	Bush. lbs.		
No. 1—				In.					1118
Thick sowing.....	May 14.	Aug. 6.	84	28	Fine ...	4000	20		54
Thin "	" 14.	" 6.	84	28	Stiff ...	3400	20		54
No. 2—									
Thick "	" 21.	" 13.	85	28	Fine ...	3400	20		55
Thin "	" 21.	" 14.	85	28	Stiff ...	5000	32 40		55
No. 3—									
Thick "	" 28.	" 21.	85	26	Fine ...	5800	24 40		53
Thin "	" 28.	" 21.	85	26	Stiff ...	6000	26 20		54
No. 4—									
Thick "	June 4.	" 28.	85	26	Fine ...	8200	34 20		55
Thin "	" 4.	" 28.	85	26	Stiff ...	4200	24		54

GENERAL STATEMENT OF CROP.

Eight acres of underdrained marsh gave a yield of 61 bushels of oats per acre ; 4 acres of surface drained marsh yielded 43 bushels per acre ; 1½ acres of upland yielded 59 bushels of oats per acre ; 2 acres of pease, 30 bushels per acre ; 5 acres of buckwheat, 20 bushels per acre ; this, with the total yield of all the grain plots, 702 bushels and 140 bushels from miscellaneous plots, makes a total of 1,749 bushels of grain grown on the farm during the past summer.

In addition to the root plots of 554 bushels, 1,200 bushels of mangels, 400 bushels of carrots and 3,750 bushels of turnips were grown, making a total yield of 5,904 bushels of roots.

One acre of horse beans gave a yield of 13 tons 375 pounds ; ¾ of an acre of sunflowers, 2 tons 1,040 pounds ; 3 acres of corn, 13 tons 730 pounds per acre, making a total of 55 tons 1,605 pounds. The silo would only hold about 48 tons of this mixture, the balance was fed to the stock.

DISTRIBUTION OF SEED GRAIN AND POTATOES.

In all 264 applicants were supplied during the past season with samples of potatoes, oats, wheat, rye, pease and barley.

Total number of packages sent out 465, as follows :—

Potatoes.....	155
Oats.....	133
Barley.....	67
Wheat.....	51
Pease.....	53
Rye.....	6

MEETINGS ATTENDED.

I have addressed meetings, during the past summer, at the following places :
Durham, Pictou Co., N.S., 11th June ; Georgetown, P.E.I., 30th September.

EXHIBITIONS ATTENDED.

An exhibit of farm products was made at the International Exhibition at St. John, N.B. The Westmoreland County Exhibition, Sackville, N.B., and King's County Exhibition, Georgetown, P.E.I., were attended in person during the past season.

I have the honour to be,

Your obedient servant,

GEO. W. FORREST,

Superintendent.

Experimental Farms.

REPORT OF THE HORTICULTURIST.

(W. S. BLAIR.)

To DR. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith a report of some of the work done in the Horticultural Division of the Experimental Farm for the Maritime Provinces for the year 1896.

The work carried on in this department has been similar to that of former years; the orchard each year requires more attention; the addition in duplicate of 125 different varieties of ornamental trees and shrubs, together with an addition to the lawn area, makes the work of this department much greater than formerly.

The experiments with garden produce for market purposes were continued in small plots; from these experiments much valuable information was obtained.

With the exception of the addition of 25 varieties of strawberries sent from the Central Experimental Farm, no extension was made to the small fruit plots. The exhibit at the International Exhibition, St. John, N.B., of 40 of the different varieties of small fruits grown here, and which were shown in glass jars done up in liquid preservatives, assisted in making the farm exhibit attractive and instructive.

Through the kindness of Mr. Samuel Harrison, Maccan, N.S., a series of experiments in spraying were conducted by myself in his orchard. This orchard of some 23 varieties of apples, nearly all of which are old trees of standard sorts, permits of more valuable and extensive experiments than any that could be conducted in the young orchard now growing on the farm. From these experiments sufficient data was not obtained for publication; yet the information gathered will add greatly to the value of future experiments along this line here.

It was particularly noticed that the fruit of the trees which were sprayed was more or less russeted, while those not sprayed and left as check trees were free from it. The solution of Bordeaux mixture used was prepared according to the standard formula and Ferrocyanide test. The orchard on the farm was sprayed with a mixture of the same strength, and it was almost impossible to get fruit that was not more or less russeted, while in an adjoining orchard fruit of some of the same varieties was entirely free.

Data on the blossoming period of the different varieties of fruit grown on the farm was furnished the horticulturist of the Central Experimental Farm.

GRASSES.

Seed was collected from the twenty different varieties of grasses reported as grown on this farm last year.

Larger grass plots were sown on the 27th of April of 13 of the most desirable varieties. It is hoped that by this means information on the comparative value of these different grasses may be obtained. We are indebted to Mr. J. Parsons of the Marine and Fisheries Department, Halifax, for a sample of Tussock grass from the Falkland Islands. This was carefully sown and has so far made excellent growth. Two plots of crimson clover were sown this fall, one on the 18th of August, the other on 1st September, these made good growth, and the effect of the winter on them will be watched with interest.

FLOWERS

The flower garden of 91 varieties of annual and 36 varieties of perennial flowering plants made a very attractive show during the summer months.

The list given in the report from this farm for 1894, page 278, of varieties grown here together with other new varieties which have been added from time to time contribute to make up an interesting collection.

The 45 varieties of Sweet Pease were perhaps the most attractive of all the flowering plants grown during the past summer. They are a universal favourite; their continuous bloom and easy culture, would alone recommend them. Forty varieties of Dahlias received from the Central Experimental Farm added greatly to the beautifying of the farm grounds. In addition to the Bulbs referred to in a previous report of this farm, and which have annually given a profusion of bloom, 32 varieties of Tulips; 7 of Crocuses; 10 of Iris Anglica; 3 of Hyacinths; 6 of Narcissus and 1 of Iris Hispanica were received from the Central Farm, and planted this fall. In the beautifying of our rural homes by the addition of flowers we find ample scope for improvement. The show produced by the different varieties of flowers grown here has a far reaching influence; acting as an object lesson, it stimulates a greater interest in the culture of flowers amongst the many people who annually visit the farm.

ORNAMENTAL TREES AND SHRUBS.

To the list of ornamental trees and shrubs reported on as hardy in the report of this farm for 1894, page 272, can be added those which were planted out in the fall of 1895 and which have so far stood the climate here. They are as follows:

Acer, p. Schwedleri.	Berberis ilicifolia.
“ Pseudo-platanus.	Betula purpurea.
“ Reitenbachii.	“ alba pyramidalis.
“ Pseudo-platanus Woorlei.	Bocconia cordata.
“ monspessulanum.	Cytisus hirsutus.
Alnus laciniata imperialis.	“ trifolius.
“ cordata.	“ triflorus.
“ incana laciniata.	Caragana pygmaea.
Artemisia Abrotanum.	Celtis audibertii.
Berberis Darwinii.	
Cratægus torminalis.	Ptelea trifoliata.
Cornus sibirica variegata.	Potentilla fruticosa.
Corylus purpurea.	Philadelphus inodorus.
Cupressus Lawsoniana.	Paulownia imperialis.
Deutzia Wellsii.	Quercus coccinea.
“ gracilis variegata.	Rhamnus catharticus.
Diospyros Lotus.	Retinospora pisifera.
Diervilla (weigelia) candida.	Rhus Cotinus.
“ “ Sieboldii.	“ coriaria.
“ “ Stelzneri.	Spiræa japonica alba.
“ “ Abel Carriere.	“ callosa alba.
“ “ amabilis.	“ “ rosea.
“ “ Variegata nana.	“ Douglasii.
Elæagnus argentea.	“ ulmifolia.
Fraxinus americana.	“ Bumalda.
“ Ornus.	“ Billardi alba.
Forsythia viridissima variegata.	“ ariæfolia.
Filaria Latifolia.	“ Billardi rosea.
Gleditschia triacanthos.	“ callosa superba.
Indigofera dosua.	“ “ macrophylla.
Juniperus Sabina.	Sophora japonica.
“ communis.	Sorbus domestica.
“ c. suecica.	Sambucus pyramidalis.
Jasminum frutescens.	“ aurea.
“ nudiflorum.	“ laciniata.
Kolreuteria paniculata.	“ pulverulenta alba.

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<p>Ligustrum japonicum. “ Ibota “ ovalifolium variegata. Lonicera Alberti. Liriodendron tulipifera. Mahonia Aquifolium. Prunus Simoni. “ sinensis rosea. “ triloba. “ Pissardi. Ptelea trifoliata aurea.</p>	<p>Sambucus variegata aurea. “ “ argentea. Thuja occidentalis compacta. “ “ variegata. “ “ Hoveyi. “ “ lutea. “ “ Elwangeriana. “ “ vervæneana. “ ericoides. Zanthoriza sorbifolia.</p>
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HEDGES.

The twenty-one different varieties of trees and shrubs which were planted as hedges in the fall of 1895, have with few exceptions made excellent growth. The names of those planted are :—

Picea pungens, Rocky mountain blue spruce. *Spiræa opulifolia aurea*. Golden-leaved spiræa. *Ligustrum amurense*, Amur privet. *Pseudotsuga Douglasii*, Douglas spruce. *Berberis Thunbergii*, Thunberg's barberry. *Pinus Cembra*, Swiss stone pine. *Spiræa opulifolia aurea*, Golden leaved spiræa. *Picea excelsa*, Norway spruce. *Acer Ginnala*, Ginnalian maple. *Rosa rubrifolia*, Red-leaved rose. *Syringa vulgaris*, Seedling lilac. *Cotoneaster acutifolia*, Sharp-leaved cotoneaster. *Spiræa Van Houttei*, Van Houtt's spiræa. *Lonicera chrysantha*, Bush honeysuckle. *Rhamnus Frangula*, Breaking Buckthorn. *Acer glabrum*, Smooth maple. *Cotoneaster vulgaris*, Common cotoneaster. *Caragana frutescens*, Woody caragana. *Viburnum Lantana*, Pliant viburnum. *Caragana arborescens*, Siberian Pea-tree. *Berberis vulgaris purpurea*, Purple leaved barberry.

PEASE.

Twenty of the many varieties of garden pease advertised in the different seed catalogues were experimented with this year. These were sown on May 11th. The Steele Briggs Co's., Extra Early, Maud S. and Sunol were the earliest varieties, being fit to market July 12th; Ringleader, First of All, and little Giant on the 17th of July; Pride of the Market, Bliss' American Wonder, Telegraph, and Stratagem on July 25th. Maud S. is the most productive of the early varieties recommended. Ringleader was the most productive of the second earliest varieties; and the Pride of the Market and Telegraph on account of their productiveness can be recommended as the most desirable of the later ripening sorts.

RADISHES.

Fourteen varieties of radishes were sown on May 11th. The Radish Maggot again made its appearance about the time the crop was fit for market, and completely destroyed it. The varieties:—New Rosy Gem, French Breakfast, Non Plus Ultra and Olive Rose were the finest of the early varieties, these were fit to use on June 13th. The White Tipped Scarlet, Dark Scarlet and Oval Scarlet Red, maturing a week later, makes up an excellent combination of fine market varieties.

BEETS.

Ten varieties of beets were under test. The seed was sown on May 9th. The Egyptian Turnip was fit to market on July 22nd. Extra Early Eclipse, Crosby's Improved and Edmund's Early were fit a few days later. Deware's Half Long, Improved Dark Red and Black Queen were in a marketable condition on August 6th. Dell's Dark Blood is an excellent later variety.

EARLY TURNIPS.

Six varieties of turnips for early market were tested. The seed was sown on May 9th, the first marketable ones were pulled on July 22nd. Of these varieties the White Egg, Orange Jelly and White Model ranked first.

CARROTS.

Nine varieties of the early market sorts were experimented with. The seed of these was sown on May 9th. The first were fit for market on August 2nd. The most desirable and earliest varieties are: Early Scarlet Horn, Scarlet Model and Guerande. The Peer of All, about one week later, is an excellent variety.

SQUASHES.

Seven varieties of squashes were sown in the open ground on May 11th. The following notes were taken:—

Summer Crookneck.—Ready for use August 6th, quality fair; quite productive.

Essex Hybrid.—Fit to use August 15th, quality best; prolific. The best autumn variety.

Long White Bush.—Fit to use August 16th, quality fair; prolific.

Boston Marrow.—Fit to use August 29th, quality excellent; quite prolific.

Cocozella.—Fit to use September 4th, quality good; of bush habit.

Fordhook's.—Fit for use September 9th, quality good; not productive.

Hubbard.—Fit for use September 9th, one of the most valuable; an excellent winter variety, very prolific.

CABBAGE.

Twenty-eight varieties of cabbage were sown in the hot bed on April 14th. These were transplanted to the open ground on June 2nd. Kerosene emulsion, as well as other preventives recommended for the killing of the cabbage root maggot, were applied on June 8th; again on the 10th and one week later. None of the preparations used seemed to be of much value; at least, none could be recommended although the kerosene emulsion was the most effective. The plants of the different plots were so killed by the root maggot that a report as to comparative yields could not be obtained.

What plants of the Extra Early Express variety survived were fit for market on August 1st. The Jersey Wakefield August 4th. See Experimental Farm report 1895, page 273.

CAULIFLOWER.

Thirteen varieties of cauliflower were sown on April 14. These were transplanted from the hot bed to the open ground, June 2nd. With few exceptions these were all killed by the root maggot.

ASPARAGUS.

Of the three varieties of asparagus planted, in May, 1894, the Columbian Mammoth White is the most desirable one. It is vigorous in habit and throws up many large white shoots. Following it comes the Barr's Mammoth and Giant Early Argenteuil, both excellent varieties.

GARDEN CORN.

Ten varieties of corn for early market were sown on May 11th. The Early White Cory was fit for use August 22nd. The Early Marblehead and Mitchell's Extra Early on August 24th. These, without a doubt, are the three best early varieties that we have ever had under test here.

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CUCUMBERS.

Of the different varieties of cucumbers tested here, the Siberian ranks first in point of earliness, some of which were fit for market July 31st. The White Spine and Cool and Crisp come next as favourites for general use. The new Paris Pickling is one of the finest pickling sorts tested here. The seed of the different varieties was sown on May 11th.

TOMATOES.

Twenty-four varieties of tomatoes were sown in boxes on April 2nd, and transplanted to 4 inches apart in the hot bed April 21st. These were set in the open ground on June 10th and made excellent growth.

The first to ripen were: Earliest of All and Imperial on August 20th, Mayflower, Leader and Fordhook's First on August 24th, Early Ruby and Atlantic Prize on August 30th, Conqueror and Livingston's Beauty September 3rd. The varieties Earliest of All and Imperial, although the earliest ripening and quite prolific, are inclined to be small; and crack badly. The Early Ruby, Atlantic Prize, Fordhook's First and Leader took first place amongst all varieties tested during the past season, and rank in the order named as the best market sorts.

STRAWBERRIES.

In addition to the eighteen varieties of strawberries set out last season and named in the last annual report of this farm, twenty-five new varieties were received from the Central Experimental Farm, making a total of 43 varieties now growing here. The varieties added are: Robinson, B.; Bisel, P.; and Range County, P.; Brandywine, B.; Ostego, P.; Tennessee Prolific, B.; Wm. Belt, B.; Rio, B.; H. W. Beecher, B.; Greenville, P.; Gen. Putman, B.; Swindle, B.; Chairs, B.; Enhance, B.; Gem, P.; Equinox, B.; Clark's Early, B.; Paris King, B.; Charlie, B.; Hope, B.; Dew, B.; Mincola, P.; Caughall Seedling, P.; Thompson's Late, P.; Smith's Seedling, B.

The varieties planted out last season only set a fair amount of fruit. The land devoted to these plots is rather uneven in texture and quality for a fair comparative test. It is proposed to extend the plots to a more suitable soil.

Of the varieties which fruited during the past summer the following were the most prolific in the order named: John Little, Crescent, Warfield and Beverly. The first fruit was picked July 5th.

ENGLISH GOOSEBERRIES.

The varieties, as named in the last annual report of this farm, were again under test. In the maritime provinces conditions seem to be very favourable for the growth of this valuable fruit. The possibilities of export through the cold storage medium are very encouraging to the grower of this small fruit.

Three out of the varieties which colour their fruit when ripe were selected on account of their vigorous growth and productiveness as the most promising. They are in the order named:—1st, Industry; 2nd, Red Champagne; 3rd, Crown Bob.

Of the green coloured varieties:—1st, Leveller; 2nd, Queen Victoria; 3rd, White Champagne. These ripened their fruit from the 9th to the 12th of August.

The Whitesmith and Lancashire Lad are both very vigorous growers, but have not as yet been very productive here. They ripen their fruit about the 10th of August. Early Sulphur is of excellent quality, and was ripe the 4th of August, followed by Dublin, a variety with a larger berry, which ripened the 7th of August, these are two excellent early varieties.

RASPBERRIES.

The varieties Heebner, Cuthbert, Hudson River Antwerp, Caroline, Hansell, Niagara, Clarke, Golden Queen, Reeder, Marlboro' and Hornet, were the most productive in the order named. The Antwerp, like the Cuthbert, has a firm, large berry, but is not

as productive. The Heebner, although more prolific than the Cuthbert, is not as firm, and is not so desirable a fruit, either for shipment or home use. The Caroline is not firm enough in the fruit for a market berry. The Golden Queen can be recommended as much the most desirable yellow variety tested here.

BLACK RASPBERRIES.

The four varieties of black raspberries set out last year made good strong growth. The varieties Progress and Older were the most prolific, the latter being the most desirable fruit.

BLACKBERRIES.

Of the blackberries planted last year, the Eldorado and Stone's Hardy made poor growth during the summer of 1895, and wintered poorly. The Snyder, which has been grown here for several years, although a vigorous grower, is not, with us, a productive variety. The Agawam and Ancient Briton both ripened fruit about the same time, the latter being a few days the earliest. The Agawam was much more prolific than the Ancient Briton, this placing it first as a profitable variety.

GRAPES.

The Green Mountain grape, now six years from the nursery, from its vigorous growth, hardiness, and the early ripening of its fruit, promises to be a valuable grape for these provinces. The eight varieties planted last year have, with few exceptions, made very good growth, and came through the winter in good condition:—

Name of Variety.	Number of Vines Planted.	Number of Vines Which Wintered.
Lady.....	2	1
Rogers 17.....	2	2
Vergennes.....	2	1
Moore's Diamond.....	2	2
F. B. Hayes.....	3	3
Barry.....	3	1
Florence.....	3	1
Herbert.....	3	3

APPLES.

The apple orchard of 267 trees made up of 97 different varieties of apples and 9 varieties of crab apples, have, with few exceptions, made good growth during the past season. In the nursery are 47 varieties which are ready to be set out next spring.

Forty-two varieties fruited this year, some of which bore well. The following varieties in the order given were the most prolific of the summer apples. Yellow Transparent, Anis, White Astrachan and Red Astrachan. Of the autumn sorts: Duchess, Borovinka, Titovka, Benoni and Ostrakoff, fall and early winter: Longfield, Aport, Alexander, Scott's winter, Haas and Pewaukee; of winter sorts, Ben Davis and Golden Russet.

Fruit from the varieties which fruited was shown at the St. John exhibition, making a very attractive display.

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PEARS.

No addition was made to the pear orchard during the past year. This orchard of 58 trees includes 27 varieties. Nine varieties set in nursery rows in the spring of 1895, will be planted in their permanent places next spring. The pear trees have made a strong, vigorous growth, the wood ripening up well. Many of the varieties blossomed in the spring but failed to set fruit, except on a tree each of Tyson and Bartlett. The Flemish Beauty, Tyson, Clairgeau and Clapp's Favourite are exceptionally thrifty growers.

CHERRIES.

The cherry orchard of 37 varieties, embracing 80 trees, made good, strong growth, many of the varieties fruited well. The Gov. Wood and Coe's Transparent, both belonging to the Heart cherries, are excellent yellow varieties. They are both hardy and productive, fruit firm and of excellent quality. Ripened July 20th. The Dyehouse, a dark red variety, is very prolific, a sure bearer and a few days earlier than the Early Richmond. The Early Richmond, fruit of which ripened July 26th, is a very strong grower, but it is not very productive here, producing only a limited amount of fruit so far. The Montmorency is a very productive variety, ripening after the Early Richmond. The English Morello is a very fine sort, but is one of the latest to ripen. It should be particularly useful as a late market sort.

PLUMS.

The plum orchard of 35 different varieties, making a total of 93 trees, made a strong growth during the past season. Fruit did not set well on any of the varieties except the Moore's Arctic which, on account of its hardiness and its being a prolific bearer, we would place first as one of the most desirable varieties so far tested here.

The Lombard is also a very strong grower and quite prolific, producing this season a fair amount of fruit. Imperial Gage and Shipper's Pride also bore some fruit.

NUTS.

Seven varieties of nuts were set in the spring of 1895. The Japanese Chestnuts were winter killed. One of the two trees set of the American Chestnut failed to grow, the other made good strong growth. The Black Walnuts set all made strong growth. The Japan Walnut, *Juglans Sieboldii*; has made strong growth. The Max Cordiformis has made fair growth. The filberts tested Cosford Cob and Kentish Cob have not made much growth during the past season, they kill back badly during winter.

I have the honour to be,
Your obedient servant,

W. S. BLAIR,
Horticulturist.

Experimental Farms.

EXPERIMENTAL FARM FOR MANITOBA.

BRANDON, MAN., 30th November, 1896.

To Dr. WILLIAM SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith my ninth annual report, with details of the experiments undertaken and work accomplished on the Brandon Experimental Farm, during the past year.

It is customary here to say that the seasons are all exceptional, but in my nineteen years' experience in the province, I have known no season that may be compared with the past one. While the temperature of April was one degree above the mean average for the month, the excessive rainfall so delayed seeding that not one per cent of wheat sowing was done at the close of that month; while, as a rule, 90 per cent is finished by that date.

The temperature for May was even higher than that of April, being from three to six degrees above the mean average, and the rainfall from two to three times above the average. This high temperature, accompanied with abundant moisture, produced a rank, weak growth, followed by rust on the leaves of grain. On the 27th of June, lodging commenced, and in a few days rust attacked the stalks of oats and wheat, and soon spread all over the plants, many fields being badly affected. The amount of injury from this cause varied according to the locality and the variety of grain, the rank growing sorts on the richer lands suffering the most.

The temperature and rainfall of July, August and September was about the average, but in spite of this the ravages of rust continued, and were shown in delayed ripening, rusty, weak straw, shrunken heads, reduced yield, and a light-weighted sample.

In spite of rust, many varieties of grain have given excellent yields, but in nearly all cases the weights per bushel are below the average.

It will be noticed that hay, fodder, root crops, fruits and vegetables have all given yields much above the average, and forest trees have made more growth than in any previous year.

I desire to call special attention to that portion of my report devoted to Awnless Brome grass, as this is evidently a suitable grass to take the place of our rapidly disappearing native meadows; and this subject is of increasing importance to the central and western portions of the province.

From the results of the experiments with smut preventives, described in this report, it will be seen that they corroborate those made in former years, and that this disease can be controlled, and large sums of money thus saved to the farmers of this province.

I would also call attention to the comparative productiveness of Banner oats over other varieties as shown in this year's experiments, and in the table covering the work of several years.

EXPERIMENTS WITH WHEAT.

Owing to the very wet and late spring the test plots of wheat could not be sown until the 8th May, nearly a month later than the average date. The ground was scarcely dry when the grain was sown and above the average amount of rain fell during the remainder of the month, encouraging a soft growth which showed signs of rust on the leaf by the end of May, and before the plants were a foot high.

The warm moist weather of the middle of June appeared to encourage the rust, until it spread from leaf to stalk and from stalk to head, many of the fields turning to a rusty yellow colour, seldom or never seen here before; its effects were soon seen in a

weakening of the straw, delayed ripening, and partially filled head and a shrunken berry. The injury was not so apparent on sandy or gravelly land, still on this class of soil the grain did not give the return expected. Lodged grain was injured to a much greater extent than that which stood up well.

The effects of rust are shown very clearly in the weight per bushel, of the grain none of the varieties exceeding 60 pounds per bushel and most of them being under that weight.

Wheat sown on backsetting was quite free of rust, even in the lower parts of the valley, the straw there being bright but not rank and the heads fairly well filled with grain, which weighed from 60 to 62 pounds per bushel.

A feature of the season has been the almost entire absence of smut in wheat, the smutty sample sown giving no more smutty heads than the cleanest seeds.

This year forty varieties of wheat were grown in one-tenth acre plots side by side.

Rust has this season somewhat changed the relative positions of the different varieties as to yield, Red Fife being lower on the list than usual, while Rio Grande, Goose and Monarch gave larger comparative yields, White Fife, Pringle's Champlain and Old Red River are in about their usual positions in this respect.

All were sown on 8th May with a hoe drill, soil rich loam, summer fallowed.

WHEAT—Test of Varieties.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.	Weight per bushel.	Proportion Rusted.
							Lbs.	Bus. lbs.			
Rio Grande.....	Aug. 25	109	39	Weak	5	Bearded	3,740	38 30	60	Some.	
Goose.....	Sept. 11	126	44	Very weak	3	"	5,040	38 30	59	Badly.	
Monarch.....	" 1	116	43	Fair	4	Beardless	4,200	32 30	58	Some.	
Hungarian.....	" 4	119	40	"	4	Bearded	3,450	30 50	60	Badly.	
Pringle's Champlain.....	Aug. 25	109	45	Weak	4½	"	4,040	29 20	58	"	
White Fife.....	Sept. 4	119	40	Fair	3½	Beardless	3,700	29 10	58	Little.	
Old Red River.....	" 3	118	43	Stiff	4	"	3,960	28 10	60	Badly.	
Huron.....	Aug. 25	109	43	Fair	3½	Bearded	3,310	28 10	57½	"	
Advance.....	" 25	109	45	Weak	3	"	4,260	28 10	58	"	
Colorado.....	" 25	109	45	Very weak	2½	"	2,880	27 50	59	Little.	
Crown.....	" 25	109	44	Weak	3½	"	3,590	27 40	58	Badly.	
Velvet Chaff.....	Sept. 4	119	43	Stiff	3½	Beardless	3,890	27 40	58	"	
White Russian.....	Aug. 24	108	41	Fair	4	"	3,450	26 40	58	Some.	
Red Fife.....	Sept. 4	119	43	"	3	"	4,200	26 40	59	Little.	
Herisson Bearded.....	Aug. 24	108	37	Very weak	2	Bearded	3,610	26 30	59	Badly.	
Wellman's Fife.....	Sept. 1	116	43	Stiff	3½	Beardless	4,480	26 10	60	"	
Beauty.....	" 4	119	43	"	5	"	3,750	25 50	58	"	
Countess.....	Aug. 25	109	41	Fair	2½	"	3,180	25 20	60	"	
Vernon.....	" 24	108	38	Very weak	3	Bearded	3,640	25 10	56½	"	
White Connell.....	Sept. 1	116	42	Fair	4	Beardless	3,850	25	59	"	
Stanley.....	Aug. 25	109	47	Weak	3	"	4,850	25	58	"	
Captor.....	" 25	109	45	Fair	4	"	3,800	25	58	"	
Dufferin.....	" 25	109	47	Stiff	4	Bearded	2,930	24 30	58	"	
Emporium.....	" 28	112	44	"	3½	"	3,580	24 30	59	"	
Alpha.....	" 28	112	48	Fair	4	Beardless	3,380	24 30	58	"	
Red Fern.....	Sept. 3	118	47	Stiff	4	Bearded	3,040	24 20	59	Slightly.	
Gehun.....	Aug. 25	109	41	Varies	3	Beardless	2,900	24 10	57½	Badly.	
Dawn.....	" 19	103	47	Fair	3½	"	2,800	24 10	60	Slightly.	
Dion's.....	Sept. 4	119	43	"	4	Bearded	2,910	24	58	Badly.	
Blenheim.....	Aug. 25	109	42	Very weak	4	"	4,030	23 40	58	Slightly.	
Campbell's White Chaff.....	" 28	112	42	Rank	3½	Beardless	3,640	23 30	58	Badly.	
Progress.....	" 25	109	40	Fair	3½	"	3,500	22 30	58	"	
Admiral.....	" 23	107	46	Weak	3½	"	3,550	22 30	58	"	
Rideau, White Chaff.....	" 25	109	47	"	4	"	2,800	21 40	55	"	
Percy.....	Sept. 1	116	43	"	3½	"	3,610	20 40	56	"	
Beaudry.....	Aug. 24	108	47	"	3½	Bearded	3,640	19 20	55	"	
Ladoga.....	" 25	109	41	Fair	3	"	3,220	18 50	56	"	
Rideau, Red Chaff.....	" 25	109	45	"	3	Beardless	2,380	18 40	54	"	
Golden Drop.....	" 25	109	37	Very weak	3	"	3,140	18 30	57	"	
Black Sea.....	" 20	104	44	Weak	3	Bearded	2,840	18 30	55	Some.	

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AVERAGE RESULTS FROM FOUR YEARS TESTS WITH VARIETIES OF WHEATS.

The appended table shows the average return from several of the leading varieties of wheat for the past three or four years.

Goose wheat takes the lead in yield but is deficient in quality and matures late.

Preston a cross-bred variety comes next in yield and is on an average four days earlier than Red Fife. I regret very much that I am unable to give the returns of this variety for 1896.

Red and White Fife yield within eight pounds of each other, take the same time to mature and stand fourth and fifth respectively for productiveness.

Name of Variety.	Years Included.	Average Yield per Acre.		Average Days Maturing.
		Bush.	lbs.	
Goose	1893 95-96	38	56	124
Preston	1893-94-95	36		113
Rio Grande	1893-94-95-96	35	45	112
Red Fife	1893-94-95-96	33	45	117
White Fife	1893-94-95-96	33	37	117
Pringle's Champlain	1893-94 95-96	33	25	113
Herisson Bearded	1893-94-95-96	32	27	114
Old Red River	1893-94-95-96	31	12	116
White Connell	1893-94 95-96	30	25	116
Red Fern	1893-94-95-96	30	15	114
Stanley	1893-94-95-96	30	10	112
Hungarian	1893-94-95-96	30		117
Crown	1893-94-95-96	29	20	113
White Russian	1893-94-95-96	29	2	116
Wellman's Fife	1893-94-95-96	28	17	117
Campbell's White Chaff	1893-94-95-96	27	35	113
Colorado	1893-94-95-96	27		109
Ladoga	1893-94-95-96	26	52	110

CROPS ON NEWLY BROKEN LAND.

During 1895, twenty acres of meadow land was broken up and back-set; a part of this was broken during April and May, and the balance late in June; neither the early April or late June breaking was satisfactory, the wild sunflowers not being effectually killed, when the breaking was done at these dates. The land broken in May was quite free of sunflowers and produced much the largest crop of wheat.

This twenty acres is all dark brown alluvial soil and is quite distinct from that of any other portion of the farm; and possesses special interest for the reason that there are large areas of similar land in the province. This field was all sown to wheat this year, the crop was not a heavy one, but was freer from rust than other parts of the farm.

The following table gives particulars of the yield of different varieties of wheat grown on this land, but the breaking having been done at different dates, conditions were not uniform and the yields must not be taken as a fair comparative test of varieties.

FIELD PLOTS OF WHEAT ON NEWLY BROKEN LAND.

Name of Variety.	Size of Plot.	Date of Sowing.	Date of Ripening.	No. of days Maturing.	Character of Straw.	Kind of Head.	Yield per acre.		Weight per Bushel.
							Bush.	Lbs.	Lbs.
Red Fife.....	4 acres.	May	6 Aug. 19	105	Stiff.....	Beardless....	24		61½
Crown.....	2 "	"	6 " 16	102	"	Bearded....	23	50	60½
White Connell.....	3 "	"	6 " 18	104	"	Beardless....	23	20	61
Alpha.....	1 "	"	6 " 16	102	"	"	22	55	61
Percy.....	2 "	"	6 " 17	103	"	"	20	30	61½
Preston.....	5 "	"	6 " 12	98	"	Bearded....	18	45	62

THE PREPARATION OF LAND FOR THE SECOND CROP OF WHEAT AFTER A CLEAN SUMMER FALLOW.

During the years 1894 and 1895 experiments were conducted here in sowing wheat on spring-ploughed land as against sowing on the unploughed stubble.

In both these years and on different portions of the farm the largest returns were obtained from unploughed land, this year the results were reversed, the ploughed land giving the best yield, this is no doubt attributable to the different conditions of moisture prevailing this year.

The rainfall of 1894 and 1895 was somewhat below the average, and under these conditions the unploughed soil retained moisture which was an advantage, but the rainfall of the past season has been excessive, and the unploughed land became saturated with water and the growth of the grain was retarded and that of weeds encouraged. The plots were $\frac{1}{10}$ acre each, and the soil was a rich clay loam, almost level, but not wet.

The summer fallow was ploughed deeply in June and cultivated on the surface during the summer to keep down weeds. The unploughed stubble plot was summer-fallowed in 1894, was quite free of weeds, and received no preparatory treatment, the seed being simply press-drilled as deeply as possible with a Superior machine, all were sown on May 29th.

Variety.	How prepared.	Rust.	Ripe.	Length of Straw.	Length of	Yield per acre.		Weight per bushel.
				Inches.	Inches.	Bush.	Lbs.	Lbs.
Red Fife.....	Summer fallowed....	Very bad ..	Sept. 12....	39	3½	26	40	55
"	Spring ploughed....	Bad.....	" 7....	34	3	21	40	54
"	Stubble unploughed..	"	" 6....	36	3	17	30	57

Experimental Farms.

RESULTS OF EARLY, MEDIUM AND LATE SOWINGS.

This series of experiments has been continued during the past season, but owing to the very late spring it was not thought advisable to sow more than four plots, and the result showed the wisdom of that conclusion, the last sown plots of all but Odessa Barley being very badly frozen, and any plots sown later would not have ripened.

The sudden drop from 105 to 44 bushels in the last two plots of Banner and the same proportionate difference between the Abundance Oat is accounted for by a severe frost which occurred on 3rd September.

The very great difference between the early and late sown plots of pease seems to explain why so many farmers in this province have failed with that grain, as most of them wait until they have finished other grain before sowing pease, this practice is very likely to result in a small yield and a poor sample.

All these plots were sown on summer-fallow, with a hoe drill. Soil, a clay loam uniform in character, size of plots $\frac{1}{4}$ acre.

WHEAT—Early, Medium and Late Sowings.

Name of Variety.	Date of Sowing.		Date of Ripening.		Number of days Maturing.	Length of Straw.		Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.		Weight per bush.	Rusted.
	Month	Day	Month	Day		In.	In.			Lbs.	Bush. Lbs.	Lbs.			
Red Fife.....	May	8	Sept.	3	118	42	3 $\frac{1}{2}$	Beardless...	3,490	27	40	60	Considerably.		
"	"	15	"	8	116	43	3 $\frac{1}{4}$	"	4,550	28	20	59	"		
"	"	23	"	11	111	43	3	"	3,570	28	50	58	"		
"	"	30	"	15	108	43	3	"	3,990	21		50	"		
Stanley.....	"	8	Aug.	25	109	41	3 $\frac{1}{2}$	"	4,020	27	10	58	Slightly		
"	"	15	Sept.	3	111	41	3	"	3,990	28	30	59	"		
"	"	23	do	8	108	41	3 $\frac{1}{2}$	"	3,480	27		58	"		
"	"	30	do	11	104	43	3 $\frac{1}{2}$	"	3,260	26	30	57 $\frac{1}{2}$	"		

OATS.—Early, Medium and Late Sowings.

Name of Variety.	Date of Sowing.		Date of Ripening.		No. of days Maturing.	Length of Straw.		Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.		Weight per Bushel.	Proportion Rusted.
	Month	Day	Month	Day		In.	In.			Lbs.	Bus. Lbs.	Lbs.	Lbs.		
Banner.....	May	8	Aug.	29	113	33	8	Branching..	3,420	67	2	37	Badly.		
"	"	15	Sept.	3	111	47	8	"	4,230	85	30	35	"		
"	"	23	"	8	108	54	10	"	4,100	105	30	35	"		
"	"	30	"	11	104	52	9	"	3,500	44	4	28	"		
Abundance.....	"	8	Aug.	27	111	53	11	"	4,700	80	30	30	"		
"	"	15	Sept.	1	109	44	9	"	4,130	85	30	34	"		
"	"	23	"	8	108	41	9	"	4,000	79	14	33	"		
"	"	30	"	11	104	43	8	"	2,130	27	2	27	"		

Experimental Farms.

by side. As this oat is an excellent one for milling purposes as well as for feed, every encouragement should be given towards its more general cultivation.

In former years the prevalence of smut in some of the varieties of oats has had a very injurious effect on the yield; this year the seed of each variety was treated with Liver of Sulphur (Sulphide of Potassium) and rust was completely wiped out in the test plots, and this fungus for once has had no influence on the yield.

The mode of using this chemical is given in another part of this report.

I regret to notice an increasing inquiry for Black Tartarian oats. In the early history of the province before the introduction of the Banner and other superior varieties of oats and before there was a demand for milling and export, the Tartarian was a desirable sort, but now that we have more prolific and also better milling and export varieties, it is a mistake to grow the black oat.

OATS.—Test of Varieties.

Name of Variety.	Date of Ripening	Number of days maturing.	Length of straw.	Character of straw.	Length of head.	Kind of head.	Weight of straw per acre.		Yield per acre.	Weight per bushel.
							Lbs.	Bush. Lbs.		
Banner	Aug. 26	104	52	Fair	10	Branching.	2,600	100		35
Early Golden Prolific	Sept. 1	110	53	Weak	10	do	3,890	88	18	34
Winter Grey	Aug. 8	86	42	do	9	do	2,480	87	12	38
Mennonite	do 21	99	42	Very weak	9	do	3,160	85		35
Holstein Prolific	do 18	96	44	do	10	do	3,440	82	22	37
Scottish Chief	do 29	107	45	Stiff	10	do	3,150	80	30	37½
Abundance	do 20	98	42	Very weak	8	do	3,530	80		35
American Beauty	do 26	104	45	Fair	9	do	3,280	78	18	35
Improved Ligowo	do 26	104	45	Weak	8	do	3,130	78	18	36
New Electric	do 19	97	47	Stiff	9	do	3,240	76	26	38
Golden Beauty	Sept. 3	112	50	Fair	10	do	3,640	76	26	33½
Emporium	do 2	111	45	Weak	9	Half sided.	4,390	76	26	32
Golden Giant	do 10	119	46	Fair	10	Sided	3,710	76	6	33½
White Schonen	do 1	110	43	do	10	Branching.	3,430	75	20	36½
Victoria Prize	Aug. 16	94	44	do	9	do	3,280	75	20	38½
Master	Sept. 1	110	42	do	11	do	4,800	73	18	32
Bavarian	Aug. 26	104	51	do	11	do	3,310	73	8	34
Wallis	Sept. 1	110	52	do	10	do	3,620	72	32	34
Saizers Nameless	Aug. 19	97	45	do	11	do	3,730	72	22	36½
Siberian	Sept. 10	119	55	Stiff	10	Sided	4,280	71	6	33½
Buckbee's Illinois	do 1	110	46	Fair	7	Branching.	3,500	70	20	35
Wide Awake	do 1	110	52	Stiff	9	do	2,000	70	20	34
White Russian	do 1	110	43	Fair	10	do	4,050	70	20	36
Brandon	do 4	113	45	do	10	do	4,610	70		33
Rennie's Prize	Aug. 16	94	46	Very weak	12	do	3,370	68	18	40
Bonanza	do 18	96	50	Weak	11	do	3,300	68	8	38
Challenge	do 20	98	46	Fair	10	do	3,190	67	32	38½
Russell	Sept. 1	110	58	do	13	do	4,500	67	22	32
Miller	do 1	110	64	Stiff	12	do	4,330	66	26	33½
Flying Scotchman	Aug. 18	96	47	Weak	10	do	3,980	66	26	35½
Abyssinia	Sept. 1	110	49	do	9	Sided	3,890	65		34
Imported Irish	Aug. 20	98	49	do	11	Branching.	2,820	64	4	37
Hazlett's Seizure	do 25	103	49	do	8	do	3,510	62	32	34½
Welcome	do 19	97	46	Fair	12	do	3,190	62	2	36
Cream Egyptian	Aug 19	97	49	Stiff	10	Branching.	3,190	62	2	38
Early Archangel	do 24	102	51	Weak	9	do	3,160	61	16	37½
Poland White	do 23	101	47	Very weak	8	do	3,530	60	30	35
Rosedale	Sept. 1	110	42	Weak	9	Half sided.	4,180	60	30	34
Colombus	Aug. 27	105	45	Very weak	9	Branching.	3,330	60	30	35½
Early Blossom	do 27	105	51	Weak	8½	Half sided.	4,560	58	18	37
Prolific Black Tartarian	Sept. 1	110	44	Fair	8	Sided	4,030	57	32	31
American Triumph	do 4	113	55	Stiff	10	Branching.	4,580	57	32	35
Oderbruch	do 1	110	50	Fair	10	Sided	4,390	57	22	35
Californian Prolific Black	do 4	113	60	Weak	10	do	4,110	57	2	32½
White Monarch	do 1	110	52	Stiff	10	Branching.	5,130	56	16	33
Early Gothland	do 4	113	50	Fair	9	Half sided.	4,190	56	6	35
Oxford	do 2	111	45	do	11	Branching.	3,810	55	20	32
Coulommiers	do 11	120	45	do	10	do	5,250	54	14	32

OATS—Test of Varieties—Continued.

Name of Variety.	Date of ripening.	Number of days maturing.		Length of straw.	Character of straw.	Length of head.	Kind of head.	Weight of straw per acre.		Yield per acre.	Weight per bushel.
								Lbs.	Bush. Lbs.		
Joanette.....	do	2	111	41	Weak.....	9	Branching.	4,900	54	14	35
Cromwell.....	do	4	113	58	do.....	12	do	4,900	52	32	31½
Medal.....	do	10	119	52	Fair.....	10	do	4,440	50	10	33½
Early Maine.....	do	7	116	50	do.....	8	Half sided.	4,430	49	4	33½
Prize Cluster.....	Aug.	20	98	49	Stiff.....	10	Branching	3,380	47	22	33
King.....	do	27	105	48	do.....	10	do	3,600	47	2	34
Olive.....	Sept.	3	112	54	Fair.....	10	Sided.....	4,870	45		22
Giant Cluster.....	do	3	112	50	Stiff.....	11	do	5,030	44	24	31
Sandy.....	do	4	113	52	Weak.....	10	Branching.	5,090	44	14	30
Early Etampes.....	do	10	119	51	Fair.....	8	Sided.....	4,240	44	14	26
White Wonder.....	Aug.	8	86	51	do.....	11	Branching.	3,880	41	26	39
Pense.....	Sept.	4	113	50	Stiff.....	10	Sided.....	4,400	39	24	29
Doncaster.....	do	10	119	45	Fair.....	11	Branching.	3,980	37	12	27
Scottish Tartarian.....	do	10	119	50	Stiff.....	8	Sided.....	4,510	35	28	28
Dunn.....	do	10	119	53	Fair.....	11	Branching.	4,640	23	28	28
Scotch Hopetoun.....	do	4	113	53	do.....	10	do	4,980	16	26	25

NOTE.—Prize Cluster, Columbus and King were all injured by washing of soil.

Improved strains of Black Tartarian oats have been imported by the experimental farms from both England and Scotland and grown side by side with the Banner, and every year but one the Banner has surpassed the Tartarian both in yield and quality on this farm.

AVERAGE RESULTS OF FROM FOUR TO SIX YEARS' TESTS WITH VARIETIES OF OATS.

From the accompanying table it will be noticed that Banner oats take the lead by over eight bushels per acre, and furthermore are excellent for feed and milling purposes. Abundance is another good variety and ripens with the Banner.

It is noticeable that the three leading varieties are all medium in weight, and in time of maturing and all have branching heads.

At this time, when many farmers are inquiring for Black Tartarian oats, it may be advisable to call attention to the difference in the yield between that variety and the Banner, viz. : 26 bushels and 26 pounds. The Black Tartarian is also nine days later in ripening, and neither grain or straw grade as high on the market as the Banner.

Variety.	Years included.	Average yields per acre.		Average days maturing.
		Bush.	Lbs.	
Banner.....	1892-93-94-95-96	88	20	105
Abundance.....	1892-93-94-95-96	80	10	105
Holstein Prolific.....	1892-93-94-95-96	75	4	106
Rosedale.....	1892-93-94-95-96	74	14	105
Victoria Prize.....	1892-93-95-96	73	13	104
White Russian.....	1892-93-94-95-96	72	20	108
Archangel.....	1892-93-94-95-96	71	8	104
Golden Beauty.....	93-94-95-96	70	17	110
Abyssinia.....	1892-93-94-95-96	70	6	108
Improved Ligowo.....	1892-93-94-95-96	70	2	106
Early Gothland.....	1892-93-94-95-96	68	32	107
Siberian.....	1892-93-94-95-96	64	24	116
Black Tartarian.....	1892-93-94-95-96	61	28	114
Columbus.....	93-94-95-96	59	19	106
Welcome.....	1892-93-94-95-96	59	14	100

Experimental Farms.

In connection with the testing of oats, a trial of thoroughly screened seed oats, against unscreened oats was made with the result that the selected oats gave a yield of 100 bushels per acre, while the unscreened gave a return of only 89 bushels per acre. The oat used was the Banner. It is proposed to repeat this experiment on a larger scale next year.

EXPERIMENTS WITH BARLEY.

With the object of preventing the two-rowed varieties from lodging, rather poor light soil was selected for barley, this prevented much lodging, but resulted in a rather light yield.

The reliability of this test was also somewhat marred by the washing of soil from some of the plots. This probably accounts for varieties like the Odessa and California Prolific giving unusually small returns. The plot of Trooper was also injured in this way.

For these reasons this test of barley cannot be regarded as a reliable comparison of varieties.

All were sown on summer-fallow, 8 pecks of seed was used per acre, not bluestoned, and all varieties were free of smut except Baxter's which was more or less affected.

BARLEY, SIX-ROWED—Test of Varieties. (All sown on 19th May, on rather poor sandy loam. Size of plot, $\frac{1}{10}$ acre each. There was no rust on any of these plots.)

Name of Variety.	Date of Ripening.	No. of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw per Acre.	Yield per Acre.		Weight per Bushel.
							Bush.	Lbs.	
			In.		In.	Lbs.	Bush.	Lbs.	
Mensury	Aug. 18..	91	40	Fair	3	2,600	59	18	48
Common	" 13..	86	35	Weak	2	2,765	55		49 $\frac{1}{2}$
Champion	" 17..	90	43	Very weak	3	6,000	52	4	44
Nugent	" 17..	90	36	Fair	2 $\frac{1}{2}$	2,220	45	20	49
Excelsior	" 17..	90	42	Very weak	3 $\frac{1}{2}$	5,280	43	46	44
Stella	" 7..	80	33	Fair	2 $\frac{1}{2}$	2,370	42	14	50
Phoenix	" 15..	88	28	Weak	2	1,890	42	14	49
Royal	" 17..	90	37	"	3	2,390	41	42	46
Trooper	" 16..	89	29	Fair	2 $\frac{1}{2}$	1,940	40	40	48
Vanguard	" 17..	90	32	"	2 $\frac{1}{2}$	2,500	40	30	46 $\frac{1}{2}$
Rennie's Improved	" 15..	88	33	"	2 $\frac{1}{2}$	2,710	39	18	49 $\frac{1}{2}$
Surprise	" 17..	90	33	"	2 $\frac{1}{2}$	2,540	38	36	51
Baxter's	" 17..	90	35	Weak	2 $\frac{1}{2}$	1,850	36	22	48
Success	" 11..	84	38	Very weak	3	4,180	35	30	43
Oderbruch	" 12..	85	34	Weak	2 $\frac{1}{2}$	1,990	34	28	49
Petschora	" 17..	90	34	"	3	1,690	33	26	45
Odessa	" 17..	90	32	Fair	2 $\frac{1}{2}$	1,340	32	24	47 $\frac{1}{2}$
Summit	" 17..	90	36	"	2 $\frac{1}{2}$	3,471	29	38	50

BARLEY, TWO-ROWED—Test of Varieties.

Name of Variety.	Date of Ripening.	No. of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw per Acre.	Yield per Acre.		Weight per Bushel.
			In.		In.	Lbs.	Bush.	Lbs.	
Newton	Aug. 20..	93	23	Stiff	2	2,700	47	44	50
Bolton	" 14..	87	33	Weak	3	3,120	43	16	50
Danish Chevalier	" 26..	99	33	Fair	4	2,220	41	12	49
French Chevalier	" 16..	89	28	Weak	4	2,430	41	2	47 $\frac{1}{2}$
Sidney	" 14..	87	39	"	3 $\frac{1}{2}$	3,190	37	34	50
Prize Prolific	" 26..	99	35	Fair	4	2,140	36	32	47 $\frac{1}{2}$
Emerson	" 16..	89	39	Stiff	3	1,940	36	32	48 $\frac{1}{2}$
Thanet	" 26..	99	31	Weak	3 $\frac{1}{2}$	2,290	35	30	49
Monk	Sept. 4..	108	36	Very stiff	3	2,910	33	6	50
Rigid	Aug. 16..	89	31	Weak	3	1,530	33	6	49 $\frac{1}{2}$
Kinver Chevalier	" 26..	99	27	Fair	4	2,070	32	44	47
Canadian Thorpe	" 27..	100	31	Stiff	3	2,630	32	34	50
Victor	" 19..	92	29	"	2 $\frac{1}{2}$	2,040	32	24	50
Pacer	Sept. 3..	107	35	"	2	1,940	30	20	50
Nepean	Aug. 26..	99	33	Fair	4	2,450	30	10	49
Beaver	" 14..	87	31	Weak	3	2,980	29	28	50
California Prolific	" 28..	101	26	Fair	3	1,050	23	46	50

AVERAGE RESULTS FROM FOUR YEARS' TESTS WITH VARIETIES OF BARLEY.

Among the six-rowed varieties, Mensury is gaining in favour rapidly, and is more generally grown in the North-western States than any other variety. It has a vigorous habit, and the longest head of any of the six-rowed kinds. It is very productive. The only objection that may be taken to it is its very long and persistent beard.

Odessa is a shorter-headed variety, with a berry slightly tinged with purple, fairly stiff in the straw, and medium early.

The French Chevalier has been decidedly the most productive of the two-rowed varieties, and is also one of the earliest to ripen.

Name of Variety.	Years Included.	Average Yield per Acre.		Average Days Maturing.
		Bush. lbs.		
Mensury.....	1893-94-95-96	54	5	89
Common.....	1893-94-95-96	48	40	86
Odessa.....	1893-94-95-96	45	35	89
French Chevalier.....	1893-94-95-96	45	32	93
Duckbill.....	1893-94-95	44	41	94
Baxter's.....	1893-94-95-96	42	41	86
Rennie's Improved.....	1893-94-95-96	41	27	85
Canadian Thorpe.....	1893-94-95-96	40	7	97
Petschora.....	1893-94-95-96	39	25	86
Oderbruch.....	1893-94-95-96	39	3	86
Danish Chevalier.....	1893-94-95-96	37	41	97
Kinver Chevalier.....	1893-94-95-96	37	31	96
Thanet.....	1893-94-95-96	37	11	97
Prize Prolific.....	1893-94-95-96	37	3	97

TREATING OATS AND BARLEY FOR SMUT.

It is estimated by good authorities that from 10 to 25 per cent of the oat and barley crop of 1895 was destroyed by loose smut, some fields examined by myself were found to have 75 per cent of the heads smutted. This in the aggregate represents a very heavy loss to the farmers of the province. This year, experiments have been carried on to ascertain whether anything could be done to lessen or prevent this loss.

Two chemicals were used for this purpose, viz., bluestone (sulphate of copper) and sulphide of potassium. The latter has been tried with satisfactory results in different parts of the United States, and this year is being tested at the Canadian experimental farms. All the seed oats used in the test of varieties this season were soaked for 24 hours in sulphide of potassium liquid, and very little smut was seen. It is quite evident that this remedy is efficacious, but the labour connected with its application, and the large vessels required for soaking the grain, make it difficult to carry on in this country where grain has to be rushed in so quickly in the spring. Another objection is that late in the spring—the time in which oats are generally sown—the weather is warm, and the 24 hours' soaking, unless the grain is spread out and quickly dried, causes it to sprout; and should delay in sowing occur, the grain is thus liable to spoil.

Next to soaking in the sulphide of potassium solution, the steeping for 5 minutes in bluestone liquid generally gave the best results, and this plan may be sufficient to keep the smut in check, even if it does not at once completely destroy the smut spores. It is evident that sprinkling with the solution of sulphide of potassium has very little effect.

The Prize Cluster Oats and the Baxter's Barley sown were badly affected with smut, the Banner Oats only slightly so.

Experimental Farms.

Complaints having reached me that the use of bluestone had in many cases injured the germination of oats, the seed for these plots was all tested for germination after treatment, apparently none of it was injured by the liquids.

The solution of sulphide of potassium is made by dissolving $1\frac{1}{2}$ pounds of the chemical in 25 gallons of water and the oats are steeped in this solution for 24 hours, stirring occasionally so that all the grain is well soaked.

The following is a description of the manner of treating large quantities of oats or barley by the bluestone method.

A quantity of liquid is prepared, composed of one pound of bluestone dissolved in two pails of water, a coal oil barrel is then three parts filled with the grain and sufficient of the liquid is poured on to just cover the grain.

This is allowed to remain for a few minutes only, then the liquid is drawn off through a $\frac{3}{4}$ -inch hole at the bottom of the barrel, and the grain emptied out; by adding about three-quarters of a pailful each time, the same liquid can be used a number of times.

REMEDIES FOR SMUT IN OATS.

Soil, clay loam; size of plots, $\frac{1}{10}$ acre; sown on 22nd May; the heads on nine square feet on each plot were counted.

Variety.	Treatment.	Bad	Good	Germination.	Yield per Acre.		Weight per Bushel.
		Heads.	Heads.		Bu.	Lbs.	
		on 9 sq. ft.	on 9 sq. ft.		Bu.	Lbs.	Lbs
Prize Cluster.	Soaked for 24 hrs. in Sulphide of Potassium, $1\frac{1}{2}$ lb. in 25 galls. water.	1	305	99	67	22	32
"	Dipped 5 min. in bluestone, 1 lb. to 3 pails water.	13	403	96	70	20	32
"	Sprinkled with bluestone, 1 lb. to 6 bush. grain.	16	381	92	67	2	33 $\frac{1}{2}$
"	Sprinkled with sul. pot., 1 lb. to 8 bush. grain.	46	297	97	62	12	31 $\frac{1}{2}$
"	Dipped 5 min. in sul. pot., 1 lb. to 3 pails water.	71	324	96	64	4	32
"	Not treated.	98	288	97	56	16	35
Banner	Soaked for 24 hrs. in sulphide of potassium.	0	361	99	86	16	33
"	Dipped 5 min. in bluestone, 1 lb. to 3 pails water.	1	336	90	83	18	33 $\frac{1}{2}$
"	Sprinkled with bluestone, 1 lb. to 6 bush. grain.	1	327	95	60	20	29
"	Dipped 5 min. in sul. pot., 1 lb. to 3 pails water.	5	304	92	85	10	34
"	Sprinkled with sul. pot., 1 lb. to 8 bush. grain.	7	316	95	74	4	33
"	Not treated.	28	391	99	75	10	33

REMEDIES FOR SMUT IN BARLEY.

Sown 22nd May; soil, clay loam; $\frac{1}{10}$ acre; after corn; the heads on nine square feet were counted.

Variety.	Treatment.	Bad	Good	Yield per Acre.		Weight per Bushel.
		Heads.	Heads.	Bu.	Lbs.	
		on 9 sq. ft.	on 9 sq. ft.	Bu.	Lbs.	Lbs
Baxter's Barley	Soaked for 24 hrs. in sulphide of potassium, $1\frac{1}{2}$ lbs. in 25 galls. water.	2	387	62	44	50
"	Sprinkled with bluestone, 1 lb. to 6 bush. grain.	4	438	61	12	48
"	Dipped 5 min. in sul. pot., 1 lb. to 3 pails of water.	5	474	66	12	49
"	Dipped 5 min. in bluestone, 1 lb. to 3 pails of water.	6	477	61	32	47 $\frac{1}{2}$
"	Sprinkled with sul. pot., 1 lb. to 8 bush. grain.	16	452	61	12	48 $\frac{1}{2}$
"	Not treated.	16	376	60	40	48

In every case, both with barley and oats, the treated seed gave the largest yield of grain, the increase varied from two to eleven bushels per acre.

RESULTS OF SOWING GRAIN WITH DRILLS AND BROADCAST MACHINES.

In 1895 a test of seeders was made in connection with the sowing of wheat. This year a similar test was made but with oats and barley.

The result was as usual in favour of sowing with the drill, with barley the yield from sowing with the hoe drill exceeding that with the broadcast machine by 22½ bushels per acre, while with oats there was an advantage of 20 bushels per acre.

Summer fallowed land was used in both cases.

Very few farmers now use the broadcast machine, its use being confined almost entirely to land too rough or wet for the use of a drill.

OATS—RESULTS OF SOWING WITH DRILLS AND BROADCAST MACHINE.

Soil, clay loam ; size of plot, one-tenth acre.

Name of Variety.	How sown.	Amount sown	Date of Sowing.	Date of Ripening.	Number of days Maturing.	Length of straw.	Kind of head.	Weight of straw.	Yield per acre.	Weight per bushel.
		per acre.								
		Pecks				Ins.		Lbs.	Bus. lbs.	Lbs
Banner Oats.....	Hoe drill.	7	May 26...	Sept. 4...	101	50	Branching..	4,270	89 4	35
"	Press drill	6	" 26...	" 4...	101	50	" ..	4,730	81 16	33
"	Broadcast	9	" 26...	" 5...	102	50	" ..	4,450	69 4	36

BARLEY—RESULTS OF SOWING WITH DRILLS AND BROADCAST MACHINE.

Soil, clay loam ; size of plot, one-tenth acre.

Name of Variety.	How sown.	Amount sown	Date of Sowing.	Date of Ripening.	Number of days maturing.	Length of straw.	Kind of head.	Weight of straw.	Yield per acre.	Weight per bushel.
		per acre.								
		Pecks						Bus. lbs.		
Odessa barley.....	Hoe drill.	7	May 26...	Aug. 18..	84	30	Six-rowed ..	3,250	59 18	50
"	Press drill	6	" 26...	" 17..	83	33	" ..	2,930	53 26	49
"	Broadcast	9	" 26...	" 20..	86	35	" ..	3,830	36 42	49

EXPERIMENTS WITH PEASE.

Pease have again given a large yield. This cereal if sown early on strong land, seldom fails to give good returns. The weight of the samples is also good, many of the varieties weighing over 65 pounds.

A noticeable feature of this year's tests is the productiveness of the cross-bred varieties originated at the Experimental Farms, the five kinds heading the list were cross-bred varieties.

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Both the Macoun and Bedford pease were injured by a wind storm, hence the returns given of these two should not be used in comparing varieties.

Late sown pease produce an abundance of straw, but fail to bloom freely and are often attacked by mildew and the yield much reduced; they should be sown as early as wheat.

On this farm they have always succeeded best on stiff clay land, but care must be exercised on such soil, that the drill penetrates sufficiently deep to cover the seed; pease deposited on the surface in this country seldom take root.

All the varieties except Bedford, Multiplier, Bruce and Macoun, were sown on the 11th of May, these four were not sown until the 18th of May. The size of the plots was $\frac{1}{10}$ acre each and the soil a stiff clay loam which had been summer-fallowed. A hoe drill was used in seeding and from 2 to $2\frac{1}{2}$ bushels of seed sown per acre.

PEASE—Test of Varieties.

Name of Variety.	Date of ripening.	Number of days maturing.	Character of growth.	Length of straw.	Length of pod.	Size of pea.	Yield per acre.		Weight per bushel.
				Inches.	Inches.		Bush	Lbs.	
Carleton	Aug. 30	111	Rank	60	2	Medium	62		65
Kent	" 27	108	Fair	44	2½	Large	61	40	64
Prince	" 28	109	Rank	55	3½	"	60	40	64
Mackay	" 28	109	"	60	3	"	60	40	64
Agnes	" 27	108	"	60	3½	"	59	40	65
Pride	" 16	97	Fair	53	3	"	56		64½
Mummy	" 22	103	"	64	3	Medium	55	40	65
Trilby	" 26	107	Rank	57	3	"	55	40	63
Crown	" 15	96	Fair	42	2½	Small	55		63
Potter	" 25	106	Rank	29	3	Medium	54	40	63½
Prince Albert	" 28	109	"	68	2½	Small	52	40	64
Creeper	" 22	103	Weak	47	2	"	52		64
Centennial	" 28	109	Fair	52	3	Medium	52		63½
Duke	" 27	108	"	61	3	Large	50	40	63½
Paragon	" 31	112	"	50	3	Medium	50	40	63
Daniel O'Rourke	" 17	98	"	48	2½	"	50	20	65
Canadian Beauty	" 26	107	Rank	36	3	"	47		63½
Black-eyed Marrowfat	" 31	112	Fair	68	3	Large	46	40	64
White	" 31	112	"	63	3	"	44		62
Arthur	Sept. 4	109	Rank	52	3	Medium	42		62
Bedford	Aug. 29	110	Even, good	70	3	"	41	40	61½
Yellow for Split	" 28	109	Rank	42	3	"	41	20	65
Multiplier	Sept. 30	135	Fair	63	3	Small	36	20	63
Bruce	" 6	111	Rank	67	3½	Large	25	20	62
Macoun	" 15	120	"	56	3	"	17		62½

The parentage of the cross-bred varieties of pease referred to in the table is as follows:—

Paragon.—Black-eyed Marrowfat, female, with Mummy, male.

Prince.—Mummy, female, with Black-eyed Marrowfat, male.

Macoun.— " Large White " "

Arthur.— " Multiplier, male. " "

Bedford.— " " " "

Mackay.— " Black-eyed Marrowfat, male.

Agnes.—Large White Marrowfat, female, Pride, male.

Bruce.—Black-eyed " Mummy, male.

Carleton.—Mummy, female, Multiplier, male.

Duke.— " Black-eyed Marrowfat, male.

Trilby.—Black-eyed Marrowfat, female, Mummy, male.

Kent.—Mummy, female, Black-eyed Marrowfat, male.

EXPERIMENTS WITH FLAX.

The area sown with flax in Manitoba in 1895 according to government returns was over 82,000 acres, this was all grown for the seed and in no case was the fibre utilized, the general impression being that the fibre of flax grown in this province is unfit for manufacturing purposes. There are also differences of opinion as to the best time for sowing, and the quantity of seed which should be used per acre.

This year eight $\frac{1}{10}$ acre plots were sown at four different dates with selected flax seed, four of these were sown with 40 pounds of seed per acre and four with 80 pounds, they were sown on a rich black loam well prepared.

One-half of each plot was pulled for the fibre as soon as the seed pods had turned brown, the other half of the plot was left until the seed had ripened when it was cut and threshed in the usual way.

A bale of the pulled flax from each plot was forwarded to one of the best Ontario flax mills to be manufactured into fibre, so that its fitness for commercial purposes might be tested.

Variety.	Amount of Seed sown per Acre	Date of Sowing.	Date of Ripening	Number of Days Maturing.		Length of Straw.	Date when pulled for Fibre.	Weight of Straw when pulled for Fibre per Acre.		Yield per Acre.		Weight of Straw when cut, per Acre.
	Lbs			In.	Lbs.			Bush. Lbs.	Lbs	Lbs.		
Flax.....	40	May 16	Aug. 14	90	34	Aug. 4	1,100	13	32	56	540	
".....	80	" 16	" 14	90	30	" 4	1,250	17	8	56	740	
".....	40	" 23	" 16	85	34	" 8	1,180	15	10	56	600	
".....	80	" 23	" 16	85	36	" 5	1,200	15	40	56	720	
".....	40	" 30	Sept. 1	94	34	" 18	1,900	16	4	56	950	
".....	80	" 30	" 1	94	30	" 18	1,230	16	50	56	954	
".....	40	June 6	" 10	96	32	" 25	1,130	12	8	56	820	
".....	80	" 6	" 10	96	35	" 25	1,270	17	26	56	1,070	

RESULTS OF SOWING CLOVER WITH GRAIN.

Ten acres of land was set apart last season for growing Mammoth Red Clover with different kinds of grain.

The objects in view in undertaking this experiment were:—

1st. To ascertain whether the sowing of the clover would affect the yield of grain.
2nd. Whether after the grain was cut the clover would grow sufficiently strong to furnish a fair mat of foliage for ploughing under, and

3rd. To ascertain how the clover succeeds with each of these crops.

The field was divided into twenty, one-half acre plots; eight of these plots were sown with barley and the balance to wheat, oats and pease, four plots of each kind of grain, and every alternate plot was sown with Mammoth Red Clover at the rate of ten pounds per acre.

The clover seed was sown broadcast at the same time as the grain and lightly harrowed in, the alternate plots were left without clover, as check plots. The field selected for this experiment was not very uniform in character and quality of soil, but fairly so. It was a clay loam and was prepared, and the grain sown at as early a date as possible.

The yields are fairly uniform except in the case of Red Fife and French Chevalier barley and the want of uniformity in these is accounted for by their being on the extreme edges of the field and at the foot of higher slopes, where the land was lighter.

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It will be seen by the appended table that all the varieties of grain except pease and Banner oats averaged a higher yield than they did in the $\frac{1}{10}$ acre plots, probably owing to a greater freedom from rust on the stiff clay soil of this field.

Contrary to expectations, the pea plots produced the best stand of clover.

The plants in these plots were sufficiently thick for a meadow, but the growth after the grain was cut was very slight and the roots were very small when winter set in. The clover plants on all the plots were very weak, and not nearly thick enough for a meadow.

With the object of testing the hardiness of the clover all the plots were left undisturbed last fall and at this date are well covered with snow.

The appended table gives particulars regarding this test :—

Name of Variety.	Remarks.	Sown.	Ripe.	Yield.	
				Bush.	Lbs.
Red Fife Wheat.....	Clover weak and thin, few roots.....	May 11....	Sept. 3....	33	40
" ".....	Check plot, no clover sown.....	" 11....	" 3....	23	4
Advance ".....	Clover weak and thin, few roots.....	" 11....	" 3....	38	30
" ".....	Check plot, no clover.....	" 11....	" 3....	34	20
Mummy Pease.....	Clover fairly thick, small roots.....	" 19....	Aug. 30....	39	36
" ".....	Check plot, no clover.....	" 19....	" 30....	40	20
Potter ".....	Clover fairly thick, small roots.....	" 19....	" 31....	38	22
" ".....	Check plot, no clover.....	" 19....	" 31....	37	22
Abundance Oats.....	Clover very weak and thin, few short roots	" 19....	Sept. 1....	87	20
" ".....	Check plot, no clover.....	" 19....	" 1....	84	28
Banner ".....	Clover weak and very thin, few short roots	" 19....	" 1....	104	
" ".....	Check plot, no clover.....	" 19....	" 1....	94	26
Odessa Barley.....	Clover weak and thin, few roots.....	" 19....	Aug. 19....	74	18
" ".....	Check plot, no clover.....	" 19....	" 19....	76	2
Trooper ".....	Clover weak and thin, few roots.....	" 19....	" 21....	67	24
" ".....	Check plot, no clover.....	" 19....	" 21....	68	26
Sidney ".....	Clover very weak and thin, few roots.....	" 20....	" 25....	68	36
" ".....	Check plot, no clover.....	" 20....	" 25....	67	34
French Chevalier Barley....	Clover weak and thin, few roots.....	" 20....	" 31....	76	22
" ".....	Check plot, no clover.....	" 20....	" 31....	57	34

GRASSES AND FODDER PLANTS.

The unusually heavy rain-fall early in the season was very beneficial to grasses of all kinds resulting in the heaviest crop ever grown here.

The area sown to grass on this farm has increased each year until the supply of hay required for the stock is now all procured from cultivated land, there are several advantages in this plan over cutting from wild meadows.

1st. It can generally be procured nearer the buildings.

2nd. The hay is freer from weeds and rubbish.

3rd. It is possible to cut the cultivated grasses earlier in the season and so complete the haying before harvest commences.

4th. The texture of the soil is improved and danger from drifting is lessened if the land is seeded to grass occasionally.

A native grass to which my attention has been repeatedly called and which has invariably given a large yield is Reed Canary Grass (*Phalaris arundinacea.*) This is a tall coarse perennial grass with a flat and broad leaf, which grows naturally in wet

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The tares were grown from seed ripened on this farm during 1895

Mixture.	Length of Straw.	Stage when cut.	Yield of dry hay per acre.	
<i>No. 1.</i>				
1 bush. English Tares.....per acre.	36	Early milk.. } Late " .. }	4	900
2 " Banner Oats....."	50			
<i>No. 2.</i>				
1½ bush. English Tares.....per acre.	36	Early milk.. } Late " .. }	4	650
1½ " Banner Oats....."	48			
<i>No. 3.</i>				
2 bush. English Tares.....per acre.	36	Early milk.. } Late " .. }	3	1,750
1 " Banner Oats....."	51			
<i>No. 4.</i>				
1 bush. Canadian Beauty Pease.....per acre.	50	Late milk... } " .. }	3	1,700
2 " Banner Oats....."	52			
<i>No. 5.</i>				
2 bush. Canadian Beauty Pease.....per acre.	52	Late milk... } " .. }	3	1,500
1 " Banner Oats....."	52			
<i>No. 6.</i>				
1½ bush. Canadian Beauty Pease.....per acre.	53	Late milk... } " .. }	3	750
½ " Banner Oats....."	43			

AWNLESS BROME GRASS (*BROMUS INERMIS*).

This grass is growing so rapidly in favour that a few notes on its cultivation on this farm may prove of interest.

It is a perennial grass, and a native of Europe. It has a tall stalk with a spreading head and the plant is well provided with leaves. It is relished both by horses and cattle; calves being particularly fond of the tender leaves, and judging from the analysis of this plant as given by the Chemist of the Experimental Farms, Mr. F. T. Shutt, on page 189 of the annual report for 1893, it is very nutritious.

ITS SUITABILITY FOR PASTURE

As a pasture grass for this province it is perhaps unequalled, starting early in spring it is fit to pasture two weeks earlier than our native grasses, thus admitting of cattle being turned on it much sooner; the aftermath late in the summer is also heavy. This year the Experimental Farm cattle were pasturing on it up to the first of November, and when snow came it was still several inches high and quite green; there is no question that this grass will materially assist in keeping up a flow of milk in the autumn months when native pastures are dried up, thus overcoming one of the greatest drawbacks to dairying here, viz., the shortness of the season.

ITS PERSISTENCY.

A field of this grass was sown on the Experimental Farm in the spring of 1890, and has borne crops of hay every year since, the first four crops averaged from $1\frac{1}{2}$ to $2\frac{1}{2}$ tons per acre, last year (the fifth crop) the plants sent up very few stalks and the crop was scarcely worth cutting for hay but made fair pasture, this year's heavy rainfall revived the plants and over two tons of hay per acre were cut.

HOW TO SOW.

Three different plans for seeding with this grass have been adopted on the Experimental Farm.

1st. The grass seed is sown broadcast by hand with a grain crop, preferably with wheat, this is done just before or after the grain is sown, when the one harrowing will cover both lots of seed; to avoid burying the grass seed too deep it should not be sown on rough ploughed land until it has been harrowed at least once.

The objection to sowing this grass with a crop of grain is, that should a drought follow, the grain having the stronger growth absorbs all the moisture leaving the tiny grass plants to perish, and should the season be a wet one or the soil strong, the grain will lodge and smother out the grass.

2nd. A better plan and the one generally adopted is to sow the grass seed on spring ploughed stubble, in the month of May or early in June, weeds and some volunteer grain will come up with the grass, but these can be cut down before they seed, without injuring the growth of the young grass; the only objection to this plan is that some of the shorter weed plants, in spite of every precaution, will escape the mower and go to seed, and the crop of grass the next year will be more or less mixed with weeds.

3rd. On farms not subject to drifting by winds, the better plan is to prepare the land as for summer-fallow by ploughing in May or early in June, followed by harrowing or cultivating until about 15th July, when the seed can be sown and harrowed in, the seed will germinate in the moist fallowed land at once, and the young plants will have made a good stand by winter; if the cultivation has been thorough the surface soil will be quite free of weeds, and the crop of grass the following year clean, this is an excellent plan to follow when the grass is intended to be saved for seed as the sample is almost sure to be pure and clean.

On soils liable to injury from wind this plan is not to be recommended, as the well worked soil is very apt to drift and expose the grass seed to injury, or it may be partially blown away.

From fifteen to eighteen pounds of seed is sufficient per acre to ensure a good crop; at this rate of sowing the plants are not crowded and large crops of hay can be secured for the first two or three years, and if by that time the grass becomes too thick it can be pastured.

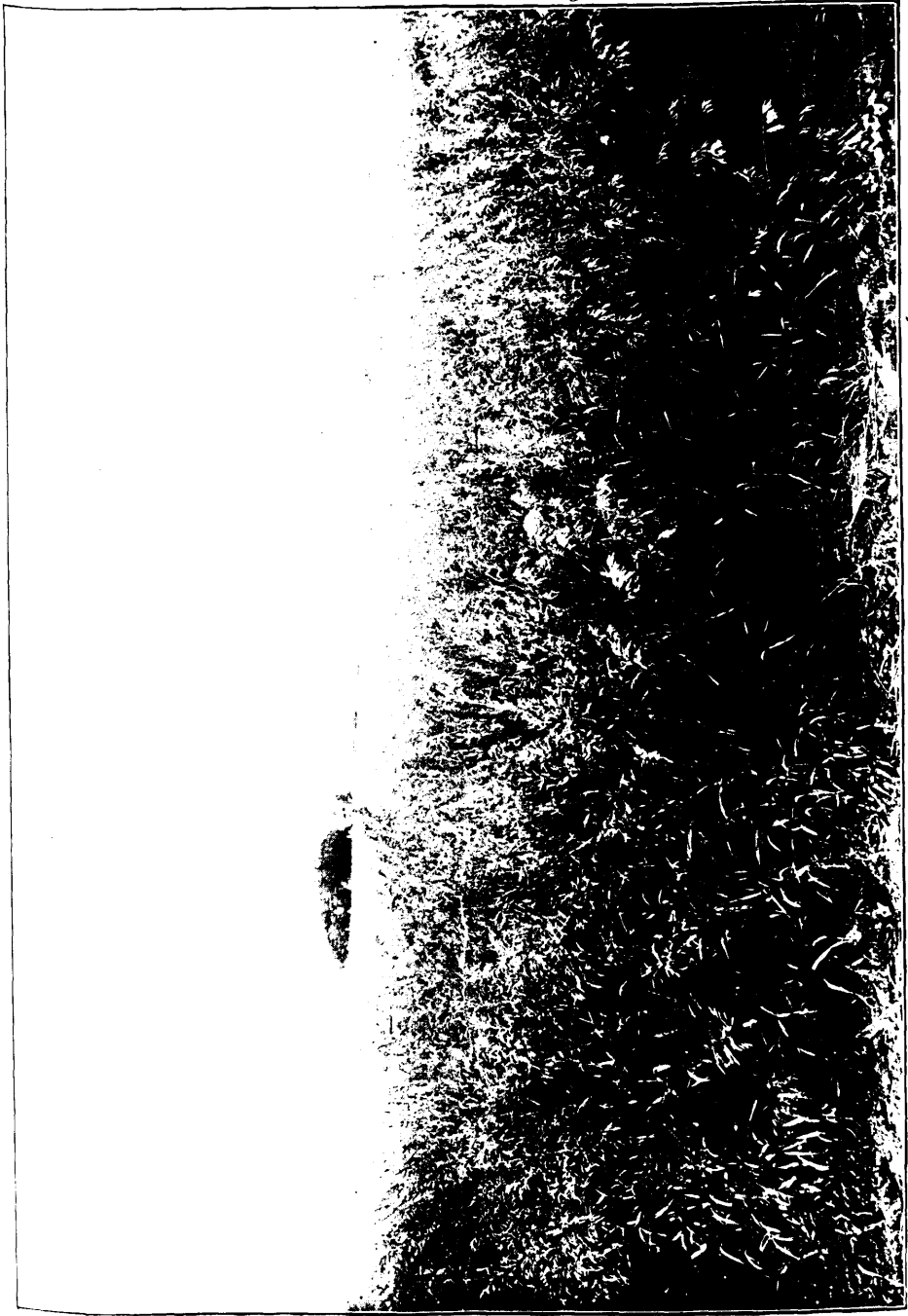
GROWING THE SEED.

This grass produces an abundance of seed which weighs fourteen pounds per bushel the yield of seed this year on a $4\frac{1}{2}$ acre field was 511 pounds per acre.

Several visitors to the farm last summer from the United States expressed surprise at the fine crop of Brome seed growing here, and stated that an almost unlimited market could be found in the neighbouring republic, for this seed where they found it impossible to grow it to the same degree of perfection. It is found here that the ripening of a crop of seed materially lessens the yield of hay the following year, but does not appear to injure the grass for pasture.

ITS EXTERMINATION.

Owing to the many branching roots of this plant some anxiety has been expressed regarding the danger of its spreading and becoming a weed, in the six years it has been growing on this farm, none of the plants have spread and on a plot broken thinly imme



Field of Awuless Brome Grass at the Experimental Farm at Brandon, Manitoba.

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diately after haying and back-set this fall, it was found that the sod was well rotted, and apparently all the plants killed; another field, however, that was allowed to ripen its seed and then ploughed late in August was not well rotted when back-set this fall, and many of the plants were quite green.

For the complete extermination of the plants the sod should be broken early and then back-set in good time.

The appended table shows the yield of Brome grass since it was first sown here, (with the exception of 1892), with character of soil, area of fields, &c.

Date.	Yield of hay.		Crop.	Age of grass.	How situated.	Character of soil.	How sown.	Area.
	Tons.	Lbs.						
1891.....	2	1,105	1st.	2 years.	Valley.....	Black loam.....	With grain.....	$\frac{1}{10}$ acre.
1893.....	1	333	3rd.	4 "	".....	".....	".....	$\frac{1}{10}$ "
1894.....		1,668	4th.	5 "	".....	".....	".....	$\frac{1}{10}$ "
1895.....	1	950	2nd	3 "	Undulating.	Sandy loam.....	On summer fallow.	$\frac{1}{10}$ "
1896.....	2	80	2nd	3 "	Side hill.....	".....	With grain.....	$\frac{1}{4}$ "
1896.....	2	359	5th.	6 "	Valley.....	Black loam.....	".....	$\frac{1}{10}$ "
1896.....	1	1,252	2nd	3 "	Undulating.	Very gravelly loam..	".....	$\frac{3}{4}$ "

GROWING HUNGARIAN GRASS SEED.

A large quantity of Hungarian grass seed is imported into the province each year, and much of it is more or less mixed with weed seeds. Trial plots were sown to see if the seed could be produced to advantage in this climate.

This year two plots, $\frac{1}{10}$ acre each were sown on 27th May, with 23 pounds of seed per acre, a grain drill being used for the purpose, one plot was cut on August 12th producing 4 tons 1,250 pounds of hay per acre, the other plot was cut for seed after the first frost, but produced only 250 pounds per acre of very light seed. The season this year was too short to ripen plants from imported seed sown at the date given. Possibly plants from the home grown seed may mature earlier; or it may be advantageous to sow earlier. Further experiments along this line will probably be tried.

GRASS SEED DISTRIBUTION.

The interest in grasses is increasing rapidly among farmers, and last season we were unable to supply all the applications for samples of seeds. Two hundred and sixty-one 1 lb. bags were sent out. These included three of the most promising of the native varieties, also the Awnless Brome grass. A larger quantity of grass seed was saved during the past season, sufficient probably to supply all those who wish to test these grasses.

EXPERIMENTS WITH INDIAN CORN.

The abundant rainfall and high temperature of the past season has been favourable to a large yield of fodder corn, and the returns were satisfactory; and many varieties were well advanced towards maturity before severe frost occurred.

Some large examples were grown this year, especially of the varieties known as Cuban Giant and Early Mastodon, which reached ten feet in height. But all these tall dent varieties are much too late for this climate, and earlier and shorter-growing varieties are much more valuable.

The North Dakota Flint, as we have grown it here, has a yellow kernel; another variety, bearing the same name but with a white kernel, has been sold quite extensively in the province, and judging from this year's experience it appears to be inferior to the yellow variety, the yield of fodder being nearly five tons per acre less, and it matures no earlier.

CORN—TEST OF VARIETIES.

All were sown after millet, no manure was used; the soil was a rich sandy loam; sown May 23rd with a press drill, drills three feet apart, plants one foot apart in the drill, also in hills three feet apart each way; kept clean with one-horse cultivator. One row was cut on August 19th and immediately weighed, and for the purpose of ascertaining how far the varieties would mature, the other row was left standing for eleven days longer, when severe frosts cut them down. As the weather was cool during those eleven days, very little additional growth was made. The yield per acre has been calculated in each case from the weight of two rows, each 66 feet long.

Name of Variety.	Description of Variety.	Height.	Leafiness.	When tasselled.	In Silk.	Early Milk.	Condition when cut.	Weight per acre grown in rows.		Weight per acre grown in hills.	
								tons.lbs.	tons.lbs.	tons.lbs.	tons.lbs.
Angel of Midnight.	Yellow Flint	106	Leafy	Aug. 3	Aug. 7	Aug. 14	Early milk	36	600	24	1500
Longfellow.	"	87	"	July 30	" 6	" 15	" "	30	500	27	1000
Pearce's Prolific.	"	101	"	" 31	" 10	" 15	" "	26	800	23	200
North Dakota Yellow.	"	98	"	" 30	" 4	" 10	Late "	26	800	23	1300
Canada White Flint.	White Flint.	110	Very leafy.	" 31	" 6	" 20	Early "	24	1500	26	800
Leaming.	Dent.	105	Fairly "	Aug. 10	Sept. 1	.....	Tasselled..	24	400	26	800
Thoroughbred White Flint.	White Flint.	103	Very "	" 4	" 1	.....	" ..	24	400	19	600
Pride of the North.	Yellow Dent	100	Few leaves.	" 10	.....	.....	" ..	23	200	22	
Red Cob Ensilage.	White "	100	Leafy	" 15	Sept. 1	.....	" ..	23	200	27	1000
Sanford.	Flint.	102	"	July 31	Aug. 4	Aug. 15	Early milk	23	200	24	400
King of the Earliest.	Dent.	103	Fairly leafy.	" 31	" 4	" 11	Late "	22		25	600
Mitchells Extra Early.	White Flint.	72	Very "	" 20	July 25	" 4	" "	21	900	22	
Early Huron Dent.	Red & Yellow Dent.	103	Very few leaves.	" 31	Aug. 7	" 16	Early "	21	900	26	800
North Dakota White.	White Flint.	80	Leafy	" 25	July 31	" 4	Late "	21	900	24	400
Country Gentleman	" Dent.	85	"	Aug. 10	Sept. 1	.....	Tasselled..	20	1800	17	1200
Cuban Giant . . . . .	.....	113	Very leafy.	" 10	Aug. 17	.....	Silk.	20	1800	28	1200
Giant Prolific Ensilage.	.....	102	Few leaves.	" 7	Sept. 1	.....	Tasselled..	19	1600	24	1500
Mammoth 8-rowed Flint.	Yellow Flint	100	Fairly leafy.	" 3	Aug. 7	Aug. 16	Early milk	19	500	19	1600
Compton's Early.	"	107	Leafy	" 1	" 6	" 15	" "	19	500	26	800
Champion White Pearl.	White Dent.	100	Fairly leafy.	" 5	Sept. 1	.....	Tasselled..	18	1400	26	800
Early Mastodon	Dent.	115	Very "	" 10	Aug. 17	.....	Silk.	18	1400	22	1100
White Cap Yellow Dent.	Yellow Dent	103	Leafy	" 4	" 11	Aug. 17	Early milk	16	1000	28	1200
New White Cap Yellow Dent.	"	100	Few leaves.	" 1	" 16	" 25	" "	15	800	22	

THICK AND THIN SOWING OF FODDER CORN.

Some farmers have the impression that fodder corn should be sown thick for the best results. With a view of testing this matter, two $\frac{1}{10}$ acre plots were sown with North Dakota Yellow Flint; both were sown with a Superior Wheat Drill; in one case

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all the spouts were allowed to run, making the drills seven inches apart, and the plants 3 to 6 inches apart in the row. In sowing the other plot, sufficient drills were stopped to make the rows three feet apart, and the plants were thinned out to nine inches in the row. The fodder on the thick-sown plot was very sappy and few ears were formed, while on the thin-sown many well matured ears were formed, and the fodder was of excellent quality.

Variety.	Width of Drills.	Distance between Plants.	Height.	Yield per Acre.	Quality of Fodder.
		Inches.	Feet.	Tons. Lbs.	
North Dakota Flint.	3 feet.....	9 to 10	7 to 9	20 00	Well matured, dark green colour.
" "	7 inches....	3 to 6	5 to 6	19 250	Very sappy and bleached.

Besides the test plots of corn, a large field of North Dakota Flint was grown, after wheat on strong black loam slightly inclined to the south. The land was spring ploughed and well harrowed, the corn was then sown in drills three feet apart with a superior wheat drill, the entrance of any unused spouts being closed with an empty bag, somewhat less than half a bushel of seed was used per acre, which gave a very even stand of plants, four to nine inches apart, the land was harrowed both before and after the plants appeared above the ground with the result that very little hand labour was required to keep it clean, and a crop of over twenty tons of green fodder per acre in the late milk stage was secured. As much of it was nine feet high and difficult to cut with a binder, all was harvested with sickles and left in loose bundles on the ground ready to be drawn (when wilted) to the silos or to the stack to be mixed with straw for dry fodder.

SUMMARY.

After several years' experience, I am confirmed in the opinion that corn is one of the most suitable fodder plants for Western Manitoba, but for the best results, the following points must be borne in mind :—

- 1st. Land selected for this crop should be naturally warm and undulating.
- 2nd. The variety of seed used should be an early ripening one with abundant foliage.
- 3rd. The culture should be clean and as far as possible done when the corn plants are very small and just as the weeds are appearing above ground.
- 4th. The crop must be cut before severe frost, and as few farmers are willing to leave wheat harvest when it is once started, we have found it advisable to recommend cutting corn before wheat harvest is begun, even if this necessitates the corn being cut somewhat immature.

SILOS.

The crop of fodder in 1895 was badly injured by frost, the stalks having been cut down to within three feet of the ground (see page 294 annual report for 1895) and some anxiety was felt as to the quality of ensilage made from it; the corn was cut within a day or two after the frost, bound in sheaves, allowed to wilt for over a week and then run through the cutting box and into the silos.

On opening the silos in December the ensilage was found to be excellent and very little if any inferior to that made from unfrozen corn.

A few rows of corn were left standing for some days after the frost until the stalks were bleached white and then cut, these were almost without sap or taste and were not relished by the cattle.

It would appear from this that frozen corn should be cut as quickly as possible after a frost.

This year the area in corn was less than usual and the lower part of each silo was filled with a mixture of oats and pease, cut when in bloom, wilted slightly, and then run through the cutting box and into the silos, as this mixture was rather bulky, green corn was placed above it giving the required pressure, the silos have not yet been opened, but notes will be taken during the winter of the quality of this ensilage, and published next year. The oats and pease were grown on land, which was too low and wet for corn and too late in drying for a grain crop, a portion of the crop was dried and stacked, and this will also be tested as feed for cattle. The yield from this field was 3 tons 1,770 pounds per acre of dry hay.

FIELD ROOTS.

The year has been a very favourable one for all kinds of field roots, and the returns have been the largest in the history of the farm.

The unusual plan of growing roots on the same ground for a number of years has been adopted on this farm. The kind of root is changed each year; for instance, turnips follow carrots one year and mangles the next, but all the field has been continually in roots for 3 years.

By this plan the work required in keeping the plots clean is reduced to a minimum and the usual lodging of grain crops after roots is avoided.

There are I know some objections that may be urged against this plan, but it has certainly given increasingly large yields each year, and the soil is now so free of weed seeds that very little work is required to keep it clean.

About twenty tons of well rotted manure was deeply ploughed in, late in the fall of 1894. No manure was used last year. No injury was done by insects during the past season; although adjoining farmers complain each year of the injury done by cut worms, we have had no trouble from this cause since the plan was adopted of clearing off all rubbish and ploughing the land intended for roots deeply in the fall.

Almost without exception the earliest sown plots again gave the largest yields, and we can safely assume that all field roots should be sown here, as early in May as frost will permit.

EXPERIMENTS WITH TURNIPS.

Fifteen varieties of turnips were tested this season sown at two different dates; the previous crop was carrots. The land was ploughed deeply in the fall; and the seed drilled in on the flat in drills thirty inches apart. The soil was a rich sandy loam; the estimate of yield has been made from the product of two rows, each sixty-six feet long. The roots are of good quality, and are free from rot.

The first plots were sown on the 18th May, the second on the 25th May, and all were pulled on the 8th October.

Experimental Farms.

TURNIPS—Test of varieties.

Name of Variety.	Yield per acre.		Yield per acre.		Yield per acre.		Yield per acre.		
	1st Plot.		1st Plot.		2nd Plot.		2nd Plot.		
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.	
Hartley's Bronze	31	700	1045		19	808	646	48	
Purple Top (home grown seed)	31	304	1038	24					
Perfection	28	1420	957		23	728	778	48	
Prize Winner	27	1968	932	48	18	1488	624	48	
East Lothian	26	1724	895	24	16	208	536	48	
Purple Top Swede.....	26	1460	891		16	472	541	12	
Skirvings.....	25	1876	864	36	25	1480	858		
Mammoth Clyde	25	556	842	36	25	160	836		
Selected Champion.....	22	1012	750	12	19	280	638		
Sutton's Champion	21	1296	721	36	19	280	638		
Giant King	20	1976	699	36	17	320	572		
Carter's Elephant	19	940	649		16	1528	558	48	
Jumbo or Monarch.....	19	148	635	48	16	1792	563	12	
Marquis of Lorne.....	18	1092	618	12	18	960	616		
Prize Purple Top	17	1640	594		18	1224	620	24	
						Bush.	Lbs.		
Average yield from all the sowings of 18th May, per acre.						866	48		
" " " 25th " "						694	31		

EXPERIMENTS WITH MANGELS.

The large yield of 1895 has been exceeded this year and the quality is also good

Fourteen varieties of mangels were grown this season, sown at two different dates. The first set of plots were sown on the 16th of May, the second on 1st June, and all were pulled 3rd October. They were sown after turnips, the soil was a rich sandy loam, which was ploughed deeply in the fall; the seed was sown in flat drills 30 inches apart, and the yields per acre have been estimated from the product of two rows each 66 feet long.

MANGELS—Test of varieties.

Name of Variety.	Yield per acre.		Yield per acre.		Yield per acre.		Yield per acre.		
	1st Plot.		1st Plot.		2nd Plot.		2nd Plot.		
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.	
Mammoth Long Red (Webb).....	52	1600	1760		34	1168	1152	48	
Golden Tankard.....	45	1080	1518		32	416	1073	36	
Giant Yellow Intermediate	43	1648	1460	48	33	792	1113	12	
Gate Post.....	43	1120	1452		34	640	1144		
Mammoth Long Red (Steele).....	43	1120	1452		35	1016	1183	36	
Champion Yellow Globe.....	41	1688	1394	48	28	1288	954	49	
Yellow Intermediate.....	38	1616	1293	36	21	1824	730	24	
Canadian Giant	37	960	1249	6	34	112	1135	12	
Giant Yellow Globe.....	37	184	1236	24	26	1064	884	24	
Mammoth Long Red (Evans).....	36	1920	1232		32	1208	1086	48	
Red Oval Globe.....	32	680	1078		26	272	871	12	
Golden Fleshed Tankard	31	1888	1064	48	27	1176	919	36	
Warden Orange Globe	30	720	1012		26	1328	888	48	
Red Fleshed Tankard	29	1664	994	24	14	1832	497	12	
						Bush.	Lbs.		
Average yield from all the sowings of 16th May, per acre.....						1299	53		
" " " 1st June "						973	58		

Experimental Farms.

EXPERIMENTS WITH POTATOES.

The prevailing conditions so favourable for field roots were suitable also for potatoes, and not only was the crop a large one but it was grown with less than the usual amount of manual labour.

The land selected was in millet last year and was ploughed deeply as soon as it was dry in spring, then harrowed at intervals of a week or ten days so as to kill weeds. On the 21st May the land was again ploughed but shallow and the tubers cut in pieces with 2 or 3 eyes each were planted in every third furrow; after planting the harrows were again used as often as weeds appeared until the plants were four inches high, by this treatment no hoeing was required and the field was quite clean of weeds throughout the season.

This province is noted for its large yields of excellent potatoes, the average prairie soil in nearly all districts being well adapted to the growth of this vegetable, and with attention to a few important particulars potatoes can I think be raised cheaper in this province than in any other part of the Dominion.

From several years experience it would appear that success in growing this crop with profit depends principally on the following:

1st. The selection of a rich, well drained black loam soil.

2nd. Planting only early ripening varieties, of known productiveness.

3rd. Planting the seed as soon as possible after 20th May, so as to get the advantage of as long a season as possible.

4th. Destroying weeds when small with the harrow, this not only kills the weeds but provides a mulch of loose soil preventing injury from drought.

Eighty-four varieties were planted this year of which a large number were new sorts.

It is noticeable that many varieties at the head of this year's list were also large producers last season, Pearce's Extra Early taking the lead both years, this is an excellent variety in every respect and worthy of more extensive planting.

Not a rotten potato was found in any of the plots and scarcely any scab.

All the varieties were planted 21st May on black sandy loam soil, without manure, and were dug on the 9th September. The yield per acre has been estimated in each case from the product of one row 66 feet long.

POTATOES—Test of Varieties.

Name of Variety.	Character of Growth.	When Matured.	Average Size.	Quality.	Yield per Acre.						Form and Colour.
					Total.		Market-able.		Unmarketable.		
					Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Pearce's Extra Early.	Rank	Sept. 1.	Large	Good, dry	601	20 594	7	20			Oval, light pink.
Rural Blush.	Very rank	Late	"	"	531	40 513	20	18	20		" "
Early Sunrise	Fair	Sept. 1.	"	Fair	517	484		33			" "
Early Norther	Rank	" 15.	"	"	513	20 506		7	20		" dark pink.
Early Puritan	Very rank	Late	"	Good, dry	506	476	40	29	20		Round, white.
I. X. L.	"	"	"	"	502	20 465	40	36	40		" light pink.
Pearce's Prize Winner	Fair	Sept. 15.	"	"	498	40 462		36	40		Oval, white.
Early White Prize	"	" 1.	"	Wet, fair	487	40 454	40	33			" "
Irish Daisy	Very rank	Late	"	Slightly wet.	484	447	20	36	40		Round, white.
World's Fair	"	"	"	Good, dry	484	425	20	58	40		" "
Everett	Fair	Sept. 15.	"	"	480	20 465	40	14	40		" pink.
Polaris	Rank	" 15.	"	Damp	473	451		22			Oval.
White Beauty	Fair	" 1.	"	Good, dry	469	20 451		18	20		" white.
Pride of the Market	Very rank	Very late.	"	"	469	20 458	20	11			" "
Flemish Beauty Seedling	"	"	"	"	465	40 454	40	11			" light pink.
Clarke's No. 1	"	"	"	"	458	20 447	20	11			" "
Daisy	Fair	Sept. 1.	"	"	458	20 440		18	20		" "
Beauty of Hebron	Very rank	" 15.	"	"	454	40 429		25	40		" "
Empire State	"	Very late.	"	Fair	454	40 432	40	22			Round, white.
Late Puritan	"	"	"	"	454	40 440		14	40		Oval "

POTATOES—TEST OF VARIETIES—Continued.

Name of Variety.	Character of Growth.	When Matured.	Average Size.	Quality.	Yield per Acre.						Form and Colour.
					Total.		Market-able.		Unmarketable.		
					Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Wonder of the World.	Rank	Sept. 1	Large	Good, dry	447	20	436	20	11		Oval light pink.
Money Maker.	"	" 15	"	"	440						" white.
Carman No. 1.	Very rank	Very late.	"	"	440		421	40	18	20	"
Lizzie's Pride.	Rank	Sept. 15	"	"	436	20	421	40	14	40	"
Great Divide.	"	" 15	"	"	436	20	399	40	36	40	"
Early Gem.	Weak	" 15	"	Yellow, d'mp	429		410	40	18	20	" light pink.
New Queen.	Rank	" 1	"	Fair	421	40	403	20	18	20	"
Lee's Favourite.	Fair	" 1	"	Good, dry	418		403	20	14	40	"
Lightning Express.	Very rank	Late	"	"	410	40	388	40	22		"
State of Maine.	"	"	"	Fair	410	40	392	20	18	20	Round, white.
London.	Fair	Sept. 1	"	Good, dry	399	40	392	20	7	20	" light pink.
Crown Jewel.	"	Aug. 28	"	"	396		381	20	14	40	Oval
Chicago Market.	"	Sept. 1	"	Choice.	396		385		11		" white.
Hale's Champion.	Rank	" 15	"	Good, dry	396		395		11		"
Queen of the Valley.	"	Late	"	"	396		385		11		Round, dark pink
Reading Giant.	Fair	Sept. 15	"	Wet, poor	385		366	40	18	20	" very dark "
Chas. Downing.	"	" 1	"	Good, dry	381	20	366	40	14	40	Oval, white.
Early Six Weeks.	Weak	Aug. 20	Medium.	Fair	377	40	366	40	11		Round, dark pink
Thorburn.	Fair	Sept. 1	Large	"	377	40	370	20	7	20	Oval
Northern Spy.	Rank	Very late.	"	Good, dry	377	40	366	40	11		"
Earliest of all.	Medium.	Sept. 1	"	"	377	40	366	40	11		" light pink.
Brownell's Winner.	Very rank	Late.	"	Fair	374		366	40	7	20	"
Blue Nose.	Rank	Sept. 15	Medium.	Little damp.	370	20	348	20	22		Round, purple.
McKenzie.	Fair	" 15	Large	Choice.	370	20	359	20	11		" white.
Early Harvest.	"	Aug. 25	"	"	366	40	359	20	7	20	Oval
Delaware.	Very rank	Very late.	"	Damp	366	40	359	20	7	20	"
Early Rose.	Fair	Sept. 15	"	Good, dry	366	40	359	20	7	20	" light pink.
General Gordon.	Rank	" 15	Medium.	"	363		352		11		" dark pink.
Maggie Murphy.	Fair	" 15	Large	"	363						Round
Prize Taker.	Very rank	" 15	"	"	359	20	352		7	20	Oval
New Variety No. 1.	Rank	" 15	"	Damp	355	40	293	20	62	20	" light pink.
Early Ohio.	Weak	Aug. 20	Large	Very choice.	355	40	344	40	11		Round, d'rk pink
Burnaby Seedling.	Fair	Sept. 15	"	Good, dry	348	20	333	40	14	40	Oval, light "
Rochester Rose.	Rank	" 1	"	Wet, yellow.	344	40	333	40	11		"
American Wonder.	"	" 15	"	"	344	40	333	40	11		" white.
Troy Seedling.	Fair	Late	"	Good, dry	344		330		14	40	Round, white.
Vanier.	Very rank	Sept. 15	"	"	344	40	333	40	11		Oval, dark pink.
Dree's Standard.	"	Very late.	"	Fair	344	40					" white.
Sharpe's Seedling.	Fair	Sept. 1	"	Choice.	341		330		11		" light pink.
Monroe County.	"	Late	"	"	341		330		11		" dark "
Seedling No. 230.	"	Sept. 1	"	"	341		326	20	14	40	Round, white.
Record.	Rank	Very late.	Medium.	Fair	333	40	289	40	44		"
Pride of the Table.	Fair	Late.	Large	Good, dry	330		322	40	7	20	" very d. pink
Burpee's Extra Early.	"	Aug. 25	"	"	330		319		11		Oval, light pink.
Stourbridge Glory.	Very rank	Very late.	"	Yellow, dry.	326	20	293	20	33		" white.
Ideal.	Fair	Sept. 15	"	Fair	326	20	315	20	11		" dark pink.
Freeman.	"	" 1	"	Wet, fair	322	40	311	40	11		Round, white.
Victor Rose.	"	" 15	"	" poor.	319		311	40	7	20	"
Green Mountain.	Rank	Late.	"	Good, dry	311	40	300	40	11		"
American Giant.	"	"	"	Fair, dry	308		293	20	14	40	Oval
Algoma No. 1.	Weak	Aug. 25	"	Choice	297		289	40	7	20	Round, d'k pink.
Satisfaction.	Rank	Very late.	"	Good, dry	293	20	282	20	11		Oval, white.
Hopeful.	"	Late.	"	"	282	20	275		7	20	"
Dakota Red.	"	Very late.	"	Wet	278	40	271	20	7	20	"
Seedling No. 7.	"	"	Small.	Damp, dark.	275		267	40	7	20	Round, d'k pink.
Harbinger.	Fair	Sept. 1	"	Fair, str'ked	275		267	40	7	20	Oval, light "
Brown's Rot Proof.	Rank	Late.	Medium.	Wet	275		267	40	7	20	Round, d'k pink.
Seattle.	Fair	Sept. 15	Large	Good	267	40	238	20	29	20	"
Orphans.	"	Late.	Medium.	Slightly wet	242		132		110		Oval, white.
Russell's Seedling.	Weak	"	"	Good, dry	242		183	20	58	40	Round, white.
Peerless Junior.	"	Very late.	Large	Fair, wet.	242		238	20	3	40	"
Vick's Extra Early.	"	"	"	"	201	40	183	20	18	20	"
Table King.	"	Late.	Medium.	"	201	40	183	20	18	20	"
Seedling No. 214.	"	Aug. 25	"	Fair	201	40	183	20	18	20	"

Experimental Farms.

AVERAGE YIELD OF POTATOES DURING FOUR YEARS.

On referring to my last year's report (page 300,) it will be seen that the average results given there for the preceding three years does not materially differ from the accompanying table which covers four years.

It is quite evident that there are a number of varieties equal to the Early Rose in quality and more productive than that variety; and the reports received from parties supplied with seed, tends to confirm this opinion.

Variety.	Years included.	Average yield per acre.		Quality.
		Bush.	Lbs.	
Pearce's Prize Winner.....	1893-94-95-96..	323	25	Good.
" Extra Early.....	1893-94-95-96..	318	57	"
Everett.....	1893-94-95-96..	311	40	"
Polaris.....	1893-94-95-96..	305	40	Fair.
Daisy.....	1893-94-95-96..	286	55	Good.
Early Puritan.....	1893-94-95-96..	279	55	"
Lee's Favourite.....	1893-94-95-96..	277	45	"
Rural Blush.....	1893-94-95-96..	277	42	Fair.
I. X. L.....	1893-94-95-96..	276	17	Poor
Crown Jewel.....	1893-94-95-96..	269	57	Good.
Sharpe's Seedling.....	1893-94-95-96..	268	..	"
Empire State.....	1893-94-95-96..	267	30	Poor.
Early Sunrise.....	1893-94-95-96..	264	35	Good.
Northern Spy.....	1893-94-95-96..	262	52	Fair.
Early Rose.....	1893-94-95-96..	258	30	Good.
State of Maine.....	1893-94-95-96..	253	45	Fair.
Burpee's Extra Early.....	1893-94-95-96..	248	25	Good.
Freeman.....	1893-94-95-96..	242	50	Fair.
Clarke's No. 1.....	1893-94-95-96..	242	50	Good.
Early Ohio.....	1893-94-95-96..	239	40	"
Dakota Red.....	1893-94-95-96..	233	15	Fair.
Algoma.....	1893-94-95-96..	230	32	Good.
Beauty of Hebron.....	1893 -- 95-96..	215	45	"
Holborn Abundance.....	1893-94-95 -- ..	206	20	Wet.

POTATO TEST OF VARIOUS CUTTINGS.

The above test was undertaken to ascertain the difference in yield and quality of potatoes when seed was planted, 1st whole, 2nd cut in two pieces and 3rd cut into four. The annexed table shows that the potatoes cut in two gave the largest yield of marketable tubers and their superiority was apparent all through the test. Those planted whole were very rough at every lifting. The variety of potato used in this test was the Early Ohio, which is one of the earliest sorts here.

WHOLE.				CUT IN II.				CUT IN IV.			
Date Lifted.	No. of Eat-able.	No. of Small.	Weight.	Date Lifted.	No. of Eat-able.	No. of Small.	Weight.	Date Lifted.	No. of Eat-able.	No. of Small.	Weight.
			Lbs. Oz.				Lbs. Oz.				Lbs. Oz.
July 15.....	7	8	1 4	July 15.....	8	6	1 11	July 15.....	6	0	1 4
" 22.....	6	1	2 0	" 22.....	7	2	1 1	" 22.....	8	1	1 10
" 29.....	4	3	1 11	" 29.....	10	1	3 13	" 29.....	6	0	2 14
Aug. 5.....	8	3	3 6	Aug. 5.....	10	4	3 12	Aug. 5.....	6	3	3 7
" 12.....	11	6	5 0	" 12.....	5	3	3 2	" 12.....	5	5	3 4
" 20.....	9	2	5 0	" 20.....	6	4	4 4	" 20.....	6	0	4 0
Total.....	45	23	18 5	Total....	46	20	18 11	Total....	37	9	16 7
Average....	7½	3¾	3 0½	Average...	7¾	3¾	3 1½	Average...	6½	1¾	2 11½

CATTLE.

The cattle on the farm have been healthy during the year, and there has been no losses through sickness.

The herd now consists of the following :—

Name of Animal.	Breed.	Age.	Weight.
Qu'Appelle Red Knight, bull.....	Shorthorn.....	3 years.....	1,980
Brandon Fashion, cow.....	".....	3 ".....	1,220
Fashion's Lady, calf.....	".....	1 month.....	160
Rideau Chief, bull.....	Ayrshire.....	3 years.....	1,450
Dandy, cow.....	".....	7 ".....	1,140
Dandy Joe, bull calf.....	".....	7 months.....	600
Princess Leda 2nd, cow.....	Holstein.....	7 years.....	1,400
Manitoba Prince, bull.....	".....	3 ".....	2,050
Leda of Brandon, heifer.....	".....	2 ".....	1,270
Leda's Princess of Brandon, calf.....	".....	6 months.....	535
Duke of Eaton, bull.....	Polled Angus.....	3 years.....	1,680
Lady Jane Grey, cow.....	Grade.....	8 ".....	1,225
Topsey, cow.....	".....	4 ".....	1,000
Daisy, cow.....	".....	8 ".....	1,220
Pansy, cow.....	".....	2 ".....	1,130
Violet, heifer.....	".....	10 months.....	670
Jennie, heifer.....	".....	8 ".....	560
Black Prince, steer.....	".....	20 ".....	1,040
Fanny Fern, heifer.....	".....	20 ".....	890

FEEDING STEERS.

A much larger number of steers were fed last winter than usual in this province, and in addition to the small bands fed by individual farmers, others have combined and erected large barns and are this winter feeding from fifty to one hundred head. This gives employment to a number of men, during the slack season, is a source of revenue to the province, and the export of so many prime cattle each year cannot fail to call attention to this province as a successful cattle-raising country.

As many Manitoba farmers are in doubt whether turnips can be fed to cattle with profit here, it was thought advisable last winter to make some feeding experiments on this line. For this purpose four steers were purchased from neighbouring farmers in December, at 2 cents per pound live weight, and sold in May at 3 cents per pound, these were very evenly matched short-horn grade steers, coming three years old. The four steers were divided into as nearly matched pairs as possible, and fed for 147 days all they would eat clean of the following ration :—

FIRST PAIR OF STEERS.

Cut straw.....	20 lbs.
Cut turnips.....	40 "
Wheat chop.....	5 "
Barley chop.....	2 "
Oat chop.....	3 "

SECOND PAIR OF STEERS.

Cut straw.....	20 lbs.
Wheat chop.....	5 "
Barley chop.....	2 "
Oat chop.....	3 "

Experimental Farms.

The actual amount and estimated value of the feed consumed during the feeding period, 147 days, was as follows —

FIRST PAIR OF STEERS.

4,763 lbs. cut straw	\$	
175 bush. turnips at 5c. per bush		8 75
1,322 lbs. wheat chop at $\frac{3}{4}$ c. per lb.		8 81
529 lbs. barley chop at $\frac{1}{2}$ c. per lb.		2 64
797 lbs. oat chop at $\frac{1}{2}$ c. per lb.		3 98
	\$	24 18

SECOND PAIR OF STEERS.

6,080 lbs. cut straw	\$	
1,596 lbs. wheat chop at $\frac{3}{4}$ c. per lb.		10 64
798 lbs. barley chop at $\frac{1}{2}$ c. per lb.		3 99
1,064 lbs. oat chop at $\frac{1}{2}$ c. per lb.		5 32
	\$	19 95

Summary of Results.	First Cost of Steers per Pair.	Value of Feed consumed per Pair.	Price sold for per Pair.	Profit per Pair.	Daily Gain of each Steer.
	\$ c.	\$ c.	\$ c.	\$ c.	lbs. oz.
First pair of steers, with turnips	47 70	24 18	84 15	12 27	1 6
Second pair of steers, without turnips	47 20	19 95	86 70	19 55	1 6

It would appear from this experiment that at the prevailing prices for grain, turnips are fed at a loss. This, however, is contrary to the general experience of skilled feeders throughout the Dominion and further and more extensive experiments would be needed before such a conclusion could be accepted.

HOW TO MAINTAIN THE FLOW OF MILK DURING THE AUTUMN MONTHS.

Objections are sometimes made to this province as a dairy country on account of the early date in the fall at which the native pastures dry up.

In districts dependent solely on native grasses, the flow of milk lessens very materially after the first severe frost, as an instance of this, on the 3rd of September last we experienced 8 degrees of frost, this soon resulted in drying up the native grass and the flow of milk from the farm herd of four cows fell from 116 pounds on the 7th to 88 pounds on the 20th, or a gradual decrease of over 2 pounds each day.

On the 20th, the cattle were turned into summer-fallowed fields which had been partly sown with grain late in summer and in which there had also grown up more or less volunteer crop.

By the end of the first fortnight the decrease of 2 pounds per day had been turned into a slight increase, but the pasture on the fallow was thin and after the cattle had been on it for three weeks; the feed became short and the cows were herded on a field of Awnless Brome Grass of this spring's sowing; the grass was from six inches to a foot high, quite green, and fairly thick on the ground.

During the fortnight the cows were in this field, the flow of milk again increased, averaging 13 lbs. more per day than during the time they were fed on the green growth on the summer fallow. The brome grass was much thicker on the ground, and furnished more feed per acre, and was probably also more nourishing.

The brome grass was not nearly all fed off when winter set in, and it remained green until covered with snow.

This grass makes excellent pasture, and it would be well if every farmer keeping cows had a field of it into which he could turn his herd before the native pasture is ready in the spring, and after it is dried up in the autumn.

EXPERIMENTS WITH SWINE.

The piggery built in 1895 and described on page 304 of the annual report has answered the purpose fairly well, but the accommodations are only sufficient for two pure breeds of swine in addition to the feeding experiments necessary to be carried on, with crosses. The breeds kept at present are Tamworth and Berkshire.

WHEAT ALONE COMPARED WITH MIXED GRAIN FOR FATTENING SWINE.

Many farmers think that wheat alone is neither a safe nor economical feed for swine; to gain information on this point; six cross-bred pigs about 3 months old and all of one litter were divided into two groups as nearly equal, as possible.

In No. 1 pen the pigs were fed on ground wheat alone, soaked, the feed of those in No. 2 pen, was a mixture of $\frac{1}{2}$ wheat, by weight $\frac{1}{4}$ barley, and $\frac{1}{4}$ oats all ground and soaked.

WEIGHTS.

Pen No. 1 wheat alone.

	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Lbs.
Weights	155	235	280	358	436	510	Gain 355

Pen No. 2 mixed grain.

	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Lbs.
Weight.....	150	217	268	332	412	461	Gain 311

The three pigs in pen No. 1 consumed 1,606 pounds wheat, or $4\frac{1}{2}$ pounds of wheat to produce 1 pound (live weight) of pork.

Those in pen No. 2 consumed 1,722 pounds mixed grain or $5\frac{1}{2}$ pounds of grain to produce 1 pound of pork.

If the value of the manure be considered as an equivalent for the labour and attendance, pork at 4c. per pound live weight would make the wheat consumed in Pen No. 1 worth 88 cents per hundred pounds and in Pen No. 2 the mixed grain would be worth 72 cents per hundred pounds.

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POULTRY.

The report on poultry is not as satisfactory this year as usual, a number of the young Plymouth Rocks were attacked with sore throats in December last, and this spread to the older fowls; a few only of the young Plymouth Rocks died, but the disease appeared to lessen the vitality of the laying stock, particularly that of the Plymouth Rocks and White Leghorns, the Black Minorcas were apparently free from this trouble. Several remedies were tried, the most successful being the injection in the mouth and nostrils of a mixture composed of equal parts of coal oil and sweet oil; a sewing machine oiler was found useful for this purpose.

On the approach of spring the disease disappeared, and no further deaths have occurred from this cause since. Many flocks in the neighbourhood were similarly attacked by this disease, and about the same time as the farm fowls; possibly the unusually damp weather may have had something to do with the appearance of the disease.

Reports are frequently received from parties who have been supplied in former years with eggs and fowls, the majority reporting successful results.

EGGS.

The following table gives the average number of eggs obtained each month from ten hens of each breed, when kept in confinement.

Name of Breed.	December, 1895.	January, 1896.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	Totals.
	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.	Eggs.
10 B. Plymouth Rocks.....	14	32	38	31	105	118	72	82	76	89	57	13	727
10 White Leghorns.....		11	42	42	142	130	80	87	88	57	17	.....	696
10 B. Minorcas.....		5	3	32	112	97	122	108	117	86	56	11	749

The following are the live weights reached this year by fowls of different ages and of different breeds:—

Name of Breed.	Age.		Weight.
	Months.	Lbs. Oz.	
Barred Plymouth Rock, cock.....	18	10 7	
" " cockerel.....	6	6 8	
" " hen.....	18	7 ..	
" " pullet.....	6	6 10	
Black Minorca, cock.....	18	6 8	
" " cockerel.....	6	5 8	
" " hen.....	18	4 8	
" " pullet.....	6	4 4	
White Leghorn, hen.....	18	4 ..	
" Plymouth Rock pullet.....	6	5 2	
Brown Leghorn hen.....	18	3 8	

EXPERIMENTS WITH BEES.

On 1st June last two hives of Italian bees were received from Ontario, they were strong swarms and reached here in good condition.

To prevent loss from prevailing high winds, the stands were raised only three inches from the ground and placed under the protection of low growing trees.

Not having sufficient supplies of foundation comb, &c., in the early part of the season, the bees were crowded, and for that reason they were not managed to the best advantage, the yield was only 35 pounds from the two colonies, and under these conditions excessive swarming was encouraged, two swarms were obtained from each hive, one of which was very weak, but this swarm was successfully united with one of the others, leaving five colonies to be wintered.

The bees ceased working on account of cold in the last week of September, but at this date three of the colonies were well provided with stores, the other two were fed a few pounds of candied sugar, and all were placed in the cellar on the 10th October.

Notes were taken from time to time of the plants on which bees were found working to gain information regarding the available honey plants in this country. It was found that over fifty different kinds of flowers were visited by them during the summer.

EXPERIMENTS WITH FRUIT TREES AND SMALL FRUITS.

PYRUS BACCATA.

Pyrus Baccata is a wild crab from Siberia, which has been grown here successfully for five or six years, it is as hardy as our native trees and starts at the terminal bud each year. Last season several of the older trees growing on the farm were loaded with fruit, which although only about the size of an ordinary cherry, is a perfect apple in form and colour, and we trust that under the improving influences of cross-fertilization and selection this may form the basis of useful apples for Manitoba.

An orchard has been started comprising 108 young trees of 14 varieties of this wild crab of Siberia, all of which have been tested for at least one winter and found hardy. This orchard also contains 48 young seedlings of the yellow Siberian crab, raised here from seed sent from Ottawa.

Ground has been laid out and prepared for further orchard plots for the purpose of testing the crosses of *Pyrus Baccata* with some of the standard apples which have been made at the Central Experimental Farm.

CRAB APPLE TREES FROM MANITOBA SEED.

In several parts of the province, at an altitude of 800 to 900 feet above sea level, if protected by hills on the north and west, or heavy belts of timber, crab apples have borne fruit, the varieties being Transcendent, Hyslop, Whitney and Martha. As it is possible that the seed of this Manitoba grown fruit may develop hardier forms of trees, even at this altitude (1,231 feet), a quantity of the seed was procured from one of the growers, Mr. A. P. Stevenson, of Nelson, which has been packed in sand until the time arrives for planting next spring.

CHERRIES.

Five trees each of six varieties of seedling cherries were received from the Central Experimental Farm in the spring of 1895. These have survived one winter successfully, although some of them were slightly injured by frost. The seedlings of three of the varieties appear to be untouched by frost, while those of the other three sorts were more or less injured.

On the director's annual visit of inspection last August he found that among 200 trees of the Native Sand Cherry, there were six which showed sufficient desirable characteristics, in size and quality of fruit to justify their being named and propagated.

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These bushes have been layered and the increase will be used for further planting or subsequent distribution. Following are the names and brief descriptions of these varieties arranged in the order of their apparent merit :

- No. 9—Minnie—A vigorous and upright grower, fruit of good size and flavour.
- No. 6—Brandon—Flavour good, prolific bearer.
- No. 8—Othello—Very black, size large, flavour fair.
- No. 5—Standard—Size large, slightly astringent.
- No. 1—Progress—Astringent, prolific bearer.
- No. 3—Challenge—Flavour fair, size median.

PLUMS.

A plantation was made of 200 native plum seedlings in the spring of 1896, which were raised from selected wild fruit.

The large trees which bore fruit last year again made a good show of both blossom and fruit, but the fruit in its early stage was badly affected by a fungus disease known as the plum pocket. To prevent the further spread of this disease all the affected fruit was collected and burnt, the extent of this injury varied from 15 to 75 per cent on different trees.

The following is a list of the imported plums now growing on the farm :—

Plums tested for 4 years and only partly winter killed, 3 Weaver, 4 De Soto, 15 Iowa seedlings; both Weaver and De Soto bore a small amount of fruit this season, but both were late in maturing.

Plums tested for 2 years, 127 Weaver seedlings, 12 Cheney seedlings, 8 Speer seedlings, 6 De Sota seedlings, 5 Voronesh (102).

None of these have fruited, but all have made an excellent growth of well ripened wood.

In addition 86 unnamed seedlings from imported plums were set out in 1894, these are all living but have not made the same vigorous growth as the native seedlings.

Thirty-six varieties of improved native varieties were added to the plantation this year, procured from Charles Luedloff, Carver, Minnesota; they were root grafts which were received in good condition and have become well established.

CURRANTS.

BLACK VARIETIES.

Since the year 1889, 22 varieties of black currants have been tested for one or more winters. Those which have succeeded best are given below with the average yield of 10 bushes for five years.

Variety.	When planted.	Average yield of 10 bushes for 5 years.	Remarks.
		Lbs.	
Lee's Prolific.....	1890	18	Flavour good, bushes healthy.
Black Naples.	1890	14	" "
Champion.....	1890	12	Woody flavour, very vigorous.

SEEDLING BLACK CURRANTS.

Of these Climax still heads the list, it has only fruited for two seasons, but is of great promise. It stands the drought well, is a vigorous grower, productive and the quality of the fruit is excellent.

Parker fruited this year for the first time, the fruit of this is of medium size, flavour fair, ripens late with a vigorous growth of wood.

RED AND WHITE CURRANTS.

Of these 18 varieties have been tested to date, accompanying this will be found a list of the seven most promising kinds with the average yield of 10 bushes for five years.

Variety.	Average yield of ten bushes for 5 years.	When planted.	Remarks.
	Lbs.		
Raby Castle.....	16	1890	Small currant, large bunches.
Red Grape.....	15	1860	Very vigorous grower.
Fay's Prolific.....	15	1890	Fruit very large, small bunches.
Cherry.....	11	1890	Fruit large, growth not healthy.
Versailles.....	10	1890	Very healthy growth.
Victoria.....	7	1890	Shy bearer, healthy.
White Grape.....	16	1890	Healthy and prolific bearer.

NEW CURRANTS.

Thirty-one varieties of currants were received from the Central Experimental Farm last season, 22 of black, 7 of red and 2 of white, many of which are seedlings. They were all planted on uniform land where they will all have the same conditions, and will be reported on as they fruit.

TREE CURRANTS.

Six bushes were received from South Dakota in 1894, under the name of Missouri Tree Currant. This has the habit of the common yellow flowering currant (*Ribes aureum*) but the fruit is much larger. The bushes have fruited this year for the first time.

The fruit is large, $\frac{1}{2}$ inch in diameter and of a deep purple colour varying in quality, some of them very pleasant to the taste. The bushes were well loaded with fruit which did not ripen until late in the season, the best of them will be propagated for further testing.

RASPBERRIES.

All varieties of raspberries bore well last season. Specimens of each sort had been laid down and covered with earth in the month of October of the previous year. After several methods for covering had been tried, this work was performed successfully in the following manner: one man grasps the young canes and with a firm and steady pressure bends them to the ground, a heavy furrow is at the same time turned out on the branches with a one horse plough kept far enough away from the bush to prevent injury to the roots. A light furrow is then thrown up on the other side of the row, by this plan

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a large patch of raspberries is quickly laid down and the labour is more than repaid by the increased yield.

Thirty-eight varieties of raspberries and blackberries have been tested on this farm up to date. Of these fifteen have survived, the following are the most promising for cultivation in this province: Turner, Philadelphia, Sarah, Cuthbert, Golden Queen, Caroline and Hilborn Black Cap.

GOOSEBERRIES.

Twenty-four varieties of imported gooseberries have been tested, of these the Houghton and the Smith's Improved are the only ones that have been grown at all successfully and these when planted in exposed places have been more or less injured by frost each winter.

The five bushes of native sand-hill gooseberries mentioned on page 309 of last year's report have fruited this season. Unlike the fruit of the common native gooseberry it is about the size of the Houghton and of very fair flavour, and is perfectly hardy.

FOREST AND ORNAMENTAL TREES AND SHRUBS.

Seven hundred and eleven trees and shrubs of 86 species and varieties were received from the Central Experimental Farm in May last, they arrived here in fine condition, and were planted in one of the hedge inclosures. Most of these have not been tested before in Manitoba.

The season was an exceptionally good one for tree planting, 98 per cent of these have grown and many have become well established and have made a large growth. It is expected that many of these will prove useful and hardy.

SHRUBS AND TREES RECEIVED IN 1895 AND TESTED ONE YEAR.

Variety.	Number received.	Number alive at this date.	Remarks.
Acer Glabrum.....	50	15	Winter killed.
Spiræa Opulifolia.....	300	300	Hardy and ornamental.
" aurea.....	50	30	" "
Picea pungens.....	10	10	Hardy where protected.
Cornus Sibirica.....	30	0	The stock received were layers not well rooted.
Cotoneaster vulgaris.....	20	20	Hardy, fruited this season.
Cercidiphyllum japonicum.....	3	0	Winter killed, root and branch.
Pinus Cembra.....	5	3	Healthy, small growth.
Douglas Spruce.....	10	8	Hardy where protected by snow.
Rhamnus frangula.....	50	50	Hardy, large healthy growth.

GRAPES.

The Gibb and Bacchus grape vines which were planted in 1895 have lived through one winter, although covered with earth the Bacchus was badly killed back while the Gibb was apparently untouched.

Cuttings of Moore's Early grape were received from A. P. Stevenson of Nelson, Manitoba; some of these have struck and made fine plants, but have not yet been wintered.

The native Manitoba Grape vines planted last year have made rapid growth and are quite hardy.

EXPERIMENTS WITH POPLAR CUTTINGS.

It has been found by previous experiments that with Poplars, spring procured cuttings gave the best results.

Further tests have been made during the past season to gain information regarding the vitality of different parts of the tree, for which purpose one hundred cuttings of each of the following were taken.

1st. Last season's growth of wood cut with a heel, the terminal bud also left on.

2nd. Old wood about one inch in diameter, and,

3rd. Cuttings from the roots, 3 inches long.

Russian Poplar (*P. Bereolensis*) and Cottonwood (*P. monilifera*), were the trees selected for this experiment.

The results are shown in the annexed table.

Variety.	When planted.	Description of variety.	Percentage growing.	Remarks.
Russian Poplar	Spring..	Last season's growth of wood, with heel and terminal bud...	92	Very thrifty.
"	"	Old wood 1 inch in diameter...	42	Fairly healthy.
"	"	Root cuttings	22	Not "
Cottonwoods	"	Last season's growth of wood, with heel and terminal bud...	85	Very healthy.
"	"	Old wood 1 inch in diameter...	31	Healthy.
"	"	Root cuttings	10	Weakly.

A comparison was also made between cuttings procured as soon as the snow had left in the spring and then buried top downwards until calloused, against cuttings procured just before the buds were bursting, and others were cut just after the bursting of the buds.

Variety.	How procured.	Percentage living.	Remarks.
Russian Poplar	Cuttings taken early in the season and calloused before planting.	100	Very healthy, large growth.
"	Cuttings taken just before bursting of buds.	52	Healthy, small growth.
"	Cuttings taken just after bursting of buds.	15	Not healthy, very small growth.

AVENUES.

The avenues on this farm are now in a healthy condition ; 20 trees of the Box Elder (*Acer negundo*) were found to be dead last spring, these had been attacked the previous year by the Box Elder aphid (*Charitophorus negundinis*), nearly all the trees which were killed had been planted on stiff gumbo soil, and not being as vigorous as those on better land, were the first to succumb to the attacks of the aphid. Although all the maple trees

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on the avenues were more or less infested with this insect the previous year, no sign of this aphid has been seen this season, and the trees have made a healthy growth.

The spruce trees on the avenues were this year attacked by an aphid; the trees were well sprayed with kerosene emulsion, and no apparent injury was done.

ARBORETUM.

The arboretum surrounding the superintendent's house, started in 1893, has been added to each year, and now includes a large number of varieties of trees and shrubs. Specimens of 96 different sorts, nine of which were natives, were planted on these grounds during the year, making in all 176 varieties, a few of these appear to be only half hardy, but seem to be hardening up each year.

The new native trees were:

Buckthorn (*Rhamnus alnifolius*).

Willow-leaved Spirea (*Spiraea salicifolia*).

Five finger (*Potentilla fruticosa*).

Native oak (*Quercus macrocarpa*).

Dog-wood (*Cornus stolonifera*).

Native grape (*Vitis riparia*).

Balsam (*Abies balsamea*).

Red birch (*Betula borealis*).

Canadian shepherdia (*Shepherdia Canadensis*).

FOREST TREES.

The trees in the shelter belt have made a very vigorous growth this season, many of the deciduous sorts are 20 feet high and 5 inches in diameter, 1 foot from the ground.

Planting in this belt was commenced in 1889 and completed in 1891. It was kept cultivated with a one-horse "Planet Junior Cultivator" for the first six years, but in 1895 the trees had become dense enough to shade the ground, and it was only necessary to hoe it once by hand.

Last year the ground was shaded so well that the belt was kept free from harmful weeds by a few hours' work. This block has been remarkably free from the depredation of insect pests. It is invaluable as a barrier against the incursion of weeds which might otherwise blow in from the roads to the west of us, and makes also a good wind-break. This belt is an interesting object lesson to visiting farmers, and from this example many similar belts are being started throughout the province.

Many typical trees have been measured, and the average height and spread of branches are given in the following notes:—

BOX ELDER (*Acer negundo*).

This is a deservedly popular native tree both for avenue planting and as individual specimens. In the shelter belt it was the principal tree used as a nurse and protector for more tender varieties, and for this purpose was very suitable. It is a rapid grower and is one of the earliest trees in leaf in the spring. It bears its seeds in profusion, and is readily grown from seed. An average 8 year old tree was measured and found to be 19 feet high with a spread of branches of 14 feet, and the trunk 4 inches in diameter 1 foot from the ground.

MANITOBA WHITE ELM (*Ulmus americana*).

Another of the native trees well known here has done remarkably well in the belts, although not so rapid a grower as the Box Elder, it is to be preferred on account of its longevity and the larger size it attains. The knarled trunk of this tree reduces its value

for commercial purposes, but its large spread of branches will always make it a favourite as a shade tree.

Measurement of 8 year old tree, 14 feet high, 6 feet spread of branches, diameter $2\frac{1}{2}$ inches. Is readily propagated from seeds which are ripe the first week in June. Seedlings can also be transplanted from the woods where they are found growing in profusion around the parent trees.

CANOE BIRCH (*Betula papyracea*).

This tree is also indigenous here, many specimens have made a rapid and uniform growth, their silvery white outer bark and symmetrical habit makes them very conspicuous, the wood is also highly valued as a fuel. Average specimens 13 feet high, 5 feet spread of branches, 3 inches in diameter, age of tree 9 years.

EUROPEAN WHITE BIRCH (*Betula alba*).

This variety has made a rapid and bushy growth, and starts from the terminal bud each year; it should be allowed to branch from the ground, for when it is pruned to a bare trunk it invariably sunscalds and eventually dies. Height 14 feet, spread of branches, 12 feet, diameter, 4 inches, age, 9 years.

RUSSIAN POPLAR (*Populus bereolensis*)

This seems to be the best of the many varieties of poplars imported from Russia and elsewhere which have been tested here, its large and luxuriant foliage and rapid growth make it a great favourite, and its habit of retaining its leaves after all other forest trees are bare, makes it valuable as a snow collector and wind break. It is readily propagated by means of cuttings either from the branches or roots. An average 8 year old tree was 19 feet high, with 12 feet spread of branch, trunk, $4\frac{1}{2}$ inches in diameter.

COTTONWOOD (*Populus monilifera*).

Fine specimens of this tree are found growing in the bluffs on the margins of the rivers in Manitoba. It is the quickest growing tree tested here, and a growth of 6 feet in a single season is not unusual. It is readily multiplied from spring made cuttings, and in this prairie province where rapid growing shelter belts are necessary, it is to be highly recommended. Height 21 feet, spread of branches, 12 feet 6 inches, diameter 5 inches, tree measured, 8 years old.

SHARP-LEAVED WILLOW (*Salix acutifolia*.)

A fine quick growing European variety. It is admirable as a hedge tree, is hardy and thrives well in the most exposed places, can be propagated quickly by either spring or fall cuttings, a tree 7 years old, grown in bush form, measured 16 feet high, with 18 feet spread of branches.

LAUREL-LEAVED WILLOW (*Salix laurifolia*).

Of all willows grown on this farm, this is the most admired, with its large shining leaves and graceful form. It grows readily from cuttings made in the spring.

Average 8 year old tree, height 9 feet, spread of branches, 9 feet, grown in bush form.

NATIVE WHITE SPRUCE (*Picea alba*.)

This is a beautiful native evergreen, which grows well on this farm, and as a wind break and snow collector, it is without a rival, it thrives well even in exposed places,

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average 8 year old trees are 10 feet high, with 6 feet spread of branches It is difficult to propagate this tree from seed, but seedlings can be obtained in abundance in our native spruce woods.

SCOTCH PINE (*Pinus Sylvestris*.)

Although only a small percentage of the trees of this species have lived it is more than probable that drought rather than frost has been the cause of the large percentage of loss. Specimens now growing are doing remarkably well, one tree in the belt planted in 1890 measures 12 feet high, with 5 feet spread of branches and the trunk has a diameter of 4 inches, 1 foot from the ground.

FOREST TREES AND SHRUBS SUITABLE FOR MANITOBA.

Numerous inquiries are received for a list of trees and shrubs hardy and suitable for this climate ; to meet this demand such a list is appended with dates of planting and other particulars.

LIST of Forest trees and ornamental shrubs which have undergone at least two years' test and can be recommended as quite hardy and useful for general cultivation in this province :—

Name of Variety.	Date of planting.	Remarks.
Green Ash (<i>Fraxinus viridis</i>)	1889	Slow grower.
Black Ash (<i>F. sambucifolia</i>)	1891	"
Native Mountain Ash (<i>Pyrus Americana</i>)	1890	Vigorous.
Native Alder (<i>Alnus viridis</i>)	1894	Healthy.
White Birch (<i>Betula alba</i>)	1892	"
Cut-leaved weeping Birch (<i>Betula alba laciniata</i>)	1892	Vigorous growth.
Canoe Birch (<i>Betula papyracea</i>)	1889	"
Low Birch (<i>Betula pumila</i>) native.	1894	Slow growth.
Northern Birch (<i>Betula borealis</i>) native.	1893	Healthy.
Native Basswood (<i>Tilia Americana</i>)	1893	" growth.
Cottonwood (<i>Populus monilifera</i>)	1889	Large healthy growth.
Asiatic Poplar (<i>Populus certinensis</i>)	1889	Vigorous.
Russian Poplar (<i>Populus Bereolensis</i>)	1890	"
<i>Populus Wobstii Riga</i>	1889	Large healthy growth.
Siberian Poplar (<i>Pop Siberica</i>)	1889	Vigorous.
Native Aspen (<i>Populus tremuloides</i>)	1889	"
Populus Carolina	1890	"
Balsam Poplar (<i>P. balsamifera</i>)	1889	Large healthy growth.
<i>Populus laurifolia</i>	1894	Healthy.
" <i>nolesi</i>	1894	"
Native White Elm (<i>Ulmus Americana</i>)	1889	"
Box Elder (<i>Negunda aceroides</i>)	1889	Large healthy growth.
Ginnalian Maple (<i>Acer Ginnala</i>)	1890	Small "
Mossycup Oak (<i>Quercus macrocarpa</i>)	1889	Vigorous.
Native Sumac (<i>Rhus</i>)	1893	"
White Willow (<i>Salix alba</i>)	1889	"
Yellow Willow (<i>S— aurea</i>)	1890	"
Salix Voronesh	1889	Large growth.
Sharp-leaved Willow (<i>S— acutifolia</i>)	1889	"
Laurel-leaved Willow (<i>S laurifolia</i>)	1890	Healthy growth.
Fragile Willow (<i>S. fragilis</i>)	1889	Vigorous.
Salix Britzensis	1890	Small healthy growth.
Savin (<i>Juniperus Sabina</i>)	1891	" "
American Larch (<i>Larix Americana</i>)	1889	Healthy growth.
White Spruce, native (<i>Picea alba</i>)	1889	Vigorous.
Black " " (<i>Picea nigra</i>)	1894	"
Balsam Spruce (<i>Abies balsamea</i>)	1893	Slow healthy growth.

ORNAMENTAL SHRUBS.

Name of variety.	Date of planting.	Remarks.
Artemisia (A. abrotanum Var Tobolskianum).....	1889	Rapid growth, ornamental.
" English (A. abrotanum).....	1892	Very healthy "
Cut-leaved Artemisia (A. laciniata).....	1894	" " "
June-berry (Amelanchier).....	1890	Fairly healthy "
Native Saskatoon (A. alnifolius).....	1889	Very " "
Siberian Pea Tree (Caragana arborescens).....	1889	Vigorous grower "
Caragana grandiflora.....	1890	" " "
" Redousky.....	1890	Small growth "
" Mollis-glabra.....	1890	Vigorous growth "
" Rydmer.....	1890	Small growth "
" Frutescens.....	1890	" " "
" Pygmaea.....	1891	Very small growth "
" Pubescens pendula.....	1890	Vigorous " "
Cotoneaster vulgaris.....	1894	Healthy, ornamental.
Native Hawthorn.....	1890	" " "
Siberian Dogwood, (Cornus Sibirica).....	1890	" " "
Native " (C. stolonifera).....	1891	" " "
Buffalo Berry (Sheperdia argentea).....	1890	Vigorous " "
Common Lilac (Syringa vulgaris).....	1889	Healthy, flowering shrub.
White Lilac (" " alba).....	1889	" " "
Syringa de Marley.....	1890	" " "
Purple Lilac (S. purpurea).....	1891	" " "
Hungarian Lilac (Syringa Josikea).....	1892	Vigorous " "
Tartarian Honeysuckle (Lonicera Tatarica).....	1891	Very healthy " "
Lonicera gracilis.....	1891	Healthy " "
" Alberti.....	1893	Fairly healthy " "
" glauca (Native).....	1891	Very " " "
Matrimony Vine (Lycium Europeum).....	1891	Very healthy climber.
Japan Rose (Rosa rugosa).....	1889	Vigorous flowering shrub.
Red-leaved Rose (Rosa rubrifolia).....	1894	" " "
Flowering Currant (Ribes aureum).....	1889	" " "
Mountain Currant (Ribes alpinum).....	1889	Fairly healthy " "
Spiræa Opulifolia.....	1889	Very " " "
" " aurea.....	1891	Fairly " " "
Maywreath (Spiræa hypericifolia).....	1890	Very " " "
Douglas Spiræa (S. Douglasii).....	1889	Small growth " "
Spiræa billardi.....	1890	Fairly healthy " "
Willow-leaved spiræa (Native).....	1893	Very " " "
Snow-berry (Symphoricarpus).....	1894	Healthy " " "
Snowball Viburnum opulus sterilis.....	1890	Healthy, flowering shrub.
" " lantana.....	1890	Vigorous " " "
" " rugosa.....	1894	Small healthy growth "
Cranberry Viburnum opulus.....	1890	Healthy, fruit and flowers.
Virginia creeper native.....	1890	Large healthy growth, climber.

SHRUBS.

The clumps of shrubs growing in the arboretum are a source of great interest to the visiting public.

Specimens of each variety have been plainly labelled in this plantation instructive for visitors. Notes were taken during the past season, on their habits of growth, hardiness, means of propagation, and also the date when in bloom, a partial list with notes is here given.

SPIRÆA HYPERICIFOLIA.

In full bloom on May 6th, this is one of the earliest flowering shrubs, it is a native of Canada but not indigenous to this province, it has a beautiful white blossom, blossoms freely and is readily reproduced by layering.

GUELDER-ROSE LEAVED SPIRÆA (*Spiræa opulifolia*.)

This shrub is easily propagated either from seed or layers, and is a very rapid grower, and free bloomer. It flowers during the first week of June, and the bloom is

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followed by bunches of seed vessels which remain on until winter, it retains its leaves until late in the season.

Specimens six years old planted in the open valley are now six feet high with a spread of branches of eight feet.

SPIRÆA OPULIFOLIA AUREA, is another form of this shrub, its beauty chiefly lies in its golden leaf, it has not flowered here yet, and seems slightly susceptible to frost.

SPIRÆA BILLARDI.

A pretty little shrub, and a free bloomer. The flowers are of a pinkish white colour, it comes into full flower about the 6th of June, and continues to send out occasional flower spikes until frost comes.

COMMON MEADOW SWEET (*Spiræa salicifolia*.)

A small native shrub, which is found growing plentifully on our prairies. It improves under cultivation and is useful for hedges or as an ornamental shrub. A succession of flowers can be obtained by clipping the branches back after the first flowers have faded. This begins to bloom about the 26th June, height two feet.

SPIRÆA CALLOSA ROSEA.

A pretty little shrub in full bloom about the 24th July.

COMMON LILAC (*Syringa vulgaris*.)

These were in bloom May 30th, and were much admired with their masses of showy blossom and fragrant odour.

It is to be regretted that the late spring frosts often injure the flower buds here so that they fail to open. Seed has been saved this year from the later free blooming trees, and it is hoped that seedlings raised from these may give varieties which will escape frost by blooming later.

WHITE LILAC (*Syringa vulgaris alba*.)

This is not as free a bloomer as that last mentioned; the flowers are pure white. The lilacs all retain their foliage until very late in the season, and for this reason they are more valuable in the shrubbery and are good snow collectors. In bloom on 4th June.

SYRINGA JOSIKEA.

This is another variety of the lilac from Hungary. Although not as beautiful in blossom as the common species, it is very suitable for this province, on account of its late flowering habit. The flower buds do not open until danger of frost is past. This was in full bloom about June 16.

TARTARIAN BUSH HONEYSUCKLE (*Lonicera tatarica*.)

This is a bush honeysuckle from Siberia, a very free blooming shrub, the small flowers almost hiding the foliage when in full bloom. It flowers early and abundantly each year, and is at the height of its bloom about the first week in June.

Its beauty is prolonged until harvest by its handsome red fruit. It is thoroughly hardy, starting to grow from its terminal buds each spring. The measurement of a six year old specimen is 9 feet high, with a spread of branches of 5 feet.

SIBERIAN PEA TREE (*Caragana arborescens*)

This was in full bloom 26th May. This shrub is from Siberia. It is very hardy and attractive in the spring with its delicate green foliage and yellow pea-shaped blossoms. It is easily raised from seed and should be on every farm in Manitoba. Seven year old specimens measure 10 feet high with spread of branches of 8 feet, growing in bush form.

WEeping PEa TREE (*Caragana arborescens pendula*).

Is a dwarf weeping form, but is more floriferous than the former, it is particularly suitable for cemetery planting. Several other varieties of caragana have been tried here with success. They all bear their seeds in pods, from which they are easily grown.

CYTISUS CAPITATUS.

This is a beautiful little shrub with yellow pea-shaped flowers. To grow it with success it should be laid down and covered with earth, under these conditions the last season's leaves remain intact until the following spring. It flowers about the end of May, six year old tree, 3 feet high, spread of bush 3 feet.

YELLOW FLOWERING CURRANT (*Ribes aureum*).

This is well and favourably known in the eastern provinces and in Europe. It is a very free bloomer, flowering about the 27th May, and remains in flower for two or three weeks. It is readily propagated by suckers or cuttings, two year old wood is found to be the best for cuttings, height 6 feet.

MOUNTAIN FLOWERING CURRANT (*Ribes alpinum*).

This is a small compact shrub with a pretty foliage, but insignificant flowers, blooms about June 5.

BERRIED PYRUS (*Pyrus baccata aurantiaca*).

This is a small tree, shrub-like in habit, which is quite ornamental, bearing its clusters of white blossoms about the end of May, this has been already referred to under fruit.

GUELDER ROSE (*Viburnum opulus sterilis*).

This is a sterile form of the high bush cranberry, its large clusters of unfertile white flowers are much admired. It can be reproduced and propagated from layers or cuttings, and is in full bloom on 12th July.

SHRUBBY CINQUEFOIL (*Potentilla fruticosa*).

This is a pretty little native shrub, not as well known as it should be, which grows from one to three feet high, and is covered with blooms almost continuously throughout the season. The flowers are yellow. It is appropriately called cinquefoil or five-finger, from the shape of its leaf, which, when opened out has the shape of a human hand.

ROSA RUGOSA.

A very pretty single rose from Japan, some of which are red, and others white. There is also a semi-double variety, all of which are quite hardy here. Its handsome foliage makes it a very desirable acquisition. Another pleasing feature is the scarlet fruit which succeeds the flower. It grows 3 feet high and is in bloom about July 12th.

ROSA RUBRIFOLIA.

This is another perfectly hardy rose, but the flowers are small and less attractive. The deep purple colour of its leaves, however, makes it an object of interest. In bloom about July 15th.

GOLDEN-LEAVED ELDER (*Sambucus nigra aurea*).

This, like all the elders thus far tested here, is killed almost to the ground every year, but on account of its beautiful golden foliage and rapid growth from the roots, it is valuable as a shrub. In bloom about June 25th. The flowers are succeeded by pretty bunches of berries.

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SIBERIAN DOGWOOD (*Cornus Sibirica*)

The beauty of this shrub lies chiefly in the vivid red colour of its bark, which, contrasting in the winter months, when devoid of leaves, with the white snow, produces a very pretty effect. In bloom on July 16th; flower inconspicuous.

VARIEGATED-LEAVED DOGWOOD (*Cornus Sibirica variegata*.)

This is a form of the above, but has a very pretty variegated foliage; it is not as robust or hardy as the common dogwood, but is more desirable.

NATIVE DOGWOOD (*Cornus stolonifera*).

An attractive native shrub, growing in ravines and damp places, which flourishes well under cultivation. Flowers freely in white clusters, which are succeeded by bunches of white berries. In bloom 20th June.

GINNALIAN MAPLE (*Acer Ginnala*.)

A small shrub like maple from Asia, whose beauty lies chiefly in its foliage, has the true maple leaf, which turns from a brownish green to a deep red in the fall.

It is useful for low hedges or lawn planting. It flowers about June 20th, and its seed hangs on the tree during the winter. Propagated from seed.

HYDRANGEA PANICULATA GRANDIFLORA.

This showy shrub with its large panicles of white sterile flowers is very beautiful. Its late flowering habit makes it valuable as a succession to the earlier flowering sorts. Coming into bloom early in August, it continues in flower until frost comes.

BOX ELDER TREE SEED.

A large number of applications for tree seeds were received during the year, but owing to the complete failure of the crop in 1895, none could be had for distribution.

The crop of seed was a large one this year and 800 pounds was gathered from the trees planted on this farm in 1890-91, these will be available for distribution during the coming year. They are sent out in bags by mail containing about one pound each.

FOREST TREE DISTRIBUTION.

This branch of the work is very much appreciated by settlers living in the open prairie parts of the province. The number of packages sent out last season was larger than in any previous year, viz.: 777 packages containing from 50 to 100 trees or cuttings in each package, judging from the reports received, an intelligent interest in tree culture is increasing rapidly among farmers; the reports this year showing that a much larger number than usual have succeeded with the trees.

ANALYSIS OF TREE REPORTS.

Number of packages sent out.....	777
do reports received.....	405
Number reported as having received the parcels in good condition	345
do do do fair do	1
do do do bad do	22
do as having had good success with the trees....	388
do do fair do do	13
do do poor do do	4
	363

The following table shows the varieties receiving favourable notice in the reports, also the average growth made by them during the season.

Variety.	Favourably Mentioned.	Average Growth
	Times.	Inches.
Artemisia Abrotanum.....	101	44
Box Elder or Ash Leaf Maple.....	87	24
Caragana.....	84	27
Russian Poplar.....	76	45
Willows.....	69	11
American Elm.....	58	17
Voronesh Willow.....	49	40
Sharp-leaved Willow.....	41	36
Cottonwood.....	38	41
Green Ash.....	20	13
Lilac.....	14	12

THE VEGETABLE GARDEN.

The season of 1896 has been exceptionally favourable for the vegetable garden, both yield and quality being far above the average. Copious showers throughout the summer contributed largely to this result, coupled with the absence of spring frosts. The tests this year were conducted on slightly different lines to those followed out in previous years, and were confined to the more thorough testing of a few kinds, all the varieties of each that could be easily procured, being sown. The following were those selected for the test; onions, cauliflower, lettuce, savory herbs and garden turnips, and the results furnish information as to the suitability of varieties for our climate which it is hoped will be valuable. A few remarks on the mode of cultivation adopted for the vegetable garden, may not be out of place. The land is well manured in the fall, (care being taken to use only such manure as is thoroughly rotted), ploughed very deeply, thoroughly harrowed and finally rolled. In the spring a good, firm seed bed is ready, which is so essential to the successful growing of vegetables in this province. Spring ploughing has not proved a success here, its great fault being a tendency to dry out. Weeds are never allowed to make much headway and are kept down by occasional cultivation, and it is surprising to note how small an amount of labour is required in this direction if the weeds are destroyed from the start. Either a hand hoe or hand cultivator is used which, besides destroying the weeds, makes a fine light mulch, which greatly tends to conserve the moisture. I would call special attention to the hand cultivator. It is a very cheap tool, and any one purchasing one, will be amply repaid by the much larger amount of work done, as well as the superior manner in which it is accomplished. Another point in the preparation of the vegetable garden, is the necessity for clearing the land from all vegetable refuse in the fall. When this is done there is less danger from insect pests.

ONIONS.

Twenty-four varieties of onions were sown outside, on April 27, in rows 14 inches apart, and were thinned on June 15th. All germinated well with three exceptions, viz.: Southport Red Globe, White Tripoli and Yellow Rocca. Of the pickling varieties Small White Nocera gave the largest percentage of small bulbs, closely followed by White Barletta, the former yielding 60 per cent, and the latter 50 per cent. Of the larger varieties, I would recommend the following for general growing in this province, the points taken into consideration being:—1st, earliness of ripening; 2nd, clean appearance, and 3rd, productiveness.

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Yellow Globe Danvers.—This variety has been well and favourably known here for years, and continues to give general satisfaction, as a main-crop onion for Manitoba. As its name implies, it is a globular, yellow variety, the skin is clean and bright, and it is a good keeper and shipper. We thoroughly recommend this variety.

Extra Early Flat Red.—This is the earliest ripening onion tested this year, and should certainly be included among the names of useful onions for Manitoba. It is a medium-sized flat variety, an abundant producer, and of good appearance.

Michigan Yellow Globe.—A variety very similar to Yellow Globe Danvers. It is however, of deeper colour, more spherical, and a heavier yielder, a first-class variety.

Southport White Globe.—The only one of the large silver-skin onions considered worth growing here. It is an abundant yielder, producing uniform, regular, globular bulbs, fine-grained and of mild flavour, and is entirely free from the soft loose skin of the other white varieties, which is so detrimental to their good keeping.

Prize Taker.—Although not so early in ripening as some of the former varieties, yet on account of its productiveness and fine appearance, this variety is worth a trial. It is a globular onion of a rich orange yellow colour, and a good keeper.

James' Keeping.—This is an entirely new variety here, and was received from Germany. Although not a large onion, its firmness deserves special mention and gives promise of being the best keeper yet tested. It is a globular variety of a pale yellow colour. The other varieties are excluded from special mention, either on account of their non-keeping appearance, or being too late in ripening. It would no doubt be useful to test them another year. Following is a tabular list of the tested varieties.

The yields are computed from one row 66 feet long.

Name of Variety.	Date Pulled.	Date Ripened.	Colour.	Shape.	Yield per Acre.	
					Bush.	Lbs.
Michigan Yellow Globe	Aug. 31	Sept. 8	Yellow	Globular	410	
Red Victoria	Sept. 8	" 15	Red	"	428	16
Yellow Globe Danvers	Aug. 31	" 8	Yellow	"	405	20
Southport Red Globe	} Did not germinate sufficient for test.					
White Tripoli						
Yellow Rocca						
Large Red Globe	Aug. 31	Sept. 12	Deep red	Globular	571	
Yellow Flat Danvers	" 31	" 8	Yellow	Flat	369	15
White Queen	Sept. 1	" 10	White	"	315	
The Oregon	Aug. 31	" 12	Yellow	"	425	18
Mammoth Silver King	Sept. 8	" 15	White	"	320	
Red Wethersfield	Aug. 31	" 12	Deep red	"	586	20
Southport White Globe	Sept. 1	" 10	White	Globular	473	15
Prize Taker	" 5	" 10	Yellow	"	590	17
Mammoth Pompeii	" 10	" 15	"	"	452	24
Red Tripoli	" 8	" 20	Red	"	366	19
Southport Yellow Globe	" 1	" 12	Yellow	"	454	
White Portugal	" 1	" 15	White	"	315	17
Extra Early Flat Red	Aug. 31	" 5	Red	Flat	396	40
Rose Monster	Sept. 8	" 15	Light pink	Globular	660	17
Small White Silverskin	" 12	" 15	White	Flat	210	29
White Barletta	" 10	" 15	"	"	251	30
Small White Nocera	" 10	" 15	"	"	218	45
James' Keeping	" 3	" 10	Yellow	Globular	313	17

LETTUCE.

Thirty-eight varieties of this vegetable were sown outside on May 5th, in rows 18 inches apart. They were thinned on June 12th, and were ready for use on July 4th, thus making a very thorough varietal test. As was expected, there was a great deal of resemblance between some of the varieties, but, notwithstanding, the test was a very useful and interesting one, and brought to our notice some good kinds not generally

grown, besides showing the adaptability of our soil, to this most refreshing vegetable. One variety, "Early Tennis Ball," did not germinate, and another, "Longstander Bronze Head," showed very poor vitality. Following will be found arranged in tabular form, the full result of this test, together with a few notes on the more meritorious varieties.

All Heart.—This, as in former years, upheld its reputation as an extra good variety. Very thin leaved, close in texture, and having a large, well blanched heart, which is cool, crisp and juicy.

Rennie's Nonpareil.—A thin-leaved cabbage variety, of good flavour and appearance, well curled and blanched, cool, crisp and juicy; a good variety.

Tilton's White Star.—A well-curved cabbage lettuce, with a peculiar whitish green appearance, makes a good heart, and is of excellent flavour.

Standard Yellow.—A large curled lettuce with well-bleached heart, very crisp and sweet; should be a standard variety.

Toronto Gem.—One of the largest varieties tested, of excellent flavour and appearance; would make a fine market sort.

Ohio Cabbage.—A well-curved cabbage variety, with a large, well-bleached heart and fine flavour.

I would make a special reference to the different varieties of "Cos" lettuce. These are not very well known here, and, when grown, the mode of bringing them to perfection for the table is not practised. Our attention is often drawn to complaints regarding this "green" lettuce, (as it is termed), and the Cos varieties, when not blanched, are most assuredly green and tough, and also very bitter. But if, after the plants have attained their maximum growth, the tops are tied closely together, at the end of 7 to 10 days after this operation, the most delicious lettuce is obtained, far exceeding the cabbage varieties in flavour and appearance for the table. I think if this fact is known this most desirable class of lettuce will be more generally grown, and in consequence more of this healthful vegetable eaten. There was no appreciable difference in the Cos varieties tested this year, with the exception that the leaves of Early White Self Folding Cos were more incurved than the others, making the blanching process easier.

Name of Variety.	Flavour.	Texture.	Weight per dozen.	Date went to seed.	Remarks.
Summer Cabbage.....	Fair.....	Firm.....	14 lbs.....	Aug. 10..	Seed ripened.
Denver Market.....	Good.....	".....	13 ounces..	" 10..	
California Cream.....	Fair.....	Loose.....	10 ".....	" 10..	
Tilton's White Star.....	Good.....	Firm.....	10 ".....	" 13..	
Silver Ball.....	Fair.....	Loose.....	12 ".....	" 8..	
Rennie's Nonpareil.....	Good.....	Firm.....	14 lbs.....	" 13..	Seed ripened.
Early Hanson.....	".....	".....	14 ounces..	" 13..	"
Philadelphia Butter.....	Fair.....	Loose.....	12 ".....	" 5..	"
Ohio Cabbage.....	Good.....	Firm.....	14 ".....	" 12..	
Grand Rapids.....	Fair.....	".....	14 ".....	" 10..	Seed ripened.
Red Edge Victoria.....	Good.....	".....	12 ".....	" 12..	"
Malta Drumhead.....	Fair.....	".....	14 lbs.....	" 7..	"
Early Curled Silesian.....	Good.....	".....	1 lb.....	" 10..	"
Royal Summer Cabbage.....	Fair.....	Loose.....	10 ounces..	" 5..	
Nonpareil Cabbage.....	".....	".....	10 ".....	" 5..	Seed ripened.
The Deacon.....	".....	".....	8 ".....	" 5..	
Black Seeded Simpson.....	".....	Firm.....	14 lbs.....	" 6..	
Toronto Gem.....	Good.....	".....	13 ".....	" 10..	Seed ripened.
Longstander Bronze Head.....	".....	".....	13 do.....	" 8..	
All Year Round.....	".....	".....	1 lb.....	" 5..	Seed ripened.
Early Prize Head.....	Poor.....	Loose.....	8 ".....	" 3..	
Early Curled Simpson.....	".....	".....	10 ".....	" 3..	Seed ripened.
Early Tennis Ball.....	".....	".....	".....	".....	
Big Boston.....	Fair.....	Loose.....	16 ounces..	" 5..	Seed ripened.
All Heart.....	Good.....	Firm.....	16 ".....	" 10..	
Wheeler's Tom Thumb.....	Poor.....	".....	6 ".....	" 20..	"
Buttercup.....	".....	Loose.....	8 ".....	" 5..	

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LETTUCE, Test of Varieties—*Concluded.*

Name of Variety.	Flavour.	Texture.	Weight per dozen.	Date went to seed.	Remarks.
Nonesuch.....	Poor.....	Loose.....	8 ounces.	Aug. 5.	Seed ripened.
Wonderful.....	Fair.....	Firm.....	10 "	" 6	"
Standard Yellow.....	Good.....	".....	14 lbs.	" 6.	"
Lorenz's Favourite.....	".....	".....	14 ounces.	" 10.	"
Fearnought.....	".....	".....	15 "	" 5.	"
White Paris Cos.....	".....	".....	14 lbs.	" 15.	"
American Curled.....	Poor.....	Loose.....	10 ounces.	" 4.	"
Early White Self Folding Cos.....	Good.....	Firm.....	16 "	" 20.	"
Green Cos.....	Very good	".....	16 "	" 20.	"
White Cos.....	".....	".....	14 lbs.	" 20.	Seed ripened.
Paris White Cos.....	".....	".....	14 lbs.	" 20.	"

CAULIFLOWER.

Fifteen varieties of this vegetable were tested this season. All were sown in hotbeds in boxes on April 22nd, transplanted into spent hotbed on April 29th, and planted out on May 21st. All produced heads, although one of the varieties was too late in heading for this province. As soon as the heads commence to form, the leaves should be drawn around them and tied at the top, thus protecting them from the hot sun and dust, and retaining that snowy whiteness, which is indispensable to the ready sale of this vegetable. Following are a few notes on some of the varieties that specially commended themselves to our notice, also the full results of the test in tabular form.

Early Snowball.—As usual this was one of the best varieties grown. It is a sure header, and produces fine symmetrical heads, very close grained, and of a very white colour. It has also the merit of earliness.

Snowstorm.—Another good early variety, with very white compact heads. We would recommend this variety for general purposes.

Giant White Pearl.—Fine grained, compact heads, of average weight and good colour.

Extra Early Whitehead.—An early variety with close grained heads of good colour and flavour.

Large Algiers.—Although off colour, this was worth growing as a late variety.

The other varieties tested were of ordinary merit with the exception of Autumn Giant, which seems too late for us. Probably it would do better if sown earlier.

Name of Variety.	First Headed.	Colour.	Texture.	Weight.
Early Snowball.....	July 15.....	Good.....	Close.....	6 lbs.
Walcheren.....	Aug. 5.....	Poor.....	Loose.....	5 1/2 "
Best of all.....	July 15.....	Good.....	Fairly close.....	8 1/2 "
Extra Early Paris.....	" 20.....	".....	".....	6 1/2 "
King of the Earlies.....	" 20.....	".....	".....	6 1/2 "
Large Algiers.....	Aug. 25.....	Poor.....	".....	7 "
Short Stem Le Normand.....	" 3.....	Fair.....	Loose.....	3 1/2 "
Earliest Dwf. Erfurt.....	July 8.....	Good.....	Fairly close.....	6 1/2 "
Half Early Paris.....	" 20.....	Fair.....	Close.....	5 1/2 "
Giant White Pearl.....	" 15.....	Good.....	Very close.....	5 1/2 "
Early London.....	" 20.....	Poor.....	Fairly close.....	3 1/2 "
Extra Large Erfurt.....	" 25.....	Fair.....	".....	6 1/2 "
Extra Early Whitehead.....	" 20.....	Good.....	Close.....	5 1/2 "
Snowstorm.....	" 12.....	".....	".....	6 "
Autumn Giant.....	Sept. 11.....	Poor.....	Fairly close.....	6 1/2 "

TURNIPS.

Fifteen varieties of garden turnips were sown with hand-drill, in rows 30 inches apart, on 15th May, all germinated well and were thinned on June 8th. In the fall some of the earlier varieties were attacked by one of the "Blister beetles" a noticeable feature in connection with this, was the fact, that the later varieties although sown side by side, were not affected, with this pest, which quickly stripped the leaves from the infested plants. As the varieties attacked, were past their eating stage it did not materially affect the value of the test. Following are the results in tabular form.

Name of Variety.	Ready for use.	Shape.	Colour.	Average weight.	Flavour.
				Lbs.	
Early White Six Weeks	July 10.	Globular	White skin and flesh	2 $\frac{3}{8}$	Fair.
Early White Flat Dutch	" 15.	Flattish	Red top, white flesh	1 $\frac{1}{8}$	Strong and hot.
Jersey or Vertus	Aug. 1.	Long, tapering	White skin and flesh	2 $\frac{1}{8}$	Poor and woody.
Extra Early Milan	July 1.	Flattish	Red top, white flesh	2 $\frac{3}{8}$	Fair when young.
Sweet German	Aug. 6.	Swede shaped.	Green top, yellowish flesh	2	Fairly sweet.
Early White Stone	July 10.	Flattish	White skin and flesh	3	Sweet but woody.
Orange Jelly	Aug. 6.	Globular	Yellow skin and flesh	1 $\frac{1}{8}$	Hot and tough.
Breadstone	" 1.	"	Green top, white flesh	3	Sweet and juicy.
Waite's Eclipse	" 6.	"	Pink top, white flesh	2 $\frac{4}{8}$	"
Red Top Strap Leaf	July 12.	Flattish	Red top, white flesh	1 $\frac{3}{8}$	"
Seven Top	Aug. 6.	Long, tapering	White skin and flesh	1 $\frac{3}{8}$	Sweet but woody.
Purple Top White Globe	July 15.	Swede shaped.	Pink top, white flesh	4 $\frac{1}{8}$	Fairly sweet.
Large Amber Globe	Aug. 3.	Globular	Green top, yellowish flesh	2 $\frac{1}{8}$	"
Golden Stone	July 20.	"	Flesh and skin yellowish.	2 $\frac{1}{8}$	"
Large White Globe Strap Leaf	Aug. 6.	Roundish	White skin and flesh	1 $\frac{1}{8}$	Sweet and juicy.

The poorest variety tested was "Seven Top." This made luxuriant top-growth, but very little root.

SAVORY HERBS.

Twenty-six varieties of herbs were sown outside in rows two feet apart, on May 11, and proved a very interesting test, visitors to the farm showing much appreciation of this portion of the vegetable garden. Specimens of each variety were fixed on one of our show-boards, and exhibited at the local exhibitions visited by us, much interest being shown in them, especially among the ladies. All varieties sown germinated well, with four exceptions, viz. :—Dandelion, Pennyroyal, Chammomile and Catnip. Those useful in their dried state, were dried and preserved for exhibition samples, and some varieties ripened a fine sample of seed. Of the well known herbs such as Sage, Savory, Thyme, etc., it is not necessary to make any comment, except that it seems a pity, that so much of these often-used herbs, has to be imported, when they can be grown so well here. Particular attention is called to some of the varieties not generally grown.

Borage.—A hardy annual used as a pot-herb, and for bee pasturage, the farm bees being occupied with it all the time it was in bloom. Does well here.

Balm.—A perennial herb, the leaves having a perfume similar to lemons and is used for making balm tea to allay fevers.

Saffron.—A hardy annual cultivated for its flowers, which are used in dyeing. It is also used to adulterate the European saffron which is the flower of "Crocus Sativus."

Dill.—An annual cultivated for its seed, which has an aromatic odour, and a warm pungent taste. Good for flatulence and colic in infants. Seed ripened early.

Horehound.—A perennial herb with a strong aromatic smell, and a bitter pungent taste. It is a tonic and enters largely into the composition of cough lozenges and syrups. Does well here.

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Coriander.—A hardy annual cultivated for its seeds, which have an agreeable aromatic taste and are used in confectionery. Care should be taken to gather the seed, without bruising the stems and leaves, as when injured, they have a disagreeable odour, which they impart to the seed. Seed ripened well.

Hyssop.—A hardy perennial with an aromatic flavour, and warm pungent taste. It is a stimulant and expectorant. The flowering summits and leaves are the parts used.

Rue.—A hardy perennial with a peculiar smell. The leaves are so acrid as to blister the skin. It is a stimulant and anti-spasmodic, but must be used with caution as it is a powerful remedy.

Following is a list of the varieties grown.

Name of Variety.	Date in Flower.	Date Pulled.	Condition when Gathered and Stored.	Properties.
‡ Rosemary		Sept. 8.	Dried well	
Sweet Basil	July 30.	Aug. 3.	"	Flavouring.
Summer Savory	" 30.	" 3.	"	"
§ Chamomile				
§ Catnip				
Tansy	Aug. 31.	Aug. 31.	Dried well	Medicinal.
* Anise	" 1.	Sept. 8.	Seed did not ripen	
Thyme	" 31.	" 10.	Dried well	Flavouring.
§ Pennyroyal				
† Saffron	Aug. 14.	Sept. 10.	Flowers dried well	Dyeing, etc.
Borage	July 10.	" 1.	Dried only fairly	Bee pasturage.
Hyssop	Aug. 2.	Aug. 3.	Dried well	Medicinal.
‡ Balm		" 14.	"	"
Pot. Marigold	July 8.	Sept. 1.	"	Flavouring.
‡ Wormwood		Aug. 14.	"	Medicinal.
‡ Broad Leaved Sage		" 14.	"	Flavouring.
§ Dandelion				
* Dill	July 15.	Sept. 7.	Seed ripened	Medicinal.
* † Caraway		" 8.	Seed did not ripen	Flavouring.
‡ Rue		Aug. 14.	Dried well	Medicinal.
* Fennel	Aug. 25.	Sept. 7.	Seed did not ripen	Flavouring.
Horehound	" 13.	Aug. 14.	Dried well	Medicinal.
Pot. Marjoram	" 12.	" 14.	"	Flavouring.
* Coriander	July 10.	Sept. 1.	Seed ripened	"
Sweet Marjoram	Aug. 3.	Aug. 3.	Dried well	"

* Grown for their seed. † Grown for flowers. ‡ Did not flower. § Did not germinate.

TOMATOES.

Only three varieties of tomatoes were tested this year, and all produced ripe fruit. They were sown in the boxes in hot-bed on April 22, transplanted into boxes on May 5, and planted outside on May 27. Earliest of All ranks first as regards earliness, producing ripe fruit on August 8. Early Ruby follows, with ripe fruit on August 12, and Lorenz's Forerunner on August 20. The annexed table shows that although Earliest of All was the first to ripen, yet before frost Early Ruby had given the largest weight of ripe fruit, from an equal number of plants, and was the most productive variety, and as Early Ruby is a much better fruit in appearance and flavour, it must be conceded first place. This bears out our previous experience, with these two varieties. Lorenz's Forerunner is a new German variety, and this is most probably the first time it has been tested in this province. It is much later than the former varieties, although the fruit is far superior in shape and flavour. Some of the seed was saved, and according to previous experience we expect to obtain earlier fruit from this

seed next season. Attention is again called to the beneficial results of severe pruning on tomatoes in this province. While other gardeners in the district, had not had a single specimen of ripe fruit, we were pulling them in large quantity; and in our own experiments, plants not pruned, were 10 to 15 days behind the others in ripening fruit. Our method is summed up in a few words. "After the plants have become established remove all lateral growths, and continue doing so throughout the season." It is the leading shoots that give ripe fruit here, and to promote the rapid growth of these is the object for removing the lateral or side growths. Some of the leaves should be clipped off occasionally to allow free access of air. When we consider the high price that can be obtained for home grown tomatoes, it is surprising that our local growers do not adopt this plan, but it was gratifying to note the number of visitors who saw the practical results of this method last season, and who expressed surprise at seeing ripe fruit so much earlier than anywhere else. Doubtless the lesson has not been lost, and better results in tomato culture will soon follow. The following table shows the weight of fruit gathered from an equal number of plants of each of the three varieties tested together with the date harvested.

RIPE FRUIT.

Earliest of All.		Early Ruby.		Lorenz's Forerunner.	
Aug. 8....	10 ounces.....	Aug. 12..	8 ounces.....	Aug. 20...	4 ounces.
" 16....	54 "	" 16....	44 "	" 24....	48 "
" 20....	6 "	" 24....	256 "	" 29....	32 "
" 24....	208 "	" 29....	128 "	Sept. 1...	17 "
" 29....	128 "	Sept. 1....	64 "	" 3....	56 "
Sept. 1....	104 "	" 3....	144 "		
" 3....	56 "				
	566 ounces.		644 ounces.		157 ounces.

GREEN FRUIT.

Sept. 3....	240 ounces.....	Sept. 3....	272 ounces.....	Sept. 3....	200 ounces.
Total					
Weight.	806 "		916 "		357 "

BEANS.

Nine varieties of beans were sown this year, and all did exceptionally well. The variety to which we desire to draw special attention, is the Navy Bean of commerce, tried this year for the first time. It was sown on 26th May, outside, in rows $2\frac{1}{2}$ feet apart, and was ready for use as a string bean on 30th July. By the 1st of September the pods were ripe, and a fine sample of seed was gathered. I think we may fairly expect this bean to ripen in any ordinary season, and as it invariably commands a good price, should be a paying crop. The pod is of a light green colour, slightly curved, about $3\frac{1}{2}$ inches in length, and contains on an average 5 beans. It is very productive and yielded at the rate of 90 bushels to the acre on a small plot. We would strongly advise farmers to try a small patch of this valuable variety.

ASPARAGUS.

Too much cannot be said of this very useful vegetable. One of the most delicious of the season, and also the earliest, it should be grown by every one, and no farmer's

Experimental Farms.

garden is complete without it. It is, contrary to general opinion, very easy to grow from seed, and a bed 12 x 40 feet containing 75 to 100 plants, should give an abundant supply for an ordinary sized family. Plant in rich soil, and every year give a liberal top-dressing of manure, as much as possible of which should be dug into the bed in the spring. A liberal sowing of salt, just before growth starts, is also said to increase the yield. Following are a few notes on the varieties tested :—

Conover's Colossal.—An old standard sort, very productive and of good flavour.

Barr's Mammoth.—Similar to the above, except in point of productiveness, which is less than that of the former. The growths are slightly stronger.

Giant Argenteuil.—This is the best flavoured and most succulent of all tested, much lighter in colour than the preceding varieties.

Name of Variety.	Date Planted.	Date Ready.	Productiveness.	Flavour.	Allowed to Seed.
Conover's Colossal.....	Fall, 1892.....	April 30.....	Very productive	Good.....	June 27
Barr's Mammoth.....	" 1894.....	May 10.....	Fairly "	Fair.....	" 27
Giant Argenteuil.....	" 1894.....	May 10.....	Very "	Very good.....	" 27

A quantity of asparagus seed was gathered this year, and will be available for distribution in the spring.

ARTICHOKES (Jerusalem.)

These, as noted in last year's report, were sown in November, 1895, as they were planted rather deeply the previous year it was thought that the small yield was perhaps attributable to this and in 1895 the tubers were only covered from 4 to 5 inches. A liberal top-dressing of manure was then given, which was removed early in the spring. Only about 40 per cent came up, so that a fair yield could not be obtained. It would appear as if these were not likely to prove a success here, the chief reason for this, is, no doubt, the shortness of the season.

CORN.

Seven varieties were sown and all germinated well. The following ripened their seed :—Mitchell's Extra Early, Keith's Black, Pop-Corn and Cory. First of All ripened partially. It would be to the advantage of some of our local growers, to take note of the first variety mentioned. It can always be depended on to ripen, while many kinds grown do not even get into a fit condition for table use. The cob is about 6½ inches in length, of a good white colour, and fair flavour. Keith's Black seems to be an improved Squaw corn. It is a flint variety producing cobs about 7 inches in length, of a bluish black colour, and although sown several days later than the others mentioned was one of the first to ripen.

Other vegetables not included in the preceding notes such as celery, cabbage, pease, radishes, beets, parsnips, carrots and citrons, etc., were all represented in the vegetable garden, by several good varieties and did very well. The celery was the best grown for years, and parsnips were also better than usual.

ANNUAL FLOWERS.

Forty-six varieties of annuals were tested this year, and gave general satisfaction, the flower garden proving a source of admiration to the many persons who visited the farm. The hot-beds came through the rather cool spring, in good condition, and by planting time, we had a fine stock of strong, healthy plants ready for bedding. In connection with hot-bed management, special attention is called to what is technically termed

“pricking off,” or, in other words, transplanting from the seed-boxes into other beds, or boxes in which the plants are set a further distance apart, and where they remain until ready for planting outside. A great many people leave the plants too long, in the seed boxes, and the consequence is that leggy, straggling plants are produced. The method we have found to be productive of the best results is to transplant as soon as the seedlings can be barely handled. This seems to reduce the chances of a check to a minimum as they rarely ever flag or wilt, and strong stocky plants are produced. Varieties tried for the first time were :

Coreopsis Japonica.—Produces small yellow, composite flowers, of no particular merit.

Aster Liliput.—This is a very dwarf type of miniature asters. The flowers are early and are produced in profusion; a strain of asters which is well worth a trial.

Aster Cannell's Eynsford Yellow. This is presumably the only yellow aster in cultivation. It was originated by Messrs Cannell and Son, Kent, England, a tall strong-growing quilled variety, flowering fairly early, and is of a distinct yellowish colour, a valuable acquisition to this showy class of annuals.

PERENNIAL FLOWERS.

Fifty-six varieties of Perennials were growing on this farm in the summer of 1896, forty-eight of which have proved to be hardy, each year adds some new varieties to the list, some of them very beautiful, and there seems every reason to believe that in a few years the Manitoba Experimental Farm will be able to show a very creditable list of hardy perennials, many farmers have not the time to grow annuals, while with very little trouble, any one may have clumps of Perennials, which on account of their beauty and permanency will well repay those who plant them.

RHUBARB.

The large plot devoted to this very useful plant continues to attract the attention of visitors, the immense leaves and stems and the general vigour of the plants are a surprise to many.

Appended will be found a table giving the yield of each variety for the past season with other particulars. Tottle's Improved continues to give the most satisfactory returns.

Variety.	When planted.	Fit for use	Colour.	Quality.	Yield per plant.
					Lbs.
Tottle's Improved.....	1892	May 20.	Light red....	Tender.....	44
Giant.....	1893	" 27.	Green.....	Very tender....	22
Royal Albert.....	1893	" 30.	Light red.....	Fair.....	21
Scarlet Nonpareil.....	1893	" 31.	Light green....	Tender.....	21
Strawberry.....	1893	" 26.	Light red.....	Fair.....	20
Johnston's St. Martin (seedling of).....	1892	" 24.	Red.....	Tender.....	19
Brabant's Colossal.....	1893	" 28.	Green.....	".....	19
Prince Albert.....	"	" 30.	Light red.....	".....	18
Myatt's Linnaeus (seedling of).....	1892	" 24.	Spotted.....	".....	18
Early Crimson.....	1893	" 27.	Light red.....	".....	17
Victoria Seedling.....	1892	" 24.	Red.....	".....	16
Marshall's Royal Linnaeus.....	1893	" 29.	Spotted.....	".....	16
Scott's Mammoth (seedling of).....	1892	" 24.	Green.....	Poor, hard.....	15
Magnum Bonum.....	1893	" 29.	Light red.....	Tender.....	14
Tobolsk.....	1893	" 30.	".....	Very tender....	14
Paragon.....	1893	" 30.	Green.....	Fair.....	10
Early Prince.....	1893	" 29.	Dark red.....	Very tender....	6
General Taylor.....	1893	July 1.	Green.....	Hard.....	6
Salt's Perfection.....	1893	" 2.	Light red.....	Tender.....	3

Experimental Farms.

FORCING RHUBARB.

This plant was successfully forced last winter in a very simple manner.

Three small 2 year old roots were dug before winter set in, and stored in the cellar. On 1st December they were placed in a flour barrel and covered with clean sand, the barrel was placed near the furnace and the sand kept moist.

On 2nd January the first crop (1½ pounds) was pulled; the stalks were 15 inches long and very tender, cooking a bright red colour and good flavour; successive pullings were made each week up to 10th February, when the roots were exhausted. The total yield from the three roots was 15 pounds 10 ounces.

¹⁸⁷⁷⁻¹⁸⁸¹^{GRANDIS} By this plan any person having a furnace in the house and a few rhubarb roots can grow sufficient of this healthy vegetable to supply a family for a portion of the winter.

DISTRIBUTION OF SEED GRAIN AND POTATOES.

The distribution of seed grain was much larger this year than in any previous one. Circular forms were sent to each person supplied with grain and the replies especially from those to whom 2 bushel lots were sold were generally very satisfactory. The following brief extracts are taken from some of the replies.

RED FIFE WHEAT.

G. H. Underhill, Rapid City, "yielded 50 bushels per acre, 10 bushels per acre better than my own Red Fife, will sow no other next year."

G. M. Greig, Rapid City "gave a larger head than the rest of my crop."

Wm. Evans, Brandon, "yield 42 bushels per acre, sample superior to my own."

J. Adamson, Gladstone, "the sample was far superior to the ordinary Red Fife."

BANNER OATS.

J. S. Scott, Lippentot, "the best I ever had."

Wm. West, Brandon, "threshers said they were the best oats threshed this year."

Wm. Chalmers, Hayfield, "rather earlier and yielded five bushels more per acre."

R. Allonby, Arrow River, "ripened earlier and yielded 8 bushels per acre more than other sorts."

G. H. Underhill, Rapid City, "yield 104 bushels per acre, 64 bushels per acre more than my black oats and 10 days earlier, will sow no other, sold all my surplus for seed."

W. R. F. Collis, Shoal Lake, "gave 73 bushels per acre, 13 bushels more than Black Tartarian, will sow only Banner in future."

Col. Irvine, Stony Mountain Penitentiary, "earlier and yielded 8 bushels per acre more than other oats."

J. Vickery, Wheatland, "gave 62 bushels per acre, are a very productive oat."

ODESSA BARLEY.

Wm. Stevens, Virden, "yielded 14 bushels more than my own two-rowed barley, and was much earlier, with better straw and stands hot weather better."

B. Little, Oak Lake, "ripens earlier and better weight."

Jas. B. King, Fairfax, "yielded 5 bushels per acre more than common barley."

Peter James, Rapid City, "2 weeks earlier and a heavier crop."

J. Adamson, Gladstone, "ripened earlier, grain was plumper."

Col. Irvine, Stony Mountain Penitentiary, "ripened earlier and the grain was heavier."

Chas. Guppy, Rosewood, "heavier than the old varieties, will answer well for this locality."

The following quantities were sent to applicants from this farm in spring.

	Lots.
Wheat 2 bushels or more	35
Oats " " "	76
Barley " " "	39
Pease " " "	16
Grain of all kinds in 3-lb. bags	348

DISTRIBUTION OF POTATOES, ETC.

Potatoes in '2-lb. bags	94
Rhubarb roots	32
" seed	30 pkgs.
Asparagus roots	16 "

HOPS.

The Kentish Golden and Native Manitoba hops mentioned in my last report survived the winter and made a growth of from 15 to 20 feet during the season; the foliage of the Kentish Golden is much darker than the native, and the flowers somewhat larger.

The native hop yielded an average of 8 pounds 5 ounces per hill of green hops, while the Kentish Golden gave a return of only 3 pounds 5 ounces per hill.

TILE DRAINS.

During the past season the tile drains have been subjected to a very severe test. A thaw in March started the drains to run freely. This was followed by a sharp frost early in April, which continued for three weeks, freezing the shallower drains solid. This delayed their working for a time after spring opened, but when once started they worked well and soon cleared the land of all surplus water.

Although the rainfall of the year was above the average, all under-drained parts of the farm were kept quite clear of surface water, and it is evident that tile-draining on low spots of land can be made a success here.

FARMERS' MEETINGS.

The interest at farmers' meetings was well kept up during the year, and the attendance has been above the average. These meetings afford an opportunity of explaining the work of the Experimental Farms to the most progressive farmers of the country, and the discussions often bring out suggestions of new lines of work which it is desirable should be undertaken at the Experimental Farm.

Since my last report, meetings at the following places were attended:—

December	13th, 1895, Wawanesa.
"	21st, 1895, Portage la Prairie.
February	6th, 1896, Oak Lake.
"	7th, 1896, Virden, two meetings.
"	8th, 1896, Elkhorn.
"	17th, 1896, Kildonan.
"	17th, 1896, Birds' Hill.
"	18th, 1896, Dairy Convention at Winnipeg.
"	19th, 1896, Stock Breeders' Meeting at Winnipeg.
"	21st, 1896, Rosser.
"	29th, 1896, Brandon.
March	14th, 1896, Rapid City.
"	18th, 1896, Melita.
"	19th, 1896, Napinka.
"	20th, 1896, Hartney.

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AGRICULTURAL EXHIBITIONS ATTENDED.

An extensive exhibit of the products of the Experimental Farm was made at the Brandon Summer Fair last July; several excursion trains were run during the exhibition, and the attendance was much larger than usual.

Products of the farm were also exhibited at local agricultural fairs held at Virden and Souris.

ACKNOWLEDGMENTS.

I beg to acknowledge with thanks the following donations received during the year:—

- J. D. Johnson, Ebor, Man., new variety of pease.
- The Massey Manufacturing Co., Australian seeds.
- R. W. Smith, Lake Dauphin, native grass seeds.
- W. Sykes, Hilton, Man., wild red currant.
- E. Fowler, Headingly, Man., vegetable seeds.
- J. Beverage, Pilot Mound, Man., tomato seed.
- J. B. Lang, Oak Lake, Man., willows.
- J. S. Chaster, Sydney, Man., potatoes.
- W. & J. Wallace, Niverville, Man., barley.
- Wm. Barclay, Gilbert Plains, Man., grass seeds.
- S. C. Young, Fort William, Ont., mountain ash trees.
- John O. Stewart, Fort Francis, Ont., trees and tree seed.
- Thos. Howard, Corrigan, Whitemouth, clover and timothy seed.
- J. Burrows, Lambeth, Ont., seed oats.
- A. McPherson, St. Boniface, Man., tree seed.
- A. P. Stevenson, Nelson, Man., fruit for seed.
- Nelson Bedford, Glencross, Man., fruit for seed.
- D. D. Fraser, Oak River, Man., astragalus seed.
- Prof. N. E. Hansen, Brookings, S. Dakota, cherry seed.
- J. A. McRae, Kerfoot, Man., seed oats.

METEOROLOGICAL RECORD.

Month.	Highest Temperature.	Lowest Temperature.	Total Rainfall	Depth of Snowfall.	Total Amount of Sunshine.	
			Inches.	Inches.	Hrs.	Mins.
1895.						
November	44° above zero on 16th	23° below zero on 26th	None	11½	78	6
December	40° " " 13th	24° " " 26th	"	6	87	12
1896.						
January	33° " " 8th	43° " " 4th	"	18½	83	54
February	45° " " 26th	30° " " 25th	"	3½	130	
March	47° " " 24th	31° " " 12th	"	16	186	42
April	77° " " 26th	11° above " 2nd	2.4	6	151	48
May	88° " " 11th	31° " " 2nd	2.9	None	180	54
June	85° " " 29th	41° " " 12th	3.7	"	229	54
July	89° " " 1st	39° " " 22nd	2.9	"	276	54
August	85° " " 1st	33° " " 17th	2.4	"	276	48
September	83° " " 28th	21° " " 19th	6	"	144	6
October	76° " " 2nd	4° " " 20th	None	4	125	
Total, 1896.			14.9	65½	1,951	18
" 1895.			11.5	14½	1,474	30

CORRESPONDENCE.

The correspondence from this office was larger during the past year than at any time in the history of the farm, 2,715 letters having been received and 2,430 despatched, this is irrespective of 2,324 circulars sent out.

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

S. A. BEDFORD, *Superintendent.*

Experimental Farms

EXPERIMENTAL FARM FOR THE NORTH-WEST TERRITORIES.

REPORT OF ANGUS MACKAY, SUPERINTENDENT.

EXPERIMENTAL FARM, INDIAN HEAD, N.W.T.,
31st October, 1896.

TO DR. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith to you, the ninth annual report of the operations on the Experimental Farm for the North-west Territories, at Indian Head, Assiniboia, during the year 1896.

I have much pleasure in reporting the season just past as very favourable in almost all parts of the Territories. In the territory of Assiniboia, for grain, roots and vegetables, the season has never been surpassed.

The winter of 1895-96 was exceptionally fine from a North-west standpoint; there were a few cold days, but no long periods of severe weather. The new year was ushered in by some severe days, which proved to be the coldest and stormiest of the whole winter. February and March were very fine months, with an occasional cold day.

Sleighing was good during the entire winter. While very little snow fell at any one time, there was sufficient to ensure good sleighing from November to March, and the benefits derived from this advantage were increased by the absence of drifting and extremely cold weather.

In Assiniboia the spring opened early, but severe weather set in after seeding had commenced and the work was delayed. Eventually the spring was a very late one; in fact the latest for the last fifteen years.

The winter was a favourable one for stock of all kinds. Cattle never before wintered so well, and horses, sheep, swine and poultry came through in good condition.

During the early summer months mosquitoes and flies were very numerous, and proved injurious to cattle in many parts of the Territories, but the abundance of feed on the prairies soon counteracted any bad effects occasioned by these insects.

The first seed was sown on the Experimental Farm on April 13th. Some grain was sown earlier, in this and other parts of the Territories, but both land and weather were unsuitable and very little could be sown prior to that date. Seeding was general on the 13th and 14th April, but on the morning of the 15th a snow storm raged over the Territories, delaying the work until May 1st, when seeding again became general and continued without further interruption until completed. The grain, although late in being put in the ground, never came up so quickly or so evenly. Heavy rains in May and June, with an almost entire absence of high winds, caused a rapid growth, so much so that grain on summer fallows was beginning to lodge, when a dry period, accompanied by three very hot days early in July, stopped the rank growth and caused the grain to head. This eventually proved the salvation of the crop, which matured, excepting in a few districts, ahead of frosts and gave the North-west the best yield and sample it has had for some years.

In some few districts in the Territories, hail storms did more or less damage, but with this exception nothing occurred to mar the bright prospect until August 26th, when a slight frost visited some sections of the country, but did little or no damage except in small strips on low-lying lands.

Rye, fully matured, was harvested on the Experimental Farm on July 27th, and the barley harvest commenced on August 3rd, being the earliest dates on which harvesting has ever been done on the farm. The wheat harvest was general on the farm and throughout the country between the 20th and 25th, and continued without delay until finished. Threshing was soon well under way, and with one of the finest autumns ever experienced in the Territories, the work was quickly done.

The returns from almost all districts show that large yields of wheat have been secured. The sample is principally No. 1 Hard. Much of the oat crop on the other hand was light, caused, no doubt, by its being sown late, and in the majority of cases on stubble land with little or no preparation. Where sown on summer fallow the yield has been very satisfactory.

Considerable rust appeared on wheat and oat crops early in August but being confined to the leaves—except in a very few cases where the stalks were affected—the grain was not perceptibly injured.

Smut did very little harm the past season.

On the Experimental Farm crops of all kinds turned out extra well. Winds, which in other years caused considerable loss, were very mild last spring. The crops consequently grew quickly, and evenly and matured earlier than ever before.

Forty-one varieties of wheat were sown in comparative test and all the yields and samples, were satisfactory.

Thirty-seven varieties of barley were tested; all giving large returns and the samples were never before equalled on the farm.

Sixty-two varieties of oats were sown; all returning large crops and good samples. The Banner Oats were extra fine and are, without doubt, one of the best varieties grown on the farm. Twenty-six varieties of field pease, twelve of which were cross-bred varieties, were tested. All produced extra good yields and samples.

Bromus Inermis (Awnless Brome Grass) fully sustained its reputation of being the best grass for the Territories, by producing an excellent crop of fodder.

Corn, roots, vegetables and small fruits all gave good returns, while trees and shrubs made a most satisfactory growth.

EXPERIMENTS WITH SPRING WHEAT.

Results of early, medium and late sowings.

In this test Red Fife and Stanley wheats were used, both of which are beardless sorts. The soil was a clay loam, summer-fallowed in 1895; and the seed was sown by drill at the rate of $1\frac{1}{2}$ bushels per acre. The plots measured one-tenth of an acre each.

The first plots were sown on April 13th, the earliest possible date. The second and fifth weeks seeding could not be done on account of snow covering the ground on April 20th and a heavy rain on May 11th. Five plots of each variety of wheat were sown between April 13th and May 25th.

Very little difference could be discerned at any time, in the plots sown on April 13th and 27th and May 4th. They matured one day apart and when threshed returned very nearly equal amounts of grain. The plots sown on May 18th and 25th were very much later in ripening, in fact, the latter plot was cut quite green on September 9th as it was certain that a severe frost was near at hand.

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The plots of Stanley wheat matured from three to four days earlier than the Red Fife but, as will be seen in the accompanying particulars did not yield so well.

Name of Variety.	Size of Plot.	Date of Sowing.	Date of Ripening.	Number of days Maturing.	Length of Straw.		Weight of Straw per Acre.	Yield per Acre.		Weight per Bushel.
					In.	In.		Bus.	Lbs.	
Red Fife.....	1/2-acre.	April 13.	Aug. 26..	135	39	3	5,020	41	20	64 1/2
"	"	" 27..	" 27..	122	39	3	4,290	41	20	64 1/2
"	"	May 4..	" 27..	115	39	3	4,890	41	10	64 1/2
"	"	" 18..	Sept. 9..	104	42	3	3,770	39	10	64 1/2
"	"	" 25..	" 9..	107	42	2 3/4	4,430	39	20	64 1/2
Stanley	"	April 13.	Aug. 22..	131	42	3 1/4	3,180	36	30	63
"	"	" 27..	" 24..	119	42	3 1/4	4,500	35	50	64 1/2
"	"	May 4..	" 26..	114	39	3 3/4	4,050	37	50	63 3/4
"	"	" 18..	Sept. 2..	107	42	3	3,120	36	20	63 3/4
"	"	" 25..	" 7..	105	39	3	2,480	29		63 3/4

ACRE LOTS OF WHEAT.

Thirteen varieties of wheat were sown on 2nd May, on plots of one acre each, for test as to earliness and productiveness. The soil was clay loam. The land had been well fallowed the previous year, but some of the top soil had been blown off during the fall and winter.

One and one-half bushels of seed was sown on each acre, by drill, and the land was not harrowed before or after seeding.

Six varieties were beardless and seven bearded wheats.

Old Red River, White Fife, Wellman's Fife and White Russian produced especially fine samples.

Name of Variety.	Date of Ripening.	Number of days Maturing.	Length of Straw.		Character of Straw.	Length of Head.		Kind of Head.	Weight of Straw.	Yield per Acre.		Weight per Bushel.
			In.	In.		In.	In.			Lbs.	Bus. Lbs.	
White Russian	Aug. 27.	117	39	Weak	3 1/2	Bald	.....	3,180	40	38	63 1/2
Stanley	" 24..	114	40	Strong	3	"	.....	4,200	39	30	63
Herisson Bearded	" 21..	111	36	Weak	3	Bearded	.....	4,420	38	3	67 1/2
Emporium	" 26..	116	39	Strong	3 3/4	"	.....	4,300	37	29	65
Huron	" 21..	111	42	"	3 3/4	"	.....	3,160	36	36	64 1/2
Old Red River	" 29..	119	39	"	3	Bald	.....	4,060	35	52	64 1/2
Red Fern	" 26..	116	42	"	3	Bearded	.....	3,928	35	44	64 1/2
Rio Grande	" 26..	116	42	"	3 1/4	"	.....	3,650	34	7	64
Advance	" 21..	111	39	"	3 1/2	"	.....	3,870	33	43	64 1/2
Ladoga	" 24..	114	39	"	2 3/4	"	.....	3,440	33	40	62 1/2

SPRING WHEAT—Test of Varieties.

Forty-one varieties of spring wheat were sown by drill on $\frac{1}{10}$ acre plots. The soil was clay loam, the land summer-fallowed and the seed sown on all the plots the same day, 2nd May, in the proportion of $1\frac{1}{2}$ bushels per acre.

Name of Variety.	Date of Ripening.	Number of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.	Weight per Bushel.
							Lbs.	Bus. Lbs.		
			In.		In.		Lbs.	Bus. Lbs.	Lbs.	
Countess.....	Aug. 22..	112	42	Strong....	2 $\frac{3}{4}$	Bearded..	4,110	46 50	66	
Gehun.....	" 18..	108	30	".....	3	".....	3,340	46 20	66	
Goose.....	" 26..	116	45	".....	3	".....	4,550	45 50	66 $\frac{1}{2}$	
Huron.....	" 24..	114	36	".....	3	".....	3,890	44 40	64 $\frac{1}{2}$	
Emporium.....	" 28..	118	42	".....	3 $\frac{3}{4}$	".....	4,980	44 ..	65 $\frac{1}{2}$	
Dufferin.....	" 24..	114	42	Weak.....	3	".....	3,890	43 30	64 $\frac{1}{2}$	
Admiral.....	" 25..	115	42	Strong....	3	Bald.....	3,610	43 30	64	
Red Fern.....	" 26..	116	42	".....	3	Bearded..	4,560	43 30	65	
Beaudry.....	" 24..	114	39	Very weak	2 $\frac{1}{2}$	".....	4,210	43 10	65	
Rideau.....	" 24..	114	39	Weak.....	2 $\frac{3}{4}$	Bald.....	3,410	43 10	63 $\frac{1}{2}$	
Progress.....	" 22..	112	42	Strong....	2 $\frac{3}{4}$	".....	3,680	43 10	63 $\frac{1}{2}$	
White Connell.....	" 28..	118	42	".....	3 $\frac{1}{2}$	".....	4,920	43 ..	65	
Pringle's Champlain.....	" 26..	116	42	Weak.....	3	Bearded..	4,750	42 30	64 $\frac{1}{2}$	
Golden Drop.....	" 24..	114	42	Strong....	2 $\frac{3}{4}$	Bald.....	3,850	42 ..	65	
Wellman's Fife.....	" 28..	118	42	".....	3	".....	4,440	42 ..	64	
Preston.....	" 20..	110	36	".....	3	Bearded..	3,990	41 50	64	
Red Fife.....	" 26..	116	42	".....	3	Bald.....	3,340	41 20	64 $\frac{1}{2}$	
Blenheim.....	" 25..	115	42	".....	3	Bearded..	3,500	41 10	64	
Monarch.....	" 28..	118	39	".....	3	Bald.....	4,630	41 10	63 $\frac{3}{4}$	
White Fife.....	" 28..	118	42	".....	3 $\frac{1}{2}$	".....	4,690	41 ..	64 $\frac{1}{2}$	
Alpha.....	" 24..	114	42	".....	3	Bearded..	3,840	40 50	63 $\frac{1}{2}$	
White Russian.....	" 25..	115	42	".....	3	Bald.....	3,140	40 30	63 $\frac{1}{2}$	
Stanley.....	" 24..	114	42	".....	3	".....	4,370	40 30	64	
Captor.....	" 25..	115	42	".....	2 $\frac{3}{4}$	".....	3,540	40 20	63 $\frac{3}{4}$	
Percy.....	" 24..	114	42	".....	3	".....	4,190	40 10	63 $\frac{1}{2}$	
Crown.....	" 25..	115	39	".....	3 $\frac{1}{2}$	Bearded..	4,410	39 50	64	
Beauty.....	" 24..	114	45	Weak.....	3	Bald.....	4,340	39 20	62 $\frac{3}{4}$	
Advance.....	" 24..	114	42	Strong....	2 $\frac{3}{4}$	Bearded..	4,260	39 20	63 $\frac{1}{2}$	
Campbell's White Chaff.....	" 25..	115	42	".....	3 $\frac{1}{2}$	Bald.....	4,350	39 10	64	
Ladoga.....	" 24..	114	42	".....	2 $\frac{3}{4}$	Bearded..	3,870	39 10	62 $\frac{1}{2}$	
Rio Grande.....	" 26..	116	42	".....	3	".....	4,086	39 ..	64	
Old Red River.....	" 28..	118	39	".....	3	Bald.....	4,470	38 50	63 $\frac{3}{4}$	
Dion's.....	" 26..	116	42	Weak.....	3	Bearded..	5,070	38 50	64 $\frac{1}{2}$	
Black Sea.....	" 24..	114	39	".....	3	".....	4,570	38 50	63 $\frac{1}{4}$	
Hungarian.....	" 26..	116	39	".....	2 $\frac{3}{4}$	".....	3,810	38 30	63	
Herisson Bearded.....	" 25..	115	36	".....	2 $\frac{3}{4}$	".....	4,400	38 20	66 $\frac{3}{4}$	
Vernon.....	" 25..	115	42	".....	3	".....	3,870	37 30	63 $\frac{1}{2}$	
Colorado.....	" 24..	114	36	".....	3	".....	4,390	36 50	64	
Mars.....	" 25..	115	42	".....	2 $\frac{1}{2}$	Bald.....	3,350	36 10	65	
Dawn.....	" 18..	108	36	Strong....	3	".....	3,470	36 ..	65	
Ottawa.....	" 28..	118	39	Weak.....	3	Bearded..	3,850	33 20	63	

BLUESTONE AS A REMEDY FOR SMUT IN SPRING WHEAT.

In this test very smutty seed was used. In former tests it has been demonstrated that bluestone is a sure preventative of smut if the seed is at all fit for use. This year the seed used was totally worthless for sale, being the product of untreated seed sown for two years.

The result shows that seed may be so smutty that bluestone is not entirely effectual.

In the three plots (sown with the same seed) all had smut, although the untreated, both in counted heads and yield of threshed grain on the one-tenth acre, was very much more affected than the other two.

WHEAT—Test of sowing different quantities of seed per acre. Sown by drill, May 5th, on clay loam in plots of $\frac{1}{10}$ acre each.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.	Yield per Acre.
Red Fife, 1 bush. per acre.....	Aug. 28..	115	Ins. 42	Strong...	Ins. 3	Bald.....	Lbs. 3,650	Bus 38 30
" 1 $\frac{1}{4}$ "	" 28..	115	42	"	3	"	3,800	40 10
" 1 $\frac{1}{2}$ "	" 28..	115	42	"	3	"	3,600	38 20

YIELDS and average for past five years.

Name of Variety.	1892.	1893.	1894.	1895.	1896.	Average.
Red Fife, 1 bush. per acre.....	35·50	28·20	14·30	35·50	38·30	30·30 bushels.
" 1 $\frac{1}{4}$ "	40·00	28·00	11·40	44·00	40·10	32·40 "
" 1 $\frac{1}{2}$ "	39·40	26·30	13·20	42·20	38·20	32·2 "

WHEAT—Test of Press vs. Hoe-drill. Sown May 5th on clay loam, summer-fallowed 1 $\frac{1}{2}$ bushels per acre, in plots of $\frac{1}{10}$ acre each.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.	Yield per Acre.	Weight per Bushel.
Red Fife, sown by press-drill.....	Aug. 23..	110	Ins. 42	Strong....	Ins. 3	Bald ..	Lbs. 3,950	Bus 41 3	64 $\frac{1}{4}$
" " hoe-drill.....	" 24..	111	42	"	3	" ..	3,930	40 40	64

Yields and Average for five years.

Name of Variety.	1892.	1893.	1894.	1895.	1896.	Average.
Red Fife, press-drill.....	30·20	38·20	18·40	45·00	41 3	34·40 bushels.
" hoe-drill.....	24·00	36·18	17·50	44·00	40·40	32·33 "

As will be seen by above, the plots sown by press-drill have given the best returns in five years' trial.

FALLOW VS. STUBBLE LAND.

In this test eight acres of summer-fallow and eight acres of stubble land were used, a road dividing the two fields.

Both were sown by press drill and not harrowed before or after seeding. One and one half bushels seed was sown per acre. Soil, sandy loam. The stubble field was burnt over and was not ploughed before being sown.

Experimental Farms.

Like all other stubble crops in the district this field gave a much better return than it promised early in the season, nine ordinary loads of sheaves being taken off the 8 acres, averaging a little more than 26·00 bushels grain per load. The field produced a crop of Red Fife wheat in 1895 and had been fallowed in 1894.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Yield per Acre.	
				Ins.		Ins.		Bush.	Lbs.
Red Fife—Fallow...	May 1.	Aug. 25.	116	42	Strong	3	Bald..	40	10
" —Stubble.....	" 5.	" 22.	109	39	"	3	" "	29	40

WHEAT—TEST OF CUTTING WHEAT ON GREEN SIDE.

Three one-tenth acre plots were measured and cut in a field of Red Fife wheat. One plot was cut on August 14, with the grain in the early milk state; the second plot on August 21, when the grain was in the dough condition, and the third on August 28, when the grain was ripe.

	Yield per acre.	Sample.
Red Fife—one-tenth acre cut August 14. . .	30·30	Poor, 60 Lbs.
" " " " 21.	38·20	Good, 63 $\frac{3}{4}$ "
" " " " 28.	40·50	" 64 $\frac{1}{2}$ "

Summary of results obtained in various tests made in the cultivation of wheat during the past season."

FIRST.

In the test of early, medium and late seeding, the earliest sown plots gave the best yield and sample; the medium a smaller yield and poorer sample and the late sown were not early enough to escape frost.

SECOND.

The test of fallow *vs.* stubble land gave the usual result, the fallow producing the better crop, and while a second crop can be obtained in this way from the same land without any expense for cultivation, it is apparent that land should be summer-fallowed, at least every second year.

THIRD.

The bluestone test this year shows that it is possible for seed to be so badly smutted that bluestone will not be entirely effectual as a remedy, but for ordinary seed it is a sure preventive of smut.

FOURTH.

In the test of sowing different quantities of seed per acre, the plot sown at rate of one and one-quarter bushels gave the largest yield, as has been the case in the tests carried on during the past five years.

FIFTH.

Seed sown two inches deep produced the largest returns. The results for the past five years being over three bushels per acre, on an average above the plots sown either shallower or deeper.

SIXTH.

Press-drill gave a slightly larger yield than the hoe-drill and the grain ripened one day earlier. In five years tests the press-drill has averaged over two bushels per acre better than the ordinary drill.

EXPERIMENTS WITH BARLEY.

This crop, the past year's, was exceptionally good; the samples being the finest ever grown on the farm. Many of the two-rowed varieties weighed 54 pounds to the bushel. The majority of the small plots of barley were lodged and had to be cut one way, as was also the case with field and acre lots.

As there were no frosts or high winds after the barley was sown the crops sustained no check but grew from the start quickly and evenly, and matured without damage of any kind; except in the case of the one-tenth acre plot sown on June 1st in test of early, medium and late seeding, which was green on September 9th when cut for fear of frost, and in consequence lost considerably in yield and sample.

Sown by drill, 2 bushels per acre on clay loam summer-fallowed, size of plots $\frac{1}{10}$ th acre each.

BARLEY—Test of Early, Medium and Late Sowing.

Name of Variety.	Date of Sowing.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.			Remarks.	
								In.	Bus. lbs.	Lbs		
Canadian Thorpe..	April 27	Aug. 14..	109	33	Weak	3	Two-row'd	3370	74	43	52 $\frac{3}{4}$	Lodged.
"	May 4	" 18..	106	33	"	3	"	2820	75	..	52 $\frac{1}{2}$	"
"	" 11	* " 26..	100	36	Fair..	3	Two-row'd	4270	68	36	52 $\frac{1}{4}$	"
"	" 18	" 25 Sept.	105	36	"	3	"	4270	70	4	54	"
"	June 1	" 9..	190	36	"	3	"	4630	61	15	5 2	Green when cut
Odessa	April 27	Aug. 3..	98	30	Weak	3	Six-rowed.	3420	63	26	4 9	Lodged.
"	May 4	" 7..	95	33	"	3 $\frac{1}{2}$	"	3870	71	42	49 $\frac{1}{2}$	"
"	" 11	* " 26..	88	33	Fair..	3 $\frac{1}{2}$	Six-rowed.	3820	65	30	50	"
"	" 18	" 14..	91	33	"	3 $\frac{1}{2}$	"	3920	67	34	50	"
"	" 25	" 24..	91	33	"	3 $\frac{1}{2}$	"	3920	67	34	50	"
"	June 1	" 26..	86	33	"	3 $\frac{1}{2}$	"	4020	62	24	51	"

* Seeding omitted on account of rain.

BARLEY—Field lots.

Sown by drill at rate of 2 bushels per acre. All lodged badly and had to be cut one way.

Name of Variety.	Size of Plot.	Date of Sowing.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Yield per Acre.
Oderbruch	2	May 14..	Aug. 10..	88	36	Fair....	3	Six-rowed..	70 10
Prize Prolific	6 $\frac{1}{2}$	" 14..	" 27..	105	36	Weak...	3 $\frac{1}{2}$	Two-rowed..	67 ..
Canadian Thorpe	3 $\frac{3}{4}$	" 14..	" 29..	107	36	Fair....	3 $\frac{1}{2}$	"	63 ..
Odessa	9	" 9..	" 11..	94	38	Strong..	3	Six-rowed..	62 7
Goldthorpe.....	7	" 16..	Sept. 4..	111	33	Fair....	3	Two-rowed..	55 30
Duckbill	1 $\frac{1}{2}$	" 16..	Aug. 29..	105	39	"	3	"	55 15
California Prolific	$\frac{1}{2}$	" 16..	" 29..	105	36	"	3 $\frac{1}{2}$	"	52 10

Experimental Farms.

SIX-ROWED—Test of Varieties.

Nineteen varieties of six-rowed barley were sown by drill on plots of one-tenth acre each. The soil was clay loam, the land summer-fallowed and the seed sown on all the plots on May 16th in the proportion of 2 bushels per acre.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw.		Yield per Acre.		Weight per Bushel.
						Lbs.	Bush. Lbs.	Lbs.		
			In.		In.	Lbs.	Bush. Lbs.	Lbs.		
Mensury	Aug. 14.	90	33	Strong	4	2,970	71 42	50½		
Common	" 10.	86	33	Fair	2½	3,820	68 36	52		
Trooper	" 18.	94	30	Weak	3	2,910	67 14	51½		
Oderbruch.	" 10.	86	33	"	3	2,790	65 10	52½		
Baxter's	" 18.	94	33	"	3	2,570	65	51		
Odessa	" 11.	87	30	"	3	2,820	62 24	49½		
Royal	" 14.	90	30	"	2½	2,470	61 40	51½		
Rigid	" 8.	84	30	"	2½	2,470	60 20	51½		
Summit.	" 17.	93	30	"	3	3,220	59 18	53		
Petachora.	" 10.	86	30	"	2½	2,520	58 16	49½		
Phoenix	" 7.	83	30	"	2	2,640	58	50		
Stella	" 14.	90	30	"	3	2,400	55 30	50½		
Rennie's Improved.	" 24.	100	36	"	2½	3,260	55 20	51½		
Nugent	" 14.	90	30	Fair	2½	2,860	55 20	50		
Vanguard.	" 10.	86	30	Weak	3	2,170	55 10	49½		
Excelsior	" 10.	86	30	"	3	2,610	54 18	44½		
Champion.	" 14.	90	36	Fair	3	2,460	53 16	46½		
Surprise	" 14.	90	30	"	2½	2,970	52 12	52		
Success	" 3.	79	30	"	2½	2,370	50	46		

Two-Rowed—Test of Varieties.

Seventeen varieties of two-rowed barley were sown by drill on plots of one-tenth acre each. The soil was clay loam, the land summer-fallowed and the seed sown on all the plots the same day, 16th May, in the proportion of 2 bushels per acre.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw.		Yield per Acre.		Weight per Bushel.
						Lbs.	Bush. Lbs.	Lbs.		
			In.		In.	Lbs.	Bush. Lbs.	Lbs.		
French Chevalier	Aug. 25.	101	36	Strong	3½	3,700	73 16	54½		
Newton	" 25.	98	36	"	3½	3,620	68 36	53½		
Beaver	" 22.	98	30	"	3	3,220	66 32	54½		
Canadian Thorpe	" 26.	102	36	"	3½	4,700	65	53		
California Prolific	" 24.	100	36	"	3½	3,850	63 46	53½		
Sidney	" 24.	100	36	Weak	3	3,600	61 42	54½		
Danish Chevalier	" 24.	100	30	"	3½	2,220	61 22	54½		
Victor	" 24.	100	36	Strong	3½	3,720	60 40	53½		
Duckbill	" 24.	100	36	"	3	4,420	60 20	53		
Monck	" 27.	103	36	"	3½	2,760	57 44	54		
Nepean	" 24.	100	36	Fair	3½	2,780	57 24	53½		
Bolton	" 20.	96	24	Strong	3½	3,340	55 40	55½		
Carter's Prize Prolific	" 25.	101	30	"	3½	3,220	52 4	53½		
Thanet	" 26.	102	33	Weak	3	3,090	50 30	52		
Pacer	" 26.	102	30	Strong	3	3,280	46 2	52½		
Black	" 22.	98	24	"	3	2,820	44 10	65½		
Kinver Chevalier	" 25.	101	30	Weak	3	2,330	42 24	52½		

TEST OF REMEDIES FOR SMUT IN BARLEY.

Three plots were sown with rather smutty seed as follows :—

1st. Untreated.

2nd. Treated with bluestone solution, at the rate of one pound bluestone to eight bushels seed, and

3rd. Treated with potassium sulphide solution $1\frac{1}{2}$ lbs. of potassium sulphide in 25 gal. of water, the seed being steeped in the solution for 24 hours.

As shown by the following tables the treatments used were almost entirely effectual, as no smut was found in six feet square of plot treated with potassium sulphide and only five heads in the same area of plot treated with bluestone ; while on the other hand, the untreated plot contained considerable smut and did not turn out as well when threshed as the other two.

The varieties of barley, sown in uniform test plots, were treated before seeding with bluestone and although the seed of a number was affected with smut, the product was almost entirely free from this disease.

BARLEY—Six-rowed, smut test.

Seed sown by drill 16th May, 2 bushels per acre on clay loam summer-fallowed size of plots one-tenth acre each.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw.	Yield per acre.		Weight per Bushel.	Good and smutty heads on 6 ft. square.	
							Bush. Lbs.	Lbs.		Good.	Smutty.
Surprise—			In.		In.	Lbs.	Bush. Lbs.	Lbs.		Good.	Smutty.
Untreated	Aug. 14	90	33	Fair.....	3	3,320	42 34	52		934	163
Bluestoned 1 lb. to 8 bush.	" 14	90	36	"	3	3,020	50	52½		1,160	5
Potass. sulphide.....	" 14	90	36	"	3	2,960	49 8	52		1,104	

RESULTS OBTAINED IN EXPERIMENTS WITH BARLEY.

1st. In the test of early, medium and late sowings of barley, the second week's sowing of each variety gave the best returns.

For the past five years, the sowings from 1st to 15th May, have given the largest yields, and there seems to be no doubt that the period between these dates is the best time for barley seeding. If sown earlier, the early frosts are liable to put the crop back, and if later, dry weather may set in and keep the grain from heading out properly. The results of these tests show clearly that June 1st is much too late to sow barley in this climate.

2nd. In the test of varieties, the six-rowed sorts have been much the earliest to mature, although the two-rowed have given the best yields and finest samples. Of the six-rowed varieties grown this year, Mensury produced the best yield and has the advantage of a strong straw. Of the two-rowed sorts, the French Chevalier gave the best returns. This variety in a field lot also gave a very large yield and a splendid sample.

On account of earliness, the six-rowed varieties appear to be the most suitable for the Territories and besides their early maturing qualities, they stand dry seasons better than the larger growing two-rowed sorts.

3rd. Treating barley with bluestone for smut, appeared to be effectual this year. With the exception of the untreated plot in the smut test, there was little or no smut in any of the varieties grown on the farm, although a good deal of the seed used was more or less affected.

Experimental Farms.

EXPERIMENTS WITH OATS.

Sixty-three varieties of oats were tested the past season: all being grown on land which had been summer-fallowed in 1895. Ten of the varieties were cross-bred sorts received from the Central Farm. It will be noticed that the straw of these new oats was considerably longer than that of the older varieties.

Nearly all the varieties produced large returns and in every case the samples were very fine.

The Banner heads the list for productiveness; one field of twenty acres yielding 1,958 bushels, in addition to which there were two large loads not threshed.

RESULTS OF EARLY, MEDIUM AND LATE SOWINGS.

Two varieties of milling oats were used for this test and sown by drill on fallow land. The soil was clay loam and the size of the plots was $\frac{1}{10}$ th of an acre. The first plots were sown on 27th April and the last on 1st June; the third week's seeding being omitted on account of rain. The last plot sown of each variety, was cut on the green side on 9th September to escape heavy frost which was expected that night.

Name of Variety.	Date of Sowing.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.		Yield per Acre.	Weight per Bushel.
								Lbs.	Bush. Lbs.		
Banner	April 27..	Aug. 17..	112	42	Strong....	10	Branching	4,310	92 32	41½	
"	May 4..	" 18..	106	42	"	10	" ..	4,300	106 16	42½	
"	" 18..	" 21..	95	42	"	10	" ..	4,310	94 14	40½	
"	" 25..	Sept. 2..	100	42	"	10½	" ..	4,560	114 4	38½	
"	June 1..	" 9..	100	42	"	9½	" ..	3,710	79 24	40½	
Abundance	April 27..	Aug. 18..	113	45	"	10½	" ..	3,710	106 26	40	
"	May 4..	" 19..	107	45	"	10	" ..	3,970	105 30	42½	
"	" 18..	" 21..	95	48	"	10	" ..	4,540	102 32	39½	
"	" 25..	Sept. 5..	103	48	"	10	" ..	4,080	94 24	41	
"	June 1..	" 9..	100	48	"	9	" ..	3,920	80 30	39½	

OATS—One Acre Plots.

Sown 6th May by drill at rate of 2½ bushels per acre; soil, clay loam, summer-fallowed.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.		Yield per Acre.	Weight per Bushel.
							Lbs.	Bush. Lbs.		
Bavarian	Aug. 22..	108	48	Strong....	9½	Branching	4,090	98 15	40½	
Flying Scotchman	" 13..	99	36	"	9½	" ..	4,100	90 3	44	
Abundance	" 19..	105	45	"	10	" ..	3,300	88 22	42½	
Oderbruch	" 21..	107	48	"	9½	Sided....	4,530	77 4	42½	
Winter Grey	" 13..	99	42	"	8½	Branching	3,990	76 6	46	
Black Tartarian	" 24..	110	48	Weak	9½	Sided....	4,220	70 30	40½	
Golden Beauty	" 15..	101	42	Strong....	10	Branching	3,200	70 15	43	
American Beauty	" 18..	104	42	"	9½	" ..	2,680	67 2	43½	
Abyssinia	" 20..	106	45	"	10	Sided....	3,540	66 28	43½	
Wide awake	" 18..	104	36	"	9	Branching	2,760	64 6	43½	
Columbus	" 15..	101	33	"	9	" ..	3,050	63 10	41½	
Improved Ligowo	" 13..	99	42	"	10½	" ..	3,020	61 20	43	
Early Archangel	" 13..	99	36	"	10	" ..	2,870	61 ..	44½	

NOTE.—The seven varieties last mentioned were sown on a dry part of the field which will account for the yields being considerably lower than those of the same varieties in "test of varieties," all sown same date and on similar soil.

OATS—Test of Varieties.

Sixty-two varieties were sown in this test, on fallow, by drill, at the rate of 2½ bushels per acre. The soil was clay loam of a uniform character; the plots were 1¹/₁₀th acre each, and they were all sown on the same day—5th May. They came up evenly, and made a good growth of straw, though none were very heavy. A few varieties were weak in the straw, and under the heavy load of grain became partially lodged.

The first varieties to ripen were White Wonder, Bonanza, Victoria Prize and Cream Egyptian.

In the following table will be found the results of this test in detail :—

Name of Variety.	Date of Ripening.	Number of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.		Yield per Acre.		Weight per Bushel.
							Lbs.	Bus.	Lbs.	Lbs.	
Holstein Prolific	Aug. 18.	105	42	Strong....	11	Branching	2,890	103	18	41½	
American Triumph	" 19.	106	42	"	10½	"	4,100	97	22	41½	
Improved American	" 19.	106	48	"	10	"	3,600	96	6	41½	
Early Golden Prolific	" 18.	105	45	Weak	10	"	3,260	95	30	41	
Doncaster Prize	" 19.	106	42	Strong....	10	"	5,680	95	10	39¾	
Banner	" 18.	105	42	"	10	"	3,920	94	4	42	
Improved Ligowo	" 9.	96	39	"	10	"	2,860	92	32	42	
Early Maine	" 19.	106	33	"	11	"	4,430	92	12	40	
White Monarch	" 19.	106	42	"	9½	"	4,190	92	2	40½	
Bavarian	" 18.	105	42	"	9½	"	3,910	91	16	41½	
Cave	" 18.	105	39	Weak	10	Sided....	4,540	90	10	41½	
Wide awake	" 17.	104	42	Strong....	10½	Branching	3,210	90	..	42½	
American Beauty	" 17.	104	36	"	9½	"	2,770	89	24	43½	
Golden Beauty	" 19.	106	42	Weak	10	"	3,520	89	24	41½	
Columbus	" 17.	104	42	"	9½	"	4,250	89	24	39½	
Abundance	" 18.	105	42	Strong....	10½	"	3,390	89	14	39¾	
Mennonite	" 19.	106	42	"	10	"	3,740	89	4	40½	
Finland Black, No. 1.	" 24.	111	36	"	10½	"	3,920	88	..	43	
Early Archangel	" 14.	101	42	"	10½	"	3,850	85	30	41½	
Early Gothland	" 19.	106	42	"	10	Sided....	4,420	85	10	44½	
California Prolific Black	" 24.	111	48	"	10	"	3,940	84	24	41	
White Schonen	" 18.	105	42	"	10	Branching	3,450	84	14	40½	
Wallis	" 18.	105	42	"	10½	"	3,500	84	14	40¾	
Prolific Black Tartarian.	" 24.	111	48	Weak	10	Sided....	4,780	80	..	41½	
Early Etampes	" 24.	111	30	"	9½	Branching	4,100	79	14	39½	
White Russian	" 14.	101	45	Strong....	9½	"	3,610	79	4	44½	
Early Blossom	" 26.	113	45	"	10	Sided....	4,840	78	8	43¾	
Joanette	" 24.	111	30	"	10	Branching	3,670	77	32	40½	
Bonanza	" 7.	94	39	"	10	"	3,020	77	22	44½	
Hazlett's Seizure	" 17.	104	42	"	9	"	3,430	75	20	46	
Abyssinian	" 24.	111	42	"	10½	Sided....	3,830	75	10	43	
Golden Giant	" 28.	115	48	"	9½	Branching	4,240	75	10	38¾	
Challenge	" 7.	94	42	"	8	"	2,870	75	..	44½	
White Wonder	" 6.	93	42	"	8	"	2,730	73	8	44	
Oderbruch	" 19.	106	45	"	10	Sided....	4,280	72	22	44	
Siberian	" 26.	113	42	"	9½	"	4,590	71	16	37	
Coulommiers	" 28.	115	36	Weak	10	Branching	4,490	71	16	41½	
Cream Egyptian	" 7.	94	39	Strong....	10	"	2,750	71	6	43¾	
Buckbee's Illinois	" 26.	113	48	"	8	"	3,390	70	50	40¾	
Welcome	" 8.	95	42	"	9½	"	2,680	70	10	43½	
Victoria Prize	" 7.	94	33	"	10	"	2,790	70	..	43½	
Prize Cluster	" 10.	97	42	"	9	"	2,570	67	2	44½	
Rennie's Prize	" 10.	97	45	"	7½	"	3,200	66	26	45½	
Rosedale	" 22.	109	45	"	9½	Sided....	4,360	66	16	44½	
Winter Grey	" 10.	97	39	"	8	Branching	3,520	64	24	45½	
Poland	" 10.	97	42	"	10	"	3,590	64	4	47	
Flying Scotchman	" 11.	98	42	"	9	"	3,130	62	32	41½	
Scotch Hopetoun	" 25.	112	42	"	8½	"	4,240	62	18	40½	
Lincoln	" 17.	104	42	Medium..	9½	"	4,190	62	2	43½	
Scottish Chief	" 11.	98	36	Strong....	9	"	3,100	60	10	41½	
Imported Irish	" 10.	97	36	"	9	"	3,470	57	12	45½	
Black Finland, No. 2.	" 10.	97	36	"	9	"	2,540	56	16	39¾	

Experimental Farms.

OATS—Cross-bred Varieties.

These were sown, 5th May, on clay loam, on plots of one-tenth of an acre each.

Name of Variety.	Date of Ripening.	No. of days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw.		Yield per Acre.		Weight per Bushel.
							Lbs.	Bus.	Lbs.	Lbs.	
Olive—			In.		In.		Lbs.	Bus.	Lbs.	Lbs.	
Black Tartarian.....	Aug. 25..	112	45	Strong....			5,700	84	24	42½	
Early Gothland.....											
King—											
Banner.....	" 26..	113	45	"	10	Branching	3,270	77	32	38¾	
Doncaster Prize.....											
Pense—											
Black Tartarian.....	" 28..	115	48	"			4,080	71	6	42½	
Early Gothland.....											
Oxford—											
Giant Cluster.....	" 28..	115	48	"			3,870	68	18	40¼	
Prize Cluster.....											
Medal—											
Giant Cluster.....	" 25..	112	45	"	8½	Branching	4,500	67	22	40¾	
Prize Cluster.....											
Brandon—											
Giant Cluster.....	" 25.	112	48	"	9	Sided....	4,130	63	38	41¼	
Prize Cluster.....											
Russell—											
Prize Cluster.....	" 27..	114	45	"			3,280	62	32	39¾	
Giant Cluster.....											
Master—											
Prize Cluster.....	" 28..	115	48	"			3,990	62	2	39	
Giant Cluster.....											
Cromwell—											
Prize Cluster.....	" 28..	115	48	"			3,960	61	16	39¾	
Giant Cluster.....											
Miller—											
Banner.....	" 24..	111	48	"	10	Branching	3,980	59	16	41¼	
Doncaster Prize.....											

OATS—Field Lots.

Sown by press drill on clay loam, fallowed, at rate of 2½ bushels of seed per acre.

Name of Variety.	Size of Plot.	Date of Sowing.	Date of Ripening.	No. of days Maturing.	Length of Straw.	Character of Straw.	Kind of Head.	Yield per Acre.		Weight per Bushel.
								Bus.	Lbs.	
	Acres.				In.			Bus.	Lbs.	Lbs.
Banner.....	20	May 4.	Aug. 18..	106	48	Strong....	Branching	97	18	43
Hazlett's Seizure.....	8	" 8..	" 17..	101	48	"	"	95	30	40¾
Bonanza.....	2	" 7..	" 11..	96	46	"	"	Not threshed.		

OATS—Tests for the prevention of smut.

Experiments with bluestone and potassium sulphide for the prevention of smut.

Three plots of one-tenth acre each were sown in the above test; the soil was clay loam. The seed of the first plot was untreated; that of the second was treated with Bluestone at the rate of one pound to eight bushels of oats and that of the third with a solution of potassium sulphide. The seed used was smutty.

The plot untreated produced a considerable quantity of smut while in the other two scarcely any could be found. The plots treated on the other hand, took from four to six days longer to mature.

All the oats sown the past year, with the exception of the seed on the above mentioned plots were treated with Bluestone at the rate of one pound to eight bushels of seed, which treatment proved its efficacy by the almost entire absence of smut in either field or smaller plots of grain.

Treated with.	Date of Sowing.	Date of Ripening.	No of days Maturing.	Length of Straw.	Length of Head.	Yield per Acre.		Weight per Bushel.	Heads on six feet square.		
				Inches.	Inches.	Bush.	Lbs.	Lbs.	Good.	Smutty.	
Potass. Sulphide...	May	5 Aug.	26	113	48	10½	72	10	41½	924	0
Bluestone.	"	5 "	28	115	48	10½	72	10	41½	878	5
Untreated.	"	5 "	22	109	46	10½	70	26	41¾	804	120

RESULTS OF TESTS IN THE CULTIVATION OF OATS.

1st.—In the tests of early, medium and late seeding, the late sowings proved decidedly too late, as the two latest plots were quite green on September 9th, when they were cut for fear of frost, which would have caused a considerable loss in yield. The plot of Banner sown on May 25th gave the largest yield ever grown on the farm. From the one-tenth acre there were 388 pounds of clean grain, which is at the rate of $114\frac{3}{4}$ bushels per acre.

2nd.—In the test of varieties for earliness and productiveness, one variety exceeded 100 bushels per acre, eleven gave 90 bushels or over, thirteen gave 80 bushels or over, nineteen gave 70 bushels or over, fifteen produced 60 bushels or over, and three gave 50 bushels or over. In earliness, White Wonder matured in 93 days from the time of seeding and five other sorts matured in 94 days. Banner took 105 days or twelve days more than White Wonder.

3rd.—In the acre test of thirteen varieties, Bavarian, Flying Scotchman and Abundance, gave the largest yields of grain and straw. Black Tartarian also gave a large yield but the straw was very coarse and lodged badly. Seven of the varieties were sown on a high part of the field and they produced one-third less straw than the same varieties sown in one-tenth acre plots. For earliness and yield combined, Flying Scotchman was first in this test.

4th.—In the smut test, Bluestone proved almost entirely effectual as a preventive. All the seed oats were treated and smut did not affect this year any plot or variety sown.

5th.—So far as yield is concerned the best variety tested is the Banner. The straw is rather coarse, and the grain requires several more days to come to maturity than a number of others, but if sown on fallow land in reasonable time, it will mature safely, and give large returns every year.

EXPERIMENTS WITH PEASE.

For this crop the past season has been the most favourable since the establishment of the farm. In former years spring frosts and high winds have always injured the young plants, but this year they were entirely free from such injury, and the crop produced was an extra fine one.

Experimental Farms.

RESULTS OF EARLY, MEDIUM AND LATE SOWINGS.

Two varieties were sown in this test, on clay loam, in plots of one-tenth acre each. The first seeding was done on May 4th and the latest on June 1st, the seeding which should have been done on May 11th being omitted on account of rain.

The plot of Mummy sown on June 1st was not ripe when frost came, on September 9th and was badly frozen.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of days Maturing.	Character of Growth.	Length of Pod.	Size of Pea.	Yield per Acre.		Weight per Bushel.
							Bush. Lbs.	Lbs.	
Golden Vine.....	May 4.	Aug. 22.	110	Strong....	2½	Small....	47 ..	66½	
"	" 18.	" 28.	102	"	2½	"	46 50	65½	
"	" 25.	Sept. 1.	99	"	2½	"	40 ..	66	
"	June 1.	" 8.	99	"	2½	"	38 20	65½	
Mummy.....	May 4.	Aug. 22.	110	"	3½	Large....	39 40	66	
"	" 18.	" 28.	102	"	3½	"	38 10	65½	
"	" 25.	Sept. 2.	100	"	3½	"	34 15	65½	
"	June 1.	" 9.	100	"	3	"	30 ..	.....

PEASE.—Test of Varieties.

Twenty-six varieties were sown on clay loam 9th May, on fallow land, by drill at the rate of 2½ bushels of small pease and 3 bushels of the larger sorts per acre. Twelve of the varieties were new cross-bred sorts, all of which gave satisfactory returns. Carleton, cross-bred, produced the largest yield of all the varieties sown ; 170 pounds of cleaned pease from a one-twentieth acre plot.

In 1895 the varieties were badly mixed by winds after being pulled. This year the plots were allowed to become quite ripe, then pulled, drawn in and threshed at once.

Name of Variety.	Size of Plot.	Date of Ripening.	Number of days Maturing.	Character of Growth.	Size of Pea.	Yield per Acre.		Weight per Bushel.
						Bush. Lbs.	Lbs.	
Multiplier.....	¾	Aug. 26.	109	Strong....	Small....	45	65	
Centennial	1½	" 28.	111	"	Large....	40 30	65	
Golden Vine.....	1½	" 21.	104	"	Small....	40 20	66	
Prince Albert.....	1½	" 26.	109	"	"	40 10	65½	
Crown	1½	" 21.	104	"	"	40 3	65½	
Prussian Blue.....	¾	" 26.	109	"	Medium....	38 20	66½	
Canadian Beauty.....	1½	" 26.	109	"	"	37 35	63½	
Mummy.....	1½	" 21.	104	"	Large....	37 10	65½	
Potter.....	1½	" 21.	104	"	Medium....	33 20	66	
Fride.....	1½	" 26.	109	"	"	33 20	65½	
Large White Marrowfat.....	¾	Sept. 1.	115	"	Large....	31 20	65	
Creepers.....	1½	" 1.	115	"	Small....	30 30	65½	
New Potter.....	1½	Aug. 26.	109	"	Large....	28 20	63½	
Black-eyed Marrowfat.....	1½	" 26.	109	"	"	26 40	63½	
Daniel O'Rourke.....	¾	" 24.	109	"	Small....	25	66½	

PEASE—Test of cross-bred varieties, all sown same day.

Name of Variety.	Size of Plot.	Date of Ripening.	Number of days Maturing.	Character of Growth.	Size of Pea.	Yield per Acre.	Weight per Bushel.
	Acre.					Bush. Lbs.	Lbs.
Carleton	$\frac{1}{20}$	Sept. 1.	115	Strong	Small	56 40	64 $\frac{1}{2}$
Mackay	$\frac{1}{20}$	" 3.	117	"	Medium	45	64 $\frac{1}{2}$
Paragon	$\frac{1}{20}$	" 1.	115	"	"	43 20	63
Duke	$\frac{1}{20}$	" 1.	115	"	Large	43	64
Tribby	$\frac{1}{20}$	" 3.	117	"	"	41 40	65 $\frac{1}{2}$
Macoun	$\frac{1}{20}$	" 1.	115	"	Small	40	65 $\frac{1}{2}$
Agnes	$\frac{1}{20}$	" 2.	116	"	Large	40	64 $\frac{1}{2}$
Bedford	$\frac{1}{20}$	" 5.	119	"	Small	38 20	64 $\frac{1}{2}$
Prince	$\frac{1}{20}$	" 3.	117	"	Large	36 40	64 $\frac{3}{4}$
Kent	$\frac{1}{20}$	" 1.	115	"	Medium	35	64 $\frac{3}{4}$
Arthur	$\frac{1}{20}$	Aug. 24.	109	"	"	34 40	67
Bruce	$\frac{1}{20}$	Sept. 3.	117	"	"	28 20	65

COST OF GROWING GRAIN ON EXPERIMENTAL FARM.

With the view of ascertaining the cost of preparing land for grain, sowing the seed, harvesting and threshing, an account, commencing in 1895, has been kept of the expense in connection with the production of twenty acres of wheat on fallow-land; eight acres of wheat on stubble-land; twenty acres of barley on fallow-land and twenty acres of oats on fallow-land. The account does not include allowance for horses or their keep or wear and tear of implements used. The wages paid include board.

A comparison of the cost of production and the estimated value of product is also given. The value of oats and barley is, at present, not very high, to be on the safe side twenty-five cents per bushel is the price upon which the calculations are made.

No doubt, on large areas, wheat, oats and barley can be grown at somewhat less cost than on the few acres considered in this test, and if the farmers have the help within themselves, a large amount can be deducted from wage account. A farmer with from one to four hundred acres of wheat, can average more acres per day in seeding, cutting, stooking and stacking than can be done on this farm with twenty acre fields. Wheat is at present worth more per bushel than is allowed in the calculations made.

WHEAT—COST OF GROWING 20 ACRES ON SUMMER FALLOW.

1895—Ploughing once, 13 days work at \$1.50	\$ 19 50
Harrowing twice, 2 days work at \$1.50	3 00
Cultivating once, 3 days works at \$1.50	4 50
1896—Seed, 30 bush. at 50c.	15 00
Sowing seed, 2 days work at \$1.50	3 00
Cutting grain, 2 days work at \$1.50	3 00
Twine, 60 lbs. at 10c	6 00
Stooking, 3 days work at \$1.50	4 50
Stacking, 5 men, 1 $\frac{1}{2}$ days at 1.50	13 10
Threshing, (including board) at 5c	40 00
Total	\$ 111 60

Cost per acre, \$5 $\frac{48}{100}$.

Value of product (40 bushels per acre, 800 bushels wheat at 55c.	440 00
Less cost of production.	111 60

Leaving a net return of \$ 328 40
Or \$16 $\frac{42}{100}$ per acre.

Experimental Farms.

WHEAT—Cost of growing eight acres on stubble ground.

1896—Drawing straw and burning stubble, one day at \$1.50.....	\$ 1 50
Seed, 12 bushels at 50c.....	6 00
Sowing seed, $\frac{3}{4}$ day at \$1.50.....	1 12
Cutting grain, $\frac{3}{4}$ day at \$1.50.....	1 12
Twine, 20 lbs. at 10c.....	2 00
Stooking, $\frac{3}{4}$ day at \$1.50.....	1 12
Stacking, 5 men $\frac{1}{2}$ day at \$1.50.....	3 75
Threshing (including board) at 5c.....	11 90

Total..... \$ 28 51

Cost per acre, \$3 $\frac{56}{100}$.

Value of product (29 $\frac{3}{4}$ bushels per acre) 238 bushels wheat at 55c..... \$ 130 90

Less cost of production..... 28 51

Leaving a net return of..... \$ 102 39

Or \$12 $\frac{7}{10}$ per acre.

BARLEY—Cost of growing twenty acres on fallow-land.

1895—Ploughing once, 13 days work at \$1.50.....	\$ 19 50
Harrowing once, 1 day's work at \$1.50.....	1 50
Gang ploughing once, 5 days work at \$1.50.....	7 50
1896—Seed, 40 bushels at 30c.....	12 00
Sowing seed, 2 days work at \$1.50.....	3 00
*Cutting grain, 4 days work at \$1.50.....	6 00
Twine, 80 lbs at 10c.....	8 00
Stooking, 3 days work at \$1.50.....	4 50
Stacking, 5 men 2 days at \$1.50.....	15 00
Threshing (including board of men).....	49 50

Total..... \$ 126 50

Cost per acre, \$6 $\frac{32}{100}$.

Value of product (67 $\frac{1}{2}$ bushels per acre) 1,350 bushels at 25c..... \$ 337 50

Less cost of production..... 126 50

Leaving a net return of..... \$ 210 00

Or \$10 $\frac{5}{10}$ per acre.

OATS.—Twenty acres on fallow-land.

1895—Ploughing once, 14 days work at \$1.50.....	\$ 21 00
Harrowing twice, 2 days work at \$1.50.....	3 00
Cultivating once, 3 days work at \$1.50.....	4 50
1896—Seed, 50 bushels at 25c.....	12 50
Sowing seed, 2 days work at \$1.50.....	3 00
Cutting grain, 2 days work at \$1.50.....	3 00
Twine, 80 lbs. at 10c.....	8 00
Stooking, 3 days' work at \$1.50.....	4 50
Stacking, 5 men, 1 $\frac{1}{2}$ days at \$1.50.....	13 12
Threshing (including board).....	60 00

Total..... \$132 62

Cost per acre, \$6 $\frac{63}{100}$.

Value of product (97 $\frac{1}{2}$ bushels per acre,) 1,958 bushels at \$25..... 489 50

Less cost of production..... 132 62

Leaving a net value of..... \$356 88

Or \$17 $\frac{5}{10}$ per acre.

SUMMARY.

Cost per acre, of growing wheat on fallow.....	\$ 5 58
do do do stubble.....	3 56
do do do barley fallow.....	6 32
do do do oats do.....	6 63
Net returns per acre, of:—	
Wheat, grown on fallow.....	\$ 16 42
do do stubble.....	12 79
Barley do fallow.....	10 55
Oats do do.....	17 89

*Very much lodged and required to be cut one way, hence the increase in cost of cutting.

RESULTS OF SOWING CLOVER WITH GRAIN.

This experiment was undertaken to ascertain, 1st. Whether clover sown with grain in this climate, had any effect on the yield of grain; 2nd, whether, after the grain is cut the clover will produce sufficient foliage to be worth ploughing under, and 3rd, to ascertain how clover will succeed with grain crops.

Ten acres of fallow land divided into twenty plots of one-half acre each, were used in this test, and two plots each, of ten varieties of grain were sown. Seven days later, one plot of each variety was sown with Mammoth Red Clover, by hand at the rate of ten pounds of seed per acre and well harrowed. An extra good catch of clover was secured on all the plots sown.

The results obtained as will be seen by the accompanying table, shows: 1st. That slightly better yields of grain were obtained from plots without clover; 2nd, that there was not sufficient foliage to be worth ploughing under, and 3rd, that clover did best sown with pease.

Until about Aug. 15th, the clover on all the plots was a uniform height, but from that date, no growth was made in the plants in the wheat, barley or oat plots, while on the plots sown with pease considerable growth was made. Dry weather setting in in August, the wheat, barley and oat crops absorbed all the moisture while evidently the pease did not require so great an amount to bring the crop to maturity.

The plots were left with a view of finding out what effect, if any, the winter will have on the clover.

GRAIN and Clover sown.

Name of Variety.	With or Without Clover.	Grain ripe.	Grain, No. of days maturing.	Grain, length of straw.		Height of clover.		Grain, weight of straw.		Grain, yield per acre.		Grain, weight per bushel.
				Inches.	Inches.	Inches.	Inches.	Lbs.	Bush. Lbs.	Lbs.		
Wheat—												
Preston	With	Aug. 25	108	42	1 to 2	2,055	41	32				
do	Without	do 25	108	42	1 to 2	2,130	43	20				
Red Fife	With	do 29	112	39	1 to 2	1,850	39	56				
do	Without	do 29	112	39	1 to 2	1,945	41	20				
Barley—												
Sidney	With	do 25	108	36	2 to 2½	1,705	56	32				
do	Without	do 25	108	36	2 to 2½	1,675	55	32				
French Chevalier	With	do 23	106	30	2 to 2½	1,760	74	16				
do	Without	do 23	106	36	2 to 2½	1,705	68	30				
Odessa	With	do 13	96	30	2 to 2½	1,670	69	4				
do	Without	do 13	96	30	2 to 2½	1,735	74	40				
Trooper	With	do 13	96	30	2 to 2½	1,040	59	42				52½
do	Without	do 13	96	30	2 to 2½	1,080	60	24				54
Oats—												
Banner	With	do 27	110	48	1 to 2	2,185	102	18				
do	Without	do 27	110	48	1 to 2	2,250	105	32				
Abundance	With	do 27	110	48	1 to 2	2,130	104	18				
do	Without	do 27	110	48	1 to 2	2,090	94	12				
Pease—												
Pride	With	do 22	105	30	4 to 5		33					65½
do	Without	do 22	105	30	4 to 5		34	40				64½
Mummy	With	do 22	105	36	4 to 5		31	32				66½
do	Without	do 22	105	36	4 to 5		32	40				65½

EXPERIMENTS WITH FLAX

Eight plots of flax were sown for the purpose of determining the proper time to sow this grain in this climate, to ascertain whether thick or thin seeding gives the better returns, and to gain information as to the quantity and quality of the fibre pro

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duced. When the flax was ripe one-half of each plot was pulled by hand and fifty pounds of the product sent to Messrs. J. and J. Livingstone, Baden, Ont., to be tested as to value of fibre. The remaining half of each plot was cut and threshed.

The dates of seeding, quantities sown per acre and yields of the plots are as follows:—

Flax.	Sown.	Quantity seed	Weight	Weight	Yield	Per Acre.	
		per Acre.	of Straw on ½ plot pulled.	of Straw on ½ plot cut.	on ½ plot pulled.	Bush.	Lbs.
		Lbs.	Lbs.	Lbs.	Lbs. seed.		
Plot 1.....	May 16....	40	86	70	30	10	40
" 2.....	" 16....	80	101	94	36	12	48
" 3.....	" 23....	40	89	73	31	11	4
" 4.....	" 23....	80	106	87	37	13	12
" 5.....	" 30....	40	87	65	32	11	24
" 6.....	" 30....	80	103	82	35	12	28
" 7.....	June 6....	40	76	50	24	8	32
" 8.....	" 6....	80	93	72	29	10	20

The result points to thick seeding as being somewhat better than thin and the early seedings gave the largest yields.

EXPERIMENTS WITH INDIAN CORN.

Twenty-one varieties of corn were tested ; sown in drills by ordinary hoe-drill and planted in hills by hand. The crop of all the varieties was much better than it has been for several years past.

As will be seen, the planting in hills gave the largest weight of corn which was cut green for the silo. Six varieties produced cobs before cut.

The land was clay loam, fallowed in 1895, but was rather wet when sown. The plots were one-tenth of an acre each and all were sown on the 23rd of May. The growth was strong of all the varieties excepting the last six on the list and these were medium.

Name of Variety.	Des- cription of Variety.	Height.	When Tasselled.	In Silk.	Condition when cut.	Weight per acre grown in rows.		Weight per acre grown in hills.	
						Tons.	Lbs.	Tons	Lbs.
		In.							
Cuban Giant.....	Dent.....	78	Aug. 15..	Aug. 31..	In Silk....	11	1100	13	1170
Sanford.....	White Flint.	72	" 10..	" 24..	Early Milk.	11	550	11	110
Compton's Early.....	Yellow Dent	66	" 10..	" 22..	In silk....	11	110	11	1210
Early Huron Dent.....	"	78	" 7..	" 28..	"	10	900	9	700
Pride of the North.....	Dent.....	60	" 11..	" 28..	"	10	900	10	350
Red Cob Ensilage.....	White Dent.	72	" 15..	" 31..	"	10	680	13	730
Early Mastodon.....	Dent.....	78	" 10..	" 22..	"	10	670	11	1870
Rural Thoroughbred White Flint.....	White Flint.	72	" 15..	" 31..	"	9	1800	14	50
Giant Prolific Ensilage.....	" Dent..	72	" 15..	" 31..	"	9	1800	11	220
Canada White Flint.....	" Flint..	72	" 11..	" 22..	Early Milk.	9	1580	9	1910
Country Gentlemen.....	" Dent..	60	" 10..	" 24..	In silk....	9	1580	9	1250
Angel of Midnight.....	Yellow Flint	60	" 11..	" 20..	Early Milk.	9	1580	9	1250
Leaming.....	Dent.....	72	" 11..	" 28..	In silk....	9	1250	12	750
Mammoth Yellow Dent.....	Yellow Dent	78	" 10..	" 28..	"	9	1140	9	1250
King of the Earliest.....	"	72	" 7..	" 22..	Early Milk.	9	920	10	670
White Cap. Yellow Dent.....	Yellow Dent	66	" 11..	" 28..	In silk....	9	810	10	350
Mitchell's Extra Early.....	White Flint	60	" 1..	" 11..	Early Milk.	9	150	10	350
Pearce's Prolific.....	Yellow "	69	" 7..	" 28..	In silk....	8	1820	8	1600
Champion White Pearl.....	White Dent	72	" 12..	" 31..	"	8	1600	10	1230
North Dakota.....	Yellow Flint	60	" 4..	" 11..	Early Milk.	8	1600	10	350
Longfellow.....	"	72	" 10..	" 28..	In silk....	7	1200	9	1250

FIELD CORN.—Sown for ensilage.

Two fields of five acres each were sown for ensilage, the soil was clay loam Mitchell's Extra Early and North Dakota being used for seed.

The fields were cut by binder on August 29th, September 1st and 3rd; the corn allowed to wilt for two days and then drawn to the barn and put through the ensilage cutter before being put into silos. Mitchell's Extra Early gave the best crop and was further advanced when cut, than North Dakota; the corn being nearly in the glazed state.

Mitchell's Extra Early was grown on a field which had produced a crop of corn in 1895 after which it had been manured and ploughed. The North Dakota was sown on a stubble-field, which was manured during the winter and ploughed in May just before seeding. Both fields were sown by hoe-drill.

A variety of corn, named Vaughan's Giant Mexican was grown in one of the garden enclosures and gave the large yield of $22\frac{5}{8}$ tons per acre. The stocks were very large but had no sign of tassels when cut.

Name of Variety.	Date of Sowing.	Description of variety.	Height.	When tasselled.	In Silk.	Early milk.	Condition when cut.	Weight per acre grown in hills.
			In.					Tons. lb.
Mitchell's Extra Early.	May 15...	White Flint...	72	July 26.	Aug. 8.	Aug. 22.	Early milk..	16 120
North Dakota.....	" 18...	Yellow "	66	Aug. 1.	" 10.	" 26.	" ..	13 720

GRASS AND FODDER PLANTS.

Five varieties of grass, namely:—Awnless Brome grass, (*Bromus Inermis*), Timothy, Meadow Fescue, *Agropyrum Tenerum*, and *Agropyrum Caninum* were sown the past spring; also Alsike, Red and Mammoth Red clovers, all of which made a good growth. *Agropyrum Tenerum* headed out and was two feet high in October.

In the spring of 1895, Common and Large Late clovers were sown. Common was almost entirely killed out, only a few stalks here and there coming though the winter. The Large Late variety was completely smothered out by soil blown on to the plot during the winter and was ploughed up in the spring.

BROMUS INERMIS.

Awnless Brome grass (*Bromus Inermis*) returned a fine crop of hay the past season. On portions of the fields that were allowed to ripen seed the previous year, the yield was less than on parts cut for hay at the proper season.

This grass has been grown on the Experimental Farm for the past six years and has never failed to give good returns of hay or pasture. After the third crop the hay becomes very fine on account of the grass thickening very much at the roots.

Last year three thousand pounds of seed were obtained from the crop, a large portion of which was distributed in one pound packages, or sold to settlers throughout the Territories. This season about the same amount has been kept for distribution and sale, and from present appearances the demand will be largely in excess of the supply. There is, however, a considerable quantity of seed now available, in the hands of farmers in different parts of the Territories, and supplies from this source will no doubt largely increase from year to year.



Field of Awnless Bromegrass at the Experimental Farm, Indian Head, N. W. T. This was sown in May, 1896, and cattle were grazing on it early in September, 1896.

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Between thirty and forty acres were sown with *Bromus Inermis* the past season. The first sowing was done on April 27th, and the others on May 26th and June 3rd, and in each case a good catch was obtained. The five acre field sown on April 27th was run over with mowing machine once, and later, with binder to keep weeds in check. The balance was mown over once.

Cattle were turned on the fields in September and continued to find good picking until snow fell in November. The accompanying plate is from a photograph showing cattle grazing in this field in September. The early sown produced the best crop.

This grass is better sown alone; at least it should not be sown with a grain crop. The grain takes too much moisture from the young grass-plants, only the most vigorous of which will survive the dry weather in September; whereas, if sown alone all the plants have an equal chance.

It is also advisable to sow the seed on soil that does not blow. Summer fallow would be the best preparation, but on account of its liability to drift it is not safe in many parts of the Territories to use this kind of land. Stubble land ploughed three or four inches deep in April or May, and well harrowed after the seed is sown, is found to be quite safe from winds as the stubble harrowed on top prevents all drifting.

Fifteen to eighteen pounds of seed is required per acre. More seed will give a better crop the first year, but less afterwards as the roots thicken up each year and in three or four years makes better pasture than hay.

The seed being light, long and thin, seeding by hand is the only practicable method. To seed properly a calm day should be chosen, so that all parts of the land may be evenly sown.

While the plants are young, weeds are sure to make great headway and it is necessary to keep them, at least from going to seed. The quickest way to accomplish this is to go over the field with a mower, cutting just above the grass-plants. If this operation has to be repeated it will be necessary to cut the tops of the grass, but this will not injure the plants, in fact it is an advantage in the way of giving the roots a better hold.

The first crop of hay can be cut the next year after seeding, and will, in ordinary years be ready early in July. Eight or ten days after being ready to cut for hay it will be fit to cut for seed if so desired.

On this farm it has always been cut in first blossom for hay and ten days from this time it is considered in proper state to cut for seed.

In cutting for seed a binder is used and the grass is cut, tied and stooked the same as wheat or other grain. In a week or ten days after cutting it is ready to thresh or store away as deemed best.

For threshing small quantities the old-fashioned flail is suitable, but for large lots a threshing machine should be used on which the wind has been closed off as much as practicable. From three to six hundred pounds of seed may be expected from an acre.

Since July 3rd all the farm horses and bulls have been fed on brome hay and there has been less waste than with any other hay ever used on the farm.

CANARY SEED GRASS.

This grass has done very well on the farm, but is an annual and has to be sown each spring. This, however, is not very expensive as the seed is easily grown.

Like all other grasses, if left to ripen its seed it is not very good for hay, but if cut early it makes fair fodder.

Last spring one acre was sown, part of which was land subject to drifts from adjoining fields and had received, during the winter a heavy coating of this drift-dirt. Under these conditions the yield was less than usual.

Six hundred pounds of canary seed were obtained from the acre and as the seed is much better than can be bought in the Territories, the crop is a valuable one even with the somewhat low yield of six hundred pounds per acre.

TARES.

One-tenth acre of white tares was sown on May 27th and cut for seed on September 8th, yielding 215 pounds or 35.50 bushels per acre.

BUCKWHEAT.

A plot of one-fifth acre was sown with buckwheat for bees. Sown May 27th, cut for seed August 25th; yield per acre 14.26 bushels. The straw was a heavy crop two feet high.

MILLETS, COMMON AND GOLDEN AND HUNGARIAN GRASS.

Millets and Hungarian grass were sown on one-tenth acre plots. The plot of Hungarian grass headed out and the seed was about half formed when the plot was cut. The millets did not head. One-half acre of common millet was sown for the silo. The one-tenth acre plots when cut were allowed to dry and were fed as hay.

		Per Acre.	
		Tons.	Pounds.
Millet—Common	$\frac{1}{10}$ acre, Sown May 26, Cut Sept. 9	2	700
—Golden	“ “ “ “ 9	2	400
—Common	$\frac{1}{2}$ acre “ “ “ 7	3	1800
Hungarian Grass	$\frac{1}{10}$ acre “ “ “ 9	2	1000

RYE AND MIXED GRAIN FOR FODDER.

One-tenth acre plot of rye and four one tenth-acre plots of mixed grain were sown for fodder, on 6th May and cut by binder on 20th August. All these plots were allowed to partially mature before being cut.

		Per acre.	Tons. Lbs.	
I	Rye, spring,	$1\frac{1}{2}$ bushels,	weight per acre dry, 2 280	
II	{ Banner Oats,	1 bushel,	do	3 320
		1 do		
III	{ Banner Oats,	1 bushel.	do	2 600
		1 do		
IV	{ Banner Oats,	1 bushel,	do	2 800
		1 do		
V	{ Banner Oats,	1 bushel,	do	2 20
		1 do		

FLAX.

One and one-half acres sown 26th May, and cut 22nd August. Yield per acre, 16.20 bushels.

EXPERIMENTS WITH TURNIPS.

Fourteen varieties of turnips were tested on fallow land. The soil was clay loam, and as the land was too wet to drill up, a grain drill was used to make marks every thirty inches and the seed was sown by turnip drill in these marks. The plan answered very well and there were no misses or blanks in the plots.

All the varieties looked well from the start. Dry weather in September was against a heavy yield, but all returned a very even crop of roots.

Two seedings were made of each kind, the first on the 30th of May and the second on the 13th of June, and the roots from both were gathered on the 6th of October. As shown in the following table, the earliest sown gave the largest returns. The yield per acre has been calculated in each case from the weight of roots gathered from two rows each 66 feet long.

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TURNIPS—Test of Varieties.

Name of Variety.	YIELD PER ACRE.							
	1st Plot.		1st Plot.		2nd Plot.		2nd Plot.	
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.
Purple Top Swede.....	24	840	814		21	1,560		726
Perfection.....	23	1,520	792		19	1,336		655 36
Hartley's Bronze.....	23	332	772	12	18	960		616
Prize Winner.....	21	1,560	726		19	16		633 36
Skirving's.....	21	1,560	726		18	1,752		629 12
Selected Champion.....	21	240	704		19	676		644 36
Mammoth Clyde.....	20	920	682		16	472		541 12
Prize Purple Top.....	19	1,996	666	36	17	584		576 24
Marquis of Lorne.....	19	280	638		15	1,680		528
Sutton's Champion.....	19	280	638		14	1,568		492 48
Carter's Elephant.....	18	1,752	629	12	15	1,020		517
Giant King.....	18	1,488	624	48	18	168		602 48
Jumbo or Monarch.....	18	696	611	36	13	928		448 48
East Lothian.....	18	432	607	12	16	736		545 36

EXPERIMENTS WITH MANGELS.

Fourteen varieties were tested on clay loam. In sowing, the same plan was adopted as with the turnips, and it gave good satisfaction.

Two sowings were made of each variety, the first on the 30th of May and the second on the 13th of June, and the roots of both were pulled on the 30th September. The early seeding has given the best returns. On account of the very dry fall, none of the sorts gave large returns, but the roots were of very fine quality. The Globe varieties gave the largest crops and the best roots.

MANGELS—Test of Varieties.

Name of Variety.	Yield per acre. 1st Plot.		Yield per acre. 1st Plot.		Yield per acre. 2nd Plot.		Yield per acre. 2nd Plot.	
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.
	Red Fleshed Globe.....	16	736	545	36	10	1,780	363
Champion Yellow Globe.....	16	736	545	36	12	24	400	24
Mammoth Long Red (Webb).....	15	1,812	530	12	11	440	374	
Giant Yellow Globe.....	15	1,548	525	48	15	624	510	24
Yellow Intermediate.....	15	1,152	519	12	14	1,040	484	
Mammoth Long Red (Steele).....	15	1,152	519	12	14	512	475	12
Red Fleshed Tankard.....	15	888	514	48	13	400	440	
Giant Yellow Intermediate.....	15	756	512	36	11	1,648	393	48
Mammoth Long Red (Evans).....	15	360	506		12	1,080	418	
Golden Tankard.....	15	228	503	48	11	176	369	36
Golden Fleshed Tankard.....	15	228	503	48	11	176	369	36
Gate-post.....	14	1,304	488	24	10	1,648	360	48
Warden Orange Globe.....	13	1,720	462		16	1,528	558	48
Canadian Giant.....	13	400	440		13	1,456	457	36

EXPERIMENTS WITH CARROTS.

Fourteen varieties of carrots were tested on clay loam. One sowing only was made on the 18th of May, and the roots were pulled on the 5th of October. None of the sorts gave a large yield, but all were much better than in any former test. The highest returns were from the Short White varieties.

The land used was summer fallow, not ploughed in the spring. The rows were made on the flat by grain drill and the seed sown by the turnip drill. The yield per acre has been calculated from the weight of roots gathered from two rows, each 66 feet long.

CARROTS—Test of Varieties.

Name of Variety.	Yield per Acre, 1st plot.		Yield per Acre, 1st plot.	
	Tons.	Lbs.	Bush.	Lbs.
Half-long White	13	1,852	464	12
Half-long Chantenay	13	1,192	453	12
Mammoth White Intermediate	13	268	437	48
Iverson's Champion	13	131	435	36
White Belgian	12	948	415	38
Improved Short White	12	156	402	36
Short White Vosges	11	1,364	389	24
Oxheart or Guerande	11	1,364	389	24
Early Gem	10	1,648	360	48
Giant Yellow Intermediate	10	724	345	24
Scarlet Intermediate	10	592	343	12
Carter's Orange Giant	9	1,800	330	..
Long Scarlet Altringham	8	1,556	292	36
Long Orange or Surrey	7	1,444	257	24

EXPERIMENTS WITH SUGAR-BEEES.

These were on clay loam, the first set of plots was sown on the 30th May, and the second on the 13th June; both were pulled on 30th September. The yield per acre has been calculated in each case from the weight of roots gathered from two rows each 66 feet long.

Name of Variety.	Yield per Acre, 1st plot.		Yield per Acre, 1st plot.		Yield per Acre, 2nd plot.		Yield per Acre, 2nd plot.	
	Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.
Lane's Improved	14	1,400	490	..	13	100	435	..
Vilmorin's Improved	12	1,560	431	..	9	1,800	330	..
Austrian Electoral Wohanka	12	400	..	11	140	369	..

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STORING ROOTS.

In the fall of 1895 two pits of turnips, two of cabbage and one of potatoes and onions were made in the field to ascertain whether these roots and vegetables could be safely kept through the winter in that manner.

One pit of turnips was put below the surface by digging a hole three feet deep by three wide, in which the roots were filled to a slope just above the surface of the ground. The other pit was made on the top of the ground.

When opened in April, the turnips in the deep pit were found to be all rotten, caused, no doubt, by too much heat. The roots in the pit on the surface were taken out in splendid condition.

The two pits of cabbage were made in the same way, except that when filling the dug pit the cabbage were left below the surface and boards laid across the pit to keep the weight of covering from the heads.

When the dug pit was opened the cabbage on the outer sides were found to be partially rotted, from too much heat. Those pitted on the surface were in good condition ; many of the heads being in better shape than those stored in a root cellar.

The pit for potatoes and onions was dug three feet deep and filled to the level of the ground with potatoes, the onions having been placed at the bottom of one end of the pit. When opened the top half of the potatoes was found frozen ; the remainder of the potatoes and onions being perfectly sound. There were about twenty bushels of potatoes in the pit, which were not sufficient to retain the heat.

All the pits were covered in the same way—1st, a layer of straw and four inches of earth ; 2nd, after the first covering of earth was frozen, a second layer of straw and four inches more earth were added ; and 3rd, before very cold weather set in in December, a covering of coarse manure was put over all. Ventilators were placed in all the pits and closed when hard frost came.

The results of these tests show ; 1st that turnips and cabbage are better hilled on top of the ground and 2nd that potatoes require to be put below the surface.

EXPERIMENTS WITH POTATOES.

One hundred varieties of potatoes were planted in 1896. The yield of many was small, while others gave very satisfactory returns.

Before planting, the tubers were treated with corrosive sublimate for scab. Each variety was put in a bag and dipped in a solution of two ounces of corrosive sublimate dissolved in fifteen gallons of water, then taken out, drained, and when dry, cut. Four days after, they were planted in drills thirty inches apart. With nearly all the sorts the treatment proved effectual, although a few very scabby varieties are still somewhat affected.

In 1894, a solution of one ounce of corrosive sublimate to fifteen gallons of water was used, but that proved too weak. This year the strength was doubled and the results were much more satisfactory.

The potatoes were planted on the 18th May, on clay loam, and dug on the 1st of October. All the varieties made a strong growth. The yield per acre has been calculated in each case from the weight of tubers gathered from two rows, each 66 feet long.

POTATOES—Test of Varieties.

Name of Variety.	Average Size.	Total Yield per Acre.		Yield per Acre of Marketable.		Yield per Acre of Un-marketable.	Colour.
		Bush.	Lbs.	Bush.	Lbs.	Bush. Lbs.	
American Wonder	Large	413	36	383	36	30	White.
Empire State	Small	389	24	364	24	25	"
American Giant	Large	376	12	366	12	10	"
London	"	376	12	350	12	26	Red.
Brownell's Winner	Small	369	36	337	36	32	"
Lizzie's Pride	"	369	36	342	36	27	White.
Vanguard	Large	367	24	345	24	22	Red.
Late Puritan	"	345	24	325	24	20	White.
Lee's Favourite	Small	345	24	315	24	30	Red and white.
Carman No. 1	Large	345	24	330	24	15	Pink.
New Queen	Small	341		316		25	Red.
Puritan	Large	336	36	300	36	36	White.
Everett	"	334	24	312	24	22	Red.
Morning Star	Small	332	12	300	12	32	Brown.
Money-maker	Large	332	12	318	12	14	White.
Crown Jewel	"	332	12	296	12	36	Brown.
Clarke's Extra Early	"	330		315		15	Pink.
State of Maine	"	321	12	300	12	21	White.
Monroe County	Small	316	48	300		16 48	Brown.
Early Harvest	Large	314	36	300	36	14	White.
Pearce's Prize Winner	"	314	36	300	36	14	"
Beauty of Hebron	Small	312	24	290	24	22	Brown.
Victor Rose	Large	312	24	300	24	12	Red.
Dreer's Standard	Small	312	24	294	24	18	White.
Burpee's Extra Early	"	312	24	300	24	12	Brown.
Vick's Extra Early	"	310	12	286	12	24	Red.
Troy Seedling	"	310	12	290	12	20	White.
Early Gem	"	310	12	286	12	24	Brown.
Irish Daisy	"	301	24	270	24	31	White.
Polaris	Large	301	24	280	24	21	"
Pride of the Market	"	301	24	285	24	16	"
New Variety No. 1	"	299	12	290	12	9	"
Daisy	Small	297		280		17	Brown.
Rural Blush	Large	294	28	280		14 28	Red.
Great Northern	"	294	28	280		14 28	White.
Early Puritan	Small	294	28	276		18 28	"
Ideal	Large	294	28	282		12 28	Red.
Sharpe's Seedling	Small	292	36	270		22 36	"
Maggie Murphy	Large	290	24	280	24	10	"
I. X. L.	Medium	290	24	270	24	20	Brown.
Clarke's No. 1	Large	288	12	280	12	8	Pink.
Early Sunrise	Small	286		262		24	Red.
Holborn Abundance	Large	283	48	270		13 48	White.
Pearce's Extra Early	Small	281	36	260	36	21	Brown.
Dakota Red	Large	281	36	271	36	10	Red.
Clay Rose	Small	279	24	254	24	25	"
McKenzie	Large	279	24	264	24	15	White.
Seattle	Small	279	24	250	24	29	"
Early White Prize	Large	279	24	270	24	9	"
General Gordon	Small	277	12	230	12	47	Red.
Carman No. 1	Large	275		267		8	White.
Seedling No. 230	Small	272	48	242	48	30	"
Wonder of the World	"	272	48	261	48	11	Brown.
Northern Spy	Large	270	36	270	36		Red.
Toronto Queen	Small	268	24	244	24	24	Brown.
Primrose	"	268	24	240	24	28	Red.
Burnaby Seedling	Large	268	24	242	24	26	Pink and white
Great Divide	Small	261	48	241	48	20	White.
Green Mountain	Large	261	48	249	48	12	"
Charles Downing	"	261	48	247	48	14	"
Flemish Beauty Seedling	"	259	36	250	48	9	Red.
Prize Taker	Small	253		225	36	28	"
Earliest of all	"	253		220		33	Brown.
Pride of the Table	Large	250	48	230	48	20	Pink.
Chicago Market	Small	248		224		24	Brown.
Vanier	"	248	36	200	36	48	Red.

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POTATOES—Test of Varieties—Continued.

Name of Variety.	Average Size.	Total Yield per Acre.		Yield per Acre of Marketable.		Yield per Acre of Un-marketable.		Colour.
		Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Rochester Rose.....	Large.....	246	24	223	24	23		Brown.
Reading Giant.....	Small.....	246	24	213	24	33		Red.
Algoma No. 1.....	".....	246	24	210	12	36		"
Early Rose.....	".....	244	12	224	12	20		"
Scotland.....	".....	244	12	200	12	44		White.
Delaware.....	".....	244	12	217	12	27		"
Early Norther.....	Large.....	242		222		20		"
Hale's Champion.....	Small.....	239	48	203	48	36		"
White Beauty.....	".....	237	36	207	36	30		"
Harbinger.....	".....	237	36	200	36	37		Brown.
Peerless Junior.....	Large.....	237	36	216	36	21		White.
Russell Seedling.....	Small.....	226	36	200	36	26		"
Early Six Weeks.....	".....	224	24	200	24	24		Red.
Seedling No. 214.....	".....	224	24	196	24	28		White.
Hopeful.....	".....	220		205		15		"
Freeman.....	".....	217	48	189	48	28		"
Stourbridge Glory.....	".....	217	48	189	48	28		"
Queen of the Valley.....	Large.....	217	48	200	48	17		Red.
Algoma.....	".....	209		200		9		Brown.
Early Ohio.....	Small.....	206	48	179	48	27		Red.
Satisfaction.....	".....	206	48	184	48	22		"
Lightning Express.....	".....	200	12	164	12	36		"
Orphan's.....	".....	198		170		28		White.
Thorburn.....	".....	195	48	163	48	32		"
Record.....	".....	187		161		26		"
World's Fair.....	Large.....	169	24	160	24	9		"
Brown's Rot Proof.....	".....	132		120		12		Red.
Table King.....	".....	127	36	110	26	17		White.
She.....								
Seedling No. 1.....								
Seedling No. 7.....								
Seedling No. 169.....								
She No. 2.....								

} Not weighed.

VEGETABLE GARDEN.

The garden vegetables did very well the past season. This was especially the case with beans and tomatoes, which in previous years have not, as a rule, ripened, on account of early frosts in the fall.

ASPARAGUS.

Three varieties were grown, Conover's Colossal, Barr's Mammoth, and Donald's Elmira. The first named variety gave the best cuttings, as the other two have not been long enough planted to be at their best. First used, 6th May; continued two months.

BEANS.

Fifteen varieties, including six sorts from seed received from Germany, were tested. Sown 14th May. The names of the varieties tested are: Broad Windsor, Dwarf White Butter, Kenney's Rust Proof, Early Valentine Wax, Black Eyed Wax, Pearce's Golden Beauty, Snow Pod, Wardwell's Kidney Wax, and Early Six Weeks, all of which ripened except Broad Windsor.

The German varieties were : Heinrich's Giant, Flageolet Wax, Giant White Wax, Giant Croadsworth (climber), Don Carlos (climber), and Flageolet Wax (climber), none of which ripened. Kenney's Rust Proof was entirely free from rust, all the rest being more or less affected. Dwarf White Butter produced the largest crop and is the best variety tried.

The seven varieties first mentioned were again sown on 26th May, when Early Six Weeks, Wardwell's Kidney Wax and Pearce's Golden Beauty gave the best returns.

BEETS

Ten varieties were grown. All sown on 30th April and lifted 29th September. Names : Improved Dark Red (German seed), Eclipse, Arlington's Favourite, Dewing's Improved Blood Turnip, Nonsuch, Olive-shaped, Bonsecour's Market, Black Prince, Bruce's Fine Long Dark and Edmund's Blood Turnip.

The best varieties in colour, shape and quality were : Eclipse, Olive-shaped, Nonsuch, and Black Prince.

The largest crops were from : Bonsecour's market, 1,532 bushels per acre ; Bruce's Fine Long Dark, 1,532 bushels per acre, and Improved Dark Red (German) 1,411 bushels per acre.

CABBAGE—Sown in hot-bed April 9th, transplanted into frames May 7th, transplanted into garden June 2nd.

Name of Variety.	Fit to Use.	Lifted.	Weight.	Remarks.
				Lbs.
<i>German Seed.</i>				
Fielder.....	Sept. 1	Oct. 13	16	Very fine pointed heads.
Etampes.....	July 20	" 13	8	Good heads.
Savoy—Dwarf Early Yellow.....	" 20	Sept. 1	6	Early and small.
Savoy—Lorenz's Favourite.....	" 20	" 1	8	" "
Savoy—Brunswick.....	" 28	" 1	8	" "
Brunswick.....	Sept. 1	Oct. 13	13½	Fair quality; did not head well.
Imported Red Pickling.....	Aug. 15	" 13	9	Good heads.
Early Dwarf Blood Red.....	" 15	" 13	8	Very dark; headed well.
Brussell's Sprouts.....	Sept. 1	" 13	.....	Very fine; 2 ft. high; covered with sprouts.
Kale—Lorenz's Garnishing.....	" 1	" 13	.....	Fair.
Kohl-rabi—Erfurt Early.....	" 1	" 13	10	Very large and good shape.
<i>Canadian Seed.</i>				
Henderson's Early Summer.....	Aug. 1	Oct. 13	15	Extra good; one of the best.
Early Standard.....	July 25	Sept. 1	10	Very early.
Very Early Etampes.....	" 20	" 1	12	"
Jersey Wakefield.....	" 25	" 1	8	"
Largehead—Exp. Farm seed.....	Oct. 1	Oct. 13	12	Did not do well; few heads formed.
Burpee's Allhead.....	Sept. 11	" 13	16	Extra good; every plant headed.
Mason's Large Late Drumhead.....	" 15	" 13	16	Very good.
Surehead.....	" 10	" 13	23½	Large, solid; one of the best.
Matchless Flat Dutch.....	" 10	" 13	20	Extra good; large, solid.
Auvergne Quintal.....	" 15	" 13	16	Large, loose.
Bruce's Winter.....	Oct. 1	" 13	16	Not more than half the plants headed
Autumn King.....	" 1	" 13	16	" " "
Large German Savoy.....	Sept. 1	" 13	15	Large and very fine.
The Lupton.....	" 1	" 13	16	Extra good; all headed.
Red Dutch Drumhead.....	" 1	" 13	19	Very good "

Experimental Farms.

CAULIFLOWER.—Sown in hot-bed April 9th, transplanted into frames May 7th, transplanted into garden June 2nd.

Name of Variety.	Fit for Use.	Duration.	Per cent Headed.	Remarks.
Gilt Edge	July 16...	1 month...	100	All headed; good quality.
Early Dwarf Erfurt.....	" 20...	1 ".....	100	" " " "
Autumn King	Sept. 20.....	.....	10	Very few headed.
Veitch's Autumn Giant .....	.....	.....	.....	Seed bad.
Extra Early Erfurt.....	July 16.....	1½ months...	100	All headed; good size and quality.
Giant White Pearl.....	" 17.....	1½ ".....	90	Nearly " " " "
Best of All.....	" 16.....	1½ ".....	100	All " " " "
Early White Head.....	" 16.....	1½ ".....	100	All " " " "

Sown in frames without glass.

Name of Variety.	Sown.	Transplanted.	In Use.	Duration.	Remarks.
Giant White Pearl	May 14....	June 16....	Sept. 1....	1½ months..	Very fine.
Extra Early White Head	" 14....	" 16....	" 1....	1½ " ..	"
Extra Early Erfurt	" 14....	" 16....	" 1....	1½ " ..	"

CARROTS.

Nine varieties were tested: Half-long Scarlet Nantes, Half-long Red, Oxheart or Guerande, Half-long pointed, Half-long Scarlet Chantenay, New Long Red Meaux, Peer of all, Half-long Scarlet, and Danver's Half-long were sown on 28th April and were fit for use 15th to 20th July and lifted October 1st.

Half-long Scarlet Nantes and Half-long Red were the best in shape and quality; and Half-long Scarlet Chantenay produced the largest crop, 988 bushels per acre.

CELERY.

Six varieties were tested: White Plume, Pink Plume, Paris Golden Yellow, New Triumph, Seymour's Giant and Large Golden Heart. These were sown in hot-bed 4th April, transplanted to cold frame 6th May, and set out in garden 16th June. All were planted in trenches dug 18 inches deep. Six inches of well rotted manure was placed in the bottom of the trench and well tramped, then six inches of surface soil, in which the plants were set. One row of Paris Golden Yellow was planted on the surface and earth heaped up as the plants grew. The celery in the trenches produced much the best heads. White Plume, Pink Plume, Paris Golden Yellow and New Triumph were the best varieties

CORN.

Nine varieties of early corn were tried: Burbank's, Ewing's Champion Sugar, First of all (McInnis), First of all (Bruce), White Cory, Vaughan's Jehu, Native Corn, Early Crosby and Early White Cory; and one variety of very late corn, Vaughan's Giant Mexican. These were planted in one of the garden enclosures on 22nd May and being well protected from winds by the hedges, all made a large growth.

The Native or Squaw corn ripened first, but the ears were very small. This variety can be depended upon to mature every year. Vaughan's Jehu matured the best of any and promises to be an excellent variety for this district.

First of all (Bruce), First of all (McInnis) and Vaughan's Jehu would be good varieties to grow for ensilage on account of their earliness and vigour of growth.

Vaughan's Giant Mexican, mentioned in the report on field-corn, made a very large growth of stalks but did not even tassel.

CITRONS.

Common and Colorado Preserving were sown in hot-beds on the 16th April. They were set out in frames in the garden on 22nd May, and were fit to use on 15th August. The Common variety weighed 9 pounds, and the Colorado Preserving, 12 pounds.

The same varieties were sown in the garden on 22nd May and were fit to use on 1st September. The weight was 6 and 9 pounds respectively.

CUCUMBERS.

New Siberian, Evergreen White Spine, Giant Pera, White Wonder and Pride of Canada were sown in hot-beds on 16th April, and transplanted to frames in the garden on 22nd May. The new Siberian was fit to use on 1st July, White Wonder 5th July, and Giant Pera and Evergreen White Spine on 12th July. Pride of Canada did not grow. Giant Pera produced the best crop and was the finest in shape and quality.

New Siberian, Evergreen White Spine, Giant Pera and Thoroughbred White Spine were sown in frames in the garden on 22nd May; the latter variety gave the best crop.

LETTUCE.

Big Boston, Black Seeded Simpson, Grand Rapids, Blonde Beauty, Pearce's Wonderful, Gardener's Favorite and Ohio Cabbage were sown on 30th April. Black Seeded Simpson was fit to use 10th June, Big Boston on 20th, and the others on 15th June. The best varieties were Big Boston and Black Seeded Simpson.

The same seven varieties, and five German sorts in addition, Lorenz's Favourite, Fearnought, Standard Yellow, American Curled and White Paris Cos were sown on 16th May. Lorenz's Favorite was the best of the German varieties, and Black Seeded Simpson was first of the Canadian sorts.

HERBS.

Parsley: Covent Garden, Moss Curled and Curled, a German variety, were sown on 16th May, and were fit to use on 1st August. All did well. The German seed came up the best.

ONIONS—Transplanted.

Name of Variety.	IN HOT-BED.		Trans- planted to Garden.	Lifted.	Bushels per Acre.
	Sown.	Up.			
Leek	Did not germinate.				
James Keeping	" " " "				
Prize Taker	April 4..	April 20..	June 4..	Sept. 16..	484
Mammoth Silverskin	" 4..	" 20..	" 4..	" 16..	242
Mammoth Pompeii	Did not germinate.				
Oxonian Prize	April 4..	April 20..	June 4..	" 16..	242
Ailsa Craig	Did not germinate.				
Extra Early Wethersfield	April 4..	April 20..	June 4..	" 16..	342
Selected Yellow Danvers	" 4..	" 20..	" 4..	" 16..	282
Large Red Globe	" 4..	" 20..	" 4..	" 16..	463
Large Yellow Flat Danvers	" 4..	" 20..	" 4..	" 16..	262
Giant Rocca	Did not germinate.				
Danvers Globe	April 4..	April 20..	June 4..	" 16..	484
Red Victoria	" 4..	" 20..	" 4..	" 16..	645
Large Red Wethersfield	" 4..	" 20..	" 4..	" 16..	336
Rose Monster	" 4..	" 20..	" 4..	" 16..	243

Experimental Farms.

ONIONS—Sown in Open Ground.

Name of Variety.	Sown.	Up.	Lifted.	Bushels per Acre.
Selected Yellow Danvers.....	April 28..	May 20..	Sept. 16..	242
Large Yellow Flat Danvers.....	" 28..	" 20..	" 16..	342
Yellow Globe Danvers.....	" 28..	" 20..	" 16..	342
Large Red Wethersfield.....	" 28..	" 20..	" 16..	302
Large Red Globe.....	" 28..	" 20..	" 16..	262
White Queen.....	" 28..	" 20..	" 16..	203
Small White Nocera.....	" 28..	" 20..	" 16..	223
Mammoth Silverskin.....	" 28..	" 20..	" 16..	223
Prize Taker.....	" 28..	" 20..	" 16..	262
Shalots.....	" 28..	" 20..	" 16..	302
Extra Early Red Wethersfield.....	" 28..	" 20..	" 16..	302

SUMMER SAVORY.

Summer savory from Germany and seed of the same herb from Steele, Briggs Co. were sown 16th May. Both did well and apparently there was no difference in the two sorts.

Sage.—Broad leaved, sown 16th May, fit to use 1st August; a fair crop.

Borage.—German seed, sown 16th May, a wonderful bee plant, bees were on it continually; a good crop.

Dill.—Germar seed, sown 16th May; a good crop.

MELONS.

Jersey Belle (Musk) and Phinney's Early (Water) were sown in hot-beds 16th April and transplanted to frames in the garden 22nd May. Jersey Belle ripened on 5th September and Phinney's Early on 12th September. The frames were taken off when danger of spring frosts was past and put on again early in September when all the fruit ripened. Glass was used in the frames.

PEASE.

Twelve varieties, viz.:—C. P. R., Alaska, Wm. Hurst, Nott's Excelsior, S. B. M. Co.'s Extra Early, Little Giant, Bruce's Extra Early, Horsford's Market Garden, Fortyfold, American Wonder, Burpee's Profusion and Schwanzler's Giant, a German variety, were sown on 15th May.

The C. P. R. was by far the finest variety for the table but is late. In quality and size it cannot be beaten. American Wonder, Wm. Hurst and Horsford's Market Garden were also extra good. Alaska and S. B. M. Co.'s Extra Early were the earliest, being fit for use 1st July, followed by Bruce's Extra Early, on 3rd July. C. P. R. did not come into use until 24th July.

RADISH.

Sowings were made on 4th April in the hot-bed; and on 30th April, 16th May and 27th June in the garden of Scarlet Turnip-Rooted, White Tipped Scarlet, Rosy Gem, Pearl Forcing, Early Scarlet, Olive Shaped, and Long Scarlet, Short-top. To the third sowing Dark Scarlet, Olive Shaped Red and Munchausen's White, three German varieties; and Rose China Winter and Black Winter were added.

All did well except those sown on April 30th, all of which were full of worms and unfit for use.

Pearl Forcing was one of the best varieties sown.

PUMPKINS AND SQUASH.

Mammoth Pumpkin, Hundred Weight Pumpkin, Red Hubbard Squash, Sutton's Vegetable Marrow, Long Green Marrow, Long White Bush Marrow and Scallop Squash were sown in small frames in the garden on 22nd May. Mammoth and Hundred Weight pumpkins ripened on 1st September. Weight 20 to 30 lbs., very few on vines. The marrows and squash were a good crop and the Long White Bush matured some specimens two feet long.

RHUBARB.

Four varieties were grown. Victoria, Linnæus, Tottle's Improved and Stott's Mammoth. Victoria and Linnæus are the best varieties. Tottle's Improved is a larger but coarser sort. Stott's Mammoth is very large and coarse.

TOMATOES.

Seven varieties; Early Leader, Yellow Plum, Earliest of All, The Imperial, Everbearing, Pear-shaped Yellow and Lorenz's Forerunner (German)—the latter did not germinate.

Earliest of All produced ripe tomatoes on 3rd July; Early Leader and Yellow Plum on 12th July; Everbearing on 3rd August; Pear-shaped Yellow 12th August and The Imperial on 5th September. Early Leader gave the largest crop of early tomatoes. The Imperial, was covered with a frame and glass on 5th September and ripened all its fruit; producing the best crop and finest fruit ever grown on the farm. Early Leader and Earliest of All ripened their fruit without protection.

Some plants of all the varieties were pruned back, which helped greatly in setting and ripening the fruit. The same varieties not pruned back did not ripen but gave a very large yield of green tomatoes.

CABBAGE PLANTED FOR SEED.

In the fall of 1895, nine varieties of cabbage were packed in dry earth in a root cellar and next spring were planted for seed, with the following results.—

Heads.

4 Surehead, produced.....	14 oz. seed.
3 Vanguard.....	21 " "
2 Louderbach's.....	13 " "
2 Nonesuch.....	12 " "
1 World beater, rotted.....	
1 Bruce's Winter.....	8 " "
1 Large Late Drumhead.....	7 " "
2 Burpee's All Head.....	13 " "
4 Mixed.....	14 " "

The seed grown on the Experimental Farm in former years has always germinated more quickly and grown more vigorously than eastern grown seed.

Experimental Farms.

FLOWER GARDEN.

ANNUALS.

Name of Variety.	Sown in Hot-bed.	TRANSPLANTED.		IN FLOWER.		Remarks.
		Hot-bed.	Garden.	From	Till	
Asters—						
7 varieties Dwarf Pæony, flowered.....	April 4..	May 4..	June 6..	Aug. 15..	Frozen....	All the asters were late in coming into bloom, but were fine and stood several hard frosts without much injury.
7 varieties Comet.....	" 4..	" 4..	" 6..	" 15..	" ..	
7 " Dwarf Bouquet.....	" 4..	" 4..	" 6..	" 15..	" ..	
Lilliput., 7 varieties.....	" 4..	" 4..	" 6..	" 15..	" ..	
Acroclinium.....	" 4..	" 4..	" 6..	" 1..	" ..	Very good.
Verbena, 7 varieties.....	" 4..	" 4..	" 6..	July 15..	" ..	Not so showy as formerly.
Single Dahlia, 7 varieties....	" 4..	" 4..	" 6..	" 1..	" ..	Did not make much show.
Stocks—						
Dwarf Bouquet.....	" 4..	" 4..	" 6..	" 1..	" ..	Extra fine; one of the best flowers for this climate.
Pink of Perfection.....	" 4..	" 4..	" 6..	" 1..	" ..	Made a good border.
Germanten Weeks.....	" 4..	" 4..	" 6..	" 1..	" ..	
Pyrethrum Golden.....	" 4..	" 4..	" 6..	" ..	" ..	Very few plants were double, but the single ones were extra fine and made a showy bed.
Double Petunias, 7 varieties..	" 4..	" 4..	" 6..	July 1..	Frozen....	
Gaillardia Lorenziana.....	" 4..	" 4..	" 6..	Aug. 1..	" ..	Hardy; good flower for N. W. T.
Scarlet Flax.....	" 4..	" 4..	" 6..	July 1..	" ..	One of the best.
Dianthus, 3 varieties.....	" 4..	" 4..	" 6..	" 15..	" ..	Very good.
Salpiglossis.....	" 4..	" 4..	" 6..	Aug. 1..	" ..	Fair.
Ice plant.....	" 4..	" 4..	" 6..	" ..	" ..	Made too much growth.
Calliopsis.....	" 4..	" 4..	" 6..	Aug. 1..	" ..	Hardy and showy.
Phlox Drummondii.....	" 4..	" 4..	" 6..	July 1..	Sept. 1..	Showy.
Everlastings—						
Helichrysum.....	" 4..	" 4..	" 6..	" 15..	" 1..	Did well.
Xeranthemum.....	" 4..	" 4..	" 6..	" 15..	" 1..	"
Helipterum.....	" 4..	" 4..	" 6..	" 15..	" 1..	"

ANNUALS SOWN IN GARDEN,

Pansies—The old bed was all winter killed, but came up thickly and very early with seedlings, which when thinned out made a showy bed all the season.

Pansies—14 varieties; sown 15th July; in flower 1st September. Flowers extra fine and remarkably true to colour.

Mignonette—6 varieties; sown May 8th; in flower 1st July. Extra good; in flower all season.

Sweet Pease—12 varieties; sown 8th May; in flower 20th July. Extra good; grew four feet high and flowered all season.

Dwarf Nasturtium—12 varieties. Made an extra fine border; bloomed very freely but was killed by first frost.

Phlox Drummondii—Sown 8th May; in flower 1st July. Very fine; the flowers larger than those sown in hot-bed.

Candytuft—12 varieties; sown 8th May; in flower 1st July. Made a very fine border, the different colours being very effective.

Calendula—Came up from seed shed last year. Flowers only semi-double.

Sweet Alyssum—Sown 8th May; in flower 20th July. Made very pretty border.

Larkspur—Sown 8th May; in flower 20th July. Extra fine; remained in bloom till everything was frozen up.

Poppy—Made a good show.

Escholtzia (California Poppy)—Sown 8th May; in flower 29th June. Extra fine; one of the best annuals.

PERENNIALS.

Pæony—In bloom 27th June, was extra fine. The plants were covered with flowers 6 inches in diameter and very hardy. Thirteen new named varieties were received from the Central Experimental Farm, Ottawa, this year, and have made good progress.

Sweet William.—In bloom 1st June; very fine; made a good show.

Scarlet Lychnis.—In bloom 1st June; showy and hardy.

Veronica.—In bloom 1st June; showy.

Platycodon grandiflorum.—In bloom 15th July; hardy.

Delphinium grandiflorum.—In bloom 1st July; showy and hardy.

Aquilegia (Columbine).—In bloom 1st July; showy and hardy.

Phlox Perennial.—In bloom 1st August; showy and hardy.

Yellow Flax.—In bloom 10th July; extra fine; hardy.

Garden Pink.—In bloom 15th June; extra fine; hardy.

Forget-me-not.—In bloom 1st June; does not stand hot sun.

Everlasting Pea.—In bloom 1st August; grew 5 ft. high.

Iceland Poppy.—In bloom 29th June; very showy and hardy.

Oriental Poppy.—In bloom 29th June; very showy and hardy.

BULBS.

Planted 1896.

Gladioli.—Planted 16th April in pots in hot-bed. Transplanted to garden 6th June; did fairly well; flowers medium in size.

Gladioli.—Planted on 8th May in garden; not so early as those started in pots but flowers were larger.

Planted 1894.

Tulips.—Planted fall 1894; in flower on 8th May and made a great show.

Scilla sibirica.—Planted fall 1894; very pretty and hardy; requires to be in a thick mass to make much show.

A large collection of bulbs of many varieties was received from the Central Experimental Farm, Ottawa, early in October. They were immediately planted in the garden and in pots and boxes, and will be reported on next year.

FRUIT TREES AND BUSHES.

The past season has been a very favourable one for cultivated fruits. Of the native varieties, some localities had an abundance, while in others the supply was small. Blossoms were plentiful but fell off before seeding. The small cultivated fruits on the farm gave an excellent crop, raspberries and currants in particular.

APPLES.

One apple tree, Grandmother, planted in 1889, which has been cut back several years, produced one blossom, which, however, did not form fruit.

Experimental Farms.

A plantation of fifty trees of fifteen varieties of *Pyrus*, received from the Central Experimental Farm, Ottawa, was set out in May last, and to those were added sixty-one *Pyrus* trees, transplanted from those set out in 1894. All those planted in 1894 have thus far proven hardy.

PLUMS.

Two Manitoba plum trees yielded a large crop of very small sized fruit. The Weaver plum seedlings planted in 1894, continue to do well and are expected to produce fruit next season. In addition to the two mentioned there are Imperial Blue, Speers, De Soto, Voronesh and Hungarian Seedlings, all doing well. These trees were planted in 1894, and give promise of fruit the coming year.

The forty-nine varieties of native Manitoba Plums, received from J. Frankland, Stonewall, Manitoba, in the spring of 1895, are, with a few exceptions, doing well. Last spring this plantation was increased by thirty-nine varieties received from Minnesota, United States, all of which are doing well.

CHERRIES.

Two trees of the sand cherry gave a good crop the past season but the fruit was rather small. A plantation of this fruit numbering 172 trees produced a few cherries this year and promises to bear well next season.

The following varieties of cherries planted in 1894, will it is hoped bear fruit next year—seedlings of Minnesota, Ostheim, Carnation and Lithaur Weichsel.

GRAPES.

Bacchus.—Planted 1894. Growth very weak.

Gibb “ “ “

Native Manitoba.—Planted 1894. Growth very weak. Had some bloom but no fruit set.

CURRANTS.

Currants of all kinds were an excellent crop the past season.

In May thirty-seven varieties, including twenty-three cross-bred black sorts, were received from the Central Experimental Farm, Ottawa, and set out in the garden. All were living and had made a healthy growth when winter set in.

RED.

Fay's Prolific.—Ripe 23rd July; very large, bunches extra fine.

Red Dutch.—Ripe 20th July; fruit fair size, very productive.

Raby Castle.—Ripe 20th July; fruit fair size, very productive.

London Red.—Ripe 20th July; heavy crop, large fruit, extra.

Versillaise.—Ripe 20th July; medium fruit, large crop.

Knight's Early.—Ripe 20th July; small fruit, very heavy crop.

La Conde.—Ripe 20th July; medium crop and fruit.

WHITE.

White Grape.—Ripe 20th July; large fruit, very productive.

White Dutch.—Ripe 20th July; large fruit, very productive.

Transparent.—Ripe 20th July; large fruit, medium crop.

BLACK.

- Lee's Prolific*.—Ripe 26th July ; extra good, ripens evenly.
Black Naples.—Ripe 26th July ; large crop, uneven.
Prince of Wales.—Ripe 1st August ; large, late, extra flavour.
Charmer.—Small fruit, fair crop.
Climax " "
Beauty " "
Dominion large fruit "
Topsy fair crop "
Ontario " "
Middlesex " "
Parker " "
Morden " "
Native Black.—Ripe 1st August ; large crop, small fruit.

The foliage of all the black varieties, except Prince of Wales, was very much damaged by rust, which somewhat affected the fruit.

RASPBERRIES.

Raspberries produced a most abundant crop of large and fine fruit the past season. The canes were uncovered on 6th May and were found to be in excellent condition

COVERED.

- Reider*—First ripe 20th July ; heavy crop ; extra fine large fruit.
Turner—First ripe 20th July ; produced heaviest crop ; fruit excellent.
Philadelphia—First ripe 25th July ; some good fruit but uneven.
Cuthbert—First ripe 25th July ; fair crop of fine berries.
Golden Queen—First ripe 10th August ; late but extra fine.
Caroline—First ripe 1st August ; large crop of extra fine fruit.

UNCOVERED.

- Turner*—First ripe 20th July. Not quite as good as those covered.
Cuthbert—First ripe 1st August. Not quite as good as those covered.
Hansell—First ripe 25th July. Not quite as good as those covered.
Caroline—First ripe 1st August. This was much better in both size and quality, than those which were covered.

BLACKBERRIES.

One bush each of Shaffer's Colossal and Early Ohio bore fruit the past season. The crop was small and the berries of medium quality.

GOOSEBERRIES.

The best crop of this fruit ever grown on the Farm was produced this year.

Smith' Improved and Houghton, well known varieties, gave excellent crops, and Columbus and Governess two newer sorts, were loaded with very fine fruit. Lancashire Lad also made a vigorous growth and produced some very large berries.

The native gooseberries were a good crop, but the berries were small. Their growth is so strong that it is almost impossible to keep them within reasonable bounds when under cultivation.

Experimental Farms.

STRAWBERRIES.

An old plot of mixed Dominion and Captain Jack gave a small crop of small berries. Windsor Chief, Pineapple and New Dominion were a little better, The latter producing some very fair sized fruit.

Fifteen hundred young plants, of mixed varieties, have been rooted in a cold frame and are looking well. A new lot of six varieties received from Peter Henderson & Co., New York, were set out on 12th August, but are not doing well.

FOREST TREES.

In no year since the farm was started have trees of all sorts done better than during the season just past. Commencing to grow early in May and encountering no set-back they made and ripened a remarkable growth, the box-elder and the poplars had grown from four to five feet before the season was over. Hedges of maple, box-elder, willow and poplar which in other years could be kept trimmed without much trouble, were this year entirely out of reach.

Box-elder hedges on each side of the roads extending about one and one-half miles were set out last spring. Two-year-old trees were used, and planted two feet apart. Every tree in the one and one-half miles grew, and will, no doubt, go through the winter in good condition.

One of the Russian poplars (*Populus Bereolensis*), is proving one of the best, if not the best variety of tree for avenues and lawns in the Territories. For shape and growth combined it has as yet no equal, and is only surpassed in growth by the American cottonwood. When all other trees were leafless this fall, *Populus Bereolensis* had its entire foliage. The American Cottonwood was also good in this respect but did not equal the Russian Poplar. Native sorts were all quite bare three weeks before a leaf fell from this variety.

In the spring of 1895, five one-half acre plots of trees were planted at different distances apart, for the purpose of ascertaining the cost of planting and keeping clean and in a thriving condition until the trees shade the ground sufficiently to prevent weeds from growing, and hence need no further cultivation. These trees were planted as follows:—plot No. 1, box-elder, set out $2\frac{1}{2}$ feet apart each way; plot No. 2, box-elder, planted 3 feet apart each way; plot No. 3, box-elder, set out $3\frac{1}{2}$ feet apart each way; plot No. 4, box-elder, planted 4 feet apart each way, and plot No. 5, green ash, set out $2\frac{1}{2}$ feet apart each way. In addition to this were plot No. 6, one-half acre, box-elder seed sown in rows $2\frac{1}{2}$ feet apart, and plot No. 7, one-half acre, green ash seed sown in rows $2\frac{1}{2}$ feet apart each way.

Following will be found the cost of planting and taking care of these trees for the first and second year:—

PLOT No. 1— $\frac{1}{2}$ ACRE.

1st year cost of planting, 15 hours.....	\$2 25
" " scruffing, &c., 12 "	1 80
2nd year " " 10 "	1 50
	<u>\$5 55</u>

PLOT No. 2— $\frac{1}{2}$ ACRE.

1st year cost of planting, 12 hours.....	\$1 80
" " scruffing, &c., 15 "	2 25
2nd year " " 13 "	1 95
	<u>\$6 00</u>

PLOT NO. 3— $\frac{1}{2}$ ACRE.

1st year cost of planting, 9 hours	.....	\$1 35
" scruffing, &c., 11 "	.....	1 65
2nd year " 12 "	.....	1 80
		<u>\$4 80</u>

PLOT NO. 4— $\frac{1}{2}$ ACRE.

1st year cost of planting, 9 hours	.....	\$1 35
" scruffing, &c., 10 "	.....	1 50
2nd year " 14 "	.....	2 10
		<u>\$4.95</u>

PLOT NO. 5— $\frac{1}{2}$ ACRE.

1st year cost of planting, 18 hours	.....	\$2 50
" scruffing, &c., 11 "	.....	1 65
2nd year " 9 "	.....	1 35
		<u>\$5 50</u>

PLOT NO. 6— $\frac{1}{2}$ ACRE.

1st year cost of making drills, 2 hours	.....	\$0 30
" " sowing seed, 4 "	.....	0 60
" " covering seed, 6 "	.....	0 90
" scruffing, &c., 11 $\frac{1}{2}$ "	.....	1 72
2nd year " 10 "	.....	1 50
		<u>\$5 02</u>

PLOT NO. 7— $\frac{1}{2}$ ACRE.

year cost of making drills, 2 hours	.....	\$0 30
" " sowing seed, 4 "	.....	0 60
" " covering seed, 6 "	.....	0 90
" scruffing, &c., 10 $\frac{1}{2}$ "	.....	1 57
2nd year " 9 $\frac{1}{2}$ "	.....	1 42
		<u>\$4 79</u>

Taking up trees for five plots, 22 $\frac{1}{2}$ hours..... \$3 38

HEDGES.

Lilac, (*Syringa vulgaris*), Honey Locust (*Gleditsia triacanthos*), and Native Poplar (*Populus alba*), were last spring added to the hedges planted in 1895, making in all eighteen hedges of different varieties of trees and shrubs.

Among those set out in 1895, Sharp leaved willow—(*Salix acutifolia*) Cottonwood—(*Populus monilifera*), Ginnalian Maple—(*Acer Ginnala*), Siberian Pea Tree—(*Caragana arborescens*), Russian Artemisia—(*Artemisia Abrotanum* var. *Tobolskianum*) and Box-elder, (*Negundo aceroides*), made the best growth.

The hedges around the gardens and other plots made a vigorous growth the past season. The hedge of sharp leaved willow, (*Salix acutifolia*), did extra well and is one of the best hedges on the farm.

Last spring, two Box-elder hedges had to be dug up as they were encroaching on more important trees. Next year several others, one of which is 14 feet high will for the same reason have to be similarly disposed of.

Experimental Farms.

ARBORETUM.

The Arboretum started in the spring of 1895 received many additions during the past season, Forty-one varieties of trees and shrubs were set out in 1895 and sixty-five varieties the past spring, as follows :- -

<i>Acer dasycarpum.</i>	<i>Lonicera tatarica.</i> Tartarian Honey-suckle.
“ <i>saccharinum.</i>	<i>Ligustrum amurense.</i>
“ <i>platanoides.</i>	<i>Lonicera media.</i>
<i>Abies Douglasii.</i>	<i>Philadelphus grandiflora.</i>
“ <i>balsamea</i> (from Rat Portage).	<i>Prunus Maackii.</i>
“ “ (from Manitoba).	“ <i>grayana.</i>
<i>Alnus glutinosa.</i>	“ <i>virginiana.</i>
“ <i>incana laciniata.</i>	<i>Pyrus americana.</i>
“ <i>viridis.</i>	“ <i>Spuria.</i>
“ <i>imperialis laciniata.</i>	<i>Pinus Cembra.</i>
<i>Amelanchier alnifolia.</i>	“ <i>montana.</i>
<i>Berberis caricea.</i>	<i>Populus Certinensis.</i>
“ <i>sinensis.</i>	“ <i>betulifolia.</i>
“ <i>Fischeri.</i>	“ <i>Petrovsky.</i>
“ <i>laxiflora.</i>	“ <i>alba argentea.</i>
“ <i>macrophylla.</i>	“ <i>Nolesti.</i>
<i>Betula pyramidalis.</i>	“ <i>sibirica.</i>
“ <i>papyracea.</i>	<i>Picea alba.</i>
<i>Cotoneaster vulgaris.</i>	<i>Quercus pyramidalis.</i>
<i>Crataegus Crus-galli.</i>	<i>Rhamnus Frangula.</i>
“ <i>sanguinea Schroederi.</i>	<i>Rosa rubrifolia livida.</i>
<i>Cytisus capitatus.</i>	<i>Spiraea rotundifolia.</i>
<i>Cornus stolonifera.</i>	<i>Salix laurifolia.</i>
<i>Caragana, mollis glabra.</i>	“ <i>britzensis.</i>
“ <i>fruticosa.</i>	<i>Sambucus nigra, Improved Manitoba.</i>
“ <i>Redowskii.</i>	<i>Rhus.</i>
“ <i>grandiflora.</i>	<i>Syringa persica.</i>
“ <i>pygmaea.</i>	<i>Thuja occidentalis.</i>
<i>Elaeagnus argentea.</i>	<i>Tilia americana.</i>
“ <i>macrophylla.</i>	<i>Ulmus americana (Man.).</i>
“ <i>angustifolia (Russian.)</i>	“ “ (Eastern.).
<i>Euonymus (Russian).</i>	<i>Viburnum Opulus.</i>
<i>Fraxinus americana.</i>	
<i>Larix americana.</i>	

SHRUBS.

The number of shrubs doing well on the farm is increasing each year. For several years *Caragana arborescens*, Siberian Pea Tree, was the only one that appeared able to stand the climate, but now the number is greatly increased by trees and shrubs that are proving to be equally as hardy as *Caragana arborescens*.

The past season the Lilacs, Common, *Josikaea* and Chinese were covered with bloom. Tartarian Honey-suckle and *Lonicera Alberti* were loaded down; the latter being wonderfully fragrant. *Spiraea opulifolia* and the Barberries also made a good show. The Barberries after the first frost were beautiful.

Artemisia Abrotanum continues to give satisfaction as a hedge plant and wind-break. The past season the hedges were kept well trimmed and the seed not allowed to form, which proved a great advantage in keeping the plants green much later in the fall than usual, and in doing away with the risk of having seeds germinating all over the grounds. If the seed is allowed to mature, the hedge is unsightly until the new growth appears next spring. By trimming the hedge just before the seed is formed and again early in September, its appearance is greatly improved and continues so more especially during

the winter months. Trimming does not impair its usefulness as a snow catcher or wind-break.

The following shrubs were received from the Central Experimental Farm, Ottawa, and planted in May last :—

Name of Variety.	No. planted.	No. Living.	No. Dead.	Name of Variety.	No. Planted.	No. Living.	No. Dead.
<i>Crataegus torminalis</i>	3	0	3	<i>Sambucus pulverulenta alba</i>	3	3	
<i>Acer monspessulanum</i>	3	2	1	<i>Alnus cordata</i>	3	1	2
<i>Cornus sibirica variegata</i>	2	2		<i>Sambucus heterophyllus</i>	2	2	
<i>Sambucus pendula</i>	2	1	1	<i>Sambucus laciniata</i>	3	3	
<i>Syringa purpurea</i>	3	3		<i>Rhamnus catharticus</i>	3	3	
<i>Ptelea trifoliata aurea</i>	3	2	1	<i>Hydrangea paniculata grandiflora</i>	4	4	
<i>Syringa Emodi variegata</i>	2	1	1	<i>Diervilla lutea</i>	4	4	
<i>Cytisus trifolius</i>	5	3		<i>Spiraea callosa rosea</i>	3	3	
" <i>hirsutus</i>	3	2	1	<i>Syringa villosa</i>	4	4	
<i>Sorbus domestica</i>	3	3		<i>Sambucus variegata aurea</i>	3	3	
<i>Sambucus variegata argentea</i>	3	3		<i>Rhus coriaria</i>	3	3	
<i>Staphylea pinnata</i>	2	0	2	<i>Syringa Josikaea</i>	14	14	
<i>Berberis laxiflora</i>	3	3		<i>Sambucus aurea nova</i>	7	7	
<i>Sambucus nigra</i>	3	3		<i>Ribes Gordonianum</i>	3	3	
" <i>canadensis</i>	3	3		<i>Populus Bolleana</i>	4	4	
<i>Quercus pyramidalis</i>	3	0	3	<i>Betula pendula Youngii</i>	1	1	
<i>Alnus viridis</i>	1	1		<i>Alnus incana laciniata</i>	2	2	
<i>Alnus Imperialis laciniata</i>	1	1		<i>Acer Ginnala</i>	5	5	
<i>Philadelphus inodorus</i>	3	3		<i>Spiraea Van Houttei</i>	4	4	
" <i>grandiflorus</i>	1	1		<i>Cornus sanguinea</i>	3	3	
<i>Sambucus aurea nova</i>	6	6		<i>Viburnum Opulus</i>	6	6	
<i>Hypericum calycinum</i>	4	0	4	<i>Thuya sibirica</i>	1	0	1
<i>Viburnum Lantana</i>	3	3		<i>Thuya occid lutea</i>	2	2	
<i>Salisburia adiantifolia</i>	2	0	2	<i>Thuya occid Hoveyii</i>	2	2	
<i>Philadelphus coronarius</i>	3	3		<i>Thuya occid Elwangeriana</i>	1	1	
<i>Diervilla Sieboldii</i>	2	2		<i>Juniperus Sabina</i>	2	2	
<i>Philadelphus deutziflorus</i>	5	5		<i>Pinus ponderosa</i>	11	7	4

LIVE STOCK.

CATTLE.

The herd on the farm is in a healthy and thriving condition and consists of thirty-five head, as follows :

Shorthorns—4 females, 1 two year old bull, and 2 bull calves.

Holsteins—9 females, 1 three year old bull, and 2 bull calves.

Polled Angus—1 female.

Grades—7 females and 8 steers.

During the summer three young Holstein bulls were sold to farmers and the four bull calves above mentioned will soon be available for the same purpose.

Last spring a butter factory was started at Indian Head and operated by Professor Robertson, Dairy Commissioner for the Dominion Government, and gave good satisfaction to the patrons. When the factory commenced work, milk from the cows on the farm was sent. On account, however, of the small supply available from other sources, the factory discontinued receiving milk, and as we had no separator on the farm the milk was fed to the calves.

During last winter tests were made in feeding different rations, consisting of, 1st, hay and cut straw ; 2nd, ensilage and cut straw ; 3rd, ensilage and cut oat sheaves ; 4th, ensilage, hay and cut straw, and 5th, cut oat sheaves and cut straw. To each of the animals fed on the above was given the same ration of meal and roots.

The ensilage was made from Indian corn; the meal was wheat screenings mixed with barley and ground; oat or barley straw was used and the hay was fed whole. The cut straw was mixed with ensilage or cut oat sheaves and the meal added.

Experimental Farms.

Two animals were in each lot and from November 26th to April 26th, with two weeks' preparatory feeding, were fed three times a day.

Lot No. 1—Consisting of two three year old steers, was fed hay, 15 pounds, straw, 5 pounds, meal, 5 pounds, and turnips, 20 pounds.

Lot No. 2—Consisting of two three year old steers, was fed ensilage 30 pounds, straw, 10 pounds, meal, 5 pounds, and turnips, 20 pounds.

Lot No. 3—Consisting of two two year old steers, was fed cut oat sheaves, 15 pounds, ensilage, 20 pounds, meal 5 pounds, and turnips, 20 pounds.

Lot No. 4, consisting of two cows, was fed ensilage 20 pounds, hay 8 pounds, straw 10 pounds, meal 5 pounds and turnips 20 pounds.

Lot No. 5, consisting of a bull and a steer, each 2 years old, was fed cut oat sheaves 15 pounds, straw 5 pounds, meal 5 pounds, and turnips 20 pounds.

Lot.	Weight at Commencement of Test.	Weight at Close of Test.	Total Gain.	Average Gain per Month.
	Lbs.	Lbs.	Lbs.	Lbs.
No. 1.....	2,175	2,730	555	111
No. 2.....	2,510	2,990	480	96
No. 3.....	1,985	2,465	480	96
No. 4.....	2,380	2,827	447	89½
No. 5.....	1,950	2,320	370	92½

NOTE.—Lot No. 5 was fed for four months instead of five.

EXPERIMENTS WITH SWINE.

At present there are on the farm three pure breeds of swine—Large Yorkshire, Tamworth and Berkshire; also some cross-bred pigs from a Berkshire sow and Tamworth boar.

During last winter the old Berkshire boar "Derby" died, and his place has been filled by a young animal, "Black Prince," received from James Elder, Esq., Virden, Manitoba.

Berkshire crossed with Tamworth seems to be a good cross for the North-west Territories, and Tamworth boars for this purpose are in good demand. The cross is rather larger than the Berkshire, and more compact than the Tamworth. They are good feeders, and mature quickly, two very good points in their favour.

To test the difference in growth between Large Yorkshires, Tamworths and cross-bred pigs, two animals from each of these breeds were put into one pen on 4th August, and fed all they would eat till 24th November, or in all 111 days.

The age and weight of each lot at the commencement and weight at close of the test, will be found below, together with the amount of gain, which shows slightly in favour of the Tamworth breed. No Berkshires were available at the time, or they would have been added to the test.

Breed.	Age.		Weight at Start of Test.	Weight at Close of Test.	Gain.
	Months.	Days.	Lbs.	Lbs.	
Large Yorkshire.....	4	8	124	404	280
Tamworth.....	3	27	141	456	315
Cross-bred.....	2	26	96	400	304

EXPERIMENTS WITH POULTRY.

Four breeds of poultry are kept, Plymouth Rocks, White Leghorns, White Wyandottes and Black Minorcas. In March last there were 8 Plymouth Rock hens, 10 White Wyandottes, 12 White Leghorns and 14 Black Minorcas. These were placed in separate breeding pens early in March, and during the months of March, April, May and June produced eggs as follows:—

Breed.	March.	April.	May.	June.	Total.
Plymouth Rock	30	40	71	74	215
White Wyandottes	17	54	102	102	275
White Leghorns	38	69	96	162	365
Black Minorcas	20	69	120	140	449

Early in July the hens were allowed to go together, after which no separate account of the eggs laid could be kept.

One hundred and thirty-nine eggs were set, from which eighty-four chickens were hatched. The May and early June chickens have done well, while those hatched later are still very small and of very little use.

The following are in good condition:—

	Hens	Pullets.	Cockerels.
Plymouth Rocks	4	7	6
White Wyandottes	9	4	2
White Leghorns	9	5	4
Black Minorcas	11	2	3

One very fine cockerel of each of the above breeds, not related to the present stock, has been lately received from the Central Experimental Farm, Ottawa.

The rations fed to sixty-one fowls during February and March last were:—

FEBRUARY.

Bran, 38 lbs at $\frac{1}{4}$ c.	\$ 19
Chop, 37 lbs at $\frac{1}{4}$ c.	28
Wheat, 165 lbs at $\frac{3}{4}$ c.	1 24
Oats, 48 lbs at $\frac{3}{4}$ c.	36
Beefheads, 1 $\frac{1}{2}$ at 25c. each	37 $\frac{1}{2}$
Total.	\$2 44$\frac{1}{2}$

MARCH.

Bran, 40 lbs at $\frac{1}{4}$ c.	\$ 20
Chop, 32 lbs at $\frac{3}{4}$ c.	24
Wheat, 120 lbs at $\frac{3}{4}$ c.	90
Oats, 80 lbs at $\frac{3}{4}$ c.	60
Beefheads, 2 $\frac{1}{2}$ at 25c. each	62 $\frac{1}{2}$
Total.	\$2 56$\frac{1}{2}$

BEES.

In May last, one hive of thoroughbred Italian bees was received from W. B. Holmes, Esq., Athens, Ont. The bees arrived in excellent condition and proved to be an extra fine hive of well-marked Italians.

They were allowed their liberty on day of arrival and at once commenced working on the late blossoms of fruit bushes, being too late for the early and best crop of bloom.

In July the bees were preparing to swarm, when it was thought better to divide the swarm, which was successfully done. In August the original hive sent out a second swarm which was secured without trouble.

Experimental Farms.

Early in November on finding the late swarm very short of honey, all the frames and bees were transferred to the parent hive which was short of bees but had sufficient honey for the united swarms. When this was done the two hives were placed in an upper room of the hennery and packed in chaff for the winter.

DISTRIBUTION OF SAMPLES OF GRAIN, POTATOES, FOREST TREES, &c.

During the months of March, April and May, the following distribution was made of products all of which were grown on the farms of applicants throughout Assiniboia, Alberta and Saskatchewan.

Samples Distributed.	Number.	Total.
Wheat, 3 lb. bags	267	
Oats, 3 lb. bags	448	
Barley, 3 lb. bags	342	
Pease, 3 lb. bags	93	
Rye, 3 lb. bags	25	
Flax, 3 lb. bags	12	
Beans, 1 lb. bag	1	
Garden pease, 1 lb. bags.	39	
Corn, 1 lb. bags	3	
		1,230
Forest trees—		
Artemisia Abrotanum, Tob.(cuttings)	8,756	
Caragana arboreascens (seedlings)	2,934	
Willows (cuttings)	1,850	
Poplars	1,165	
Maple (box elder) seedlings	3,960	
Lilac (seedlings)	100	
Ash	190	
		18,055
Fruit bushes and cuttings—		
Raspberries	2,380	
Currants	5,653	
Gooseberries	160	
Plums (seedlings)	90	
		8,283
Garden seeds (packages)	37	37
Potatoes, 3 lb. bags	463	463
Bromus inermis grass seed (1 lb. bags)	643	643
Rhubarb roots	90	90
Asparagus roots	2,000	2,000
Summary of Distribution.	Bags and Packages.	Seedlings, Roots and Cuttings.
Grain	1,230	
Forest trees		18,055
Fruit bushes		8,283
Garden seeds	37	
Potatoes	463	
Bromus inermis grass seed	643	
Rhubarb roots		90
Asparagus roots		2,000
Totals	2,373	28,428

HOPS.

A test has been made during the past two years in the cultivation of hops.

Although hops grow wild in the coulees or ravines in many parts of the Territories they mature only once in, possibly, two or three years on account of early frosts. It was, therefore, thought advisable to test two of the best cultivated varieties alongside of the native sort.

Roots of cultivated varieties were obtained from growers in Washington Territory, U.S.A., and from Agassiz, British Columbia, both of which places produce excellent crops of hops.

The above, together with the roots of the native variety found in a couléé near the farm, were planted 8 feet apart, in one of the hedged inclosures, in the spring of 1894. About one-half of the roots planted lived, and made, in some cases, a few feet of growth that season.

In 1895 the spring opened early, and by the middle of May considerable growth had been made by these vines, when a severe frost cut everything back to the ground, and the new growth did not mature hops before the frosts came in that fall.

The season just passed has been a very favourable one, and on most of the vines a heavy crop was produced.

The hops received from British Columbia were ten days earlier than the Washington Territory variety. The hops were picked on September 9th.

Roots from British Columbia—Fine crop, well matured, fair sized hops.

Roots from Washington Territory—Heaviest crop, but did not mature well; ten days later than British Columbia variety.

Native variety—Earlier than either cultivated variety; larger hops of a stronger flavour; fair crop.

ENSILAGE.

Corn ensilage made in the season of 1895 kept in splendid condition, the last being used in June of the present year.

The ensilage made from grain, chiefly oats and barley, cut green, was not very satisfactory on account of its drying out before the bottom of the silo was reached, so long as there was a good body of ensilage it kept moist and in good condition, but as the quantity in the silo decreased, in April, the ensilage dried out and lost much of its feeding value and became no better than ordinary straw.

The past season ten acres of corn were grown and have been put in the two silos. The varieties of corn used were North Dakota and Mitchell's Extra Early, both of which were well advanced when cut, and never before have we had so much or so good ensilage. At present all the cattle are being fed on the ensilage, mixed with wheat chaff, which makes a splendid ration.

On account of lack of room in the silos and the poor success hitherto attained, no grain was made into ensilage this season.

IMPROVEMENTS.

During the past season the roads on the east side of the farm were planted on either side with two year old box-elder trees. The trees were set out 2 feet apart to form a hedge for protection from wind as well as for avenue purposes. Between $1\frac{1}{4}$ and $1\frac{1}{2}$ miles were completed, leaving about $1\frac{1}{2}$ miles yet to do, when the margins of all the roads on the farm will be planted with trees of different sorts.

Further additions were made during the spring and fall to the several dams, thereby increasing the depth of water. New sluice-ways were also put in as a safeguard against spring freshets.

WATER SUPPLY.

The farm was well supplied with water during the past season. The three reservoirs, with an area of 10 to 12 acres, are still well filled, and with the large quantity of snow already on the ground, the prospect for an abundant supply next year is good.

Experimental Farms.

MEETINGS ATTENDED.

During last winter and early spring I attended farmers' meetings in Moosejaw, Grenfell, and Wolseley, giving addresses on the work of the farm. I also attended, in company with the president and vice-president of the Dairymen's Association of the North-west Territories, meetings at Fort Qu'Appelle, Whitewood, Broadview, Grenfell, Wolseley, Indian Head, and Qu'Appelle Station.

CORRESPONDENCE.

During the twelve months ending October 31st, 1896, 2,937 letters were received and 3,263 mailed from this office. In letters received, reports on grain and other samples are not counted and in letters dispatched, circulars of instruction *re* grain and other samples distributed are not included.

EXHIBITIONS ATTENDED.

Products of the farm were shown at the fall fairs held at Qu'Appelle Station, Fort Qu'Appelle and Indian Head. The Wolseley fair was attended but no exhibit was made there.

VISITORS.

Visitors to the farm were numerous the past season.

On 13th July, a body of Orangemen to the number of several hundred from various points in Eastern Assiniboia visited the farm.

On 28th August, an excursion party from Moosejaw and intermediate points, spent three hours on the farm, inspecting the various points of interest.

METEOROLOGICAL OBSERVATIONS.

Temperature, maximum and minimum, for twelve months; average temperature for growing season; also range of temperature, sunshine, rainfall and direction of wind for growing season.

Location.—Longitude, 102° west; latitude, 52° north; altitude, about 2,000 feet.

TEMPERATURE.—Maximum and minimum for 12 months ending November 30th, 1896.

Month.	Maximum.		Minimum.	
	Degrees.	Date.	Degrees.	Date.
1895.				
December.....	46	12	-22	25
1896.				
January.....	42	7	-35	3
February.....	47	23	-30	13
March.....	47	24	-20	12
April.....	68	26	8	12
May.....	75	23	20	1
June.....	92	30	40	6
July.....	94	10	35	26
August.....	90	1	31.5	16
September.....	82	23	24	10
October.....	80	2	4	31
November.....	34	4	-38	19

AVERAGE TEMPERATURE for Growing Season, April 1st to September 10th.

Month.	Monthly Average.	
April.....	35	} Daily average, 53·7
May.....	52	
June.....	61	
July.....	65	
August.....	59	
September, 1st to 10th.....	44	

RANGE OF TEMPERATURE for Growing Season, April 1st to September 10th.

Month.	Date.	Greatest daily range.		Degrees.	Average Monthly Range.
		From	To		
April.....	25	65°	32°	33°	18°
May.....	1	64	20	44	26
June.....	30	92	55	37	25
July.....	9	89	49	40	25
August.....	1	90	51	39	26
September, 1st to 10th.....	3	75	32	43	26

Average daily range (season) 24°·13.

SUNSHINE—Hours of bright sunshine from 1st April to 10th September, and number of days in which there was no sunshine.

Month.	Hours.	No sunshine. — No. of days.
April.....	143·8	10
May.....	159·1	7
June.....	249·9	3
July.....	269·5	2
August.....	237·8	5
September 1st to 10th.....	42·5	1
	1,102·6	28

Experimental Farms.

RAINFALL—From 1st April to 10th September, 1896.

Month.	No. of days.	Inches.
April	1	.15
May	7	2.83
June	8	4.32
July	5	1.9
August	5	1.39
September 1st to 10th	0	0
	26	10.59

NOTE.—On April 15th and 18th, snow fell to a depth of 16 inches.

WIND.

DIRECTION—Three observations each day, at 8, 14 and 20 o'clock.—Times observed.

Month.	W.	N. W.	N.	N. E.	E.	S. E.	S.	S. W.
April	5	28	9	13	4	14	14	3
May	22	30	2	5	12	7	12	3
June	14	30	4	8	9	8	14	3
July	14	37	11	8	4	7	10	2
August	21	49	5	6	6	0	6	0
September 1st to 10th	1	15	5	3	1	0	1	4
	77	189	36	43	36	36	57	15

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

ANGUS MACKAY,
Superintendent.

Experimental Farms.

EXPERIMENTAL FARM FOR BRITISH COLUMBIA

REPORT OF THOMAS A. SHARPE, SUPERINTENDENT.

AGASSIZ, B.C., 30th November, 1896.

To DR. WM. SAUNDERS,
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith my report of progress made, and work done on the farm at Agassiz, during the past year.

The first two months of the year were normal winter for this climate, the coldest day being 16th January, when the temperature dropped to 9°. March opened with cold north, and north-west winds prevailing until the 10th, when a mild spell, with westerly winds set in, and continued for about a week, and the snow melted. The wind then changed to the north, accompanied with cold showers which continued during April, and until the latter part of May, when it became warmer. With the beginning of June, dry hot weather set in, and the summer of 1896 has been the driest we have experienced since the farm has been established.

The cold rains during the blossoming season had a very damaging effect on the fruit crops, for although every variety of fruit tree and plant was full of bloom, the fruit crop has been a light one.

The cold winds of December, January and February did not injure tender evergreens, nearly as much as in previous years, and it is to be hoped that as they become older they will not be so readily affected in this way, as they are when young.

About six acres of additional land has been cleared and brought under cultivation this year, and a considerable amount of grubbing, and brushing done towards adding another ten acres to the cultivated area.

HEDGES.

The hedges have all made a strong growth this year, and those of an ornamental character, have been very much admired by visitors to the Experimental Farm, and an increasing interest is being shown by all classes of visitors, in both the hedges and ornamental shrubs, and as soon as times mend a considerable amount of such material will doubtless be planted throughout the country.

BELTS OF FOREST TREES.

The forest belt has grown so much, that it completely shades the ground, and the land in the belt has been sown with grass.

The forest trees planted on the mountain, have made fair progress, but as they receive no attention, will not make nearly so vigorous a growth as the trees in the shelter belt at least until they have grown well above the ferns and underbrush.

Notwithstanding the unfavourable season, there has been a very fine display of bloom, since early spring, and up to the first of November, and owing to the dry, fine weather, the autumn tints of the leaves have been very beautiful.

As in previous seasons a considerable number of 3 lb. bags of grain and potatoes, have been distributed, as also, several thousand berry plants.

Of the forms which were sent out with the grain and potatoes, and have been filled in and returned, a great many report short crops, on account of drought.

The berry plants distributed in 1895 appear, in nearly every case, to have wintered well, and gave promise of good crops of fruit this year, when reported on last spring.

A number of exhibitions were attended this fall, but owing to the strike on the Canadian Pacific Railway exhibits were inconveniently delayed.

The number of visitors to the Experimental Farm is increasing.

There was an excursion from Chilliwack, on July 2nd, to the farm, and one from the coast and Island Cities, on August 8th being the Vancouver World's staff's annual holiday, combined with the British Columbia Fruit Grower's Association,—together numbering over 1,000 persons.

Short addresses were made by Messrs. J. C. McLagan, editor of the Vancouver World, Wm. Templeman, editor of the Victoria Times, T. G. Earl, president of the Fruit Growers' Association, J. R. Anderson, Provincial Deputy Minister of Agriculture, the Superintendent of the Farm and several others, and every one appeared to enjoy the pleasant day, and it is to be hoped that the Vancouver World and other newspapers will organize similar excursions in future years, for in this way cheaper transportation is obtained, and many take advantage of that, to visit the Experimental Farm, who would not otherwise come.

A colony of Italian bees was received in June, and early in July a swarm came off. These were hived, and they at once started to work. The bees will no doubt be a valuable aid in assisting the pollinization of fruit blossoms in the orchard.

As in previous years, I have to acknowledge with thanks many kindly references to our work in the press of the province, also the receipt of scions of fruit and trees, plants and seeds.

Prof. Shinn of Berkely, Cal., sent scions of a large number of fruit trees.

Prof. E. J. Wickson of the same institution, plants and seeds of Australian Salt Bush (a fodder plant for alkali land.)

Mr. Swann of Olympia, Wash., scions of several new apples, and two varieties of seedling plums.

Rev. Father Cornellier of Okanagan Mission, scions of apples.

Mr. Heatherbell of Hornby Island, scions of apples.

Mr. McEwen of Langley, British Columbia, scions of apples.

Mr. Toms, of Combe Mark Rectory, Devonshire, England, scions of six varieties of apples.

Mr. Hutcherson, Ladners, scions of a new seedling pear.

Mr. G. W. Beebe, Agassiz, three varieties of seedling strawberries.

Mr. Wm. Walker of Salem, Oregon, two varieties of seedling apples and one of cherries.

Messrs. McGill and McDonald, of Salem, Oregon, four varieties of apples and one of cherries.

I have the honour to be sir,

Your obedient servant,

THOS. A. SHARPE.

Experimental Farms

EXPERIMENTS WITH FALL WHEAT.

Thirty-two varieties were included in these tests, all sown on the 24th of September, 1895, on a rather exposed piece or light sandy loam. The plots all suffered from the cold winds in December and January, blowing the light top soil off and exposing the roots which very seriously injured many of them.

Fall wheat here has frequently suffered from this cause, but this crop had been sown early, and when winter came the growth had pretty nearly covered the ground, and it was hoped that the plants would not be thus injured again, but the results have not been satisfactory. None of the varieties suffered from rust. The seed had been treated with blue stone, and there was very little smut.

FALL WHEAT—Test of Varieties.

Name of Variety.	Date of Ripening.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.
						Lbs.	Bus. Lbs.	
Royal Prize Red.	Aug. 4.	48 to 54	Weak	3 to 3½	Beardless.	2,800	19 40	
Square Head.	" 4.	42 to 44	Medium	2 to 2½	"	3,400	18 ..	
Carter's E.	July 27.	44 to 48	Stiff	3 to 3½	"	4,600	17 ..	
Portland.	" 27.	33 to 36	"	3½ to 4	"	3,900	16 40	
Tasmanian	" 22.	48 to 50	Medium	3 to 3½	Bearded.	3,800	16 40	
Carter's D.	Aug. 4.	36 to 40	Stiff	3 to 3½	Beardless.	2,800	16 35	
Carter's F.	July 27.	36 to 40	"	3½ to 4½	"	4,600	16 35	
Cheam	" 27.	40 to 44	"	3 to 4	"	3,200	15 40	
Hungarian.	" 22.	42 to 45	Weak	3 to 3½	Bearded.	3,300	15 40	
Martin's Amber.	" 24.	44 to 50	"	3 to 3½	Beardless.	2,400	15 28	
White Queen	Aug. 4.	44 to 50	Stiff	3 to 4	"	2,600	15 20	
Johnson	July 27.	46 to 52	"	3½ to 4	Bearded.	4,200	15 10	
Fill Measure	Aug. 4.	42 to 48	Fair	3 to 3½	Beardless.	2,820	15 5	
Martin.	July 22.	44 to 48	Stiff	3 to 3½	Bearded.	3,240	15 ..	
Lytton	" 23.	38 to 40	"	3½ to 4	Slightly bearded.	3,200	15 ..	
Carter's A.	Aug. 4.	44 to 46	"	2 to 2½	Beardless.	2,200	15 ..	
Carter's G.	" 4.	36 to 40	"	2½ to 3	"	2,400	15 ..	
Carter's J.	" 4.	40 to 45	"	3 to 3½	"	2,450	15 ..	
Carter's H.	" 4.	55 to 60	Soft.	2½ to 3	"	2,900	14 40	
Democrat	July 22.	44 to 48	Stiff	3 to 3½	Bearded.	3,600	14 20	
Yale	" 24.	48 to 50	"	3½ to 4	Slightly bearded.	3,800	14 20	
Hope	" 22.	44 to 50	"	3 to 3½	Bearded.	3,200	14 10	
Volunteer	" 22.	44 to 48	"	3 to 3½	"	3,400	14 ..	
Early Red Clawson	" 22.	42 to 48	Medium	3 to 3½	Beardless.	2,850	14 ..	
Stuart.	" 22.	40 to 45	Stiff	2½ to 3	"	3,220	13 10	
Canadian Velvet Chaff.	" 22.	48 to 50	"	3½ to 4	"	2,200	13 10	
Carter's K.	Aug. 4.	40 to 42	"	2 to 2½	"	1,800	13 ..	
Carter's C	" 4.	44 to 48	Weak	3 to 4	"	1,600	12 40	
Willits	July 23.	46 to 50	Stiff	2½ to 3	"	2,700	12 40	
Golden Cross	" 22.	42 to 46	Weak	2½ to 3	Bearded.	3,300	11 20	
Carter's B.	Aug. 4.	46 to 48	Stiff	2 to 2½	Beardless.	1,600	9 20	
Manchester	July 23.	32 to 36	Weak	2½ to 3	"	2,100	7 30	

Six of the varieties included in this test are cross-bred wheats which have been originated at Agassiz by the superintendent of the farm. The following are their names and parentage :—

- Portland-Johnson female with Gehun male, beardless.
- Cheam-Johnson " " beardless.
- Martin-Manchester " Democrat male, red chaff, bearded
- Lytton-Manchester " " slightly bearded.
- Yale-Manchester " " white chaff, slightly bearded.
- Hope-Manchester " " bearded.

HYBRID WHEATS.

The following hybrids produced at the Agassiz Experimental Farm by the superintendent were sown on small plots, No. 1 occupied 132 square yards and No. 2, 44 square yards. They were sown on 24th September, 1895, and ripened on 22nd and 23rd of July, 1896. No. 1 is slightly bearded at tip and No. 2 bearded.

Name of Variety.	Date of Sowing.	Yield per Acre.	Remarks.
No. 1, Early Red Clawson with Reading Giant, Rye.....	Sept. 24..	33 ..	No rust ; no smut.
No. 2 " " " "	" 24 ..	27 30	" "

SPRING WHEAT.

Thirty-eight varieties of spring wheat were tested this year in plots of $\frac{1}{20}$ acre each on the 18th of April. The yield is in most cases very fair, when the unfavourable season is considered. The land was loamy, had been cropped for a number of years and seeded with clover in 1894, and a heavy clover stubble turned under for the wheat crop this year, which, no doubt, helped the crop out, notwithstanding the very dry summer. None of these varieties were affected either by rust or smut.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw per Acre.	Yield per Acre.	Weight per Bushel.
			Inches.		Inches.		Lbs.	Bush. Lbs.	Lbs.
Dawn.....	Aug. 5..	109	40 to 44	Stiff.....	3½ to 4½	Beardless.	4,600	30 ..	63½
Preston.....	" 7 ..	111	38 to 42	"	3 to 3½	Bearded..	4,100	29 40	64
Harrison Bearded.....	" 15..	119	44 to 48	Fair	2½ to 3½	"	4,400	29 20	64½
Emporium.....	" 11..	115	46 to 50	Weak	3½ to 4 ..	"	3,900	28 20	64½
White Connell.....	" 15..	119	36 to 40	Stiff.....	2½ to 3 ..	Beardless.	3,500	28 20	62½
Red Fern.....	" 7 ..	111	40 to 44	Weak	3½ to 4 ..	Bearded..	4,100	27 40	64½
Old Red River.....	" 15..	119	43 to 46	Stiff.....	2½ to 3½	Beardless.	3,800	27 20	62½
Campbell's White Chaff	" 11..	115	50 to 54	"	2½ to 3½	"	3,600	26 10	62½
White Russian.....	" 15..	119	46 to 50	"	2½ to 3½	"	3,640	25 30	—
Dufferin.....	" 5 ..	109	40 to 44	"	2½ to 3 ..	Bearded..	3,700	25 ..	64
Wellman's Fife.....	" 15..	119	42 to 46	"	3 to 3½	Beardless.	3,600	25 ..	61½
Countess.....	" 7 ..	111	44 to 46	"	2½ to 3 ..	"	3,200	24 ..	65
Crown.....	" 11..	115	52 to 56	"	3 to 3½	Bearded..	3,900	23 40	63½
Monarch.....	" 11..	115	46 to 50	"	3½ to 4 ..	Beardless.	3,420	23 40	61½
Red Fife.....	" 10..	114	36 to 42	"	3 to 4 ..	"	3,000	23 20	61½
Colorado.....	" 7 ..	111	36 to 40	Fair.....	3 to 3½	Bearded..	3,300	23 20	—
Ladoga.....	" 5 ..	109	34 to 38	Stiff.....	2½ to 3 ..	"	3,200	23 20	63½
Pringle's Champlain..	" 11..	115	46 to 50	Fair.....	3 to 4 ..	"	3,160	23 20	64½
Alpha.....	" 7 ..	111	44 to 48	Stiff.....	3½ to 3¾	Beardless.	3,000	23 ..	62½
Blenheim.....	" 11..	115	52 to 56	Fair.....	3½ to 4 ..	Bearded..	3,140	22 10	62½
Admiral.....	" 15..	119	46 to 48	Stiff.....	4 to 4½	Beardless.	3,200	22 ..	62
Stanley.....	" 5 ..	109	38 to 42	"	3 to 3½	"	3,240	22 40	60½
Goose.....	" 11..	115	36 to 39	Fair.....	2 to 2½	Bearded..	2,800	21 20	66½
Percy.....	" 5 ..	109	44 to 48	Stiff.....	2½ to 3½	Beardless.	3,020	20 20	62½
Vernon.....	" 11..	115	38 to 42	"	3 to 3½	Bearded..	2,600	20 ..	64
White Fife.....	" 7 ..	111	44 to 48	"	2½ to 3½	Beardless.	2,700	19 40	61½
Rideau.....	" 10..	114	50 to 55	"	2½ to 3 ..	"	2,640	19 20	61½
Captor.....	" 6 ..	110	46 to 50	"	3 to 3½	"	2,800	19 20	63
Dion's.....	" 9 ..	113	42 to 46	"	3½ to 4 ..	Bearded..	2,620	19 10	64½
Beaudry.....	" 8 ..	112	44 to 46	Fair.....	2½ to 3¾	"	3,100	19 10	64½
Advance.....	" 10..	114	46 to 48	Stiff.....	2½ to 3 ..	"	2,620	19 ..	63½
Huron.....	" 11..	115	42 to 45	Fair.....	3½ to 4 ..	"	2,900	18 40	64
Gehun.....	" 6 ..	110	32 to 36	Stiff.....	3 to 3½	Beardless.	2,260	18 20	65½
Golden Drop.....	" 7 ..	111	40 to 42	"	3 to 3½	"	2,300	18 10	63½
Black Sea.....	" 6 ..	110	38 to 44	Weak.....	2½ to 3 ..	Bearded..	2,340	18 00	—
Progress.....	" 11..	115	48 to 52	Stiff.....	3 to 3½	Beardless.	2,800	17 ..	60½
Beauty.....	" 10..	114	46 to 50	"	2 to 2½	"	2,660	16 40	63
Rio Grande.....	" 10..	114	36 to 39	Fair.....	3 to 3½	Bearded..	2,280	16 40	61½

Experimental Farms.

OATS.

Sixty-five varieties of oats were included in this series, all sown on loamy soil on the 15th April, on plots of $\frac{1}{10}$ of an acre each. The yield has been light owing to the drought, but the sample is good, and having had dry, favourable weather, it was all harvested in good condition. There was no rust on the straw this season, and as the seed had been treated with blue stone, and the land was new, there was scarcely any smut.

OATS—Test of Varieties.

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Yield per Acre.		Weight per Bushel.
							Weight of Straw per Acre.	Yield per Acre.	
			In.		In.		Lbs.	Bush. Lbs.	Lbs
Early Gothland.....	Aug. 12..	119	45	Stiff.....	10	Sided.....	4,800	61 26	39
Early Golden Prolific ..	" 21..	128	47	Weak.....	9	Branching ..	5,600	61 20	36 $\frac{1}{2}$
Bavarian.....	" 13..	120	54	Stiff.....	9	".....	5,520	58 08	36
Columbus.....	" 13..	120	46	".....	8	".....	5,940	57 02	35 $\frac{1}{2}$
White Schonen.....	" 6..	113	42	".....	7	".....	3,900	55 30	36
Electric.....	" 13..	120	44	".....	7	".....	4,400	55 30	37 $\frac{1}{2}$
Buckbee's Illinois.....	" 21..	128	54	Medium.....	10	".....	6,100	55 30	36 $\frac{1}{2}$
Cromwell.....	" 12..	119	50	Stiff.....	11	".....	5,500	55 10	39
Oderbruch.....	" 16..	123	43	Medium.....	7	Half sided..	4,600	55 10	36
Banner.....	" 15..	122	50	Stiff.....	8	Branching..	4,400	54 24	25
Early Etampes.....	" 12..	119	42	Fair.....	7 $\frac{1}{2}$	".....	5,080	54 24	34 $\frac{1}{2}$
Cave.....	" 11..	118	48	".....	7 $\frac{1}{2}$	Sided.....	4,680	53 18	38
Holstein Prolific.....	" 13..	120	42	Stiff.....	6	Branching..	4,400	53 18	36
Master.....	" 13..	120	46	".....	9	".....	4,800	52 32	39 $\frac{1}{2}$
Wallis.....	" 12..	119	40	".....	6 $\frac{1}{2}$	".....	4,700	51 26	36 $\frac{1}{2}$
Doncaster.....	" 13..	120	45	".....	7 $\frac{1}{2}$	".....	5,900	51 11	40 $\frac{1}{2}$
Bonanza.....	" 5..	112	45	Medium.....	8	".....	4,100	51 8	37 $\frac{1}{2}$
Mennonite.....	" 16..	123	40	Stiff.....	6 $\frac{1}{2}$	".....	5,000	50 25	37 $\frac{1}{2}$
American Beauty.....	" 20..	127	50	".....	9	".....	4,000	50 20	37 $\frac{1}{2}$
Early Archangel.....	" 13..	120	46	Medium.....	7 $\frac{1}{2}$	".....	4,940	50 20	40 $\frac{1}{2}$
Improved Ligowo.....	" 13..	120	40	Stiff.....	6 $\frac{1}{2}$	".....	4,600	50 20	37 $\frac{1}{2}$
Abyssinian.....	" 15..	122	45	".....	7 $\frac{1}{2}$	Sided.....	4,200	50 10	36 $\frac{1}{2}$
Welcome.....	" 9..	115	44	Medium.....	6 $\frac{1}{2}$	Branching..	3,600	50 5	36 $\frac{1}{2}$
American Triumph.....	" 20..	127	58	".....	7 $\frac{1}{2}$	".....	5,200	48 8	38
Early Blossom.....	" 12..	119	44	".....	8	Half sided..	4,500	48 3	38
Wide Awake.....	" 6..	112	34	Stiff.....	5 $\frac{1}{2}$	Branching..	2,000	47 27	36 $\frac{1}{2}$
Lincoln.....	" 20..	127	39	Medium.....	6 $\frac{1}{2}$	".....	5,400	47 7	38
Early Maine.....	" 16..	123	43	".....	6	Sided.....	3,500	47 2	36 $\frac{1}{2}$
Black Brie.....	" 21..	128	44	Stiff.....	8	Branching..	5,980	47 2	37 $\frac{1}{2}$
Winter Grey.....	July 31..	107	40	".....	6	".....	3,700	46 30	41
White Russian.....	Aug. 12..	119	40	".....	6	Half sided..	3,500	46 16	38
Olive (Black).....	" 6..	113	46	".....	6	".....	4,100	46 16	37 $\frac{1}{2}$
Brandon.....	" 21..	128	55	".....	9 $\frac{1}{2}$	Branching..	5,200	46 6	39 $\frac{1}{2}$
Giant Cluster.....	" 12..	119	40	Medium.....	7 $\frac{1}{2}$	Sided.....	4,700	45 30	32 $\frac{1}{2}$
Hazlett's Seizure.....	" 13..	120	44	Fair.....	7 $\frac{1}{2}$	Branching..	4,000	45 10	39 $\frac{1}{2}$
California Prolific (Black)	" 20..	127	40	".....	8	Sided.....	5,300	44 24	34 $\frac{1}{2}$
Coulommier's.....	" 21..	128	48	Stiff.....	7	Branching..	5,600	44 14	36
Cream Egyptian.....	" 25..	122	44	Medium.....	7	Half sided..	5,300	44 09	39
Golden Beauty.....	" 13..	120	40	".....	6 $\frac{1}{2}$	Branching..	4,200	44 09	35 $\frac{1}{2}$
Scottish Chief.....	" 6..	113	44	Stiff.....	6	".....	3,620	44 04	41
Pense (Black).....	" 16..	123	46	".....	5	".....	4,800	42 32	38 $\frac{1}{2}$
White Monarch.....	" 12..	119	36	".....	7 $\frac{1}{2}$	".....	3,300	42 32	38 $\frac{1}{2}$
Flying Scotchman.....	" 13..	120	44	".....	7	".....	5,000	42 12	40
Rosedale.....	" 12..	119	42	".....	6	Half sided..	4,000	42 12	36 $\frac{1}{2}$
Russell.....	" 12..	119	46	Fair.....	9	Branching..	3,740	41 13	39 $\frac{1}{2}$
Prolific Black Tartarian..	" 16..	123	40	Stiff.....	6	Sided.....	4,000	41 13	34 $\frac{1}{2}$
Victoria Prize.....	" 6..	113	44	".....	6	Branching..	3,620	41 08	44 $\frac{1}{2}$
Medal.....	" 21..	128	43	".....	8	".....	4,200	41 08	38 $\frac{1}{2}$
Oxford.....	" 16..	123	44	Medium.....	5 $\frac{1}{2}$	".....	3,900	40 26	37 $\frac{1}{2}$
Imported Irish.....	" 5..	112	38	Stiff.....	6	".....	3,700	40 10	42 $\frac{1}{2}$
Scotch Hopetown.....	" 16..	123	40	".....	6 $\frac{1}{2}$	".....	3,700	40	35 $\frac{1}{2}$
Abundance.....	" 5..	112	36	".....	7	".....	3,300	40 00	35 $\frac{1}{2}$
Siberian.....	" 21..	128	44	Weak.....	7 $\frac{1}{2}$	Half sided..	4,840	39 14	34 $\frac{1}{2}$
Miller.....	" 21..	128	34	Stiff.....	7	Branching..	4,100	38 28	37 $\frac{1}{2}$

OATS—Test of Varieties—Continued.

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Kind of Head.	Weight of Straw per Acre.		Yield per Acre.	Weight per Bushel.
							Lbs.	Bush. Lbs.		
Prize Cluster.....	Aug. 16..	123	40	Stiff.....	5½	Branching..	4,200	38 28	40¾	
White Wonder.....	" 6..	113	44	"	6	"	3,600	38 14	43	
White Poland.....	" 12..	119	44	"	5	"	3,800	37 22	38¾	
Rennie's Prize.....	" 12..	119	42	"	5½	"	3,200	37 07	39	
Joanette.....	" 12..	119	33	"	6	"	3,500	34 09	37	
King.....	" 20..	127	34	"	5	"	3,600	31 26	38	
Pearce's Black Beauty..	" 16..	123	32	"	5	"	2,000	25 30	35½	

EXPERIMENTS WITH BARLEY.

Thirty-nine varieties of barley have been tested in uniform plots of one-twentieth of an acre each, twenty of which were two-rowed barley and nineteen, six-rowed. The soil was loamy, with more or less gravel. All the plots were sown on the 20th of April. This series of tests was made between the rows of trees in the apple orchard, which was planted in the spring of 1890, and although a strip of seven feet on each side of the trees was left unsown, yet the crop was partially shaded, which to some extent reduced the yield. As all were alike in this respect, the comparative results are yet fairly reliable. No injury was done by rust or smut.

BARLEY, TWO-ROWED—Test of Varieties.

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw per Acre.		Yield per Acre.	Weight per Bushel.
						Lbs.	Bush. Lbs.		
			Inches.		Inches.	Lbs.	Bush. Lbs.	Lbs.	
French Chevalier.....	Aug. 10..	112	38 to 40	Stiff....	4 to 4½	4,400	44 08	52¾	
Canadian Thorpe.....	" 4..	106	33 to 36	"	2½ to 3½	4,420	42 24	49½	
Danish Chevalier.....	" 10..	112	38 to 40	"	3½ to 4	4,200	40	53	
Kinver Chevalier.....	" 10..	112	34 to 38	"	4 to 4½	3,600	39 28	51½	
Beaver.....	" 5..	107	34 to 36	"	3 to 3½	3,200	37 04	52¾	
Goldthorpe.....	" 11..	113	42 to 46	"	2½ to 3½	3,400	30	51½	
Prize Prolific.....	" 11..	113	40 to 42	"	3½ to 4½	3,100	29 08	52½	
Duck-bill.....	" 4..	106	34 to 36	"	2½ to 3½	3,200	28 12	50	
Golden Grains.....	" 4..	106	34 to 36	"	3 to 4	3,250	28 08	48½	
Bolton.....	" 10..	112	30 to 34	"	3 to 3½	3,000	27 04	53½	
Thanet.....	" 10..	112	42 to 44	"	4 to 4½	2,800	25 40	51½	
California Prolific.....	" 11..	113	32 to 36	"	2½ to 3	2,600	25 20	52½	
Victor.....	" 10..	112	42 to 45	"	2½ to 3	2,900	24 08	54½	
Duck-bill with common 6-rowed.....	" 4..	106	34 to 38	"	2 to 2½	2,600	23 10	53½	
Sidney.....	" 5..	107	28 to 32	"	3 to 4	2,200	22 04	49½	
Rigid.....	" 15..	117	40 to 42	"	2 to 2½	2,840	20	49½	
Newton.....	" 10..	112	28 to 32	"	3 to 3½	1,700	18 16	49½	
Pacer.....	" 10..	112	44 to 48	Weak....	3½ to 4½	1,840	16 32		
Monck.....	" 11..	113	46 to 50	Stiff....	3 to 4	2,000	16 12		
Nepean.....	" 4..	106	22 to 26	"	2 to 2½	2,000	15 40		

Experimental Farms.

BARLEY, SIX-ROWED—Test of Varieties.

Name of Variety.	Date of Ripening.	No. of Days Maturing.	Length of Straw.	Character of Straw.	Length of Head.	Weight of Straw per Acre.	Yield per Acre.
			Inches.		Inches.	Lbs.	Bush. Lbs.
Common.....	Aug. 5..	107	24 to 30	Fair.....	2 to 3	1,900	29 8
Mensury.....	July 28..	99	32 to 36	".....	2½ to 3	2,420	28 16
Baxter's six-rowed.....	" 30..	101	30 to 33	Stiff.....	2 to 2½	3,200	28 16
Oderbruch.....	Aug. 5..	107	22 to 24	Fair.....	2 to 2½	2,600	28 16
Pioneer.....	July 27..	58	33 to 36	".....	2½ to 3	2,200	26 12
Royal.....	" 29..	100	28 to 32	Stiff.....	2½ to 3	3,020	25 22
Odessa.....	" 29..	100	28 to 30	Weak.....	2 to 2½	2,300	25
Summit.....	Aug. 11..	113	32 to 34	Stiff.....	2½ to 3	2,600	24 28
Excelsior.....	" 5..	107	30 to 34	Fair.....	2½ to 3	2,200	23 36
Trooper.....	" 5..	107	28 to 30	".....	2 to 2½	2,000	22 24
Champion.....	July 22..	93	22 to 24	".....	2 to 3	2,200	20
Stella.....	Aug. 10..	112	25 to 28	Weak.....	2 to 2½	1,980	19 28
Rennie's Improved.....	July 29..	100	24 to 26	Fair.....	2½ to 2¾	1,340	19 28
Nugent.....	Aug. 10..	112	33 to 36	".....	2 to 2½	2,220	19 8
Surprise.....	" 19..	112	26 to 30	Weak.....	2 to 2½	1,940	18 36
Petschora.....	July 27..	98	28 to 30	".....	2 to 2½	1,880	17 44
Vanguard.....	" 22..	93	22 to 24	Fair.....	2 to 2½	1,680	16 32
Success.....	" 22..	93	18 to 22	Weak.....	2 to 2½	2,200	15 20
Phoenix.....	" 24..	95	22 to 24	Stiff.....	1½ to 2	1,340	15

PEASE—TEST OF VARIETIES.

Twenty-six varieties of field pease were sown in this test, all on the 1st of April, on plots of $\frac{1}{8}$ of an acre each. The soil was loamy, but it was the first crop on land just ploughed and was not in good condition for any crop. The yield in some cases was fair, but where the soil was uneven in quality especially, where large trees had been grubbed out, the yield in a plot so situated was small.

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Weight of Straw per Acre.	Length of Pod.	Size of Pea.	Yield per Acre.
			Inches.	Lbs.	Inches.		Bush. Lbs.
Arthur.....	Aug. 4..	126	22 to 28	3,200	2½ to 3	Medium...	27 20
Agnes.....	July 29..	120	26 to 32	2,600	2 to 2½	Large.....	21 40
Centennial.....	Aug. 11..	133	46 to 50	2,500	1½ to 2	Medium...	20 40
Carleton.....	" 11..	133	48 to 52	2,540	1½ to 2	".....	20 40
New Potter.....	" 11..	133	46 to 50	2,560	2½ to 3	Large.....	20 ..
Creepers.....	" 5..	127	18 to 22	1,840	1½ to 2	Small.....	18 40
Bedford.....	" 6..	128	36 to 40	2,440	2 to 2½	".....	18 40
Bruce.....	" 10..	132	48 to 50	2,260	1¾ to 2	Large bl'k eyed....	18 20
Daniel O'Rourke.....	July 23..	114	22 to 26	1,820	2 to 2½	Small.....	17 40
Prince Albert.....	Aug. 14..	136	33 to 38	2,240	2 to 2½	".....	16 40
Golden Vine.....	" 4..	126	36 to 40	1,860	1½ to 2	".....	15 40
Prince.....	" 14..	136	55 to 60	1,920	1¾ to 2½	Large.....	15 ..
Mackay.....	" 14..	136	33 to 36	2,060	2 to 2½	Large bl'k eyed....	14 40
Paragon.....	" 14..	136	33 to 36	1,880	1¾ to 2	Large.....	14 20
Trilby.....	" 14..	136	34 to 38	1,700	2 to 2½	".....	14 20
Duke.....	" 10..	132	30 to 36	1,680	1½ to 2	Large bl'k eyed....	14 20
Macoun.....	" 18..	140	24 to 30	1,520	1½ to 1¾	Medium.....	14 ..
Black-eyed Marrowfat.....	" 10..	132	28 to 32	1,620	2 to 2½	Large.....	13 ..
Crown.....	" 10..	132	20 to 24	1,440	2 to 2½	Small.....	12 40

PEASE—Test of Varieties—*Concluded.*

Name of Variety.	Date of Ripening.	Number of Days Maturing.	Length of Straw.	Weight of Straw per Acre.	Length of Pod.	Size of Pea.	Yield per Acre.
			Inches.	Lbs.	Inches.		Bush. Lbs.
Pride.....	Aug. 4..	126	24 to 28	1,300	1½ to 2	Large	12 ..
Kent.....	" 14..	136	26 to 30	1,320	1¾ to 1¾	Large bl'k eyed....	12 ..
Mummy.....	" 14..	136	20 to 24	1,280	1¼ to 2	Above medium,...	11 40
Multiplier.....	" 14..	136	34 to 38	1,460	1½ to 2	Small	11 40
Prussian Blue.....	" 14..	136	28 to 30	1,240	2 to 2¼	Medium...	11 30
White Marrowfat.....	" 14..	136	26 to 30	1,300	1½ to 2	Large	10 40
Canadian Beauty.....	" 5..	127	28 to 32	1,340	1½ to 2	"	10 ..

RESULTS OF EARLY, MEDIUM, AND LATE SOWINGS.

Two varieties each of wheat, oats, barley and pease were sown in these tests. The land selected was of a loamy character with area enough for 48 plots of $\frac{1}{20}$ acre each. Eight of these were sown as early as practicable, and eight on the same day of each week following until six sowings had been made, thus covering a period of five weeks from the date of the first sowing. As nearly as possible the land for these test plots was all in the same condition. It was all prepared at the time of the first sowing and at each subsequent sowing all the unsown ground was thoroughly harrowed, which must have been of substantial benefit to the later sown plots.

OATS—Early, Medium and Late Sowings.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Character of Straw.	Length of Straw.	Weight of Straw.	Length of Head.	Kind of Head.	Yield per Acre.
					Inches.	Lbs.	Inches.		Bush. Lbs.
Banner.....	Apl. 3.	Aug. 11.	130	Stiff ...	36	169	8	Branching	40 20
"	" 10.	" 13.	125	"	36	165	8	" ..	41 06
"	" 17.	" 20.	125	"	36	185	8	" ..	40 ..
"	" 24.	" 22.	120	"	36	195	8	" ..	46 16
"	May 1.	" 24.	115	"	30	160	8	" ..	37 22
"	" 8.	" 24.	108	"	30	165	8	" ..	39 14
Abundance.....	Apl. 3.	" 11.	130	"	30	160	8	" ..	42 32
"	" 10.	" 13.	125	"	30	180	8	" ..	45 30
"	" 17.	" 20.	125	"	30	155	7	" ..	39 14
"	" 24.	" 22.	120	"	30	202	8	" ..	43 18
"	May 1.	" 24.	115	"	30	170	7	" ..	34 04
"	" 8.	" 24.	108	"	30	189	7	" ..	34 24

The land on which these plots were sown had only produced one crop, and was very ferny which, together with the drought, materially reduced the yield.

Experimental Farms.

BARLEY—Early, Medium, and Late Sowings.

Name of Variety.	Date of sowing.	Date of ripening.	Number of Days Maturing.	Character of Straw.	Length of Straw.		Weight of Straw.		Length of Head.	Kind of Head.	Yield per Acre.	
					In.	Lbs.	In.	Lbs.				
Canadian Thorpe	April 3	Aug. 7	124	Stiff	24	60	2	2	rowed	12	24	
"	" 10	" 11	120	"	24	69	2	2	"	13	36	
"	" 17	" 13	115	"	24	63	2	2	"	13	16	
"	" 24	" 15	110	"	24	80	2	2	"	15	20	
"	May 1	" 17	105	"	24	90	2	2	"	17	24	
"	" 8	" 20	101	"	24	80	2	2	"	13	36	
Odessa	April 3	July 24	115	Medium	20	24	90	24	6	rowed	16	12
"	" 10	" 29	113	"	20	24	95	24	6	"	18	16
"	" 17	Aug. 3	111	"	20	24	60	2	2	"	13	16
"	" 24	" 5	106	"	20	24	65	2	2	"	15	40
"	May 1	" 11	105	"	20	24	85	2	2	"	20	40
"	" 8	" 15	101	"	20	24	80	2	2	"	17	04

WHEAT—Early, Medium, and Late Sowings.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Character of Straw.	Length of Straw.		Weight of Straw.		Length of Head.	Kind of Head.	Yield per Acre.	
					In.	Lbs.	In.	Lbs.				
Red Fife	April 3	Aug. 11	130	Stiff and bright	33 to 36	155	2½ to 3	155	2 to 3	Beardless	23	20
"	" 10	" 15	127	"	33 to 36	155	2 to 3	155	2 to 3	"	21	..
"	" 17	" 19	123	"	33 to 36	180	2½ to 3	180	2½ to 3	"	27	40
"	" 24	" 22	120	"	33 to 36	190	2½ to 3	190	2½ to 3	"	25	..
"	May 1	" 25	117	"	36 to 40	200	2½ to 3	200	2½ to 3	"	23	25
"	" 8	" 27	115	Soft	36 to 40	180	2 to 3	180	2 to 3	"	18	40
Stanley	April 3	" 7	126	Clean and bright	30 to 36	132	2 to 3	132	2 to 3	"	20	40
"	" 10	" 11	123	"	30 to 36	130	2 to 3	130	2 to 3	"	21	20
"	" 17	" 15	119	"	24 to 30	110	2 to 3	110	2 to 3	"	15	20
"	" 24	" 19	115	"	24 to 30	105	2 to 3	105	2 to 3	"	14	40
"	May 1	" 22	112	"	20 to 24	80	2 to 3	80	2 to 3	"	12	40
"	" 8	" 25	108	"	20 to 24	100	2 to 3	100	2 to 3	"	12	40

The late sowings did not fill out to tip of heads; the straw was not so stiff and hard nor the berry as fine as in the earlier plots of this test.

PEASE—Early, Medium, and Late Sowings.

Name of Variety.	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Character of Growth.	Length of Straw.		Length of Pod.		Size of Pea.	Yield per Acre.
					In.	Lbs.	In.	Bush. Lbs.		
Mummy	Mar. 31..	Aug. 3..	125	Strong....	30 to 36	120	3 to 3½	Medium	22 40	
"	April 7..	" 5..	120	"	30 to 36	140	3 to 3½	"	23 20	
"	" 14..	" 10..	115	Medium..	20 to 24	85	2 to 2½	"	13 20	
"	" 21..	" 14..	111	"	20 to 24	85	2 to 2½	"	14 20	
"	" 28..	" 18..	108	"	20 to 24	90	2 to 2½	"	13 26	
"	May 5..	" 19..	102	Slender ..	20 to 24	70	1 to 2	"	12 ..	
Golden Vine	Mar. 31..	" 3..	125	Strong....	36 to 48	150	2½ to 3	Small...	25 20	
"	April 7..	" 5..	120	"	36 to 48	150	2½ to 3	"	25 40	
"	" 14..	" 10..	118	Medium..	30 to 40	110	2½ to 3	"	16 20	
"	" 21..	" 14..	115	"	30 to 40	115	2½ to 3	"	17 40	
"	" 28..	" 18..	112	Slender ..	24 to 30	80	1½ to 2	"	13 ..	
"	May 5..	" 19..	106	"	24 to 30	65	1½ to 2	"	6 40	

Late sown pease suffered very severely from the long drought. The late plots in this test had very little rain from date of sowing to ripening. The dry autumn was very favourable for harvesting, and the grain is of a very fine quality.

EXPERIMENTS WITH INDIAN CORN.

Twenty-one varieties of field corn were grown for ensilage. The land was loamy and all the varieties were sown on the same day, 18th May. The season has been a fairly good one for this crop, the dry, hot summer suiting it better than our usual moist summer weather.

The yields are light, but in many cases the corn is better grown than in former years, and the quality of the ensilage will no doubt be better on that account. The yields per acre have been calculated in each case from the weight obtained from two rows, each 66 feet long.

INDIAN CORN—Test of Varieties.

Experimental Farms.

Name of Variety.	Character of Growth.	Description of Variety.	Height. Inches.	Leafiness.	When Tasselled.	In Silk.	Early Milk.	Late Milk.	Condition when cut.	Weight per
										Acres grown in Rows.
										Tons. Lbs.
Cuban Giant	Very strong	White dent.	100 to 120	Very leafy.	Aug. 31	Sept. 20			No corn formed.	20 1433
Mastodon	Strong.	Dent.	90 to 108	Above aver.	" 27	" 10			"	15 70
Longfellow	"	Yellow flint.	72 to 96	Average	" 9	Aug. 18	Sept. 7	Sept. 24	Late milk	14 1700
Angel of Midnight	"	"	80 to 90	Above aver.	" 22	" 1	" 14		Glazed.	13 1500
White Cap Dent	"	Dent.	108 to 120	Average	" 10	Aug. 20	" 15		"	12 300
Compton's Early	"	Yellow flint.	70 to 85	"	" 15	" 31	" 14		"	11 1700
Leaming	"	Yellow dent.	84 to 108	Very leafy.	" 14	" 24	" 18		"	11 200
Eride of the North	"	Early dent.	84 to 96	"	Sept. 1	Sept. 16	"		No corn formed.	11
Thoroughbred White Flint	Medium.	Flint.	72 to 96	Leafy.	Aug. 16	" 3	Sept. 20	Sept. 28	Late milk	9 700
Giant Prolific	Slender	White dent.	96 to 108	Very leafy.	Sept. 1	" 12	"		No corn formed.	8 1600
Canadian White Flint	Medium.	Flint.	66 to 72	Average	Aug. 16	Aug. 27	Sept. 15	Sept. 26	Commencing to glaze.	8 1233
Red Cob Ensilage	"	White dent.	70 to 80	Very leafy.	" 26	Sept. 5	" 27		Early milk.	8 966
Sanford	"	White flint.	66 to 72	Above aver.	" 18	" 3	" 20		Glazed.	8 866
Early Yellow Flint	"	Yellow flint.	72 to 84	Leafy.	" 20	Aug. 23	" 16	Sept. 24	Late milk	8 500
King of the Earliest	Slender	Yellow dent.	84 to 100	"	" 14	" 23	" 10	" 24	"	7 800
Early Huron Dent	Medium.	Dent.	70 to 80	Average	" 12	" 24	" 18		Glazed.	7 720
Peary's Prolific	"	Yellow flint.	60 to 72	"	" 20	" 30	" 18	Sept. 24	"	6 1570
Champion White Pearl	"	White dent.	70 to 80	"	Sept. 2	Sept. 24	"		No corn formed.	6 1000
North Dakota	Strong.	Flint.	50 to 60	Very leafy.	Aug. 12	Aug. 23	Sept. 10	Sept. 16	Glazed.	6 836
Country Gentleman	Slender	White dent.	54 to 60	Below aver.	" 20	Sept. 4	" 28	Aug. 26	Early milk.	4 1900
Mitchell's Extra Early	"	White flint.	48 to 56	"	July 20	Aug. 24	Aug. 20	Aug. 26	Ripe.	3 1340

EXPERIMENTS WITH TURNIPS.

Fourteen varieties of turnips were tested on plots alongside each other and under exactly similar conditions, sown in rows $2\frac{1}{2}$ feet apart. The soil was very uniform in quality, of a loamy character, and the treatment has been the same in each case. Elephant and Jumbo have given the heaviest yields, and are very similar in growth and appearance. The season has been a very unfavourable one for this crop, being too dry and hot. The yield per acre has been calculated from the weight of the crop gathered from two rows each 66 feet long. Two sowings of each variety were made about two weeks apart.

TURNIPS—Test of Varieties.

Name of Variety.	1st Plot	2nd Plot	1st Plot	2nd Plot	Yield	Yield	Yield	Yield
	Sown.	Sown.	Pulled.	Pulled.	per Acre. 1st Plot.	per Acre. 1st Plot.	per Acre. 2nd Plot.	per Acre. 2nd Plot.
					Tons. Lbs.	Bush. Lbs.	Tons. Lbs.	Bush. Lbs.
Jumbo.....	May 9	May 23	Oct. 26	Oct. 26	24 1,280	821 20	22 1,760	762 40
Giant King.....	" 9	" 23	" 26	" 26	22 733	20 20	20 216	670 16
Rennie's Purple Top.....	" 9	" 23	" 26	" 26	17 1,728	595 28	15 536	508 56
East Lothian.....	" 9	" 23	" 26	" 26	17 1,200	586 40	18 80	601 20
Sutton's Champion.....	" 9	" 23	" 26	" 26	17 1,468	591 08	15 448	507 28
Hartley's Bronze Top.....	" 9	" 23	" 26	" 26	17 1,200	586 40	17 1,000	583 20
Marquis of Lorne.....	" 9	" 23	" 26	" 26	15 888	514 48	15 1,328	522 08
Purple Top.....	" 9	" 23	" 26	" 26	15 712	511 52	13 244	437 24
Carter's Elephant.....	" 9	" 23	" 26	" 26	13 400	440 00	14 600	476 40
Perfection.....	" 9	" 23	" 26	" 26	13 576	442 56	13 1,016	450 16
Pearce's Prize Winner.....	" 9	" 23	" 26	" 26	13 136	435 36	13 1,368	456 8
Skirving's Purple Top.....	" 9	" 23	" 26	" 26	12 1,784	429 44	12 1,432	423 52
Mammoth Clyde.....	" 9	" 23	" 26	" 26	12 1,558	425 58	12 992	416 32
Selected Purple Top.....	" 9	" 23	" 26	" 26	12 1,256	420 56	12 904	415 4

EXPERIMENTS WITH MANGELS.

Twelve varieties of mangels were sown during 1896, on a loamy soil. They were sown in rows $2\frac{1}{2}$ feet apart and two sowings were made in each case, the second two weeks later than the first. In each case the earliest sown has given the heaviest crop, the land was very uniform in quality and the treatment being the same the difference in yield is, no doubt, owing to the rows earlier sown getting better established before the dry weather set in, the yield per acre has been estimated from the weight of roots obtained from two rows each 66 feet long.

Experimental Farms.

MANGELS—Test of Varieties.

Name of Variety.	Character of growth.	1st Plot Sown.	2nd Plot Sown.	1st Plot Pulled.	2nd Plot Pulled.	Yield per Acre. 1st Plot.		Yield per Acre. 2nd Plot.				
						Ton. lbs.	Bush. lbs.	Ton. lbs.	Bush. lbs.			
Yellow Intermediate.	Strong.	Apl. 28.	May 12.	Oct. 24.	Oct. 24.	39	1200	1320	32	1824	1097	
Mammoth Long Red (Webb)	"	" 28.	" 12.	" 24.	" 24.	35	224	1170	4	33	1100	
Giant Yellow Globe.	"	" 28.	" 12.	" 24.	" 24.	27	824	913	44	25	1856	860
Mammoth Long Red (Steele)	Fair	" 28.	" 12.	" 24.	" 24.	27	296	904	56	24	224	803
Golden Fleshed Tankard	"	" 28.	" 12.	" 24.	" 24.	26	1592	893	12	25	600	843
Gate Post.	"	" 28.	" 12.	" 24.	" 24.	26	1944	899	4	19	1424	657
Oval Shaped Giant Globe	"	" 28.	" 12.	" 24.	" 24.	24	664	811	4	22	616	743
Warden Orange Globe.	"	" 28.	" 12.	" 24.	" 24.	23	728	778	48	26	536	875
Giant Yellow Intermediate	"	" 28.	" 12.	" 24.	" 24.	23	532	775	32	18	1664	627
Red Fleshed Tankard (Bruce)	"	" 28.	" 12.	" 24.	" 24.	22	1848	764	8	19	1864	664
Canadian Giant (Pearce)	"	" 28.	" 12.	" 24.	" 24.	22	733	20	21	1824	730	
Champion Yellow Globe (Steele)	"	" 28.	" 12.	" 24.	" 24.	22	1672	761	12	17	1024	583

EXPERIMENTS WITH CARROTS.

Fourteen varieties of carrots were under test. The land on which these were sown was loamy and of fair quality, had produced a crop of grain in 1895, and received a dressing of stable manure in the spring.

The seed was sown in drills 18 inches apart, and the plants thinned to 4 inches in the drill; two sowings were made in each case the second about two weeks later than the first. The yield per acre has been calculated in each case from the weight of roots gathered from two rows each 66 feet long.

CARROTS—Test of Varieties.

Name of Variety.	1st Plot Sown.	2nd Plot Sown.	1st Plot Pulled.	2nd Plot Pulled.	Yield per Acre.							
					1st Plot.		2nd Plot		1st Plot.		2nd Plot	
					Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.
Improved Short White	Apl. 24.	May 8.	Oct. 23.	Oct. 23.	26	700	878	20	25	500	841	40
Half Long White	" 24.	" 8.	" 23.	" 23.	24	400	806	40	19	1,306	655	06
Giant Yellow Intermediate	" 24.	" 8.	" 23.	" 23.	22	733	20	23	1,666	794	26	
Mammoth White Intermediate	" 24.	" 8.	" 23.	" 23.	22	733	20	21	1,800	730		
Giant White Vosges	" 24.	" 8.	" 23.	" 23.	20	1,060	684	20	19	1,600	660	
White Belgian	" 24.	" 8.	" 23.	" 23.	19	866	647	46	18	1,390	623	10
Early Gem	" 24.	" 8.	" 23.	" 23.	19	573	642	53	18	666	611	06
Half Long Chantenay	" 24.	" 8.	" 23.	" 23.	19	133	635	33	17	1,200	583	20
Guerrande or Ox Heart	" 24.	" 8.	" 23.	" 23.	18	666	611	06	14	1,333	488	53
Carter's Orange Giant	" 24.	" 8.	" 23.	" 23.	16	1,753	562	33	15	1,600	513	20
Long Scarlet Altringham	" 24.	" 8.	" 23.	" 23.	16	1,733	562	13	14	1,323	488	43
Long Orange or Surrey	" 24.	" 8.	" 23.	" 23.	14	1,383	489	43	13	1,866	464	26
Iverson's Champion	" 24.	" 8.	" 23.	" 23.	13	400	440	23	933	782	13	
Scarlet Intermediate	" 24.	" 8.	" 23.	" 23.	9	1,926	332	6	9	1,077	317	57

SUGAR BEETS.

Three varieties were tested this year on sandy loam. Two sowings were made with each variety at an interval of two weeks. The drought had already set in before the young plants were well established, and the yield is a very light one. For general feeding this is not a profitable crop owing to smaller yield, and greater difficulty in harvesting on account of the more branching nature of the roots. The yield per acre has been calculated from the product of two rows each 66 feet long.

SUGAR BEETS—Test of Varieties.

Name of Variety.	1st Plot Sown.	2nd Plot Sown.	1st Plot Pulled.	2nd Plot Pulled.	Yield per Acre.								
					1st Plot		1st Plot		2nd Plot		2nd Plot		
					Tons.	Lbs.	Bush.	Lbs.	Tons.	Lbs.	Bush.	Lbs.	
Vilmorin's Improved.....	May 18.	June 1.	Oct. 27.	Oct. 27.	7	80	234	40	5	560	176		
Austrian Electoral.....	" 18.	" 1.	" 27.	" 27.	6	1,200	220	..	5	1,440	190	40	
Lane's Improved.....	" 18.	" 1.	" 27.	" 27.	5	1,440	190	4	5	560	174	20	

EXPERIMENTS WITH POTATOES.

Eighty-six varieties of potatoes were planted on May 14th on a loamy soil. The seed was cut into sets, with not less than two strong eyes each, planted in drills 30 inches apart, and the sets about 1 foot apart in the drill. Owing to the drought the yield is very light, but the quality of the tubers is very good, and there was no rot. The yield per acre has been calculated from the weight of tubers gathered from two rows each 66 feet long.

POTATOES—Test of Varieties.

Name of Variety.	Total Yield per Acre.		Yield per Acre Marketable.		Yield per Acre Unmarketable.		Colour.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Seedling No. 230.....	220	..	198	..	22	..	White.
Money Maker.....	205	20	164	06	41	14	"
Clay Rose.....	205	20	184	48	20	32	Pink.
Rochester Rose.....	198	..	168	18	29	42	"
Dakota Red.....	184	40	175	26	9	14	Red.
Pride of The Market.....	183	20	164	50	18	30	White.
Polaris.....	176	15	167	27	8	48	"
General Gordon.....	176	10	140	48	35	22	Pink.
Delaware.....	176	..	158	24	17	36	White.
American Giant.....	168	40	160	14	8	26	"
Monroe County.....	164	16	147	56	16	20	Red.
Carman No. 1.....	162	38	138	16	24	22	White.
McKenzie.....	161	40	137	28	24	12	"
Vanier.....	161	20	129	08	32	12	Red.
Russell's Seedling.....	161	08	129	04	32	04	White.
Rural Blush.....	155	16	123	45	31	31	Pink.
Green Mountain.....	154	46	146	48	7	58	White.
Beauty of Hebron.....	154	34	131	24	23	10	Pink and white.
Record.....	148	52	111	39	37	13	White.
Chicago Market.....	148	40	139	58	8	42	Red.
Orphans.....	147	20	139	20	8	..	White.
Satisfaction.....	147	10	120	30	26	40	"
Freeman.....	146	40	110	20	36	20	"
Brownell's Winner.....	146	20	117	04	29	16	Red.
Early Gem.....	145	50	117	20	38	30	Rose.
Early Rose.....	140	40	119	34	21	06	"

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POTATOES—Test of Varieties—Continued.

Name of Variety.	Total Yield per Acre.		Yield per Acre Marketable.		Yield per Acre Unmarketable.		Colour.
	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	
Henderson's Late Puritan.....	139	36	132	38	6	58	White.
Early White Prize.....	139	20	125	24	13	56	"
Queen of the Valley.....	135	40	123	48	6	52	Pink.
Pearce's Extra Early.....	134	36	121	28	13	08	Pink and white.
Seedling No. 7.....	133	10	120	40	12	30	Red.
New Variety No. 1.....	133	..	125	10	7	50	White.
Maggie Murphy.....	132	48	118	48	14	..	Pink.
Hale's Champion.....	132	30	118	00	14	30	White.
Early Norther.....	132	16	118	30	13	46	"
Crown Jewel.....	132	..	125	24	6	36	Pink and white.
Irish Daisy.....	130	32	117	25	13	07	White.
Northern Spy.....	126	08	113	32	12	36	Pink.
Everett.....	124	40	112	12	12	28	"
Reading Giant.....	118	46	96	08	22	38	Red.
Victor Rose.....	118	15	100	15	18	..	Pink.
Thorburn.....	118	10	99	52	18	18	"
Early Ohio.....	117	56	99	44	18	12	"
Burnaby Seedling.....	117	20	105	36	11	44	"
Burpee's Extra Early.....	117	5	105	21	11	44	"
I X L.....	115	40	95	14	20	26	"
Stourbridge Glory.....	112	44	68	27	44	17	White.
Late Puritan.....	111	20	89	10	22	10	"
Daisy.....	111	5	99	14	11	51	Pink.
Seedling No. 3.....	110	50	89	50	21	..	Red.
Great Divide.....	110	..	78	..	32	..	White.
Early Sunrise.....	110	..	93	30	16	30	Pink.
Ideal.....	109	16	98	21	10	55	"
Lightning Express.....	108	32	103	07	5	25	Red.
Sharpe's Seedling.....	108	28	96	20	12	8	Pink.
Early Puritan.....	105	36	95	03	10	33	White.
Troy Seedling.....	103	58	78	09	25	49	"
Peerless Junior.....	103	24	93	..	10	24	"
Prize Taker.....	103	5	87	16	15	49	Pink.
American Wonder.....	102	40	87	26	15	14	White.
Seattle.....	102	35	85	07	17	28	"
Early Harvest.....	101	50	81	56	19	54	"
Empire State.....	96	48	87	08	9	40	"
Harbinger.....	96	31	69	45	26	47	Pink.
Seedling No. 214.....	96	10	71	38	24	32	White.
Ash Leaf Kidney.....	95	58	85	48	10	10	"
Flemish Beauty Seedling.....	95	30	74	30	21	..	Pink.
White Beauty.....	95	20	85	28	9	52	White.
State of Maine.....	95	..	89	53	5	7	"
Earliest of All.....	94	28	71	30	22	58	Pink.
Lawton's White.....	94	10	79	36	14	34	White.
Seedling No. 25.....	88	46	67	20	21	26	"
Pearce's Prize Winner.....	88	20	79	12	9	08	Pink.
London.....	82	40	72	..	10	40	"
Seedling No. 3.....	80	40	40	..	40	40	White; purple eyes.
Wonder of the World.....	73	20	58	40	14	40	Pink.
Early Six Weeks.....	73	10	66	50	6	20	"
Lizzie's Pride.....	70	20	62	20	8	..	"
Clarke's No. 1.....	66	58	52	48	14	10	"
New Queen.....	66	26	49	30	16	56	"
Hopeful.....	58	28	47	10	11	18	White.
Table King.....	58	20	46	56	11	24	"
Seedling No. 14.....	52	30	32	20	20	10	"
Vanguard.....	51	20	41	04	10	16	Pink.
Holborn Abundance.....	44	48	39	30	5	18	White.
Dreer's Standard.....	39	36	22	56	16	40	Pink.

MIXED GRAIN CUT FOR HAY.

These mixtures of cereals were sown on loamy soil on plots of $\frac{1}{10}$ th of an acre each. Mixture No. 1 yields this year, as it did in 1895, the heaviest crop, and is, I think, otherwise a better feed. In No. 2 the barley ripens ahead of the other grains, and is likely to reach too near maturity to be as palatable as the wheat in mixture No. 1. Both mixtures make good feed, especially for milch cows.

MIXED GRAIN SOWN FOR HAY.

Name of Variety.	Date of Sowing.	Character of Growth.	Weight per acre. Green.	Weight per acre. Cured.	Remarks.
<i>Mixture No. 1.</i>			Tons. Lbs.	Tons. Lbs.	
Golden Vine pease, 1 bush. per acre	April 25..	Strong ...	8 1,700	4 1,337	Cut July 18 when wheat was in late milk.
Red Fife wheat "					
Banner oats "					
<i>Mixture No. 2.</i>					
Golden Vine pease, 1 bush. per acre	" 25..	" ..	7 1,930	3 1,201	Cut July 18 when oats were in milk.
Prize Prolific barley "					
Banner oats "					

EXPERIMENTS WITH CLOVER, SOWN WITH GRAIN.

Twenty $\frac{1}{4}$ acre plots were used in this test, ten of which were sown with different varieties of grain with which was sown Mammoth Red clover at the rate of 12 pounds per acre, while ten similar plots were sown alternately with the same varieties of grain without clover. The objects of this series of tests was to gain information as to whether the sowing of clover with grain influenced the yield of the grain, and how far the vigour and bulk of the clover crop, and hence its usefulness for ploughing under as a fertilizer, was influenced by the kind of grain with which it was grown.

The land chosen for all of these tests, excepting those which were sown with Banner Oats, had been under clover the year previous, which had made considerable growth when it was ploughed under for this crop, and the dry weather beginning soon after the plots were sown, the clover sod did not rot well, and consequently was of little or no advantage as a fertilizer. The clover sown this year made a good catch on all the plots and, at the time of harvesting the grain, had made a thick mat of about six inches high.

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TESTS of grain on one-quarter acre plots, sown with and without clover.

Name of Grain.	Date of sowing.	Date of ripening.	Yield of grain per acre.		Remarks.
			bush.	lbs.	
Wheat—					
Red Fife	April 29..	Aug. 22..	20	00	Without clover.
"	" 29..	" 22..	14	24	With clover.
Stanley	" 29..	" 22..	23	52	Without clover.
"	" 29..	" 22..	16	00	With clover.
Barley, 2-rowed—					
French Chevalier	" 29..	" 27..	14	28	Without clover.
"	" 29..	" 27..	12	36	With clover.
Beaver, 2-rowed	" 29..	" 24..	15	28	Without clover.
"	" 29..	" 24..	11	56	With clover.
Trooper, 6-rowed	" 29..	" 19..	14	00	Without clover.
"	" 29..	" 19..	13	28	With clover.
Rennie's Improved, 6-rowed	" 29..	" 19..	10	20	Without clover.
"	" 29..	" 19..	9	15	With clover.
Pease—					
Golden Vine	" 29..	" 18..	16	40	Without clover.
"	" 29..	" 18..	11	52	With clover.
Mummy	" 29..	" 18..	37	20	Without clover.
"	" 29..	" 18..	30	08	With clover.
Oats—					
Banner	" 29..	" 22..	67	14	Without clover.
"	" 29..	" 22..	41	10	With clover.
Abundance	" 29..	" 22..	36	00	Without clover.
"	" 29..	" 22..	25	02	With clover.

In every instance in the series of tests the sowing of the clover with the cereals planted appears to have lessened the weight of the grain harvested.

EXPERIMENTS WITH FLAX.

These experiments with flax were planned for the purpose of gaining information as to the quantity and quality of fibre and of seed which could be produced per acre in the coast climate of British Columbia, when the seed was sown at the rate of 40 pounds per acre and 80 pounds per acre, also as to the best time for sowing in that climate.

The plots were $\frac{1}{10}$ of an acre each, the soil was sandy loam, part of which had been under root crops in 1895 and the remainder pease, and all of it was in fair condition as to fertility. All the plots suffered from the drought but the later tests very much more than the earlier ones, as is shown by the results; one-half of each plot was pulled for fibre when the lower leaves and stalk became yellow, and part of the balls were ripe, on the other half the seed was allowed to ripen before harvesting.

Crops of flax grown in previous and more favourable seasons were heavier, the stalks being longer and the yield of seed greater. Then, as in this instance, the advantage of sowing flax as early in the spring as practicable, was conclusively shown.

Fifty pounds each of the first and second sowings were sent to Messrs. J. & J. Livingston, Baden, Ontario, who will test its value for manufacturing purposes.

RESULTS obtained from test plots of Flax.

No. of Plot.	Quantity of seed per Acre.	When sown.		When pulled.	Length of stalk when pulled.	Weight of straw when pulled.		Yield of seed per Acre.	
	Lbs.				Inches.	Tons.	Lbs.	Bush.	Lbs.
No. 1.	40	May	15..	Aug. 10..	30	1	1,200	10	40
" 2.	80	"	15..	" 10..	28	1	1,400	12	8
" 3.	40	"	22..	" 24..	28	1	1,000	11	24
" 4.	80	"	22..	" 24..	27	1	1,280	12	8
" 5.	40	"	29..	" 31..	22	1	160	4	16
" 6.	80	"	29..	" 31..	25	1	600	6	24
" 7.	40	June	5..	" 31..	19		1,600	3	32
" 8.	80	"	5..	" 31..	18		1,680	5	..

LATHYRUS SYLVESTRIS WAGNERI.

A large number of packages of seed of this plant have been distributed every year for several years to farmers in different parts of British Columbia and of the Northwest Territories. The reports received up to the present do not justify the high character given to it by the introducers.

YIELD OF HAY, FODDER CROPS, AND ROOTS.

Hay, first crop	14 tons	340 lbs.
" second crop	3 "	1,000 "
Mixed grains cut for feed	12 "	500 "
Turnips	35 "	50 "
Carrots	14 "	200 "
Mangels	35 "	50 "
Corn in silo	34 "	

The first crop of clover was cut in June, and the second in August. The same area of land was cut over, and the very small second crop shows how extreme the drought was. With ordinary weather the second crop would have been over ten tons.

EXPERIMENTS WITH GARDEN PEASE.

Sixteen varieties of garden pease were tested, on loamy soil, and all sown on the 16th of May. Owing to the drought and heat they ripened very rapidly after becoming fit for the table. The earlier varieties only remaining green and succulent for a few days.

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GARDEN PEASE—Test of Varieties.

Name of Variety.	Fit for table	Number of Days Maturing.	Character of Growth.	Length of Straw.	Length of Pod.	Size of Pea.	Average No. of Pease in Pod.	Productiveness.
				Inches	Inches.			
Shropshire Hero.	July 27.	72	Strong	30	3 to 4	Large	6	Very fine quality, productive.
Heroine	" 27.	72	"	24	3 to 4	"	8	Good quality, fair.
Prince of Wales.	" 24.	69	"	36	3	Very large..	5	Good quality, productive.
Stratagem	" 27.	72	Medium....	18	2½ to 3½	Large	5	Very good, productive.
Telegraph.....	" 24.	69	Strong.	30	3½	"	7	Very good, productive.
Duke of Albany.....	" 30.	75	Very strong.	55	2½	Medium....	5	Very fine quality, medium.
Little Giant.	" 11.	56	Medium....	14	2	"	6	Fair quality, medium.
Bliss' Abundance.....	Aug. 4.	80	"	13	2	"	6	Fair quality, medium.
Maud S.....	July 9.	54	"	22	2	Small	5	Medium quality, prolific.
Sunol	" 9.	54	"	22	1½ to 2	"	5	Medium quality, prolific.
Daniel's Matchless Marrow	" 27.	72	Strong.....	45	3 to 4½	Very large.	9	Very fine quality, prolific.
Burpee's Profusion.....	" 27.	72	"	30	3	Large	5	Very fine quality, prolific.
Horsford's Market Garden.	" 26.	71	Medium....	18	2½	Medium....	6	Good quality, very prolific.
Juno.....	Aug. 6.	82	"	18-24	3	"	6	Good quality, medium.
Harris' Dwarf Mammoth...	July 27.	72	"	24	2½	Large	5	Good quality, very prolific.
C. P. R.....	Aug. 6.	82	"	24	2½	Medium....	3	Pods not well filled, medium quality, moderately prolific.

APPLES.

This has been an off year for apples. Very few varieties gave a fair crop, and many varieties only a few specimens.

The insect known as the Apple Fruit Miner did considerable damage to the fruit in many places in the coast region. Several varieties suffered much from this cause on the Experimental Farm. The Maiden's Blush, St. Lawrence, Stark, Wellington and American Pippin suffered the most. The injured fruit was gathered and fed to stock before the maggots had left the apple, and it is hoped that this treatment will check the ravages of this pest. The trees were sprayed three times with Bordeaux mixture and Paris green for scab and caterpillars, but this does not appear to have been useful in killing the Apple Fruit Miner to any considerable extent.

The trees have made a vigorous growth the past season, and give promise of plenty of fruit next year. Several of the younger trees produced fruit this season for the first time. The following is a list of some of the most promising sorts:—

BISMARCK.—Tree, a free, strong grower. Fruit, very large, oblate. Skin, green, nearly covered with splashes of red. Flesh, white, rather coarse, mild acid. Said to be a good keeper.

STURMER PIPPIN.—Tree vigorous. Fruit medium size, oblate, conical. Skin russet green, sprinkled with grayish dots. Flesh firm, rich sub-acid. Winter.

MANNINGTON PEARMAIN.—Tree a free grower. Fruit of medium size, roundish, conical. Skin yellowish green, sprinkled with grayish dots. Flesh yellowish, firm, crisp, pleasant sub-acid. Late fall.

NONPAREIL.—Tree a moderate grower. Fruit small, roundish, skin greenish yellow, nearly covered with russet. Flesh crisp, juicy, aromatic, mild acid. Winter.

WASHINGTON.—Tree a vigorous grower. Fruit large, roundish, conical. Skin yellow splashed with red. Flesh yellow, crisp, tender, juicy, and pleasantly acid. September.

YELLOW INGESTRE.—Tree a moderate grower. Fruit small, roundish oblate. Skin golden yellow. Flesh crisp, tender and juicy, mild acid. October.

REINETTE GRIS FRANCAISE.—Tree a moderate grower. Fruit of medium size, round flattened. Skin green, freely sprinkled with russet dots. Flesh firm, crisp and juicy. December.

INGRAM.—Tree vigorous. Fruit small, round flattened. Skin greenish yellow, with small splashes of red, and sprinkled with whitish dots. Flesh yellowish, crisp, juicy sub-acid. Winter.

TRENTON.—Tree a moderate grower. Fruit above medium size, somewhat conical. Skin greenish yellow, nearly covered with dull red. Flesh soft, mild sub-acid. August and September.

ISHAM'S SWEET.—Tree vigorous. Fruit large, conical. Skin green, nearly covered with russet. Flesh yellow, rather coarse, sweet. Fall.

RUSSIAN TYROL.—Tree a moderate grower. Fruit of medium size, conical. Skin greenish yellow, with dull red in the sun, and considerable russet. Flesh a little coarse, white, moderately juicy, mild sub-acid. Winter.

APPLES PREFERRED FOR COMMERCIAL ORCHARDS.

Of the apples that have yet fruited on the Experimental Farm, the following would be preferred for winter, if planting a commercial orchard :—

SALOME.—Tree vigorous and productive. Fruit of medium size, conical ; skin yellow, splashed and streaked with pale red ; flesh crisp, yellowish white, firm, juicy, pleasant sub-acid. Late winter.

YORK IMPERIAL.—Tree vigorous and productive. Fruit, of medium size, oblong, oblique ; skin yellow, nearly covered with bright red ; flesh yellowish, firm, crisp, juicy, mild sub-acid. Late winter.

BELLE DE BOSKOOP.—Tree vigorous and productive. Fruit above medium size, oblong oblate ; skin greenish yellow, with considerable russet, and a reddish cheek on sunny side ; flesh a little coarse, crisp, tender, juicy, with a rich flavour. February.

GRIMES' GOLDEN.—Tree a moderate grower, but productive. Fruit medium size, oblong, oblate ; skin yellow, sprinkled with small grayish dots ; flesh yellow, crisp, tender, juicy, mild, pleasant sub-acid. February.

SUTTON BEAUTY.—Tree vigorous and moderately productive. Fruit of medium size, roundish, conical ; skin yellow, nearly covered with splashes of red, and sprinkled with whitish dots ; flesh white, tender, crisp, juicy, sub-acid. November to February.

RIBSTON PIPPIN.—Tree a moderate grower. Fruit of medium size, oblate ; skin greenish yellow, with a dull, reddish blush, and nearly covered with russet ; flesh yellow, crisp, tender, juicy and high flavoured, mild sub-acid. December to January.

There are others that perhaps are nearly as desirable ; and when all the varieties now on the farm have fruited many more will, doubtless, be found of equal merit ; but these are productive, of good quality, and very free from blemish.

Many of the apple trees received this year have been planted in the orchard, nearly seven acres having been planted this year with apple trees. But a large number have been put in the nursery until sufficient land has been cleared and ploughed so that they can be planted.

Two hundred and fifty-six varieties have been added to the collection since my last report, bringing the number of named varieties of apples now on the Experimental Farm up to over eight hundred.

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CRABS.

QUEEN'S CHOICE.—Tree a vigorous, strong grower, and productive. Fruit of medium size, round, oblong; skin clear yellow, with bright red on the sunny side; flesh white, crisp and pleasant.

SOULARD.—Tree vigorous. Fruit of medium size, oblate; skin greenish yellow, nearly covered with bright red, and freely sprinkled with grayish dots; flesh white, crisp and astringent.

MARENGO.—Tree vigorous. Fruit small, oblate; skin green, nearly covered with dark purple; flesh white, juicy, acid.

HYSLOP, WHITNEY, MONTREAL BEAUTY, YELLOW SIBERIAN, and GENERAL GRANT, fruited sparingly this year, but had fruited freely for two years previous.

The **TRANSCENDENT** was badly affected, from the time of planting in the spring of 1890, to the spring of 1894, in the leaf with the scab fungus, and although blossoming freely did not fruit. The trees were sprayed with Bordeaux mixture, in the seasons of 1892, 1893 and 1894, but the fungus appeared to be on every leaf. In the spring of 1895 they were sprayed with the lime, sulphur and salt preparation, followed during the summer with three sprayings of Bordeaux mixture, and the growth that year was healthy, with very little of the fungus. They were treated the same way this last season, and the foliage showed very slight evidence of scab; the growth was vigorous, and there was a fair crop of clean, handsome fruit.

The scab appears to be very difficult to control in this climate, but the success in the case of the **Transcendent** leads to the hope that such varieties as the **Fameuse** and **Graventein**, which are very susceptible to injury from this cause, may be protected, if treated in the same way.

PEARS.

Very few of the older pear trees produced an average crop although many of them bloomed freely.

The **Clairgeau, Angouleme, Armand Morelle, Doyenne, Boussock, Margaret, Louise Bonne de Jersey, and Osband's Summer** had fair crops, and many of the others produced a few specimens.

Of the younger trees, **Durondeau, B. Capiaumont, and Knight's Monarch** produced fair crops.

DURONDEAU.—Tree vigorous. Fruit of medium size, acute, pyriform, irregular; skin yellow, covered with a handsome russet, with a warm blush on the sunny side and many small, brown dots; flesh juicy, melting, sweet, with a rich flavour. Ripe October.

BEURRE CAPIAUMONT.—Tree vigorous. Fruit of medium size, long, turbinate, tapering; skin smooth, yellow, with a light red cheek; flesh buttery, melting, sweet, good flavour. Ripe early in October.

KNIGHT'S MONARCH.—Tree vigorous. Fruit under medium size; skin yellowish green, with russet and many gray dots. Flesh melting, sweet, pleasant. Ripe December.

The following varieties produced a few specimens:—

ST. SWITHIN.—Tree moderately vigorous. Fruit small, acute, pyriform; skin yellowish green, sprinkled with brownish dots. Ripe August.

MARIE LOUISE D'UCCLE.—Tree vigorous. Fruit large, obovate, pyriform; skin rough, yellow, brown on the sunny side, freely sprinkled with russet dots; flesh white, melting, juicy, slightly astringent. Ripe last of September.

HESSLE.—Tree vigorous, fruit small obovate, skin green with a brownish russet, freely sprinkled with brown dots. Flesh white, juicy, sprightly pleasant. Ripe early in September.

ASTON TOWN.—Tree, a moderate grower. Fruit small, roundish, turbinate. Skin greenish yellow, with brown dots. Flesh white, rather soft, sweetish and buttery. Ripe last of September.

MAGNATE.—Tree, a moderate grower. Fruit large pyriform; skin greenish yellow, nearly covered with brownish russet, with a brown red check in the sun; flesh yellow juicy, fine grained. Ripe last of October.

THOMPSON.—Tree, a strong grower, fruit of medium size, obovate, pyriform; skin greenish yellow, with patches of russet; flesh white, buttery, sweet, and of very fine quality. Ripe last of October.

PRINCESS (Rivers).—Tree vigorous. Fruit above medium size, oblong pyriform; skin green, with gray dots, and a reddish russet on the sunny side; flesh white, very juicy, melting, with a rich flavour. Ripe last of October.

DR. JULES GUYOT.—Tree vigorous. Fruit very large, oblong, obtuse pyriform; skin yellow, with small dots sprinkled over the surface and a faint blush on the sunny side. Flesh white, very juicy, melting with a very fine flavour, very good. Ripe early in August.

FERTILITY.—Tree moderately vigorous. Fruit of medium size, obovate, skin yellow with a warm blush. Flesh juicy, melting and pleasant. Ripe last of September.

BEAUPRESENT ESPARGNE.—Tree vigorous. Fruit of medium size, oblong pyriform, skin greenish yellow, sprinkled with gray dots. Flesh white, juicy, gritty and astringent. Ripe last of August.

The following Russian pears fruited freely. They are of little value in this climate.

GLIVA KURSKYA.—Tree very vigorous. Fruit of medium size. Flesh white, not juicy, sweetish and of poor quality. Ripe, September.

SAPIEGANKA.—Tree very vigorous. Fruit of medium size, coarse grained, dry and of poor quality. Ripe early in October.

TONKOVIETKA.—Tree very vigorous. Fruit of medium size. Flesh coarse, dry, granular and astringent. Ripe September.

DULA MEDVEDOVKA.—Tree very vigorous. Fruit below medium size. Flesh coarse and dry. Ripe early in August.

BESSEMIANKA.—Tree vigorous. Fruit of medium size. Flesh moderately juicy, sweetish, fine grained and of fair quality. Ripe September.

Clairgeau, Louise Bonne, Anjouleme, Dearborn's Seedling and Margaret, have been the most productive of the desirable varieties of those planted in 1890 and 1891. Bartlett although a very fine pear, has been rather a shy bearer, up to the present time, having only produced a few specimens, in the last three seasons, while the varieties above mentioned have given fair crops.

Of the new varieties, Dr. Jules Guyot for early, Durondeau and Beurre Capiamont, for late autumn, are the most promising that have fruited this year.

The number of varieties added to the collection this year has been very large, and when all have fruited valuable sorts for the whole pear season should be found among them.

From Germany and different parts of America there have been received in all 162 additional varieties, most of these were trees, but some were obtained as scions for grafting or budding.

PLUMS.

The season was not favourable for plums, and many of the older trees, although full of bloom, set very little fruit.

Some varieties, however, gave a good crop.

Quite a number of the younger trees fruited this year, and some of them promise to be valuable for the coast region of British Columbia.

The following varieties bore well this year, and have given good crops in the three previous years:—

Gueii, American Violet, Duane's Purple, Lombard, Monroe, Hudson River Purple Egg and Shipper's Pride. Niagara and Bradshaw gave a fair crop this year also, but they had not given heavy crops in previous years.

Of the above varieties the Gueii has thus far been the most profitable. The fruit is above medium in size, of a deep purple colour, with a blue bloom, and is a good shipper. The tree is a strong vigorous grower.

Shipper's Pride and Hudson River Purple Egg are nearly but not quite so productive, and the trees of both sorts are vigorous and healthy.

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The fruit of American Violet is somewhat larger than either of the last three named, and the tree is very productive, but it is a feeble grower. All four of these ripen about the same time, and are handsome and ship well.

Bradshaw and Niagara are very similar in growth of tree and appearance of fruit, and are both of the best, but require more age than some others before becoming profitable in production. They yield heavy crops of very large and handsome plums of good shipping quality.

The following varieties fruited this year for the first time. They are given in the order of ripening with a short description of the fruit.

CEYAR.—Tree vigorous and productive; fruit above medium size; oval; dark purple, with a whitish bloom of fine flavour; ripe 24th July.

RICHLAND.—Tree a medium grower; fruit of medium size; oval; greenish purple; ripe 4th August.

RED NEGATE.—Tree a feeble grower; not productive; fruit of medium size; pointed heart-shape; red with a thin whitish bloom; juicy, but not high flavoured; ripe 14th August.

RIVER'S EARLY.—Tree vigorous and productive; fruit small, round, oval; dark purple; juicy and of pleasant flavour; ripe 15th August.

SPAULDING.—Tree a vigorous grower; fruit of medium size; long, oval; greenish yellow; ripe 15th August.

HERON.—Tree a moderate grower; productive; fruit large, oblong; greenish yellow, with a bright purple blush nearly covering the skin; ripe 16th August.

CURLEW.—Tree vigorous and productive; fruit of medium size; round, oval; purple, with a heavy bloom; ripe 16th August.

YELLOW VORONESH.—Tree moderately productive; fruit large; shape and colour similar to Yellow Egg, but not so large; flesh dry, granular and of rather poor flavour; ripe 16th August.

MALLARD.—Tree vigorous; fruit above medium size; round, oval; light reddish purple; flesh firm, juicy and sweet; ripe 16th August.

MITCHELSON.—Tree vigorous, moderately productive; fruit below medium in size; oval; dark purple; ripe 17th August.

CLUSTER DAMSON.—Tree vigorous and productive; fruit small; round, oval; nearly black, with a heavy blue bloom; ripe 18th August.

KING OF THE DAMSONS.—Tree vigorous and productive; fruit small, round, oval; dark purple, with a blue bloom; ripe 18th August.

DAMSON PRUNE.—Tree very productive. Fruit small, oval, dark purple, with a heavy bloom. Ripe, 18th August.

SULTAN.—Tree vigorous and moderately productive. Fruit large, round, bright purple. Ripe, 18th August.

GISBORNES.—Tree vigorous and productive. Fruit above medium size, round oval, greenish yellow, juicy, pleasant. Ripe, 18th August.

CLYMAN.—Tree vigorous. Fruit medium size, oval, light red, with a bluish bloom. Ripe, 18th August.

DIAMOND.—Tree vigorous. Fruit large, oval, purple, with a bluish bloom. Flesh firm and juicy. Ripe, 20th August.

DENISTON'S SUPERB.—Tree a moderate grower. Fruit above medium in size, round, greenish yellow. Flesh juicy, rich, fine flavour. Ripe, 20th August.

BELGIAN PURPLE.—Tree vigorous. Fruit above medium size, roundish oval, dark purple with a blue bloom. Flesh firm, sweet, and very good. Ripe, 28th August.

COX'S EMPEROR.—Tree vigorous. Fruit large, round, light reddish, purple. Flesh firm, sweet and rich, free stone. Ripe, 5th September.

ORLEANS NEW.—Tree a moderate grower. Fruit below medium size, round oval, red with a thin whitish bloom. Ripe, 16th September.

MONARCH.—Tree vigorous. Fruit large, dark purple, with a thick bluish bloom. Flesh firm and juicy, a good shipper. Promises to be valuable. Ripe, 16th September.

GRAND DUKE.—Tree a vigorous, upright grower. Fruit very large, similar in appearance to Bradshaw. Ripe, September 16th.

KIRKE'S.—Tree vigorous. Fruit above medium size; pear-shaped, pale reddish purple, with small yellow dots, and a whitish bloom. Flesh, sweet, juicy and of fine flavour. Ripe, 20th September.

MIRABELLE PETITE.—Tree of slender growth. Fruit very small, round, yellow, with reddish dots; stone very small. Ripe, 24th September.

BITTERN.—Tree vigorous. Fruit above medium size, oval, purple, with a heavy blue bloom. Flesh firm and juicy. Ripe, 26th September.

ST. CATHERINE.—Tree vigorous. Fruit of medium size, nearly pear-shaped, pale yellow, with a thin white bloom. Flesh firm, juicy and sprightly. Ripe, 28th September.

BELLE DE SEPTEMBRE.—Tree vigorous. Fruit above medium size, round, light red, with a thin blue bloom. Ripe last of September. An excellent shipper.

A number of these varieties produced fine crops of fruit this year and promise to be valuable for the coast region.

The most desirable, judging by the standard of productiveness, size, beauty and shipping qualities, are Grand Duke, Monarch, Cox's Emperor, Belle de Septembre, with Czar for a very early variety. But further evidence will be required to confirm this opinion.

CHERRIES.

The cherry trees bloomed very freely, and gave promise of a heavy crop, but most of the bloom fell off, there was however a light crop of some varieties, and some of the young trees gave a very fair crop.

The following are those which fruited this year for the first time :

ARCH DUKE.—Fruit large, heart shaped, deep red colour, flesh firm, juicy, and pleasant, ripe 5th July.

FROGMORE EARLY BIGARREAU.—Fruit large, heart shaped, colour yellow with a reddish cheek, flesh nearly white, firm, crisp, juicy, sweet, and pleasant, ripe 6th July.

DUNTON.—Fruit large, pointed heart shaped, colour reddish yellow, flesh firm, and skin tough, would ship well, ripe 9th July.

CERISE D'OSTHEIM.—Fruit small, round, flattened, colour dark red, flesh dark red, crisp, juicy, pleasantly acid, stone rather large, ripe 9th July.

OREL No. 23.—Fruit small, colour pale yellow, flesh white, juicy acid, stone small, ripe 10th July.

OHIO BEAUTY.—Fruit below medium size, colour pale red, flesh yellowish, juicy, sweet, and pleasant, ripe 10th July.

SHADOW AMARELLE.—Fruit of medium size, round, flattened, colour yellowish red, flesh yellowish white, firm, crisp, juicy, and pleasantly acid, ripe 13th July.

DEACON.—Fruit very large, heart shaped, colour dark red, flesh reddish white, firm, juicy, sweet, sprightly, and very fine, ripe 10th July.

AMARELLE HATIVE.—Fruit above medium in size, round, flattened, colour deep red, flesh very juicy, sprightly, pleasant acid, stone very small, ripe 9th July.

DE PLANCHONRY.—Fruit above medium size round, colour deep red, flesh juicy, tender, mild, pleasant acid, very handsome, but perhaps too soft for shipping long distances, ripe 7th July.

Thirty-seven varieties were added to the collection this spring.

DWARF ROCKY MOUNTAIN CHERRY.

These bushes produced a fair crop of fruit this year, of varying size some of them almost as large as the English Morello. The fruit is juicy, sweetish and more or less astringent, ripe last of August.

APRICOTS.

The apricot trees bloomed very freely this year, but the weather was very wet, and cold during the whole blooming period, and no fruit set. This fruit has never yet produced here satisfactory returns. The trees planted in the spring 1890-91 and 1892

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are now large, with fine spreading tops, and most of them appear to be vigorous and healthy, they bloom freely, are not troubled with pests, and yet rarely produce fruit, trained against a wall they might possibly do better, but as an orchard fruit, they have not thus far been a success.

Twenty-one additional varieties were received from Germany, and five from United States nurseries last spring, and all have made a fair growth.

NECTARINES.

All of the nectarine trees on the level land were rather badly affected with curl leaf, as in the case of peaches, spraying with Bordeaux mixture has a prompt effect in arresting the spread of the disease.

The trees were sprayed before leafing, and again when the leaves were about half grown, and again when the fruit was as large as filberts.

The older nectarine trees blossomed freely this year, and the following varieties fruited.

EARLY VIOLET.—Fruit small, round, flat, with a shallow suture; colour of skin, yellowish green with a reddish cheek; flesh yellowish green, rich fine flavour, ripe, 24th Aug.

DOWNTON.—Fruit of medium size, round, flat; colour of skin, whitish green, with red cheek; flesh, greenish white, tender, juicy, fine flavour. Ripe, 28th Aug.

HARDWICK.—Fruit medium to large, round, almost oval; colour of skin, light green, with a dull red cheek; flesh, greenish white, reddish at the stone, juicy, pleasant flavour. Ripe, 30th Aug.

PEACHES.

A large number of the peach trees produced fruit this year. In some cases a fair crop, and in others only a few specimens.

The trees were sprayed with Bordeaux mixture just before leafing out, again when the leaves were about half grown, and again later on in the season.

The curl leaf attacked several varieties, but the Bordeaux mixture appears to be a successful remedy for this disease, for although last spring was a favourable season for the growth of fungi, the curl leaf was not so bad as in 1894, and readily yielded to the Bordeaux spray.

As heretofore the trees on the upper benches, both nectarine and peach, escaped the curl leaf entirely.

The following is the order of ripening:

AMSDEN, ALEXANDER, EARLY CANADA.—These three varieties are very similar in nearly every respect. Form, almost globular, with shallow suture; skin, greenish yellow, dotted and splashed with red. Flesh, whitish, juicy, sweet and very good. Ripe, 4th August.

EARLY YORK.—Fruit, medium in size; colour, greenish white with dull red in the sun. Flesh, whitish, juicy, sprightly, rich, good. Ripe on bench, 4th Aug. Ripe on level 10th Aug.

HILBORN.—Fruit, medium in size, globular, moderate suture. Colour, creamy yellow, with red cheek. Flesh, juicy, tender, fine flavour. Ripe, 17th August. One of the best peaches for this locality.

HALE'S EARLY.—Fruit of medium size, round, with moderate suture, very similar to Hilborn, but not so juicy. Ripe, 17th August.

WATERLOO.—Fruit of medium size; flesh whitish, juicy, sweet, and of good quality. Ripe, 17th August.

GENERAL TAYLOR.—Fruit very large, white, with a red cheek, and dots of red sprinkled over nearly the whole surface; flesh white, juicy, sprightly, very fine quality. Ripe, 17th August.

CRANE'S EARLY YELLOW.—Fruit of medium size; colour of skin, creamy white, with red on sunny side; flesh yellowish, juicy, sprightly, pleasant flavour. Ripe, 18th August.

LEWIS SEEDLING.—Fruit medium size, round, with deep suture; colour, orange, nearly covered with red; flesh yellow, sweet, juicy, rich, fine flavour. Ripe, 20th August.

EARLY TOLEDO.—Fruit large, round, with deep suture; colour, creamy white, with red on sunny side; flesh whitish, juicy, sprightly, pleasant flavour. Ripe, 21st August.

PRINCESS OF WALES.—Fruit above medium size, round with shallow suture; colour, creamy white, with dots and splashes of red; flesh whitish, juicy, melting, very fine flavour. Ripe, 22nd August.

EARLY BEATRICE.—Fruit small; colour whitish with a mottled red cheek; flesh juicy, melting, very fine quality. Ripe, 22nd August.

EARLY RIVERS.—Fruit rather large; colour whitish with a light red cheek; flesh juicy melting, very high quality. Ripe, 24th August.

LARGE EARLY YORK.—Fruit above medium size; colour white, with a deep red cheek; flesh whitish, juicy, pleasant, fine flavour. Ripe, 26th August.

COOLIDGE'S FAVOURITE.—Fruit medium size; colour, white, with dots, and splashes of red, nearly all over the surface; flesh white, juicy, pleasant flavour, good. Ripe, 27th August.

GEORGE IV.—Fruit large; colour white, with red cheek; flesh nearly white, juicy, rich flavour. Ripe, 28th August.

MOUNTAIN ROSE.—Fruit of medium size, with deep suture, colour, yellowish, with a bright red cheek. Flesh whitish, very juicy and of pleasant flavour; quality very good. Ripe, 28th August.

YELLOW ST. JOHN.—Fruit of medium size, with a shallow suture. Colour, rich yellow with a bright red cheek. Flesh, yellow, juicy, sweet; quality good. Ripe, 30th Aug.

REED'S EARLY GOLDEN.—Fruit large; colour, yellow, with dots and splashes of bright red. Flesh, deep yellow, juicy, sweet and very good. Ripe, 1st Sept.

MARY'S CHOICE.—Fruit small, nearly globular, shallow suture. Colour of skin, greenish yellow, with a red cheek. Flesh, greenish-white, juicy, sprightly. Ripe, 2nd Sept.

SNOW'S ORANGE.—Fruit of medium size, nearly round, sides unequal, rather deep suture. Colour, creamy with blush on cheek. Flesh, yellow, sweet, juicy, high flavoured, quality very good. Ripe, 2nd Sept.

BARNARD'S NEW RARE RIPE.—Fruit of medium size, with a shallow suture. Colour of skin, rich yellow, almost covered with dots and splashes of deep red. Flesh, deep yellow, fine grained, juicy, rich and high flavoured; quality very good. Ripe, 2nd Sept.

PRATT.—Fruit of medium size, nearly round, with a deep suture. Colour of skin, nearly covered with red. Flesh rich yellow, juicy, sweet, pleasant flavour. Ripe, 3rd Sept.

FOSTER.—Fruit large and handsome, sides somewhat unequal, deep suture; colour of skin golden yellow nearly covered with dots and splashes of bright red. Flesh yellow, tender, very juicy, pleasant flavour, quality fair. Ripe, 4th September.

GOLDEN RARE RIPE.—Fruit small to medium in size, round, with a moderate suture; colour of skin golden yellow, freely dotted and splashed with red. Flesh yellow, tender, fine grained, juicy and sprightly. Ripe, 4th September.

EARLY BARNARD.—Fruit of medium size, nearly round, sides somewhat unequal; colour of skin, greenish yellow, nearly covered with deep dull red. Flesh, pale yellow, juicy, sweet. Quality good. Ripe, 4th September.

EARLY CRAWFORD.—Fruit large, nearly globular, shallow suture, colour of skin yellow, shaded with bright red. Flesh yellow, juicy, pleasant flavour; good quality. Ripe, 4th September.

RED CHEEK MELOCOTEN.—Fruit medium size, sides unequal, with a deep suture; colour of skin, deep yellow, nearly covered with splashes and dots of red. Flesh fine-grained, yellow, juicy, rich and sweet. Ripe, 5th September.

VIOLET HATIVE.—Fruit small, nearly globular, moderate suture; colour of skin, greenish yellow, considerably dotted and splashed with red. Flesh nearly white, juicy, sprightly, tender, good quality. Ripe, 5th September.

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NOBLESSE.—Fruit large, nearly globular, with well defined suture; colour of skin, whitish, with a red cheek, and dots of red over nearly the whole surface. Flesh, whitish, sweet, very juicy, and pleasant flavour. Ripe, 15th September.

MUIR.—Fruit small, nearly globular, with shallow suture. Colour of skin, golden yellow. Flesh yellow, tender, juicy, sweet and of pleasant flavour. Ripe, 20th Sept.

GUDGEON.—Fruit of medium size, oval shape, with shallow suture. Colour of skin, greenish yellow, streaked and dotted with red. Flesh, white, fine grained, tender, juicy and sweet. Ripe, 24th September.

HANCE'S GOLDEN.—Fruit small, shallow suture, sides somewhat unequal. Colour of skin, yellow, with light red cheek. Flesh firm, juicy, sprightly, pleasant flavour. Ripe, 24th September.

JACQUES RARE RIPE.—Fruit small, nearly round, shallow suture. Colour of skin, yellow. Flesh yellow, rich pleasant flavour, not juicy. Ripe, 28th September.

GOLDEN DROP.—Fruit of medium size with a deep suture and unequal sides. Colour of skin, golden yellow. Flesh, yellow, sweet and tender, but not juicy. Ripe, 28th September

LONOKE.—Fruit of medium size, with a deep suture. Colour of skin, yellow. Flesh, coarse and dry, not high flavoured. Ripe, 28th September.

COOLEY'S MAMMOTH.—Fruit of medium size, nearly globular, with a deep suture. Colour of skin, bright golden yellow with a reddish blush. Flesh, yellow, juicy, sprightly but slightly astringent. Ripe, 28th September.

BARRINGTON.—Fruit, medium to large, globular, sides unequal with a moderate suture. Colour of skin, creamy yellow, with light red splashes on sunny side. Flesh, white, sweet, tender, juicy, good quality. Ripe, 29th September.

AMELIA.—Fruit of medium size, oblong, with a shallow suture. Colour of skin, yellow, with a faint reddish blush. Flesh, white, juicy, sprightly; quality, medium. Ripe, 29th September.

WILLET.—Fruit large, nearly round, with a deep suture. Colour of skin, greenish yellow, with dots and splashes of red. Flesh, whitish, firm, moderately juicy, sweet. Ripe, 30th September.

SEA EAGLE.—Fruit small, round, flattened; colour of skin, golden, with bright red cheek; flesh yellow, firm, juicy, sweet. Ripe, 30th September.

DRUID HILL.—Fruit small, globular, shallow suture; colour of skin, yellow, freely sprinkled with small red dots; flesh greenish white, sweet and of pleasant flavour. Ripe, 30th September.

HILL'S CHILI.—Fruit of medium size, shallow suture; sides very unequal; colour of skin, rich yellow with splashes of bright red; flesh yellow, coarse, juicy, pleasant flavour. Ripe, 30th September.

CHAIR'S CHOICE.—Fruit of medium size, globular with a shallow suture; colour of skin, yellow, with a deep red cheek; flesh yellow, firm, sweet, not juicy. Ripe, 30th September.

MOORE'S FAVOURITE.—Fruit of medium size, globular, with a shallow suture nearly all around the fruit; colour of skin, greenish white with a reddish cheek; flesh white, juicy, sprightly. Ripe, 30th September.

MARSHALL'S LATE.—Fruit of medium size, oblong, with a shallow suture, one side considerably larger than the other; colour of skin, yellow, with small reddish dots; flesh coarse, dry and of poor quality. Ripe, 30th September.

FOX'S SEEDLING.—Fruit of medium size, nearly globular, with moderate suture; colour of skin, greenish white, with faint blush on cheek; flesh white, juicy, pleasant flavour. Ripe, 2nd October.

The following varieties fruited but did not fully ripen their fruit.

Wheeler's Late, Old Mixon Cling, Arkansas Mammoth Cling, Topaz, Burke, Good, Bequett Cling, Indian Blood, Heath Free, Normand's Choice, Keyport White, Hughs I. X. L., Shipper's Late, Lemon, Salway, Ward's Late, Lovet's White, Levy's Late, Late Crawford.

Fifteen varieties of peaches, some American and others from Europe, were added to the collection during the past season. Owing to the dry autumn the new wood has been

thoroughly ripened, and if the coming winter and spring should be favourable, we may expect a good crop of peaches next year.

Peach trees on the Experimental Farm began fruiting in 1891, and from the experience with many of the best known varieties, the following appear to be the best adapted for the coast region on account of their earliness of ripening and productiveness, and also because many of the earlier varieties are the latest in blooming. Early Canada, Amsden, Alexander, Hilborn and Early Silver.

Early Crawford has as yet only produced a few specimens on two or three occasions.

MEDLARS.

The Nottingham and Royal Medlars, each bore a few specimens this year, the fruit of both varieties is small and not yet in condition for use. Four additional varieties were received from Germany last spring.

QUINCES.

The quince bushes that were planted in the spring of 1890 bloomed freely this year, but only a few quinces formed, and these fell off before ripening. Five additional varieties of quinces were received from Germany last spring, all are living and thrifty.

MULBERRIES.

The following varieties of mulberries fruited this year.

New American, Downing's Everbearing, Hick's Everbearing, Russian, Black English, Victoria and Italian.

The fruit of most of the above varieties is very similar in appearance and taste.

Downing's Everbearing is the largest and best. These fruits are only fit for immediate home use, as they are too soft for shipping.

FIGS.

The figs are trained in bush form, and grow vigorously, and several varieties have produced fruit, but none have yet fully ripened.

NUTS.

The filberts, almonds and other nut-trees, have made a strong growth during the past season. The filberts did not fruit freely this year.

The hard shell almonds had a fair crop. The shell is very thick, and hard, and the kernel is small, and not of very good quality. One of the Spanish chestnut trees, produced a few nuts this year. Last year it had a large crop of burs but no nuts, this year, several had crops of burs, but only one,—the one which had burs last year—produced nuts; next year, if favourable, many of them may fruit.

The walnut, hickory, and butternut trees have grown well, but have not yet fruited.

One plant each, of 46 additional varieties of nuts, chiefly filberts, were received, last spring most of them from Europe, and the others from the Central Experimental Farm, almost all have made a healthy growth.

There have been some inquiries made about filbert and other nut-trees, with a view to planting such as are most successful, in places where it is not practicable, to cultivate the soil and as all the walnuts, chestnuts, butternuts, and filberts planted on the Experimental Farm, have grown satisfactorily, very probably in the near future, waste lands in many parts of the country may be turned to good account in this way.

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GRAPES.

This has been a favourable season for grapes, the hot dry autumn ripening many varieties, that have not ripened in other seasons. Those planted on the bench land ripened from ten to fifteen days earlier than the same varieties in the vineyard in the valley.

The following varieties ripened before frost came :—

White or nearly White.

MARTHA.—Bunch large, compact, shouldered ; berry large, white, pleasantly acid ; productive. Ripe, 10th October.

NIAGARA.—Bunch very large, shouldered ; berry large, yellowish-green, sweet, tender and of pleasant flavour ; very productive. Ripe, 16th October. Ripe on bench, 6th October.

JESSICA.—Bunch small, open, shouldered ; berry, greenish-white, sweet, juicy and of a pleasant flavour ; not very productive. Ripe, 10th October. Ripe on bench, 29th September.

POCKLINGTON.—Bunch small, loose, shouldered ; berry medium, pulpy, sprightly, pleasant taste ; productive. Ripe, 23rd October. Ripe on bench, 12th October.

LADY.—Bunch small and loose ; berry large, yellowish-white, tender, juicy, sweet ; not productive. Ripe, 7th October. Ripe on bench 28th September.

STORR'S EARLY.—Bunch small and compact ; berry greenish-white, small, juicy, sweet and of pleasant flavour ; productive. Ripe, 1st October.

EVA.—Bunch medium in size and loose ; berry, medium, juicy and sweet ; productive. Ripe, 9th October.

NOAH.—Bunch medium in size and compact ; berry of medium size, rather acid, juicy ; productive. Ripe, 28th October.

DUCHESS.—Bunch long, shouldered and loose ; berry medium in size, sweet, juicy and of good flavour ; not productive. Ripe 7th October.

CENTENNIAL.—Bunch small and loose ; berry, small, pulpy, acid ; not productive. Ripe, 16th October.

LADY WASHINGTON.—Bunch large, shouldered and loose ; berry of medium size, juicy, rather acid ; productive. Ripe, 24th October.

SAUNDERS' SEEDLING No. 3.—Bunch small, cylindrical and compact ; grape, small, tender, sweet, juicy and of pleasant flavour ; productive. Ripe, 8th October.

ELVIRA.—Bunch medium in size and compact ; berry, small, juicy, tender, sprightly and pleasant to the taste ; productive. Ripe, 28th October. Ripe on bench, 13th October.

EMERALD.—Bunch medium in size, cylindrical, compact ; berry, small, tender, sweet and very good ; productive. Ripe, 8th October. Ripe on bench, 20th September.

MISSOURI REISLING.—Bunch medium in size and compact ; berry, small, juicy, sprightly, tender and pleasant ; productive. Ripe, 16th October.

ELDORADO.—Bunch large, compact and shouldered, somewhat pulpy, sweet, skin thick ; productive. Ripe, 16th October.

SAUNDERS' SEEDLING.—(Wild Seedling with Muscat Hamburg.)—Bunch small and compact ; berry small, juicy, sweet and tender ; productive. Ripe, 10th October.

ROMMEL.—Bunch medium in size ; berry, medium size, juicy, sprightly, tender, pleasant taste ; productive. Ripe, 12th October.

SAUNDERS' SEEDLING, (Wild Seedling with Muscat d'Aout)—Bunch compact and shouldered ; berry, medium in size, oval in shape, juicy, sprightly, tender and pleasant ; productive. Ripe, 24th October. Ripe on bench, 12th October.

OPAL.—Bunch small, loose and shouldered ; berry, small, sour, of poor quality ; not productive, not ripe, 30th October ; too late for this climate.

Black.

CONCORD.—Bunch large, fairly compact and shouldered. Berry large, tender, juicy, sprightly ; productive. Ripe 16th October. Ripe on bench 2nd October.

CANADA.—Bunch small, loose and open. Berry, small, sprightly, sweet; not very productive. Ripe 10th October.

WILDER.—Bunch large, compact and shouldered. Berry large, juicy, and sweet; fairly productive. Ripe 16th October.

MOORE'S EARLY.—Bunch small and loose. Berry large, sweet, rather pulpy, skin tough; not productive. Ripe 10th October.

HARTFORD.—Bunch large, loose and shouldered. Berry large and round, sweet, drops when nearly ripe; productive. Ripe 20th October.

SEEDLING CLINTON WITH MUSCAT, HAMBURG.—Bunch small and loose. Berry small and acid; not productive. Ripe 30th October.

EARLY VICTOR.—Bunch small and loose. Berry small, sweet, pulpy, good flavour; productive. Ripe 7th October.

NAOMI.—Bunch small, loose and shouldered; berry small, acid; not productive. Ripe 17th October.

BACCHUS.—Bunch small and loose; berry, small, juicy, pleasant; not productive. Ripe 4th October. Ripe on bench 22nd September.

FLORENCE.—Bunch small, loose and shouldered; berry small and sweet, with a foxy flavour; not productive. Ripe 7th October.

IMPROVED WILD.—Bunch medium in size, loose and straggling; berry, small medium, juicy, sprightly; not productive. Ripe 8th October.

ARNOLD'S No. 8.—Bunch small and loose; berry medium in size, acid; skin, thick; not productive. Ripe 26th October.

MARION.—Bunch small with many imperfect berries; berry, small, acid, of poor quality; not productive. Ripe 20th October.

CYNTHIANA.—Bunch, medium in size, loose and sometimes shouldered; berry, small, acid, of inferior quality; productive. Ripe 8th October.

COTTAGE.—Bunch small and loose; berry large, pulpy, sweet, and of fair flavour; not productive. Ripe 7th October.

EUMELAN.—Bunch medium in size, loose, shouldered; berry of medium size; flesh, tender and sweet, good quality; not productive. Ripe 28th October.

MERRIMAC (Roger's No. 19).—Bunch medium in size; berry large, juicy and a little pulpy, sweet and of good flavour; productive. Ripe 12th October.

ARNOLD'S No. 2.—Bunch small and loose; berry small, acid, and inferior in quality; not productive. Ripe 30th October.

IVE'S SEEDLING.—Bunch medium in size, loose, and shouldered; berry medium in size, acid; skin thick; productive; too late for this climate; not quite ripe 31st October.

TELEGRAPH.—Bunch medium in size, compact and shouldered; berry medium size, juicy, a little pulpy, sprightly; productive. Ripe 20th October.

ROGER'S No. 41.—Bunch large, compact and shouldered; berry large, pulpy, pleasant flavor, skin thick; productive. Ripe 24th October.

HIGHLAND.—Bunch large, loose and shouldered; berry medium in size, sprightly, pulpy, but pleasant; productive. Ripe 25th October.

MILLS.—Bunch large, loose and shouldered; berry medium in size, juicy, sprightly, fine flavour; productive. Ripe 24th October.

ROGER'S No. 24.—Bunch large, compact and shouldered; berry large, pulpy, sprightly, skin thick and tough, pleasant flavour; productive. Ripe 16th October.

ORIENTAL.—Bunch large, loose, shouldered; berry large, juicy, somewhat pulpy, sprightly, of fair quality; skin, thick; productive. Ripe 20th October.

CLINTON.—Bunch medium in size and compact; berry small, tender, sprightly; productive. Ripe 16th October.

HERBERT (Roger's No. 44).—Bunch long but somewhat loose; berry large, juicy, sprightly; productive. Ripe 16th October.

ROGER'S No. 39.—Bunch medium in size and loose; berry large, sweet and pulpy; skin thick and tough; productive. Ripe 10th October.

SAUNDERS' SEEDLING, Concord with Delaware.—Bunch small and compact; berry small, juicy, sprightly, pleasant and of good flavour; productive. Ripe 20th October.

SAUNDERS' SEEDLING, Clinton with Muscat, HAMBURG.—Bunch medium in size and compact; berry medium, pulpy, sprightly, rather acid; productive. Ripe 20th Oct.

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Red and Reddish Grapes.

DELAWARE.—Bunch medium, compact and shouldered ; berry small, sweet and of pleasant flavour ; productive. Ripe 4th October.

AMBER QUEEN.—Bunch medium in size, loose, shouldered ; berry medium, sweet, juicy, skin tender, not very productive. Ripe 20th October.

MASSASOIT.—Bunch large, loose and shouldered ; berry large, juicy, sweet and tender ; productive. Ripe 20th October.

AUGUST GIANT.—Bunch large and loose ; berry large reddish purple, juicy, acid, poor flavour ; not productive. Ripe 20th October.

ROGER'S No. 28.—Bunch large, compact and shouldered ; berry large, reddish purple, juicy, pleasant acid ; productive. Ripe 20th October.

AGAWAM.—Bunch medium to large, moderately compact, shouldered ; berry large, reddish purple, tender, juicy and of pleasant flavour ; productive. Ripe 20th October.

GAERTNER (Roger's No. 14).—Bunch large, compact and shouldered ; berry large, light reddish purple, tender, juicy, sweet and of pleasant taste, skin tough ; productive. Ripe 20th October.

LINDLEY (Roger's No. 9).—Bunch large, loose and shouldered ; berry large, reddish amber, juicy, sweet of good flavour ; productive. Ripe 18th October.

BRIGHTON.—Bunch large and fairly compact, sometimes shouldered ; berry large, reddish amber, juicy, sweet, fine flavour ; productive. Ripe 20th October.

SALEM (Roger's No. 53).—Bunch large, compact and shouldered ; berry large, juicy, tender, of good quality ; productive. Ripe 19th October.

ROGER'S No. 5.—Bunch medium in size and loose ; berry large, reddish purple, sprightly, sweet and juicy, skin thick and tough ; productive. Ripe 7th October.

VERGENNES.—Bunch medium in size, loose and shouldered ; berry large, reddish purple, pulpy, sweet and of pleasant flavour ; productive. Ripe 10th October.

MOYER.—Bunch small and loose ; berry small, sweet, juicy and pleasant, not very productive. Ripe 6th October.

WYOMING.—Bunch large, compact, and shouldered ; berry medium in size, juicy, and pleasant but drops from the vine as soon as ripe. Ripe 7th October.

ARNOLD'S No. 1.—Bunch large, loose, and shouldered ; berry large, quite acid, skin tough ; productive. Ripe 20th October.

ULSTER.—Bunch medium in size, compact, and shouldered ; berry medium, sweet, juicy, and of good flavour ; productive, feeble grower. Ripe 10th October.

JEFFERSON.—Bunch medium in size, shouldered ; berry medium, too late to ripen here ; not productive ; not quite ripe 30th October.

BUCHANAN.—Bunch small, compact, and shouldered ; berry small, juicy, sprightly, and pleasant, skin thin and tender ; productive. Ripe 12th October.

CHASSELAS DE FONTAINBLEAU.—Bunch small, and loose ; berry medium in size, reddish yellow, pulpy, sweet, and pleasant ; not productive. Ripe 14th October.

BRILLIANT.—Bunch long, loose, and shouldered ; berry medium size sweet, juicy, and tender, skin rather thick ; productive. Ripe 10th October.

CURRENTS RED AND WHITE.

The red and white currants fruited heavily this year, and the fruit was large, and very fine.

The finest red currant fruited up to the present time, is *La Fertile*, the bunch is not as long as some others, but the berry is large and even throughout, and the flavour is very fine, mild, sprightly and sweet. *La Fertile*, *London Red*, *La Conde* and *Victoria*, in the order named, are the choice of the red currants, as tested here, thus far.

Sixteen additional varieties of red currants were received from Germany last spring, all these are alive, and are growing well.

White currants.—White *Transparent* is the best of the white currants which have been tested. The bush is vigorous and productive, and the bunch is long, well filled with large currants of very fine quality.

Ten additional varieties of white currants were received last spring, and having made a vigorous growth, give promise of fruiting next year.

BLACK CURRANTS.

There were very few black currants this year, and most of those we had were injured by a small white grub.

The Prince of Wales is one of the best, the stems are long, the berry large and of a mild pleasant flavour.

Of the black currants tested, the Prince of Wales, Monarch, Eclipse, Pearce, Ethel, Ontario, and Ogden's Black, are the best, vigour and productiveness, of bush, and size, evenness of berry, and length of the bunch, all being considered. All are Saunders' seedlings except the first, and last, on the list.

Six additional varieties of black currants were received from Germany, and five new seedlings from the Central Experimental Farm, last spring. All are in vigorous condition.

GOOSEBERRIES.

The only gooseberries free from mildew this year, were those raised on the mountain, and the Downing and Houghton on the level land.

The bushes were sprayed with Bordeaux mixture just before the buds burst, again when the first leaves were about half grown and twice at intervals later in the season, but both fruit and foliage were very badly attacked by the mildew, after having given the Bordeaux mixture a careful test for several seasons, and evidently no prospect of success it is intended to try the lime, sulphur and salt mixture, just before leafing next spring, and some other preparations of sulphur later.

Thirty-five varieties were received from Germany last spring, these have made a fair growth this year, and have shown no mildew, and efforts will be made to prevent an attack.

BLACKBERRIES.

All the blackberries reported as having fruited in 1895, fruited again this year, but the crop was very light, and the berries small, owing to the very unfavourable season. Of all the varieties fruited and reported on, in previous years, the best market sorts are Agawam, Taylor, Snyder and Erie. Last year Maxwell was promising in quality, size, and productiveness, but this year it appeared to suffer more than the above-named varieties, which may be accounted for by the canes being on dry gravelly land.

A new plantation of all the old varieties, as well as those received during the past season has been made, and under more favourable circumstances the Maxwell may prove to be a valuable sort. The collection here now consists of 32 different varieties.

RED AND YELLOW RASPBERRIES.

No new varieties were fruited this year. All those reported on last year bore a small crop, but on account of the drought, the berries were small. The Cuthbert is the most profitable red berry, the Fillbasket, is larger and equally as good in quality, but not quite so productive. All Summer, is also a fine berry, and continues bearing considerably longer than any other sort yet fruited. Champlain and Golden Queen are the best and most productive of the yellow raspberries. Thirty-eight additional varieties of raspberries have been received this spring. Nearly all of these have grown well.

BLACK RASPBERRIES.

None of the new additions to the collection of this fruit bore this year, and the season was so hot and dry, that there were really no good berries produced.

Hopkins, Winona and Gault, black raspberries, and a yellow cap, are the addition to this class of raspberries this year.

Experimental Farms.

STRAWBERRIES.

The cold and wet weather which prevailed during the blossoming period, prevented the thorough fertilization of many of the varieties of strawberries, and later the drought interfered with the growth of the berry. The crop was light, and there were many imperfect and misshapen berries.

A number of new berries were added to the collection this year.

The following is the order of ripening of all those that produced fruit this year.

Alexander II June 6th.	Maxwell June 15th.
Daisy " 6th.	Bonny Lass " 15th.
Hautbois " 6th.	Alpha " 16th.
Iowa Beauty " 7th.	Eclipse " 16th.
Van Deman " 8th.	Beverly " 16th.
Warfield " 8th.	Yale " 17th.
Omega " 8th.	Pine Apple " 17th.
Smith's Seedling " 8th.	Improved Jacunda 17th.
Chairs " 9th.	Parker Earle " 18th.
Beder Wood " 9th.	Sir Jos Hooker " 20th.
Dr. Hogg " 10th.	Empress Eugenie " 20th.
Dayton " 10th.	Greenville " 20th.
Windsor Chief " 11th.	Laxford Hall " 22nd.
Phillip's Seedling " 14th.	

A large number of plants of the best of these were distributed in packages of a dozen each to settlers in different parts of the province, for trial, and some, which were not very productive with us, have proved to be superior varieties in other locations where soil and climatic conditions were different.

Warfield, Iowa Beauty, Omega, Improved Jacunda, Greenville, Beverly, and Windsor Chief, have proved the best varieties this year, in the order named.

The following is a list of the new additions:—Weston, Mary, Brandywine, Anna Kennedy, Michigan, H. W. Beecher, Kentucky, Shuckless, Moore's Early, Crawford, Woolverton, Marshall, Wonder, Michel's Early, Great Pacific, Clarke's Early, Lovett's Early, Sterling, Smeltzer's Early, Glendale, Enhance, Speece's Perfect, Eleanor, Lovett, Early, Gardner, Bissel, Timbrell, Arrow, Tubbs, Staple-, Brunette, Shuster's Gem, Tennessee Prolific, Australian Everbearing, Annie Laurie, Regina, Beebe's Seedlings, No. 1, No. 2, No. 3.

Additions to the collection of Fruits.

A very large addition has been made to the collection of fruits for testing during the past season as follows:—

Apples, 253 varieties.	Blackberries, 8 varieties.
Pears, 171 "	Raspberries, 34 "
Peaches, 19 "	Red and White Currants, 36 varieties.
Plums, 91 "	Quinces, 5 varieties.
Apricots, 24 "	Medlars, 4 "
Cherries, 51 "	Filberts and other nuts, 46 varieties.

Making a total of 696 varieties of fruit and 46 varieties of nuts.

There are now in the collection of tree fruits 1,886 named varieties as follows:—

Apples, 849.	Cherries, 122.
Pears, 334.	Nectarines, 17.
Peaches, 197.	Quinces, 17.
Plums, 278.	Medlars, 7.
Apricots, 59.	Mulberries, 6.

Which, with the large number of grapes, figs, gooseberries, currants, raspberries, blackberries and strawberries, brings the total number of named varieties of fruits

growing on the farm at the present time to nearly three thousand. This is believed to be by far the largest collection of cultivated fruits growing on any one place in the world, and the experience which will be gained by observing the peculiarities of form, productiveness, quality and adaptability to the climate of the individuals composing this large collection, must in the future, prove of great benefit to the settlers in this country.

TOBACCO.

A package of seed of two varieties of Havana tobacco was received from the Commissioner of Dominion Lands, Winnipeg, Man., late last spring. They were sown in a hot bed and transplanted as soon as ready. The plants made a vigorous growth, but as it was so late before the seed was received, the plants were late. At the close of the season they were cut and the leaf is being cured, but they do not appear to be as well matured as the tobacco grown last year.

The seed should be sown here in March so that the plants would be well grown and strong by the time the weather was suitable for transplanting. These seeds were supplied by Mr. J. R. Gordon of New York, who is an expert in tobacco, and I append a copy of his opinion of the leaf raised last year which was not received in time to be included in the report for 1895.

PIER 24, EAST RIVER, N.Y., 28th Nov., 1895.

The Agassiz sample was received in fair condition, and after moistening, I was able to examine it very minutely. It is clear to my mind that for this sample the best leaves were picked from several different plants, as they are of excellent quality. Of the leaves enclosed in this Agassiz package four would certainly pass as A 1 wrappers, and the remainder would go as wrappers, although not so fine as the others. The beauty of the leaf I find consists in its silky texture, its freedom from blemish, and its very fine veins. The colour is also good, but it would have been better had the plant been allowed to ripen more. Because the leaf is small is no fault. Havana cannot rank with the other varieties for size and weight, and a fine leaf rather than a large one is the point at which Connecticut Valley growers of 30 years experience are now striving for. It has been proved that the smaller varieties of tobacco are the most profitable, in that they find a quicker market and sell at a price sufficiently higher to offset the greater weight of the coarser varieties which must wait for a market, and then be disposed of at a low figure. To make myself plain, I might put it in this way: That while from a certain acreage where two tons of the coarser varieties were produced, of the finer varieties the yield might be only one and one half tons, and this one and one half tons of fine tobacco would bring a greater return of money than the two tons of coarse tobacco.

But to sum up the matter, I do not think the Agassiz people have any reason to be dissatisfied with the experiment, and it is proved to my mind that in certain districts of British Columbia tobacco can be raised to rank with any produced in the States. Of course it must have careful treatment to ensure success.

J. R. GORDON.

SEED DISTRIBUTION.

There were distributed from this farm to farmers who applied from different parts of the province during 1896, the following 3 lb. bags of cereals and potatoes:—

Fall Wheat.....	24
Spring Wheat.....	41
Barley.....	75
Pease.....	84
Oats.....	71
Potatoes.....	38

Total..... 333

Also packages of strawberry plants, 292; scions and cuttings, 64.

Experimental Farms.

BUILDINGS.

Since my last report, a comfortable poultry house has been built, and yards for the different breeds of fowls are being fenced as opportunity offers. They will be completed early in the new year.

The poultry will no doubt do much better in their new quarters than in the old building, which was near the timber, where they suffered from hawks, skunks and minks which carried off the chickens.

STOCK.

The stock has done well during the past season. There is no sickness or disease to report, and only one death, that of one of the Dorset-Horned rams, killed while fighting with another ram. Two Holstein calves, one Ayrshire calf and two Short-Horn calves, is the increase in horned stock on the Experimental Farm during the year.

The Tamworth sow farrowed nine pigs, and the Berkshire sow farrowed four pigs.

Two Dorset-Horned lambs comprise the increase in sheep. One of last year's ram lambs has been sold.

There have been many inquiries for young pigs and bull calves for breeding purposes.

METEOROLOGICAL RECORD.

1896-96.	Highest Temperature.		Lowest Temperature.		Rainfall.	Snowfall.	Sunshine.	
	Date.	Deg.	Date.	Deg.	Inches.	Inches.	Hrs.	Min.
December, 1895.....	14th	53	17th	11	10·74	40	38	45
January, 1896.....	9th	49	15th	10	7·17	17	29	24
February.....	20th	60	29th	20	11·25	4	49	12
March.....	22nd	60	2nd	16	3·58	6	124	48
April.....	4th	66	3rd	28	5·29	.....	107	54
May.....	29th	83	8th	34	4·62	.....	159	42
June.....	26th	95	2nd	39	2·86	.....	204	54
July.....	16th	90	12th	43	·03	.....	209	54
August.....	12th & 21st	93	27th	45	·38	.....	184	48
September.....	3rd	80	7th	32	2·19	.....	135	06
October.....	15th	75	26th	32	6·34	.....	117	18
November.....	1st	58	27th	9	9·02	8½	55	42
Total.....	.....	.....	.....	.....	63·47	75½	1417	27
Total for 1895.....	.....	.....	.....	.....	70·61	30¾	1299	24
Rainfall for June, July, August and Sept. in 1894.....	.....	.....	.....	.....	15·28	.....	.....	.....
do do do 1895.....	.....	.....	.....	.....	10·79	.....	.....	.....
do do do 1896.....	.....	.....	.....	.....	5·46	.....	.....	.....

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

THOS. A. SHARPE.

Experimental Farms

STATEMENT OF EXPENDITURE ON THE DOMINION EXPERIMENTAL FARMS, FOR THE YEAR ENDING 30TH JUNE, 1896.

CENTRAL EXPERIMENTAL FARM—EXPENDITURE, 1895-96.

Live stock	\$ 65 05
Feed for stock, including veterinary services.	909 32
Seed grain, seeds, trees, &c	1,576 93
Implements, tools, hardware and supplies	639 10
Drainage and drain tiles	77 25
Manure and fertilizers	558 47
Travelling expenses	922 42
Exhibition expenses	271 42
Blacksmithing, harness supplies and repairs.	492 66
Bee supplies	392 75
Salaries	1,766 40
Wages, farm work, including experimental work with grain and other farm crops; also, salaries of farm foreman and director's assistant in experimental work	6,241 91
Wages, care of stock	2,448 55
Chemical department	742 15
Botanical and Entomological Department	1,124 06
Horticultural department	4,001 67
Poultry department	1,529 52
Forestry department and care of grounds	1,973 41
Arboretum	761 23
Office help, correspondence branch and messenger service.	2,705 37
Printing and stationery	687 84
Seed testing and care of greenhouses	907 78
Dairy department	775 63
Contingencies, including meteorological observations, \$42.00	127 08
" books and newspapers	93 79
" telegrams and telephones	147 75
	\$ 31,939 51

EXPERIMENTAL FARM, NAPPAN, N.S.—EXPENDITURE, 1895-96.

Live stock	\$ 33 05
Feed for stock, including veterinary services.	79 99
Seed grain, seeds, trees, &c	162 56
Implements, tools, hardware and supplies	249 13
Draining and drain tiles	150 17
Manure and fertilizers	444 49
Travelling expenses	180 90
Blacksmithing, harness supplies and repairs	93 51
Salaries, including proportion of salaries for general work, Ottawa ..	2,705 86
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c	1,675 18
Wages, care of stock	842 10
Chemical department	432 92
Botanical and Entomological department	376 25
Forestry department	71 00
Office help	20 00
Seed grain distribution	118 06
Contingencies, (including postage, \$51.48)	57 59
" printing and stationery	1 35
" books and newspapers	20 12
" telegrams	53
	\$ 7,714 76

EXPERIMENTAL FARM, BRANDON, MANITOBA—EXPENDITURE 1895-96.

Live stock.....	\$	154	70
Feed for stock, including veterinary services.....		81	80
Seed grain, seeds, trees, &c.....		269	92
Implements, tools, hardware and supplies.....		382	21
Travelling expenses.....		144	30
Exhibition expenses.....		115	58
Blacksmithing, harness supplies and repairs.....		226	86
Salaries, including proportion of salaries for general work, Ottawa.....		2,430	40
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c.....		3,369	46
Wages, care of stock.....		650	00
Chemical department.....		432	93
Botanical and Entomological department.....		376	25
Forestry.....		431	25
Poultry department.....		64	92
Office help (including delivery of mail, \$111).....		265	50
Seed-grain distribution.....		412	72
Tree distribution.....		292	86
Contingencies, (including postage, \$65).....		98	40
" printing and stationery.....		43	69
" books and newspapers.....		39	75
" telegrams and telephones.....		37	82
		<u>\$10,321</u>	<u>42</u>

EXPERIMENTAL FARM, INDIAN HEAD, N.W.T.—EXPENDITURE 1895-96.

Live stock.....	\$	72	55
Feed for stock, including veterinary services.....		276	68
Seed grain, seeds, trees, &c.....		159	50
Implements, tools, hardware and supplies.....		318	64
Manure and fertilizers.....		132	75
Travelling expenses.....		125	80
Exhibition expenses.....		244	84
Blacksmithing, harness supplies and repairs.....		168	90
Salaries, including proportion of salaries for general work, Ottawa.....		2,430	40
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c.....		3,187	64
Wages, care of stock.....		925	60
Chemical department.....		432	92
Botanical and Entomological department.....		376	25
Poultry department.....		34	60
Forestry department.....		344	80
Office help.....		450	00
Seed-grain distribution.....		483	20
Tree distribution.....		95	50
Contingencies (including postage \$108.03).....		122	34
" printing and stationery.....		7	49
" books and newspapers.....		26	35
" telegrams.....		2	65
		<u>\$ 10,419</u>	<u>80</u>

Experimental Farms.

EXPERIMENTAL FARM, AGASSIZ, B. C.—EXPENDITURE, 1895-96.

Live stock.....	\$ 57 15
Feed for stock, including veterinary services.....	34 65
Seed grain, seeds, trees, &c.....	617 71
Implements, tools, hardware and supplies.....	268 50
Draining and drain tiles.....	2 25
Manure and fertilizers.....	87 28
Travelling expenses.....	154 80
Exhibition expenses.....	144 48
Blacksmithing, harness supplies and repairs.....	32 40
Salaries, including proportion of salaries for general work, Ottawa..	2,430 40
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c.....	2,978 84
Wages, care of stock.....	458 25
Chemical department.....	432 93
Botanical and entomological department.....	376 25
Poultry department.....	16 75
Forestry department.....	76 70
Office help.....	30 00
Seed grain distribution.....	94 05
Tree distribution.....	47 40
Clearing land.....	261 25
Contingencies (including postage, \$56.39).....	104 09
" printing and stationery.....	3 70
" books and newspapers.....	34 50
" telegrams.....	5 20
	<u>\$ 8,749 53</u>

SUMMARY.

Central Experimental Farm.....	\$31,939 51
Nappan ".....	7,714 76
Brandon ".....	10,321 42
Indian Head ".....	10,419 80
Agassiz ".....	8,749 53
Seed grain distribution.....	3,251 15
Forest tree and tree seed distribution.....	95 04
Printing bulletins and distribution of bulletins and re- ports.....	\$ 5,008 79
Less special sum in estimates for this item.....	4,000 00
	<u>1,008 79</u>
	<u>\$73,500 00</u>

SUMMARY OF STOCK, MACHINERY, IMPLEMENTS, &c., ON HAND
31ST DECEMBER, 1896.

CENTRAL EXPERIMENTAL FARM, OTTAWA.

16 Horses	\$ 1,210 00
4 Ayrshire cattle	250 00
1 Devon "	50 00
2 Holstein "	175 00
7 Jersey "	435 00
18 Canadian "	479 00
36 Grade "	863 00
4 Yorkshire swine	64 00
8 Berkshire "	188 00
1 Essex "	15 00
5 Tamworth "	105 00
3 Poland China swine	36 00
3 Chester white "	40 00
39 Grade swine	157 00
Farm machinery	1,604 00
Farm implements	543 00
Vehicles, including farm wagons and sleighs	926 00
Hand tools, hardware and sundries	1,029 30
Harness	350 25
Dairy department, machinery, &c.	760 85
Horticultural department, implements, tools, &c.	141 95
Forestry "	408 95
Botanical "	7 50
Poultry " 314 fowls	439 50
" " implements, furnishings, &c.	104 25
Bees and apiarian supplies	257 43
Chemical department, apparatus and chemicals	1,573 30
Books in the several departments	293 18
Greenhouse plants, supplies, &c.	990 30
Office furniture and stationery	1,341 50
Furniture at Director's house	1,393 00
	<u>\$16,231 26</u>

EXPERIMENTAL FARM, NAPPAN, N.S.

8 Horses	\$ 360 00
3 Holstein cattle	50 00
1 Ayrshire "	20 00
22 Grade "	269 00
8 Yorkshire swine	34 00
6 Berkshire "	47 00
2 Tamworth "	20 00
14 Grade "	21 00
28 Fowls	14 50
13 Vehicles, including farm wagons and sleighs	340 75
Farm machinery	403 00
" implements	151 00
Hand tools, hardware and sundries	231 35
Harness	110 85
Furniture for office, reception room, and bedroom for visiting officials	308 90
	<u>\$ 2,381 35</u>

Experimental Farms.

EXPERIMENTAL FARM, BRANDON, MANITOBA.

10 Horses	\$	950 00
3 Ayrshire cattle		200 00
3 Durham "		200 00
4 Holstein "		325 00
8 Grade "		155 00
1 Polled Angus		75 00
3 Tamworth swine		58 00
3 Berkshire "		53 00
59 Fowls		47 00
Bees and apiarian supplies		78 20
Vehicles, including farm wagons and sleighs		546 00
Farm machinery		937 00
" implements		495 00
Hand tools, hardware and sundries		630 42
Harness		237 50
Furniture for reception room and bedroom for visiting officials		195 55
" supplies and books for office		206 30
		<u>\$ 5,388 97</u>

EXPERIMENTAL FARM, INDIAN HEAD, N. W. T.

12 Horses	\$	1,365 00
9 Durham cattle		625 00
1 Polled Angus		50 00
12 Holstein cattle		727 00
16 Grade cattle		405 00
8 Yorkshire swine		85 00
12 Berkshire "		120 00
5 Tamworth "		70 00
74 Fowls		74 00
Bees and apiarian supplies		18 90
Vehicles, including farm wagons and sleighs		556 00
Farm machinery		1,259 00
" implements		700 00
Hand tools, hardware and sundries		694 40
Harness		232 50
Furniture for reception room and bedroom for visiting officials		309 75
" supplies and books for office		204 00
		<u>\$ 7,495 55</u>

EXPERIMENTAL FARM, AGASSIZ, B.C.

6 Horses	\$	850 00
5 Durham cattle		400 00
5 Ayrshire "		250 00
5 Holstein "		400 00
1 Grade "		30 00
5 Dorset horned sheep		110 00
3 Berkshire swine		65 00
3 Tamworth "		130 00
29 Fowls		29 00
Bees and apiarian supplies		26 50
Vehicles, including farm wagons		255 00
Farm machinery		646 00
" implements		215 00
Hand tools, hardware and sundries		214 45
Harness		85 50
Furniture for reception room and bedroom for visiting officials		270 00
Furniture, supplies and books for office		110 00
		<u>\$ 4,086 45</u>

W. H. HAY,
Accountant.

Experimental Farms

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APPENDIX

TO THE REPORT OF THE MINISTER OF AGRICULTURE FOR THE YEAR 1896

CRIMINAL STATISTICS

FOR THE

YEAR ENDED 30TH SEPTEMBER, 1896

PRINTED BY ORDER OF PARLIAMENT

ANNEXE

AU RAPPORT DU MINISTRE DE L'AGRICULTURE POUR L'ANNÉE 1896

STATISTIQUE CRIMINELLE

POUR

L'ANNÉE EXPIRÉE LE 30 SEPTEMBRE 1896

IMPRIMÉ PAR ORDRE DU PARLEMENT



OTTAWA

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

1897

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REPORT OF CRIMINAL STATISTICS

FOR THE YEAR ENDED 30TH SEPTEMBER, 1896.

These Statistics are collected under authority of the Criminal Statistics Act, Chapter 60, Revised Statutes of Canada.

The annexed report is composed of "Indictable Offences" and "Summary Convictions," the former including all cases tried by Police and other Magistrates, with the consent of the accused under the "Speedy Trials," "Summary Trials by Consent" and "Juvenile Offenders" Acts; while the latter is made up of cases disposed of by Justices of the Peace out of Sessions, under the "Summary Convictions Act."

The indictable offences are divided into six classes:—Offences against the person; offences against property with violence; offences against property without violence; malicious offences against property; forgery and other offences against currency, and other offences not included in the foregoing classes.

There were 7,395 charges for indictable offences, in Canada, during the year 1896, a decrease of 335, as compared with the year previous; out of which number 2,065 were acquitted, 13 detained for lunacy and 113 received no sentence for several causes, such as "*Nolle prosequi*," "jury disagreed," "bail forfeited," &c. In 1895, out of 7,730 charges, 2,154 were acquitted, 20 detained for lunacy and 82 received no sentence.

The number of convictions is therefore reduced to 5,204 or 10·25 per 10,000 inhabitants for 1896, against 5,474 or 10·86 per 10,000 inhabitants for 1895 by provinces, in the following order —

INDICTABLE OFFENCES.

PROVINCES.	Number of Convictions.		Number of Convictions per 10,000 Inhabitants.	
	1895.	1896.	1895.	1896.
Prince Edward Island.....	39	34	3·57	3·11
New Brunswick.....	119	116	3·70	3·61
Nova Scotia.....	239	279	5·26	6·12
Quebec.....	1,615	1,420	10·46	9·12
Manitoba.....	160	181	7·94	9·36
Ontario.....	2,829	2,783	12·90	12·56
The Territories.....	156	144	18·83	16·47
British Columbia.....	317	247	24·54	17·86
Canada.....	5,474	5,204	10·86	10·25

Criminal Statistics.

RAPPORT DE LA STATISTIQUE CRIMINELLE

POUR L'ANNÉE FINISSANT LE 30 SEPTEMBRE 1896.

Cette statistique est recueillie en vertu de l' "Acte de la Statistique Criminelle," chapitre 60, Statuts Révisés du Canada.

Le rapport ci-joint contient les "délits sujets à poursuite" et les "condamnations sommaires"; dans les premiers se trouvent compris tous les cas expédiés par les magistrats de police ou autres juges de paix, du consentement des accusés, sous l'autorité des actes concernant les "procès expéditifs", les "procès sommaires" et les "jeunes délinquants"; tandis que les dernières ne contiennent que les cas expédiés sommairement par les juges de paix, en dehors des sessions, sous l'autorité de l' "Acte des condamnations sommaires."

Les délits sujets à poursuite sont subdivisés en six classes :—Outrages contre la personne; délits avec violence contre la propriété; délits sans violence contre la propriété; offenses malicieuses contre la propriété; faux et délits par rapport à la monnaie; autres délits non compris dans les classes précédentes.

Le nombre d'accusations portées dans les différentes cours du Canada, en 1896, s'élevait à 7,395, soit une diminution de 335 sur l'année précédente; de ce nombre il y avait 2,065 acquittements, 13 emprisonnements pour cause de folie et 113 cas dans lesquels la sentence n'a pas été prononcée, pour différentes causes, telles que "*Nolle prosequi*," "désaccord du juré, etc.; tandis qu'en 1895, sur 7,730 accusations, on comptait 2,154 acquittements, 20 emprisonnements pour cause de folie, et 82 cas dans lesquels la sentence n'était pas prononcée. Le nombre des condamnations se trouve conséquemment réduit à 5,204, ou 10·25 pour chaque 10,000 habitants, en 1896, contre 5,474 ou 10·86 pour 10,000 habitants, en 1895, distribuées par provinces dans l'ordre suivant :—

DÉLITS SUJETS À POURSUITE.

PROVINCES.	Nombre de condamnations.		Nombre de condamnations par 10,000 habitants.	
	1895.	1896.	1895.	1896.
Ile du Prince-Edouard	39	34	3·57	3·11
Nouveau-Brunswick	119	116	3·70	3·61
Nouvelle-Ecosse	239	279	5·26	6·12
Québec	1,615	1,420	10·46	9·12
Manitoba	160	181	7·94	9·36
Ontario	2,829	2,783	12·90	12·56
Les Territoires	156	144	18·83	16·47
Colombie-Britannique	317	247	24·54	17·86
Canada	5,474	5,204	10·86	10·25

The number of convictions for indictable offences has increased during the year in Manitoba and Nova Scotia, while it has decreased in all the other provinces. Of the total number of conviction, 349 belong to the female sex in 1896, against 400 in 1895. There were 660 young offenders under 16 years in 1896, and 790 in 1895. The following figures represent the educational status of the convicted :—Unable to read and write, 14.0 ; elementary education, 73.3 ; superior education, 1.5 in 1896, against 14.0, 71.1 and 1.7 respectively in 1895.

The use of liquor for 1896 stands as follows :—Moderate, 53.5, and immoderate, 35.5 ; against 53.4 and 33.2 respectively for 1895.

Out of the total convictions in 1896, 4,192 were convicted for the first time, 537 for the second time, and 475 were convicted for the third time or over ; against 4,412, 615 and 447 respectively in 1895.

The sentences are shown by the following table :—

SENTENCES.	1895.	1896.
Sentenced to jail with the option of a fine.....	884	723
do for less than one year.....	2,414	2,384
do for one year and less than two.....	286	267
do penitentiary for two years and under five.....	354	371
do do five years and over.....	145	162
do do life.....		2
do reformatories.....	236	205
do death.....	5	6
Other sentences such as bound to keep the peace, sentence deferred, &c.....	1,150	1,084
Totals.....	5,474	5,204

INDICTABLE OFFENCES BY CLASSES.

The number of convictions in Class I, "offences against the person," in which are included murder, manslaughter, assaults, &c., shows a decrease of 12 during the year, 1,118 in 1895, against 1,106 in 1896—Quebec shows the largest decrease in this class, with British Columbia and the Territories following, while all the other provinces show an increase.

In class II., "Offences against property with violence," including burglary, house and shop breaking, &c., the number of convictions has decreased from 462 in 1895 to 408 in 1896, Nova Scotia being the only province where an increase is shown in this class.

In class III., "Offences against property without violence," in which are included larceny, horse and cattle stealing, embezzlement, fraud and false pretences, &c., the number of convictions shows a decrease of 4.4 per cent during the year : 3,460 in 1895, against 3,306 in 1896.

Criminal Statistics.

On voit par ce tableau que le nombre de condamnations a augmenté, durant l'année dans le Manitoba et la Nouvelle-Ecosse, tandis qu'il a diminué dans toutes les autres provinces. Du nombre total des condamnations, 349 appartenaient au sexe féminin en 1896, contre 400 en 1895. Il y avait 660 jeunes délinquants, âgés de moins de 16 ans en 1896, et 790 en 1895. Les chiffres suivants représentent proportionnellement le degré d'éducation des condamnés :—Incapables de lire et d'écrire, 14·0 ; éducation élémentaire, 73·3 ; éducation supérieure, 1·5 en 1896 ; contre 14·0, 71·1 et 1·7 respectivement en 1895. L'usage des boissons enivrantes se trouve représenté par les chiffres suivants : usage modéré, 53·5, immodéré, 35·5 en 1896 ; contre 53·4 et 33·2 en 1895.

Du chiffre total des condamnations, en 1896, 4,192 ont reçu une première condamnation, 537 une deuxième et 475 ont été condamnés trois fois et plus ; contre 4,412, 615 et 447 pour l'année précédente.

Le tableau suivant donne le nombre de sentences :—

SENTENCES.	1895.	1896.
Condamnés à l'option entre la prison et l'amende.....	884	723
do à la prison pour moins d'un an.....	2,414	2,384
do do un an et moins de deux.....	286	267
do au pénitencier pour deux ans et moins de cinq.....	354	371
do do cinq ans et au-dessus.....	145	162
do do la vie.....		2
do aux écoles de réformes.....	236	205
do à mort.....	5	6
Autres sentences, telles que "tenues de garder la paix, sentences remises, etc.".....	1,150	1,084
Totaux.....	5,474	5,204

DÉLITS SUJETS À POURSUITE CLASSIFIÉS.

Dans la classe I, "outrages contre la personne," contenant les cas de meurtre, d'homicide, d'assault, etc., le nombre de condamnations a diminué de 12 durant l'année, les chiffres étant de 1,118 en 1895, contre 1,106 en 1896. Dans cette classe, Québec, la Colombie-Britannique et les Territoires accusent une diminution, tandis que toutes les autres provinces montrent une augmentation.

Dans la classe II, "délits avec violence contre la propriété," contenant les vols avec violence, les bris de maisons et de magasins, le nombre de condamnations a diminué durant l'année, de 462 en 1895 à 408 en 1896. La Nouvelle-Ecosse étant la seule province qui accuse une augmentation, dans cette classe.

Dans la classe III, "délits sans violence contre la propriété," dans laquelle se trouvent les cas de larcin, de vol de chevaux et de bétail, de détournement, de fraude et de faux prétexte, etc., montre une diminution de 4·4 pour 100 durant l'année, 3,460 en 1895 et 3,306 en 1896.

Class IV., "Malicious offences against property," shows an increase of 19 convictions during the year: 57 in 1895 and 76 in 1896. The greater part of this increase is in Ontario.

In class V., "Forgery and offences against the currency," there is an increase of 26 in the number of convictions. In this class Quebec shows a decrease of 19 and Ontario an increase of 34. Manitoba and British Columbia also show increases.

Class VI., "Other offences not included in the foregoing classes," shows a decrease of 95 in the number of convictions. In this class all the provinces show a decrease, while the Territories remain the same.

The following table shows the number of cases in which more than one indictment has been taken against the accused for the one and same offence.

PROVINCES.	Number of Charges.		Number of Acquittals.		Number of Convictions.	
	1895.	1896.	1895.	1896.	1895.	1896.
Prince Edward Island.....	1	5			1	5
Nova Scotia.....	5	7	1	1	4	6
New Brunswick.....	1	2	1	1		1
Quebec.....	100	*85	29	12	71	65
Ontario.....	462	†246	124	110	338	135
Manitoba	12	14	3		9	14
British Columbia.....	18	14			18	14
The Territories.....	6		4		2	
Canada	605	373	162	124	443	240

*8 *Nolle prosequi.* †1 Insane.

Criminal Statistics.

Dans la classe IV, “dommages malicieux à la propriété,” il y a eu une augmentation de 19 dans le nombre des condamnations ; 57 en 1895 et 76 en 1896. Cette augmentation se trouve en grande partie dans Ontario.

Le nombre de condamnations a aussi augmenté de 26 dans la classe V, “faux et délits par rapport à la monnaie.” Dans cette classe Québec montre une diminution de 19 et Ontario une augmentation de 34. Il y a aussi augmentation dans le Manitoba et la Colombie-Britannique.

La classe VI, “autres délits non compris dans les classes précédentes,” montre une diminution de 95. Toutes les provinces, excepté les Territoires, accusent une diminution dans cette classe.

Le tableau suivant donne le nombre de cas dans lesquels plus d’une accusation a été portée contre l’accusé pour une seule et même offense :—

PROVINCES.	Nombre d'accusations.		Nombre d'acquittements.		Nombre de condamnations.	
	1895.	1896.	1895.	1896.	1895.	1896.
Île du Prince-Edouard.....	1	5			1	5
Nouvelle-Ecosse.....	5	7	1	1	4	6
Nouveau-Brunswick.....	1	2	1	1		1
Québec.....	100	*85	29	12	71	65
Ontario.....	462	†246	124	110	338	135
Manitoba.....	12	14	3		9	14
Colombie-Britannique.....	18	14			18	14
Les Territoires.....	6		4		2	
Canada.....	605	373	162	124	443	240

* 8 *Nolle prosequi.*

† 1 Insané.

SUMMARY CONVICTIONS.

The following table gives the number of summary convictions, by provinces, for the years 1895 and 1896 :—

PROVINCES.	Summary Convictions.	
	1895.	1896.
Prince Edward Island.....	335	271
Nova Scotia.....	2,938	3,042
New Brunswick.....	2,111	2,181
Quebec.....	9,734	9,317
Ontario.....	13,852	14,109
Manitoba.....	1,025	1,148
British Columbia.....	1,244	1,115
The Territories.....	872	891
Canada.....	32,111	32,074

It will be seen by the above, that the number of summary convictions has increased during the year, in Nova Scotia, New Brunswick, Ontario, Manitoba and The Territories ; while it has decreased in the other provinces.

The number of offences against the "Liquor License Acts" shows an increase of 187 during the year, and the cases for drunkenness have also increased by 263.

The number of fines in 1896 was 27,598, against 27,989 in 1895 ; and the total amount of fines was \$212,395 in 1896, against \$221,001 in 1895, divided by provinces in the following proportions :—

PROVINCES.	Proportion per cent to the total number of fines.		Average amount for each fine.	
	1895.	1896.	1895.	1896.
Ontario.....	43·46	43·30	\$ 6 00	5 43
Quebec.....	29·52	29·07	8 67	9 25
Nova Scotia.....	9·79	10·30	5 90	5 90
New Brunswick.....	7·10	7·48	12 26	14 06
British Columbia.....	3·54	3·05	14 87	12 40
Manitoba.....	3·30	3·72	9 18	7 85
The Territories.....	2·13	2·19	10 35	8 16
Prince Edward Island.....	1·16	0·89	19 49	16 13
Canada.....	100·00	100·00	7 89	7 69

Of the total amount of fines 45·44 per cent were for offences against the "Liquor License Acts," and 16·23 per cent for drunkenness in 1896, against 42·16 and 16·36 respectively in 1895.

Criminal Statistics.

CONDAMNATIONS SOMMAIRES.

Le tableau suivant donne le nombre de condamnations sommaires, par provinces, pour les années 1895 et 1896 :—

PROVINCES.	Condamnations sommaires.	
	1895.	1896.
Ile du Prince-Edouard	335	271
Nouvelle-Ecosse.....	2,938	3,042
Nouveau-Brunswick.....	2,111	2,181
Québec.....	9,734	9,317
Ontario.....	13,852	14,109
Manitoba.....	1,025	1,148
Colombie-Britannique.....	1,244	1,115
Les Territoires.....	872	891
Canada.....	32,111	32,074

Le nombre de condamnations sommaires, tel qu'indiqué par ce tableau, a augmenté durant l'année, dans la Nouvelle-Ecosse, le Nouveau-Brunswick, Ontario, Manitoba et les Territoires, tandis qu'il a diminué dans les autres provinces.

Les délits contre les lois des licences, pour la vente de boissons enivrantes, montrent une augmentation de 187 durant l'année, et les cas d'ivresse une augmentation aussi de 263.

Le nombre d'amendes imposées en 1896 s'élevait à 27,598, contre 27,989 en 1895. Tandis que le montant des amendes était de \$212,395 en 1896 et de \$221,001 en 1895, par provinces, dans les proportions suivantes :—

PROVINCES.	Proportion pour 100 du total des amendes.		Montant moyen de chaque amende.	
	1895.	1896.	1895.	1896.
Ontario.....	43·46	43·30	\$ 6 00	\$ 5 43
Québec.....	29·52	29·07	8 67	9 25
Nouvelle-Ecosse.....	9·79	10·30	5 90	5 90
Nouveau-Brunswick.....	7·10	7·48	12 26	14 06
Colombie-Britannique.....	3·54	3·05	14 87	12 40
Manitoba.....	3·30	3·72	9 18	7 85
Les Territoires.....	2·13	2·19	10 35	8 16
Ile du Prince-Edouard.....	1·16	0·89	19 49	16 13
Canada.....	100·00	100·00	7 89	7 69

Du montant total des amendes, 45·44 pour 100 étaient pour délits contre les lois des licences et 16·23 pour cas d'ivresse.

The following table gives the total number of convictions (Indictable and Summary) also the number of inhabitants to each conviction, by provinces and in the order of criminality :—

PROVINCES.	Total Convictions.		Number of Inhabitants to each conviction.	
	1895.	1896.	1895.	1896.
The Territories.....	1,028	1,035	81	84
British Columbia.....	1,561	1,362	83	101
Ontario.....	16,681	16,892	131	131
Nova Scotia.....	3,177	3,321	143	140
New Brunswick.....	2,230	2,297	144	140
Manitoba.....	1,185	1,329	169	145
Quebec.....	11,349	10,737	136	145
Prince Edward Island.....	374	305	291	358
Canada.....	37,585	37,278	134	136

It is thus shown that the number of convictions has increased in Nova Scotia, Ontario, the Territories, New Brunswick and Manitoba, while it has decreased in Quebec, Prince Edward Island and British Columbia.

The number of cases tried by a jury during the year 1896 was 898, of which 479 males and 17 females were convicted, against 981 cases in 1895, of which 505 males and 19 females were convicted.

The number of cases in which the prerogative of mercy has been exercised during the year 1896 is 145, including two death sentences commuted, against 194 in 1895, including one death sentence commuted.

E. H. ST. DENIS,
Assistant Statistician.

Criminal Statistics.

Le tableau suivant donne le nombre de condamnations pour délits sujets à poursuite et pour condamnations sommaires, ainsi que le nombre d'habitants pour chaque condamnation, par province et dans l'ordre de criminalité.

PROVINCES.	Nombre total des condamnations.		Nombre d'habitants pour chaque condamnation.	
	1895.	1896.	1895.	1896.
Les Territoires.....	1,028	1,035	81	84
Colombie-Britannique.....	1,561	1,362	83	101
Ontario.....	16,681	16,892	131	131
Nouvelle-Ecosse.....	3,177	3,321	143	140
Nouveau-Brunswick.....	2,230	2,297	144	140
Manitoba.....	1,185	1,329	169	145
Québec.....	11,349	10,737	136	145
Ile du Prince-Edouard.....	374	305	291	358
Canada.....	37,585	37,278	134	136

On peut voir ainsi que le nombre des condamnations a augmenté dans la Nouvelle-Ecosse, Ontario, les Territoires, le Nouveau-Brunswick et le Manitoba, tandis qu'il a diminué dans Québec, l'Ile du Prince-Edouard et la Colombie-Britannique.

Le nombre de cas expédiés devant un juré, durant l'année, 1896 s'élevait à 898, dont 479 appartenant au sexe masculin et 17 au sexe féminin, ont été condamnés ; contre 981 cas en 1895, dont 505 appartenant au sexe masculin et 19 au sexe féminin, ont été condamnés.

Le nombre de cas, dans lesquels la prérogative du pardon a été exercée en 1896, s'élevait à 145, y compris deux sentences de mort commuées ; contre 194 cas en 1895, y compris une sentence de mort commuée.

E. H. ST. DENIS,
Assistant Statisticien.

Criminal Statistics.

TABLE I.

INDICTABLE OFFENCES.

TABLEAU I.

DÉLITS SUJETS À POURSUITE.

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur- option entre la pri- son ou l'a- mende	NO OPTION. — SANS OPTION.	
									Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- des.	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.							
		M.	F.							
MURDER.										
King's, N.S.	1				1	1				
Northumberland, N.B.	2	1	a							
Beauharnois, Que.	1				1	1				
Montreal, Que.	4	1	2	1						
Ottawa, Que.	1		1							
Totals of Quebec	6	1	3	1	1	1				
Essex, Ont.	1		1							
Leeds and Grenville, Ont.	1			1						
Lincoln, Ont.	1	1								
Muskoka and Parry Sound, Ont.	1				1	1				
Northumberland & Durham, O.	1				1	1				
Simcoe, Ont.	1				1	1				
Victoria, Ont.	1				1		1			
Waterloo, Ont.	1	1								
York, Ont.	4	4								
Totals of Ontario	12	6	1	1	4	3	1			
Westminster, B.C.	1	1								
The Territories.	6	c4	2							
Totals of Canada	28	13	7	2	6	5	1			
MANSLAUGHTER.										
Halifax, N.S.	1	1								
Richmond, N.S.	1	1								
Totals of Nova Scotia	2	2								
Chicoutimi, Que.	1	1								
Montreal, Que.	1				1		1			
St. Francis, Que.	2	1	1							
Totals of Quebec	4	2	1		1		1			
Algoma and Manitoulin, Ont.	2				2	2				
Grey, Ont.	b1									
Muskoka and Parry Sound, Ont.	b1									
Wellington, Ont.	1				1	1				
York, Ont.	3		1		2		2			
Totals of Ontario	8		1		5	3	2			
Victoria, B.C.	1	1								
Westminster, B.C.	1				1	1				
Totals of British Columbia	2	1			1	1				
Totals of Canada	16	5	2		7	4	3			

a Infanticide. b Jury disagreed—Les jurés ne se sont pas accordés. c Alberta North, 1 M.-1 F. Assiniboia, Eastern, 1 M.-1 F. Assiniboia, Western, 2 Males.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commercial. — Commerçants.	Domestic — Servi- teurs.	Industrial. — Indus- triels.	Profes- sional — Profes- sions libé- rales.	Laborers — Jour- na- liers.	Married. — Mariés.	Widowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
MEURTRE.														
			1			1								1
			1				1							1
			1				1							1
			1			1				1				1
			1			1			1					1
			1			1					1			1
			4			2			1		1	1		3
			6			3	1		1		1	1		5
HOMICIDE NON PRÉMEDITÉ.														
	1										1	1		
	1										1	1		
	2										2			2
	2					a1	1					1		1
	4					a1	1		2		2	2		3
	1						1							
	1						1							
	6					a1	2		2		3	3		3

a Sentence suspended—Sentence suspendue.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.		EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
		Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate		
					Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.					
Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré			
MURDER.														
King's, N.-E.	1					1						1		
Northumberland, N.B.														
Beauharnois, Qué.	1			1								1		
Montréal Qué.														
Ottawa, Qué.														
Totaux de Québec.	1			1								1		
Essex, Ont.														
Leeds et Grenville, Ont.														
Lincoln, Ont.														
Muskoka et Parry Sound, Ont.	1						1					1		
Northumberl'd et Durham, O.	1			1								1		
Simcoe, Ont.	1						1					1		
Victoria, Ont.	1			1								1		
Waterloo, Ont.														
York, Ont.														
Totaux d'Ontario	4			2			2					4		
Westminster, Col.-B.														
Les Territoires														
Totaux du Canada	6			3		1	2					6		
MANSLAUGHTER.														
Halifax, N.-E.														
Richmond, N.-E.														
Totaux de la N.-Ecosse														
Chicoutimi, Qué.														
Montréal, Qué.	1					1						1		
St. François, Qué.														
Totaux de Québec.	1					1						1		
Algoma et Manitoulin, Ont.	1	1					2					1 1		
Grey, Ont.														
Muskoka et Parry Sound, O.														
Wellington, Ont.		1						1				1		
York, Ont.		2					2					2		
Totaux d'Ontario	1	4					4		1			2 3		
Victoria, Col.-B														
Westminster, Col.-B										1		1		
Totaux de la Col.-Britann.										1		1		
Totaux du Canada	2	4					5		1	1		2 5		

TABLE I.		OFFENCES AGAINST THE PERSON.							CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.				
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION.		
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.		SANS OPTION		
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.	
RAPE.											
Cumberland, N.S.	1			1	1						
Queen's, N.S.	1	1									
Totals of Nova Scotia....	2	1		1	1						
York, N.B.	1	1									
St. Francis, Que.	1	1									
Three Rivers, Que.	1	1									
Totals of Quebec.....	2	2									
Essex, Ont.	1			1	1						
Grey, Ont.	1	1									
Huron, Ont.	1	1									
Leeds and Grenville, Ont.	1	1									
Middlesex, Ont.	1	1									
Northumberland & Durham, O.	2			2	2						
Simcoe, Ont.	2	2									
Stormont, D'das & Glengarry, O.	1	1									
Thunder Bay and Rainy River.	2	2									
York, Ont.	9	9									
Totals of Ontario....	21	18		3	3						
Manitoba, Central	1			1	1						
Alberta, Southern N.W.T.	3	3									
Totals of Canada.....	30	25		5	5						
ATTEMPT AT RAPE.											
Victoria, N.B.	1			1		1					
Montreal, Que.	5	4		1			1				
Lincoln, Ont.	1	1									
Middlesex, Ont.	1			1	1						
Muskoka and Parry Sound, Ont.	1			1	1						
Wentworth, Ont.	3	3									
York, Ont.	1			1		1					
Totals of Ontario....	7	4		3	2	1					
Totals of Canada.....	13	8		5	2	2	1				
CARNALLY KNOWING AN IMBECILE GIRL.											
Welland, Ont.	1	1									
Totals of Canada.....	1	1									

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- ma- to- ries.	Other Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	Indus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and under five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie		En- voyés à la prison de Réfor- me.	Autres Senten- ces.									
VIOL.														
1						1								1
1						1								1
1											1	1		
						a2			1					1
1						a2			1		1	1		1
	1										1			1
2	1					a2	1		1		2	1		3
TENTATIVE DE VIOL.														
1											1			1
	1													1
1											1	1		
1												1		
1														1
3											1	2		1
4	1										2	2		3
COMMERCE CHARNEL AVEC UNE FILLE ALIENÉE.														

a Sentence suspended.—Sentence suspendue.

TABLE I. OFFENCES AGAINST THE PERSON. CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.						USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.				
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré
H.				F.	H.	F.	H.	F.	H.	F.		
RAPE.												
Cumberland, N.-E.		1				1						1
Queen's, N.-E.												
Totaux de la N.-Ecosse ...		1				1						1
York, N.-B.												
St. François, Qué.												
Trois-Rivières, Qué.												
Totaux de Québec.												
Essex, Ont.		1				1						1
Grey, Ont.												
Huron, Ont.												
Leeds et Grenville, Ont.												
Middlesex, Ont.												
Northumberland et Durham, O.		1				1				1		1
Simcoe, Ont.												
Storm't. D'as et Gleng'ry, O.												
Th'nder Bay et Rainy Riv., Ont.												
York, Ont.												
Totaux d'Ontario		2				2				1		1 1
Manitoba, Centre.		1			1							1
Alberta, Sud, T. du N.-O.												
Totaux du Canada		4			1	3				1		2 2
ATTEMPT AT RAPE.												
Victoria, N.-B.		1				1						1
Montréal, Qué.		1				1						1
Lincoln, Ont.												
Middlesex, Ont.		1						1				1
Muskoka et Parry Sound, Ont.		1				1						1
Wentworth, Ont.												
York, Ont.		1			1							1
Totaux d'Ontario		3			1	1		1				3
Totaux du Canada		5			1	3		1				5
CARNALLY KNOWING AN IMBECILE GIRL.												
Welland, Ont.												
Totaux du Canada.												

TABLE I.		OFFENCES AGAINST THE PERSON.							CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.			
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION.		
									SANS OPTION.	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
ATTEMPT AND CARNALLY KNOWING A GIRL OF TENDER YEARS.											
Bedford, Que.....	1			1	1				1		
Montreal, Que.....	1	1									
Three Rivers, Que.....	1	1									
Totals of Quebec.....	3	2		1	1				1		
Elgin, Ont.....	1			1	1						
Essex, Ont.....	1			1	1					a1	
Kent, Ont.....	1	1									
Lanark, Ont.....	1			1	1						
Middlesex, Ont.....	2	1		1		1			1		
Ontario, Ont.....	2			2		2				b2	
Wellington, Ont.....	3			3	3						
Totals of Ontario.....	11	2		9	6	2	1		1	3	
Manitoba, Central.....	1	1									
Manitoba, Eastern.....	1			1	1				b1		
Manitoba, Western.....	c1										
Totals of Manitoba.....	3	1		1	1				1		
Alberta, Southern, N.W.T.....	1	1									
Totals of Canada.....	18	6		11	8	2	1		3	3	
ENDANGERING SAFETY OF PASSENGERS ON RAILWAYS.											
Colchester, N.S.....	1			1	1						
Westmoreland, N.B.....	1		1								
Montreal, Que.....	1			1	1			1			
Quebec, Que.....	1			1	1						
St. Hyacinthe, Que.....	1			1	1						
Totals of Quebec.....	3			3	3			1			
Elgin, Ont.....	1			1	1				1		
Kent, Ont.....	1			1	1						
Leeds and Grenville, Ont.....	2			2	2						
Middlesex, Ont.....	3	1		2	2					2	
Norfolk, Ont.....	2			2	2						
Northumberland & Durham, Ont.....	2			2	2				2		
Welland, Ont.....	3			3	3				1		
Wentworth, Ont.....	1			1		1				1	
York, Ont.....	7			7	7				2		
Totals of Ontario.....	22	1		21	20	1			6	3	
Totals of Canada.....	27	1	1	25	24	1		1	6	3	

a And to be whipped twice.—Et a être fouetté deux fois. b And 15 lashes.—Et 15 coups de fouet.
c *Nolle prosequi.*

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.										CLASSE I.				
SENTENCE.						OCCUPATIONS.					CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries — En- voyés à la prison de Ré- forme.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	In- dus- trial. — Indus- triels.	Pro- fes- sional — Profes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie.												
TENTATIVE ET COMMERCE CHARNEL AVEC UNE FILLE EN BAS AGE.														
										1	1			
										1	1			
1							1			1	1			1
	1						1	1			1			
1	2									2	2	1	1	1
2	3						2	2		5	3	1		5
										1				1
										1				1
2	3						2	2		7	4	1		6
EXPOSANT AU PÉRIL LES PASSAGERS SUR LES CHEMINS DE FER.														
				1						1				1
							1				1			1
				1	a1									1
				1	a1		1				1			2
					a1					1				1
					a2					2				2
					a2			2						2
					a2						1			1
					a2						1	1		3
				2	a3			1		1				7
				2	a10				5		5	2		18
				4	a11		1		5		6	3		21

a Sentence suspended.—Sentence suspendue.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.						USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non-donné.		Mo- de- rate	Im- mo- de- rate		
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré	
ATTEMPT AND CARNALLY KNOWING A GIRL OF TENDER YEARS.													
Bedford, Qué.....	1						1						1
Montréal, Qué.....													
Trois-Rivières, Qué.....													
Totaux de Québec.....	1						1						1
Elgin, Ont.....		1					1						1
Essex, Ont.....		1					1						1
Kent, Ont.....													
Lanark, Ont.....		1					1						1
Middlesex, Ont.....	1						1						1
Ontario, Ont.....		2					2						2
Wellington, Ont.....		3					2		1				3
Totaux d'Ontario.....	1	8					8		1				4 5
Manitoba, Centre.....													
Manitoba, Est.....		1					1						1
Manitoba, Ouest.....													
Totaux de Manitoba.....		1					1						1
Alberta, Sud, T. du N. O.....													
Totaux du Canada.....	2	9					10		1				5 6
ENDANGERING SAFETY OF PASSENGERS ON RAILWAYS.													
Colchester, N.-E.....		1		1									1
Westmoreland, N.-B.....													
Montréal, Qué.....		1					1						1
Québec, Qué.....		1		1									1
St. Hyacinthe, Qué.....		1		1									1
Totaux de Québec.....		3		2			1						3
Elgin, Ont.....	1					1							1
Kent, Ont.....						2				1			2
Leeds et Grenville, Ont.....		2				2							2
Middlesex, Ont.....		2				2							2
Norfolk, Ont.....		2		2									2
Northumberland et Durham, O.....		2				2							2
Welland, Ont.....		3		3									3
Wentworth, Ont.....		1				1							1
York, Ont.....		7		5		2							7
Totaux d'Ontario.....	1	19		10		5		5		1			18 2
Totaux du Canada.....	1	23		13		5		6		1			22 2

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.										CLASSE I.					
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada.	Uni- ted States — Etats- Unis.	Other Fo- reign Coun- tries. — Aut- res pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Meth- odists. — Métho- distes.	Pres- byte- rians. — Pres- bytériens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
TENTATIVE ET COMMERCE CHARNEL AVEC UNE FILLE EN BAS AGE.															
			1					1							1
			1					1							1
			1 1						1					1 1	
			1 2 1					1		2 1				1 1 3	2
1			7	1				2	1	4		1		7	2
			1					1							1
			1					1							1
1			9	1				3	2	4		1		7	4
EXPOSANT AU PÉRIL LES PASSAGERS SUR LES CHEMINS DE FER.															
			1					1							1
			1 1 1					1 1 1						1 1 1	
			3					3						1	2
			1							1					1
			2 2 2					2 1			1			2	2
			3						1	2		1		2	3
			7	1				1 2	3	1	1			1 5	2
			19	1				6	5	4	2	1		10	8
			23	1				9	6	4	2	1		11	11

TABLE I.		OFFENCES AGAINST THE PERSON.							CLASS I.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.		De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.			
		Nombre d'accu- sations.	Ac- quit- tes.		Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL			
									Dé- tenues pour cause de folie.	With the option of a fine.	— EMPRISONNÉS.	
											SANS OPTION.	NO OPTION.	— UN- der one year.	One year and over.
M.	F.	Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- dés.	Sur option entre la pri- son ou l'am- ande	Moins d'un an.	Un an et plus.					
SHOOTING, STABBING, WOUNDING.												
Halifax, N.S.	1				1	1					1	
Carleton, N.B.	2				2	2					2	
St. John, N.B.	2				2	2			1		1	
Westmoreland, N.B.	1				1	1						
Totals of New Brunswick.	5				5	5			1		3	
Montreal, Que.	9	3			6	2	2	2				
Ottawa, Que.	1	1										
Quebec, Que.	2	2										
St. Francis, Que.	1				1	1					1	
Three Rivers, Que.	1				1			1			1	
Totals of Quebec.	14	6			8	3	2	3			2	
Bruce, Ont.	1				1	1					1	
Carleton, Ont.	5				5	5					1	1
Essex, Ont.	3				3	3			2			
Grey, Ont.	5	4			1	1						
Haldimand, Ont.	1				1	1						
Hastings, Ont.	2	1			1	1			1			
Huron, Ont.	1				1	1						1
Kent, Ont.	2	1			1	1						
Lambton, Ont.	1				1	1						
Leeds and Grenville, Ont.	2	2										
Middlesex, Ont.	5	1			4	3	1				3	
Muskoka and Parry Sound, Ont.	2				2	2					1	
Ontario, Ont.	1				1		1				1	
Perth, Ont.	11	5			6	6			3			
Peterborough, Ont.	2				2	1	1				2	
Stormont, D'as & Glengarry, O.	1	1										
Thunder Bay and Rainy River.	2				2	2						1
Wellington, Ont.	2				2	2						1
Wentworth, Ont.	4	4										
York, Ont.	52	22	1	1	28	27	1				19	2
Totals of Ontario.	105	41	1	1	62	58	4		6		28	6
Manitoba, Central.	1				1	1						
Manitoba, Eastern.	6	1			5	5					3	
Totals of Manitoba.	7	1			6	6					3	
Cariboo, B.C.	1				1			1				
Victoria, B.C.	3				3	2		1			2	
Totals of British Columbia.	4				4	2		2			2	
Alberta, Northern, N.W.T.	2	2										
Totals of Canada.	138	50	1	1	86	75	6	5	7		39	6

TABLE I.		OFFENCES AGAINST THE PERSON.												CLASS I.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.		EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS				
		Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate	
					Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.	M.	F.	M.	F.	M.			F.	M.	F.
Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
SHOOTING, STABBING, WOUNDING.																	
Halifax, N.-E.	1							1							1		
Charlotte, N.-B.	2					1		1							2		
St. Jean, N.-B.	2					1				1					1	1	
Westmoreland, N.-B.	1							1							1		
Totaux du N.-Brunswick.	5					2		2		1					4	1	
Montréal, Qué.	2	4						6								6	
Ottawa, Qué.																	
Québec, Qué.								1							1		
St. François, Qué.		1						1							1		
Trois-Rivières, Qué.	1					1									1	1	
Totaux de Québec.	3	5				1		7							1	7	
Bruce, Ont.														1			
Carleton, Ont.	2	3				1				3	1				4	1	
Essex, Ont.		3						2		1					1	2	
Grey, Ont.	1							1							1		
Haldimand, Ont.		1						1							1		
Hastings, Ont.		1				1									1		
Huron, Ont.		1								1					1		
Kent, Ont.													1				
Lambton, Ont.		1			1										1		
Leeds et Grenville, Ont.																	
Middlesex, Ont.		4				1		2		1					3	1	
Muskoka et Parry Sound, Ont.		2						1		1					2		
Ontario, Ont.		1						1							1		
Perth, Ont.		6			1			5							5	1	
Peterborough, Ont.	2					2									2		
Storm't, D'das et Glengarry, O.																	
Th'der Bay et Rainy Riv., O.		2						2							1	1	
Wellington, Ont.	1	1			1			1							1	1	
Wentworth, Ont.																	
York, Ont.	4	22	1	1				19	3	4			1		17	10	
Totaux d'Ontario.	10	48	1	4		5		35	3	11	1	3		38	21		
Manitoba, Centre.		1						1							1		
Manitoba, Est.	1	4				1		2		2					5		
Totaux de Manitoba.	1	5				1		3		2					6		
Caribou, Col.-B.		1						1							1		
Victoria, Col.-B.	1	2						2		2					2	1	
Totaux de la Col.-Britann.	1	3						2		2					2	2	
Alberta, Nord, T. du N.O.																	
Totaux du Canada.	15	67	1	4		9		50	3	16	1	3		52	31		

Criminal Statistics.

TABLEAU I.												OUTRAGES CONTRE LA PERSONNE.						CLASSE I.	
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.						
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of Eng-land. — Eglise d'Angle-terre.	Metho-dists. — Métho-distés.	Pres-byterians. — Pres-bytériens.	Pro-tes-tants — Autr's con-fes-sions.	Other Deno-minations. — Autr's con-fes-sions.	Cities and Towns— Rural Districts— Villes— Districts ruraux.					
Eng-land and Wales — Angle terre et Galles	Ire-land. — Ir-lande.	Scot-land. — Ecos-se.																	
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....			
.....	2	.....	1	.....	.....	.....	.....	.....	.....	2	.....	.....	2		
1	1	.....	.....	.....	1	.....	.....	1	.....	.....	.....	2	1		
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	4	.....	.....	.....	2	.....	.....	1	2	.....	.....	2	3		
2	1	.....	2	.....	1	.....	2	2	1	1	.....	.....	.....	6	.....			
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1		
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
2	1	.....	4	.....	1	.....	4	2	1	1	.....	.....	.....	7	1
.....	1	3	.....	1	.....	4	.....	.....	.....	1	.....	.....	3	2	
.....	1	3	.....	.....	1	1	.....	.....	.....	1	.....	1	3		
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1		
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1		
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1		
1	3	.....	.....	.....	1	1	1	1	.....	.....	.....	1	3		
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1		
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1		
.....	5	1	.....	.....	1	2	2	.....	.....	1	.....	4	2		
.....	2	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2	.....			
.....	1	.....	1	.....	1	.....	.....	.....	.....	1	.....	1	1		
.....	2	.....	.....	.....	.....	.....	1	.....	.....	1	.....	2	.....			
2	4	.....	16	.....	5	.....	1	11	7	2	5	.....	.....	27	.....			
3	5	1	39	4	7	.....	2	21	14	8	7	2	4	44	15			
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1			
1	1	.....	3	.....	.....	4	.....	.....	1	.....	.....	5	.....			
1	1	1	3	.....	.....	4	.....	.....	1	1	.....	5	1		
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1		
.....	1	.....	1	.....	.....	2	.....	.....	1	.....	.....	1	3		
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	1	.....	.....	3	.....	.....	.....	1	.....	.....	4		
.....				
7	6	2	51	5	12	.....	3	34	16	9	10	6	4	59	24			

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine.	No OPTION. — SANS OPTION.	
										Un- der one year.	One year and over.
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- ves.	Sur option entre la pri- son ou l'a- mende	Moins d'un an.	Un an et plus.
		M.	F.							
SODOMY AND BESTIALITY.										
Colchester, N.S.	1				1	1				
Montreal, Que.	1	1								
Pontiac, Que.	1	1								
Totals of Quebec	2	2								
Brant, Ont.	1				1			1		1
Leeds and Grenville, Ont.	1				1	1				
Lincoln, Ont.	1				1			1		
Thunder Bay and Rainy River.	3	2			1	1				
Totals of Ontario	6	2			4	2		2		1
Manitoba, Eastern	2	1			1	1			1	
Victoria, B.C.	2				1	1				
Totals of Canada	13	5			7	5		2	1	1
ABORTION AND ATTEMPT TO PROCURE ABORTION.										
Haldimand, Ont.	2	2								
Lincoln, Ont.	2				2	2				
York, Ont.	4	1	1		2	2				
Totals of Ontario	8	3	1		4	4				
Westminster, B.C.	1	1								
Alberta, Southern, N.W.T.	1		1							
Totals of Canada	10	4	2		4	4				
DESERTING CHILD.										
Algoma and Manitoulin, Ont.	1				1	1				
Hastings, Ont.	1		1							
Lincoln, Ont.	1		1							
Nipissing, Ont.	1				1	1				
Wentworth, Ont.	1				1	1				
York, Ont.	2		1		1	1				
Totals of Ontario	7		3		4	4				
Totals of Canada	7		3		4	4				
CONCEALING BIRTH OF INFANT.										
Victoria, B.C.	1				1	1			1	
Totals of Canada	1				1	1			1	

a Nolle prosequi.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.			Mo- de- ré	Im- mo- de- ré	
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.	
SODOMY AND BESTIALITY.													
Colchester, N.-E.		1			1							1	
Montréal, Qué.													
Pontiac, Qué.													
Totaux de Québec													
Brant, Ont.		1			1							1	
Leeds et Grenville, Ont.		1				1						1	
Lincoln, Ont.	1						1					1	
Th' der Bay et Rainy Riv., Ont.	1						1					1	
Totaux d'Ontario	2	2			1	1	2					4	
Manitoba, Est.		1			1							1	
Victoria, Col.-B.		1				1						1	
Totaux du Canada	2	5			3	2	2					5	
ABORTION AND ATTEMPT TO PROCURE ABORTION.													
Haldimand, Ont.		2										2	
Lincoln, Ont.		1	1			1	1	2				2	
York, Ont.													
Totaux d'Ontario		3	1			1	1	2				4	
Westminster, Col.-B.													
Alberta, Sud, T. du N.-O.													
Totaux du Canada		3	1			1	1	2				4	
DESERTING CHILD.													
Algoma et Manitoulin, Ont.		1			1							1	
Hastings, Ont.													
Lincoln, Ont.							1					1	
Nipissing, Ont.		1					1					1	
Wentworth, Ont.		1					1					1	
York, Ont.		1					1					1	
Totaux d'Ontario		4			1		3					3	
Totaux du Canada		4			1		3					3	
CONCEALING BIRTH OF INFANT.													
Victoria, Col.-B.		1						1				1	
Totaux du Canada		1						1				1	

Criminal Statistics.

TABLEAU I.										OUVRAGES CONTRE LA PERSONNE.										CLASSE I.	
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.										RESI- DENCE.					
BRITISH ISLES. — ILES BRITANNIQUES.			Canada. — Etats- Unis.	Other Fo- reign Coun- tries. — Autr- es pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes. Rural Districts— Districts RURAUX.								
Eng- land and Wales	Ire- land.	Scot- land.				Bap- tists.	Ca- tho- lics.	Eglise d'An- gle- terre.	Mé- tho- dis- tes.	Pres- byté- riens.	Autr's con- fes- sions.										
Angle terre et Galles	Ir- lande.	Ecos- se.				—	—	—	—	—	—										
SODOMIE ET BESTIALITÉ.																					
			1			1								1							
			1			1							1								
			1					1					1								
			1					1					1								
			4			1	2	1					3	1							
1								1						1							
				1				1						1							
1			5	1		2	3	2					3	4							
AVORTEMENT ET TENTATIVE D'AVORTEMENT.																					
			2					1	1					2							
			2					1	1				2								
			4					2	2				2	2							
			4					2	2				2	2							
DÉSERTION D'ENFANT.																					
			1						1					1							
			1					1					1								
			1					1					1								
			4					3	1				4								
			4					3	1				4								
SUPPRESSION D'ENFANT.																					
					1								1	1							
					1								1	1							

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
	Nombre d'accu- sations.	Ac- quit- tes.	Dé- tenues pour cause de folie.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- des.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
		M.	F.							
BIGAMY.										
York, N.B.	1	1								
Montreal, Que.	2			2	2					1
Elgin, Ont.	2			2	1	1				1
Simcoe, Ont.	2	1	1							
Victoria, Ont.	1			1	1				1	
York, Ont.	2			2	2				1	
Totals of Ontario	7	1	1	5	4	1			2	1
Manitoba, Eastern	1			1	1				1	
Totals of Canada	11	2	1	8	7	1			3	2
ABDUCTION.										
Sunbury, N.B.	1			1	1					
Elgin, Ont.	1			1	1					
Essex, Ont.	1			1	1					
Kent, Ont.	1	1								
Lincoln, Ont.	2	2								
Waterloo, Ont.	1			1	1				1	
York, Ont.	4	3		1	1					
Totals of Ontario	10	6		4	4				1	
Manitoba, Central	1	1								
Totals of Canada	12	7		5	5				1	
INCEST AND ATTEMPT AT.										
Halifax, N.S.	1	1								
Montreal, Que.	1			1	1					
Terrebonne, Que.	2			2	2					
Totals of Quebec	3			3	3					
Lincoln, Ont.	2	2								
Muskoka and Parry Sound, Ont.	2			2	2				a1	
Simcoe, Ont.	1			1		1				
Welland, Ont.	1	1								
Wentworth, Ont.	1	1								
Totals of Ontario	7	4		3	2	1			1	
Manitoba, Eastern	1			1	1					
Totals of Canada	12	5		7	6	1			1	

a And 40 lashes—Et 40 coups de fouet.

Criminal Statistics.

TABLEAU I.						OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commercial. — Commerçants.	Domestic. — Serviteurs.	Industrial. — Industriels.	Profes- sional. — Profes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and under five.	Five years and over.	Life.												
Deux ans et m ^{ns} de cinq.	Cinq ans et plus.	A vie												
BIGAMIE.														
1								2				2		
					a1			2				2		
1						1		1		1		1	2	
1					a1		1	3		1		5		
										1		1		
2					a1		1	5		2		8		
ENLEVEMENT.														
1										1		1		
					a1					1				1
1										1				1
					a1							1		
1					a2					2		2		2
2					a2					3		3		2
INCESTE ET TENTATIVE D'INCESTE.														
	1									1			1	
2							1			1				2
2	1						1			2			1	2
1								1		1		1	1	
	a1									1				1
1	1							1		2		1	1	1
1						1							1	
4	2					1	1	1		4	1	3	3	

a Sentence suspended.—Sentence suspendue. b And 48 lashes.—Et 48 coups de fouet.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- de- rate	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- dé- ré
			H.	F.	H.	F.	H.	F.	H.	F.			
BIGAMY.													
York, N.-B.													
Montréal, Qué.	1	1				1		1			1	1	
Elgin, Ont.	2					2					2		
Simcoe, Ont.						1					1		
Victoria, Ont.		1				2					2		
York, Ont.		2											
Totaux d'Ontario	2	3				5					5		
Manitoba, Est.	1					1						1	
Totaux du Canada.	4	4				7		1			6	2	
ABDUCTION.													
Sunbury, N.-B.		1				1					1		
Elgin, Ont.	1				1						1		
Essex, Ont.		1					1				1		
Kent, Ont.													
Lincoln, Ont.													
Waterloo, Ont.	1					1					1		
York, Ont.		1					1					1	
Totaux d'Ontario.	2	2			1	1	1	1			3	1	
Manitoba, Centre.													
Totaux du Canada.	2	3			1	2	1	1			4	1	
INCEST AND ATTEMPT AT.													
Halifax, N.-E.													
Montréal, Qué.		1										1	
Terrebonne, Qué.	1	1				1	1	1			2	1	
Totaux de Québec.	1	2				1	1	1			2	1	
Lincoln, Ont.													
Muskoka et Parry Sound, Ont.		2				1		1			1	1	
Simcoe, Ont.		1				1					1		
Welland, Ont.													
Wentworth, Ont.													
Totaux d'Ontario.		3				2		1			1	2	
Manitoba, Est.		1						1				1	
Totaux du Canada.	1	6				3	1	3			3	4	

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.				
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.					
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	No OPTION. — Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
								SANS OPTION	One year and over.			
SEDUCTION.												
Halifax, N.S.	1	1										
Sunbury, N.B.	c1											
Elgin, Ont.	b1											
Hastings, Ont.	2	1			1	1			1			
Kent, Ont.	c1											
Lambton, Ont.	1	1										
Nipissing, Ont.	1	1										
Norfolk, Ont.	c1											
Northumberland & Durham, O..	c1											
Oxford, Ont.	1	1										
Stormont, D'das & Glengarry, O.	1	1										
Victoria, Ont.	d1											
Waterloo, Ont.	1	1										
Wentworth, Ont.	1				1	1			1			
York, Ont.	4	3			1	1			1			
Totals of Ontario.	17	9			3	3			3			
Manitoba, Eastern.	1	1										
Westminster, B.C.	c2	1										
Totals of Canada.	22	12			3	3			3			
REFUSING AND NEGLECTING TO PROVIDE FOR FAMILY.												
Halifax, N.S.	1				1	1			1			
Montreal, Que.	3	2			1	1			1			
Rimouski, Que.	1				1	1						
St. Francis, Que.	1	1										
St. Hyacinthe, Que.	4	1			3	3			3			
Totals of Quebec.	9	3	1		5	5			3	1		
Brant, Ont.	4	2			2			2		1		
Essex, Ont.	1	1										
Halton, Ont.	1				1	1				1		
Hastings, Ont.	1				1	1						
Middlesex, Ont.	3	1			2	2				1		
Perth, Ont.	2				2	2						
Peterborough, Ont.	3	1			2	2						
Simcoe, Ont.	2				2	1	1			1		
Victoria, Ont.	1				1	1						
Waterloo, Ont.	1				1	1						
Wentworth, Ont.	12	9			3	3						
York, Ont.	38	33			5	5				2		
Totals of Ontario.	69	47			22	19	1	2		6		

a Jury disagreed—Les jurés ne se sont pas accordés. b Settled by consent.—Réglée de consentement. c 1, Charge withdrawn, accused having married complainant.—1, Plainte retirée, l'accusé ayant épousé la plaignante. d Charge not laid within prescribed time.—Accusation portée après le temps prescrit.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
SENTENCE.					OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort.	Com- mit- ted to Refor- ma- to- ries En- voyés à la prison de Réfor- me.	Other Senten- ces. Autres Senten- ces.	Agricultural. Agriculteurs.	Commercial. Commerçants.	Domestic. Servi- teurs.	Industrial. Indus- triels.	Profes- sional Profes- sions libé- rales.	La- borers Jour- na- liers.	Mar- ried. Ma- riés.	Wi- dowed En- veu- vage.	Single Céli- ba- taires.
Two years and under five.	Five years and over.	Life.												
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie												
SÉDUCTION.														
						1						1		
							1				1			1
						1	1				1	1		2
						1	1				1	1		2
REFUS ET NÉGLIGENCE DE POURVOIR AUX BESOINS DE LA FAMILLE.														
														1
					a1						1	1		
											1	1		
												3		
					a1						2	5		
					b1			2				2		
												1		
					a1							1		
					a1			2				2		
					a2							2		
					a2	1						1		
					a2			1				1	1	
					a1							2		
					a1							1		
					a1							1		
					a1							1		
					a2, c1							2		3
					a3							4		5
					a14, b1, c1	1			5			11	21	1

a Sentence suspended.—Sentence suspendue. b Bound to good behaviour.—A tenir une meilleure conduite. c To pay \$3 weekly.—A payer \$3 par semaine.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- mo- déré		
SEDUCTION.													
Halifax, N.-E.													
Sunbury, N.-B.													
Elgin, Ont													
Hastings, Ont		1								1		1	
Kent, Ont													
Lambton, Ont													
Nipissing, Ont													
Norfolk, Ont													
Northumberl'd et Durham, O.													
Oxford, Ont													
Storm't, D'das et Gleng'ry, O.													
Victoria, Ont													
Waterloo, Ont													
Wentworth, Ont		1				1						1	
York, Ont		1				1						1	
Totaux d'Ontario		3				2				1		3	
Manitoba, Est.													
Westminster, Col.-B.													
Totaux du Canada		3				2				1		3	
REFUSING AND NEGLECTING TO PROVIDE FOR FAMILY.													
Halifax, N.-E.		1						1				1	
Montréal, Qué	1					1						1	
Rimouski, Qué	1					1						1	
St. François, Qué.													
St. Hyacinthe, Qué.									3			1 2	
Totaux de Québec	2					2			3			3 2	
Brant, Ont	1	1				1		1				2	
Essex, Ont													
Halton, Ont									1				
Hastings, Ont	1						1					1	
Middlesex, Ont.		2				2						2	
Perth, Ont		2						1	1			2	
Peterborough, Ont.		2				1		1				1	
Simcoe, Ont.		2				2						2 1	
Victoria, Ont		1						1				1	
Waterloo, Ont		1				1						1	
Wentworth, Ont.		2				1		1		1		1 1	
York, Ont		5				3		1	1			5	
Totaux d'Ontario	2	18				11		2	6	1	2	15 5	

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of England. — Eglise d'Angleterre.	Methodists. — Méthodistes.	Presbyterians. — Presbytériens.	Protestants — Autres confessions.	Other Denominations. — Autres confessions.	Cities and Towns—Villes. Rural Districts—Districts ruraux.
England and Wales — Angle terre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.												
SÉDUCTION.														
			1								1			1
			1				1	1					1	1
1														
1			2				1	1			1		2	1
1			2				1	1			1		2	1
REFUS ET NÉGLIGENCE DE POURVOIR AUX BESOINS DE LA FAMILLE.														
			1						1					1
			1				1						1	1
			3				3						3	
			5				5						4	1
1			1					1		1			2	
			1								1		2	1
1			1							1	1		2	2
1	1		1					2					2	2
			2							2			2	2
			1								1		2	1
			2				1	1					2	1
2		2	1					2	1	2			5	
5	1	2	12					2	6	3	6	3	13	7

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. — Sur- option entre la pri- son ou l'a- m'nde.	NO OPTION. — SANS OPTION	
									Under one year. — Moins d'un an.	One year and over. — Un an et plus.
REFUSING AND NEGLECTING TO PROVIDE FOR FAMILY—<i>Concluded.</i>										
Manitoba, Eastern.....	1			1	1					
Assiniboia, Eastern, N.W.T....	1	1								
Totals of Canada	81	51	1	29	26	1	2	4	7	
INDECENT ASSAULT.										
Colchester, N.S.....	1	1								
Digby, N.S.....	1			1	1					f1
Halifax, N.S.....	1	1								
Totals of Nova Scotia.....	3	2		1	1					1
St. John, N.B.....	1			1	1				1	
Westmoreland, N.B.....	2			2	2				1	
Total of New Brunswick.....	3			3	3				2	
Beauharnois, Que.....	1			1	1				1	
Montreal, Que.....	3	1		2	2				1	
Pontiac, Que.....	1	1								
Totals of Quebec.....	5	2		3	3				2	
Algoma and Manitoulin, Ont....	1	1								
Carleton, Ont.....	4			4	3	1			e2	1
Frontenac, Ont.....	2			2	2				1	a1
Hastings, Ont.....	3			3	3			1		
Huron, Ont.....	1			1	1				1	
Kent, Ont.....	2	1		1	1				1	
Lambton, Ont.....	1			1	1					
Lanark, Ont.....	2			2	2				2	
Leeds and Grenville, Ont.....	1			1	1				b1	
Lennox and Addington, Ont....	1			1	1					1
Lincoln, Ont.....	1	1								
Middlesex, Ont.....	4	2		2	1	1			2	
Muskoka and Parry Sound, Ont..	1			1	1				1	
Norfolk, Ont.....	1	1								
Northumberland & Durham, O..	5	3		2	2				1	
Ontario, Ont.....	d3			2	2				c2	
Peel, Ont.....	1	1								
Perth, Ont.....	1	1								
Simcoe, Ont.....	12	7		5	3	1	1		5	
Victoria, Ont.....	4			4	4				4	
York, Ont.....	16	9		7	6	1			e4	
Totals of Ontario.....	67	27		39	34	4	1	1	28	3
Manitoba, Central.....	1			1	1					1
Manitoba, Eastern.....	2	2								
Manitoba, Western.....	1			1	1					1
Totals of Manitoba.....	4	2		2	2					2

And to receive—Et a recevoir—a 36, b 30, c 15, e 12, f 40 ^{lashes.} (coups de fouet.
d 1, Jury disagreed—1, Les jurés ne se sont pas accordés.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.						USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré	Im- modéré
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.	
REFUSING AND NEGLECTING TO PROVIDE FOR FAMILY—Concluded.													
Manitoba, Est.	1						1					1	
Assiniboia, Est, T. du N.-O.													
Totaux du Canada.	5	19				14	3	6	1	5		20 7	
INDECENT ASSAULT.													
Colchester, N.-E.	1				1							1	
Digby, N.-E.													
Halifax, N.-E.													
Totaux de la N.-Ecosse.	1				1							1	
St. Jean, N.-B.			1					1				1	
Westmoreland, N.-B.	1	1				1		1				2	
Totaux du N.-Brunswick.	1	1	1			1		2				1 2	
Beauharnois, Que.		1			1							1	
Montréal, Qué.	1		1					2				2	
Pontiac, Qué.													
Totaux de Québec.	1	1	1		1			2				1 2	
Algoma et Manitoulin, Ont.													
Carleton, Ont.	1	3			1		2	1				3 1	
Frontenac, Ont.	1						1			1		1	
Hastings, Ont.		2					1			2		1 1	
Huron, Ont.		1					1					1	
Kent, Ont.	1							1				1	
Lambton, Ont.		1			1							1	
Lanark, Ont.		2					2					2	
Leeds et Grenville, Ont.		1					1					1	
Lennox et Addington, Ont.		1					1					1	
Lincoln, Ont.													
Middlesex, Ont.		2					2					1 1	
Muskoka et Parry Sound, O.		1						1				1	
Norfolk, Ont.													
Northumberland et Durham, O.		2					2					2	
Ontario, Ont.		2					2					2	
Peel, Ont.													
Perth, Ont.													
Simcoe, Ont.		5						5				5	
Victoria, Ont.	2	1					3			1		2 1	
York, Ont.		7		2	1		4					6 1	
Totaux d'Ontario.	5	31		2	3		22	8		4		21 15	
Manitoba, Centre.			1				1					1	
Manitoba, Est.													
Manitoba, Ouest.			1				1					1	
Totaux de Manitoba.		2			1		1					1 1	

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.															
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	Uni- ted States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's posses- sions Bri- tanni- ques.	Other Bri- tish Pos- ses- ions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Meth- odists — Méth- odis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
REFUS ET NÉGLIGENCE DE POURVOIR AUX BESOINS DE LA FAMILLE— <i>Fin.</i>															
.....	1	1	1
.....
5	1	2	19	.....	.....	.....	8	7	3	6	3	.....	18	9
ATTENTAT À LA PUDEUR.															
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	
.....	1	1	.....	.....	1	1	.....	.....	1	.....	.....	1	2	
.....	1	2	.....	.....	1	1	.....	.....	1	.....	.....	1	2	
.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	2	1	
.....	3	.....	.....	.....	3	.....	.....	.....	.....	.....	2	1	
.....	3	.....	1	.....	2	.....	.....	.....	1	1	4	.....
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	2	.....	.....	.....	.....	.....	.....	.....	2	.....	1	1	
.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	1	1	
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	2	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	2	.....	1	.....	.....	.....	.....	2	.....	.....	.....	2	
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	
.....	1	4	.....	.....	.....	4	.....	.....	1	.....	.....	5	.....
1	5	.....	2	.....	3	1	1	2	.....	.....	6	4	
2	2	1	26	1	4	.....	1	12	5	7	6	4	1	13
1	1	.....	.....	.....	.....	.....	1	
1	1	.....	.....	.....	.....	1	
2	1	1	.....	.....	.....	.....	.....	2	

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- mo- déré		
H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.					
INDECENT ASSAULT—Concluded.															
Clinton, Col.-B.								1					1		
Victoria, Col.-B.	1							1							1
Totaux de la Col.-Britann.	1							2					1		1
Alberta, Sud, T. du N.-O.		1						1						1	
Assiniboia, Est, T. du N.-O.															
Totaux des Ter. du N.-O.		1						1						1	
Totaux du Canada.	9	36	2	2	6	27	12	5	26	21					
ASSAULT ON FEMALES.															
Queen's, I. du P.-E.		1						1						1	
Halifax, N.-E.												2			
Westmoreland, N.-B.															
Montréal, Qué.	10	21	1				19		13				5	27	
Trois-Rivières, Qué.	1						1							1	
Totaux de Québec.	11	21	1				20		13				5	28	
Grey, Ont.		1			1								1		
Hastings, Ont.		1							1				1		
Lambton, Ont.	1						1							1	
Leeds et Grenville, Ont.		1					1							1	
Northumberland et Durham, O. Ontario, Ont.											1		1		
Perth, Ont.		1							1				1		
Simcoe, Ont.		1		1							2		1		
Storm't, D'das et Gleng'ry, O. Welland, Ont.	1						1						1		
York, Ont.		2	1	2			1						2	1	
Totaux d'Ontario.	2	7	1	3	1	4	2	5	7	3					
Alberta, Nord, T. du N.-O.											1				
Assiniboia, Est, T. du N.-O.											2				
Totaux des Ter. du N.-O.											3				
Totaux du Canada.	13	29	2	3	1	25	15	10	13	31					
LIBEL.															
Manitoba, Est.		1									1		1		
Alberta, Nord, T. du N.-O.													1		
Alberta, Sud, T. du N.-O.													1		
Totaux du Canada.		1	1						1	1			2		

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.															
BIRTH PLACES. — LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales	Ireland.	Scotland.		— Etats-Unis.	— Autres pays étrangers.	— Autres possessions Britanniques.	— Baptistes.	— Catholiques.	— Eglise d'Angleterre.	— Méthodistes.	— Presbytériens.	— Protestants	— Autres confessions.		
ATTENTAT A LA PUDEUR—Fvr.															
.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
4	2	2	32	2	5	.....	2	18	6	7	7	6	1	28	20
VOIES DE FAIT SUR FEMMES.															
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....
.....
3	1	.....	26	.....	2	.....	32	.....	.....	.....	.....	.....	.....	28	4
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
3	1	.....	27	.....	2	.....	33	.....	.....	.....	.....	.....	.....	28	5
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	1
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
.....	.....	.....	1	.....	.....	.....	1	.....	.....	1	.....	.....	.....	1	1
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	.....	.....	3	.....	.....	.....	.....	.....	2	.....	1	.....	.....	3	.....
1	.....	1	8	.....	.....	.....	2	2	3	2	.....	.....	1	6	4
.....
.....
.....
4	1	1	36	.....	2	.....	36	2	3	2	.....	.....	1	35	9
LIBELLE.															
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	1	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....

TABLE I.		OFFENCES AGAINST THE PERSON.							CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.				
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.			
								With the option of a fine.	No OPTION. — SANS OPTION.	One year and over.	
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.	—	—	—	—	—	—	—	
		M.	F.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	Sur option entre la pri- son ou l'a- m'nde	Un- der one year. — Moins d'un an.	Un an et plus.	
AGGRAVATED ASSAULT AND INFLICTING BODILY HARM.											
Queen's, P.E.I.....	4	2			2	2		1	1		
Annapolis, N.S.....	1				1	1			1		
Antigonish, N.S.....	2				2	2		1			
Halifax, N.S.....	5				5	5		2	2		
Lunenburg, N.S.....	1				1	1				1	
Totals of Nova Scotia.....	9				9	9		3	3	1	
Albert, N.B.....	1				1	1				1	
Charlotte, N.B.....	1	1									
Restigouche, N.B.....	1				1	1		1			
St. John, N.B.....	1				1	1		1			
Victoria, N.B.....	1				1	1					
Westmoreland, N.B.....	1				1		1				
York, N.B.....	1				1	1		1			
Totals of New Brunswick..	7	1			6	5	1	3		1	
Bedford, Que.....	2				2	2				2	
Gaspé, Que.....	1				1	1		1			
Montreal, Que.....	32	3			28	25	1	2	17	6	
Pontiac, Que.....	2	1			1	1		1			
Richelieu, Que.....	3				3	3				2	
Rimouski, Que.....	1	1									
St. Hyacinthe, Que.....	1				1	1			1		
Terrebonne, Que.....	1				1		1			1	
Totals of Quebec.....	48	5			37	33	1	3	19	11	
Algoma and Manitoulin, Ont....	2				2	2		1	1		
Bruce, Ont.....	2				2	2			2		
Carleton, Ont.....	10	3			7	7			5	1	
Elgin, Ont.....	1				1	1					
Essex, Ont.....	13				13	12	1	8	5		
Grey, Ont.....	1	1									
Hastings, Ont.....	1		1								
Huron, Ont.....	8	1			7	6	1		1	1	
Kent, Ont.....	5	3			2	2		1		1	
Lambton, Ont.....	3	3									
Lanark, Ont.....	1				1			1			
Lincoln, Ont.....	2	1			1	1		1			
Middlesex, Ont.....	7	2			5	3	1	1		2	
Muskoka and Parry Sound, Ont.	1	1									
Nipissing, Ont.....	1				1	1			1		
Norfolk, Ont.....	2				2	2			2		
Northumberland & Durham, O.	2	1			1	1					
Ontario, Ont.....	1				1	1					
Oxford, Ont.....	1	1									
Perth, Ont.....	1				1	1					
Renfrew, Ont.....	3	2			1	1					
Simcoe, Ont.....	3	1			2	2		2			

a 1, Proceedings suspended—Procédés suspendue. b 5, *Nolle prosequi*. c And \$50—Et \$50.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.													CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. — ÉTATS CIVILS.			
PENITENTIARY. — PÉNITENCIER.		Life.	D'th. — De mort	Com- mitted to Refor- matories — — — En- voyés à la prison de Réforme.	Other Senten- ces. — — — Autres Senten- ces.	Agricultural.	Com- mer- cial. — — — Com- mer- çants.	Do- mestic — — — Servi- teurs.	In- dus- trial. — — — Indus- triels.	Pro- fes- sional — — — Pro- fes- sions libé- rales.	La- borers — — — Jour- na- liers.	Mar- ried. — — — Mariés.	Wi- dowed — — — En- veu- vage.	Single — — — Céli- ba- itaires.	
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.														A vie
							1					1		1	
					a1		2					2			
1						1		2						3	
1					a1	1	4	2	1			4		3	
											1			1	
														1	
1						1					1			1	
1						1						1		1	
														1	
2						1	1				2	1		4	
											2	1		1	
2					a3		7		1		7	18	9	1	
					a1	1					2	1		2	
						1								1	
											1	1			
2					a4	2	7		7		12	22	9	5	
											2	1		1	
1											2	2		4	
					a1	1	1	1	1		4	2	1	4	
						2	5		1		5	5		8	
					a1	1			3		2	5		2	
											1	1			
					a1						1			1	
1					a1				1		3			5	
														1	
						2					1	1		1	
1					a1	1			1			1		1	
														1	
1					a1						1			1	
											1			1	

TABLE I.		OFFENCES AGAINST THE PERSON.												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
H.				F.	H.	F.	H.	F.	H.	F.					
Queen's, I. du P.-E.		2				1		1				1	1		
Annapolis, N.-E.									1						
Antigonish, N.-E.		2				2						1	1		
Halifax, N.-E.		5				4		1				3	2		
Lunenburg, N.-E.					1										
Totaux de la N.-Ecosse.		7			1	6		1		1		4	3		
Albert, N.-B.		1				1						1			
Charlotte, N.-B.															
Restigouche, N.-B.										1					
St. Jean, N.-B.		1				1							1		
Victoria, N.-B.						1									
Westmoreland, N.-B.		1				1							1		
York, N.-B.		1				1						1			
Totaux du N.-Brunswick.		4				5				1		2	2		
Bedford, Qué.		2		1		1						1	1		
Gaspé, Qué.	1					1						1			
Montréal, Qué.	8	20			3	1	18	2	4			4	24		
Pontiac, Qué.										1					
Richelieu, Qué.	1	2			1		1			1		2	1		
Rimouski, Qué.															
St. Hyacinthe, Qué.		1				1							1		
Terrebonne, Qué.		1				1						1			
Totaux de Québec.	10	26		1	4	1	23	2	4		2	9	27		
Algoma et Manitoulin, Ont.		2				1			1			2			
Bruce, Ont.		2						2					2		
Carleton, Ont.		7			1		3		3			3	4		
Elgin, Ont.		1				1		1				1			
Essex, Ont.		13			1		9		3			6	7		
Grey, Ont.															
Hastings, Ont.															
Huron, Ont.		7			1		5		1			4	3		
Kent, Ont.		1				1		1			1		1		
Lambton, Ont.															
Lanark, Ont.		1				1							1		
Lincoln, Ont.											1				
Middlesex, Ont.					1		4					2	3		
Muskoka et Parry Sound, Ont.															
Nipissing, Ont.		1				1							1		
Norfolk, Ont.		2			1			1				2			
Northumberland et Durham, O.		1						1				1			
Ontario, Ont.		1				1							1		
Oxford, Ont.															
Perth, Ont.		1			1							1			
Renfrew, Ont.		1				1						1			
Simcoe, Ont.		1				1					1		1		

Criminal Statistics.

TABLEAU I.											OUTRAGES CONTRE LA PERSONNE.											CLASSE I.	
BIRTH PLACES. — LIEUX DE NAISSANCE.						RELIGIONS.											RESI- DENCE.						
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autres pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Métho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.								
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.																					
.....	.....	.....	2	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2	.....							
.....	.....	.....	2	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	1	1
.....	.....	1	4	.....	.....	.....	3	1	1	.....	.....	.....	.....	5	1
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	7	.....	.....	.....	5	1	1	.....	.....	.....	.....	6	2
.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	1	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....			
.....	2	.....	2	1	.....	1	2	.....	.....	.....	.....	.....	.....	2	3
.....	.....	.....	2	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	2
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
1	2	.....	24	1	.....	1	23	1	.....	.....	1	.....	.....	27	1		
.....	.....	.....	3	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
1	2	.....	32	1	.....	1	30	1	1	.....	1	.....	.....	27	9			
.....	.....	.....	2	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	2
.....	.....	.....	2	.....	.....	.....	6	.....	1	.....	.....	.....	.....	.....	2
.....	1	.....	6	.....	.....	.....	1	.....	1	.....	.....	.....	.....	7	.....							
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
2	.....	.....	8	3	.....	.....	3	5	2	2	.....	1	.....	7	6		
.....								
.....	1	.....	6	.....	.....	.....	.....	4	2	1	.....	.....	.....	5	2
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....							
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....							
.....	.....	.....	4	1	.....	.....	.....	2	2	.....	.....	1	.....	5	.....							
.....								
.....	.....	.....	2	.....	1	.....	1	.....	.....	1	.....	.....	.....	.....	1
1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	2
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....							
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....							
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....							
1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. Sur option entre la pri- son ou l'am- nde	NO OPTION.	
									SANS OPTION.	Un- der one year. Moins d'un an.	One year and over. Un an et plus.
AGGRAVATED ASSAULT AND INFLECTING BODILY HARM—Concluded.										
Stormont, D'das & Glengarry, O.	2	1	1	1	1				c1	
Thunder Bay and Rainy River..	5	2	3	3	3			1	2	
Victoria, Ont.	6	3	3	3	3			3		
Waterloo, Ont.	2		2	2	2					
Wentworth, Ont.	23	9	13	13	13			3	7	1
York, Ont.	34	19	14	13	13	1		2	10	1
Totals of Ontario.....	143	54	86	80	4	2		22	39	6
Manitoba, Eastern.....	14	2	11	6	2	3		1	8	2
Victoria, B.C.	8		8	8				5	a2	
Westminster, B.C.	11		11	6	1	4		6	1	2
Totals of British Columbia.	19		19	14	1	4		11	3	2
Alberta, Southern N.W.T.....	2		2	2				1	1	
Assiniboia, Eastern, N.W.T....	2		2	2				1		1
Totals of N.W.T.....	4		4	4				2	1	1
Totals of Canada.....	248	64	174	153	9	12		62	66	14
ASSAULT AND OBSTRUCTING PEACE OFFICER.										
Queen's, P.E.I.....	6		6	6				6		
Annapolis, N.S.	2		2	2				2		
Halifax, N.S.	73	2	71	7	22	42		71		
King's, N.S.	2		2	2				2		
Pictou, N.S.	2		2	2				2		
Victoria, N.S.	1		1	1				1		
Yarmouth, N.S.	1		1	1					1	
Totals of Nova Scotia.....	81	2	79	15	22	42		78	1	
Albert, N.B.	1		1	1					1	
Carleton, N.B.	2		2	2					a2	
Charlotte, N.B.	1		1	1					1	
King's, N.B.	1	1								
Northumberland, N.B.	2		2	2				2		
St. John, N.B.	9		9	4	5			9		
Westmoreland, N.B.	69	1	7	3	1	3		3	4	
Totals of New Brunswick..	25	2	22	13	6	3		14	8	
Beauce, Que.	1		1	1				1		
Beauharnois, Que.	1		1		1				1	
Montreal, Que.	147	4	143	142	1			123	5	
Ottawa, Que.	2		2	2				2		
Quebec, Que.	43		43	31	10	2		43		
Totals of Quebec.....	194	4	190	176	12	2		169	6	

a 1, Both jail and fined—1, La prison et l'amende. b 1, Jury disagreed.—1, Les jurés ne se sont pas accordés. c And \$2.—Et \$2.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.											CLASSE I.			
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic. — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional. — Pro- fes- sions libé- rales.	La- borers. — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed. — En- veu- vage.	Single. — Céli- ba- taires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
VOIES DE FAIT GRAVES ET LÉSIONS CORPORELLES.—Fin.														
.....	1	.....	.....	.....	.....	.....	1	.....	.....	1
.....	1	.....	.....	.....	.....	1	1	.....	.....	1
2	1	.....	.....	.....	.....	1	.....	.....	.....	2
.....	1	.....	.....	.....	a1	.....	1	.....	3	.....	9	5	.....	8
.....	a1	.....	1	.....	.....	.....	13	3	.....	11
10	1	.....	.....	.....	a8	11	8	1	10	.....	46	29	1	50
.....	1	.....	1	1	8	2	2	7
1	1	1	1	.....	5	3	.....	5
.....	1	.....	.....	.....	b1	.....	3	.....	3	.....	3	.....	.....	8
1	1	.....	.....	.....	b1	.....	4	1	4	.....	8	3	.....	13
.....	1	.....	.....	.....	.....	1	.....	.....	1
.....	2	.....	.....	.....	.....	1	.....	.....	1
.....	3	.....	.....	.....	.....	1	.....	.....	1
16	2	.....	.....	.....	a13, b1	18	26	4	23	1	76	64	12	84
VOIES DE FAIT ET FAISANT OBSTACLE À UN OFFICIER DE LA PAIX.														
.....	6	1	.....	5
.....	1	.....	.....	1
.....	1	.....	.....	1	.....	1	.....	.....	1
.....	1	.....	1	.....	.....	1
.....	1	.....	.....	2	.....	3	3	.....	1
.....	1	.....	.....	.....	1	1
.....	1	.....	.....	.....	.....	1	.....	.....	1
.....	4	.....	.....	4
.....	2	.....	.....	1	.....	5	1	1	6
.....	1	.....	.....	1
.....	a15	2	27	3	29	1	55	68	4	69
.....	1	.....	.....	.....	1	.....	.....	1
.....	a15	2	28	3	29	1	56	69	4	70

a Sentence suspended.—Sentence suspendue. b Bound to keep the peace.—Tenus de garder la paix.

TABLE I.		OFFENCES AGAINST THE PERSON.										CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQOORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	El- e- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.					
	Inca- pable de lire ou d'é- crire.	Elé- mé- ntaire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
H.				F.	H.	F.	H.	F.	H.	F.	Mo- déré	Im- modéré	
AGGRAVATED ASSAULT AND INFLICTING BODILY HARM—Concluded.													
Storm't, D'das et Gleng'ry, O	1						1					1	
Th'der Bay et Rainy Riv., Ont	1					1			2			2	
Victoria, Ont	1					1			1			1	
Waterloo, Ont.		2			1	1						2	
Wentworth, Ont.		13			3	8						4	
York, Ont.		14			3	9			2			13	
Totaux d'Ontario	4	76			13	51			16			46	
Manitoba, Est.	1	10				10			1			2	
Victoria, Col.-B	2	6				7			1			1	
Westminster, Col.-B		6				6						1	
Totaux de la Col.-Britann.	2	12				13			1			2	
Alberta, Sud, T. du N.-O.		1				1						1	
Assiniboia, Est, T. du N.-O.									1			1	
Totaux des T. du N.-O.		1				1						3	
Totaux du Canada	17	138			1	110			2			67	
ASSAULT AND OBSTRUCTING PEACE OFFICER.													
Queen's, I. du P.-E		6				1		5				1	
Annapolis, N.-E.												2	
Halifax, N.-E.		2				1		1				67	
King's, N.-E.						1			1			2	
Pictou, N.-E.												2	
Victoria, N.-E.		1							1			1	
Yarmouth, N.-E.		1						1				1	
Totaux de la N.-Ecosse.	1	3				2		2				71	
Albert, N.-B.		1							1			1	
Carleton, N.-B.		2						1				2	
Charlotte, N.-B.												1	
King's, N.-B.												1	
Northumberland, N.-B.		1						1				1	
St. Jean, N.-B.												9	
Westmoreland, N.-B.		4						1				6	
Totaux du N.-Brunswick.		8						3				17	
Beauce, Qué												1	
Beauharnois, Qué		1						1				1	
Montréal, Qué	12	125	4	1	17	77	15	27	4	2		23	
Ottawa, Qué												2	
Québec, Qué		1										43	
Totaux de Québec	12	127	4	1	17	78	15	27	4	48		25	

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.															
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.					RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autr's pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of England. — Eglise d'Angleterre.	Methodists. — Méthodistes.	Presbyterians. — Presbytériens.	Other Denominations. — Autr's confessions.	Protestants	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales — Angleterre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.													
VOIES DE FAIT GRAVES ET LÉSIONS CORPORELLES—Fin.															
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	1	.....	1	.....	1	.....	.....	.....	.....	1	.....	1	2
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2
1	3	.....	8	1	.....	.....	10	1	3	.....	.....	.....	.....	13	.....
1	11	.....	2	.....	6	4	1	1	.....	.....	2	14	.....
6	5	.....	60	5	3	1	1	34	19	14	6	2	5	58	23
6	5	.....	.....	.....	.....	2	7	.....	2	.....	.....	10	1
2	6	.....	.....	3	.....	.....	.....	5	.....	7	1
2	3	2	2	.....	.....	4	.....	.....	.....	1	1	9	1
4	3	2	8	.....	.....	7	.....	.....	.....	6	1	16	2
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1
.....	2
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	3
17	9	1	111	9	12	1	3	82	28	16	9	9	7	121	43
VOIES DE FAIT ET FAISANT OBSTACLE À UN OFFICIER DE LA PAIX.															
.....	6	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	5	1
.....
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	.....
.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	4	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	3	1
.....
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
.....	2	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	1	1
.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
.....	4	.....	.....	.....	.....	3	1	.....	.....	.....	.....	4	.....
.....
.....	8	.....	.....	.....	.....	6	2	.....	.....	.....	.....	5	3
.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	15	1	104	2	6	.....	.....	108	2	1	1	1	25	4	135
.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
13	15	2	105	2	6	.....	.....	108	2	1	2	26	4	136	7

TABLE I. OFFENCES AGAINST THE PERSON. CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. — Sur- option entre la pri- son ou l'am- nde	NO OPTION. — SANS OPTION	
									Under one year. — Moins d'un an.	One year and over. — Un an et plus.
ASSAULT AND OBSTRUCTING PEACE OFFICER—Concluded.										
Algoma and Manitoulin, Ont.	1			1	1				1	
Brant, Ont.	1	1								
Bruce, Ont.	2			2	1		1	1		
Carleton, Ont.	6	1		5	5		1	3	2	
Elgin, Ont.	1			1	1			1		
Essex, Ont.	1			1		1		1		
Frontenac, Ont.	2			2	1		1	1	1	
Grey, Ont.	2			2		1	1	1	1	
Haldimand, Ont.	1			1	1			1		
Halton, Ont.	3			3	2			1		
Hastings, Ont.	9	1		8	8			4	4	
Kent, Ont.	2			2	1	1				
Leeds and Grenville, Ont.	1			1	1			1		
Lincoln, Ont.	2			2	2			1	1	
Middlesex, Ont.	6	2		4	1	2	1		1	
Northumberland & Durham, O.	1			1	1					
Perth, Ont.	2			2	2			1	1	
Peterborough, Ont.	1			1	1			1		
Simcoe, Ont.	7	1		6	5	1		2	1	
Stormont, D'das & Glengarry, O.	3			3	3			2		
Thunder Bay and Rainy River.	2	1		1	1				1	
Victoria, Ont.	1	1								
Waterloo, Ont.	1			1	1				1	
Welland, Ont.	1			1	1			1		
Wentworth, Ont.	10	2		8	8			6	2	
York, Ont.	36	7		29	29			14	9	
Totals of Ontario.	105	17		88	78	6	4	43	24	3
Manitoba, Eastern.	7			7	7			5	2	
Clinton, B.C.	1			1	1				1	
Victoria, B.C.	5	1		4	3	1		1	63	
Westminster, B.C.	2			2	1	1		1	1	
Totals of British Columbia.	8	1		7	5	2		2	5	
Alberta, Northern, N.W.T.	1	1								
Alberta, Southern, N.W.T.	a2			1	1			1		
Assiniboia, Eastern, N.W.T.	5			5	5			4	1	
Saskatchewan, N.W.T.	1			1	1			1		
Totals of the N.W.T.	9	1		7	7			6	1	
Totals of Canada.	435	27		406	307	48	51	323	47	3
ASSAULT AND BATTERY.										
Prince, P.E.I.	2			2	1	1			1	
Queen's, P.E.I.	2			2	2				2	
Totals of P.E. Island.	4			4	3	1			3	

a 1 Nolle prosequi. b 2, Both jail and fine.—2, La prison et l'amende.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.										CLASSE I.				
SENTENCE.					OCCUPATIONS.					CIVIL CONDITIONS.				
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries — En- voyés à la prison de Ré- forme.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commercial. — Commerçants.	Domestic. — —	Industrial. — Industriels.	Professional. — Professions libérales.	Laborers. — Journaliers.	Married. — Mariés.	Widowed. — En- veuve.	Single. — Célibataires.
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie.												
VOIES DE FAIT ET FAISANT OBSTACLE À UN OFFICER DE LA PAIX—Fin.														
								1						1
1								1			2	1		1
						1								1
							1			1	1			1
					a2			1		1	2			
					a2					4	4			
								1						1
1					a2			1			3	1		3
					a1					1	1			
					a3	1	1					1		1
					a1	1		1			1			1
										1				1
					a5		3			6	3			5
								2		23	4			24
2					a16	3	6	9	1	43	23			41
						1	2			4	2			5
								2						3
								1		1				1
								3						4
2					a31	9	36	3	44	2	118	99	5	132
AGRESSION AVEC VOIES DE FAIT.														
											2			2
					a1						2			2
					a1						4			4

α Sentence suspended.—Sentence suspendue.

TABLE I. OFFENCES AGAINST THE PERSON. CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- ré	Im- mo- de- ré
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.	M.	F.	
ASSAULT AND OBSTRUCTING PEACE OFFICER—Concluded.															
Algoma et Manitoulin, Ont.	1							1							1
Brant, Ont.	1							1							1
Bruce, Ont.	2				1			1					3	1	1
Carleton, Ont.													1		
Elgin, Ont.		1						1						1	
Essex, Ont.	1							1					1		1
Frontenac, Ont.		2						2					1	1	1
Grey, Ont.			2										1		
Haldimand, Ont.			2					2					1	2	
Halton, Ont.	4												8	4	
Hastings, Ont.													2		
Kent, Ont.		1						1							1
Leeds et Grenville, Ont.		1						1					1		1
Lincoln, Ont.	1	3						4						2	2
Middlesex, Ont.	1								1						1
Northumberl'd et Durham, O.										1			2		
Perth, Ont.		1						1							1
Peterborough, Ont.	1	1			1			1		1			4	1	1
Simcoe, Ont.	1	1						1		1			1	2	
Storm't, D'das et Glengarry, O.			1							1				1	
Th'der Bay et Rainy Riv., O.										1				1	
Victoria, Ont.															
Waterloo, Ont.		1						1							1
Welland, Ont.													1		
Wentworth, Ont.		8			2			3		3				2	6
York, Ont.		28		1	8			16	1	2			1	21	7
Totaux d'Ontario	9	54	1	1	12	37	1	9	27	1	38	26			
Manitoba, Est	1	6			1	5	1				2	5			
Clinton, Col.-B											1				
Victoria, Col.-B		3						3			1		1	2	
Westminster, Col.-B.		1						1			1			1	
Totaux de la Col.-Britann.	4							4			3	1	3		
Alberta, Nord, T. du N.-O.															
Alberta, Sud, T. du N.-O.											1				
Assiniboia, Est, T. du N.-O.											5				
Saskatchewan, T. du N.-O.											1				
Totaux des T. du N.-O.	7														
Totaux du Canada	23	208	5	2	33	134	16	41	4	173	3	75	161		
ASSAULT AND BATTERY.															
Prince, I. du P.-E.		2						2							2
Queen's, I. du P.-E.		2						2							2
Totaux de l'Ile du P.-E.	4							4							4

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
ASSAULT AND BATTERY—Continued.										
Antigonish, N.S.	2	2								
Cumberland, N.S.	3	1	2							
Guysborough, N.S.	1			1	1			1		
Halifax, N.S.	12	5		7	7			6	1	
Hants, N.S.	2			2	2			2		
Pictou, N.S.	5	1		4	4				4	
Shelburne, N.S.	2			2	1		1		2	
Victoria, N.S.	3	3								
Yarmouth, N.S.	5			5	5			5		
Totals of Nova Scotia	35	12	2	21	20		1	14	7	
King's, N.B.	a2									
Northumberland, N.B.	2			2	2			1	1	
Westmoreland, N.B.	b15	8		4	3	1			4	
Totals of New Brunswick	19	8		6	5	1		1	5	
Arthabaska, Que.	2			2	2			2		
Bedford, Que.	2			2	2				2	
Gaspé, Que.	1	1								
Montreal, Que.	14	3		11	10	1		11		
Ottawa, Que.	1			1	1				1	
Rimouski, Que.	2			2			2		2	
St. Francis, Que.	9	7		2	2				2	
Terrebonne, Que.	8			8	8			5	3	
Totals of Quebec	39	11		28	25	1	2	18	10	
Algoma and Manitoulin, Ont.	6			6	6				5	
Brant, Ont.	8			8	5	1	2	3	2	
Carleton, Ont.	3			3	3			2	1	
Elgin, Ont.	11	8		3	3			1		
Essex, Ont.	2			2	2			2		
Frontenac, Ont.	1			1			1		1	
Grey, Ont.	1			1	1					
Haldimand, Ont.	1	1								
Halton, Ont.	3	1		2	2			1		
Hastings, Ont.	4	3		1	1			1		
Huron, Ont.	1			1	1			1		
Kent, Ont.	c3			2	2			2		
Lanark, Ont.	3	1	1	1	1			1		
Middlesex, Ont.	4	4								
Mu-koka and Parry Sound, Ont.	5	2		3	3			2	1	
Nipissing, Ont.	1			1	1				1	
Norfolk, Ont.	3	2		1			1			
Northumberland & Durham, O.	1			1	1			1		
Ontario, Ont.	1			1	1					
Oxford, Ont.	4	3		1	1			1		
Peel, Ont.	4	1		3	3					
Perth, Ont.	3			3	3			3		

a 2, Nolle prosequi. b 3, Nolle prosequi. c 1, Jury disagreed—1, Le juré ne s'est pas accordé.

TABLE I. OFFENCES AGAINST THE PERSON. CLASS I.															
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Im- mo- de- rate	rate
				Moins de 16 ans.	16 ans et moins de 21.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.				
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- dé- ré	
H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.				
ASSAULT AND BATTERY—Continued.															
Antigonish, N.-E.															
Cumberland, N.-E.															
Guysborough, N.-E.		1													
Halifax, N.-E.	2	5		1	3		1	2		1			7	1	
Hants, N.-E.		2					1	1					2		
Pictou, N.-E.		4			1		3						4		
Shelburne, N.-E.		1						1		1			1		
Victoria, N.-E.															
Yarmouth, N.-E.		4	1				4	1					4	1	
Totaux de la N.-Ecosse	2	17	1	1	4		8	1	5		2		19	1	
King's, N.-B.															
Northumberland, N.-B.		1							1		1		1		
Westmoreland, N.-B.		4							1		3		2	2	
Totaux du N.-Brunswick		5							2		4		3	2	
Arthabaska, Qué.		2					2						2		
Bedford, Qué.		2		1						1			2		
Gaspé, Qué.															
Montréal, Qué.	2	9			2		6		3				6	5	
Ottawa, Qué.	1								1				2	1	
Rimouski, Qué.	2						2						2		
St. François, Qué.	2						2						2		
Terrebonne, Qué.	2	6		1			3		4				4	4	
Totaux de Québec	9	19		2	2		15		8	1			18	10	
Algoma et Manitoulin, Ont.		6			1		4		1				2	4	
Brant, Ont.	1	7							2	1	5		5	3	
Carleton, Ont.		3					3						2	1	
Elgin, Ont.		3			1		1		1				2	1	
Essex, Ont.		2					1		1				2		
Frontenac, Ont.		1					1						1		
Grey, Ont.		1								1			1		
Haldimand, Ont.															
Halton, Ont.		2					1		1				1	1	
Hastings, Ont.		1									1		1		
Huron, Ont.		1							1				1		
Kent, Ont.		1							1		1		1		
Lanark, Ont.		1					1						1		
Middlesex, Ont.															
Muskoka et Parry Sound, Ont.	1	2					2		1				1	2	
Nipissing, Ont.		1					1						1		
Norfolk, Ont.		1							1				1		
Northumberl'd et Durham, O.	1						1						1		
Ontario, Ont.		1					1						1		
Oxford, Ont.			1						1				1		
Peel, Ont.		3					2		1				1	3	
Perth, Ont.		3					2		1				3		

Criminal Statistics.

TABLEAU I.						OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada.	Uni- ted States	Other Fo- reign Coun- tries.	Other Bri- tish Pos- ses- sions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Metho- dists	Pres- byte- rians.	Other Deno- mina- tions.	Cities and Towns—Villes. Rural Districts—Districts ruraux.	
Eng- land and Wales	Ire- land.	Scot- land.		—	Aut- res pays étran- gers.	Autr's posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.	Mé- tho- dis- tes.	Pres- byté- riens.	Pro- tes- tants		Autr's con- fes- sions.
1	1		2		2	1	1	3	1		2	1	7	1
			2				1	1					1	1
			4					1					4	2
			2						1					
			5				1	1	2	1			5	
1	1		16		2	1	3	6	3	2	2	3	17	4
			1					1						1
			4				1	1		1	1		3	1
			5				1	2		1	1		3	2
			2					2						2
			1	1						2				2
2			9				1	8	2				6	5
			1					1						1
			2					2						2
			2					2						2
			5					5				3		8
2			22	1			1	20	2	2		3	6	22
3	1		6					3	2		1		3	6
			3		1			1	2			5	3	5
1			3					1	1	1		3	3	1
			2					2					2	1
			1	1				1		1			2	1
		1	1								1			1
			2					1		1			2	
			1					1					1	1
1			1					1						1
									1					1
			3					1	2				2	1
			1					1						1
				1			1							1
			1							1				1
			1							1				1
			1							1				1
			2					1			2			3
	1	1	2					2				1	1	2

AGRESSION AVEC VOIES DE FAIT—Suite.

TABLE I.		OFFENCES AGAINST THE PERSON.							CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.		De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
		M.	F.		Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine. Sur option entre la pri- son ou l'a- mnde	— SANS OPTION.	
										Un- der one year. Moins d'un an.	One year and over. Un an et plus.
ASSAULT AND BATTERY—Concluded.											
Prince Edward, Ont.	2	1			1	1				1	
Simcoe, Ont.	5	1			4	2	1	1	2	2	
Stormont, D'das & Glengarry, O.	1				1		1				
Thunder Bay and Rainy River. .	5	4			1	1			1		
Victoria, Ont.	8	1			7	7			2	2	
Waterloo, Ont.	1	1									
Welland, Ont.	2				2	2					
Wellington, Ont.	1				1	1			1		
Wentworth, Ont.	3	2			1	1			1		
York, Ont.	10				10	10			9		
Totals of Ontario.	111	36	1		73	65	3	5	37	16	
Manitoba, Central.	13	3			10	10			10		
Manitoba, Eastern.	3				3	3			1	1	
Manitoba, Western.	2	2									
Totals of Manitoba.	18	5			13	13			11	1	
Cariboo, B.C.	3				3	3			2	1	
Clinton, B.C.	4				4	3	1			4	
Westminster, B.C.	3	2			1	1			1		
Totals of British Columbia. .	10	2			8	7	1		3	5	
Alberta, Northern, N.W.T.	18	17			1	1				1	
Alberta, Southern, N.W.T.	9	5	3		1	1				1	
Assiniboia, Eastern, N.W.T.	65	2			2	2			1	1	
Assiniboia, Western, N.W.T.	6	5			1	1			1		
Saskatchewan, N.W.T.	1	1									
Totals of the N.W.T.	39	30	3		5	5			2	3	
Totals of Canada.	275	104	6		158	143	7	8	86	50	
VARIOUS OTHER OFFENCES AGAINST THE PERSON.											
Colchester, N.S.	1		1								
Halifax, N.S.	1				1	1				1	
Pictou, N.S.	1				1	1				1	
Totals of Nova Scotia.	3		1		2	2				2	
St. John, N.B.	1	1									
Sunbury, N.B.	a1										
Westmoreland, N.B.	1				1	1				1	
Totals of New Brunswick. .	3	1			1	1				1	
Montreal, Que.	12				12	10		2			
Quebec, Que.	2	2									
St. Francis, Que.	1	1									
Totals of Quebec.	15	3			12	10		2			

a Jury disagreed—Les jurés ne se sont pas accordés. b 1, Nolle prosequi,

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — En- voyés à la prison de Réforme.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and under five. — Deux ans et moins de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
AGRESSION AVEC VOIES DE FAIT—Fin.														
					3					1	1			
					a1					1	3		1	1
					a3	1			1	3		1		1
					a2	1				2		1		2
					a1	1				8	3			7
			1	a18, b1	14	2	1	6	1	42	33	2		33
					4	1		1		3	8			2
					a1	1	1		1		3			3
					a1	5	2		1	1	3	11		2
							1			2	1			2
								1		1				1
								1		3	1			4
					1						1			
					1						1			
			1	a20, b1	26	13	2	17	2	77	65	3		76
DIVERS AUTRES OUTRAGES CONTRE LA PERSONNE.														
								1				1		
								1				1		
					b12			4		7	10			2
					b12			4		7	10			2

a Sentence suspended.—Sentence suspendue. b Bound to keep the peace.—Tenus de garder la paix.

TABLE I.			OFFENCES AGAINST THE PERSON.										CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Im- mo- de- rate	Mo- de- rè			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré	Im- mo- déré	
ASSAULT AND BATTERY—Concluded.															
Prince-Edouard, Ont.		1					1							1	
Simcoe, Ont.	3	1					1		3				1	3	
Storm't. D'das et Gleng'ry, O.		1							1					1	
Th'der Bay et Rainy Riv., O.		1							1					1	
Victoria, Ont.		4					4				3		4		
Waterloo, Ont.															
Welland, Ont.		2									2		2		
Wellington, Ont.		1							1				1		
Wentworth, Ont.											1				
York, Ont.		10			2		6	1	1				8	2	
Totaux d'Ontario.	6	61	1		4		33	1	20	2	13		44	23	
Manitoba, Centre.	4	6					5		4		1		8	2	
Manitoba, Est.		3					1		2				3		
Manitoba, Ouest.															
Totaux de Manitoba.	4	9					6		6		1		11	2	
Caribou, Col.-B.	1	2					3						2	1	
Clinton, Col.-B.							1				3			1	
Westminster, Col.-B.		1					1								
Totaux de la Col.-Britann.	1	3					5				3		2	2	
Alberta, Nord, T. du N.-O.											1				
Alberta, Sud, T. du N.-O.											1				
Assiniboia, Est, T. du N.-O.											2				
Assiniboia, Ouest, T. du N.-O.											1				
Saskatchewan, T. du N.-O.															
Totaux des T. des N.-O.											5				
Totaux du Canada.	22	118	2	3	10		71	2	41	3	28		97	44	
VARIOUS OTHER OFFENCES AGAINST THE PERSON.															
Colchester, N.-E.															
Halifax, N.-E.		1					1						1		
Pictou, N.-E.															
Totaux de la N.-Ecosse.		1					1						1		
St. Jean, N.-B.															
Sunbury, N.-B.									1					1	
Westmoreland, N.-B.		1													
Totaux du N.-Brunswick.		1							1					1	
Montréal, Qué.	4	8					8		4				2	10	
Québec, Qué.															
St. François, Qué.															
Totaux de Québec.	4	8					8		4				2	10	

Criminal Statistics.

TABLEAU I.										OUVRAGES CONTRE LA PERSONNE.						CLASSE I.	
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.			
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States.	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants.	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.		
England and Wales.	Ireland.	Scotland.														Etats-Unis.	Autres pays étrangers.	Autres possessions Britanniques.	Baptistes.	Catholiques.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Autres confessions.
AGRESSION AVEC VOIES DE FAIT—Fin.																	
	1			2	1			1	2					1	4		
	1			1							1				1		
				1										1	1		
				4				2	1			1		1	3		
				2								2			2		
		1									1				1		
			10					2	5		2		1	8	2		
5	4	3	52	3	1		1	21	17	6	10	11	2	25	40		
2	2		6		1			2	3	4	1	1	1	3	7		
			2								1			1	2		
2	2		8		1			2	3	4	2	1	1	4	9		
			3					2	1					1	2		
1										1					1		
1			3					2	1	1				1	3		
															1		
															1		
11	7	3	110	4	4	1	6	57	26	16	15	18	4	61	83		
DIVERS AUTRES OUVRAGES CONTRE LA PERSONNE.																	
			1					1						1			
			1					1						1			
			1				1							1			
			1				1							1			
1			9	1	1			8	3				1	12			
1			9	1	1			8	3				1	12			

TABLE I. OFFENCES AGAINST THE PERSON— <i>Concluded.</i> CLASS I.										
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE. — COMMITTED TO JAIL — EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	NO OPTION. — SANS OPTION	
					—	—	—		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.			
M. F.										
VARIOUS OTHER OFFENCES AGAINST THE PERSON—<i>Concluded.</i>										
Brant, Ont.	1			1	1			1		
Carleton, Ont. . .	1	1								
Elgin, Ont.	1			1	1					
Grey, Ont.	1		1							
Halton, Ont.	1			1	1			1		
Hastings, Ont. . .	1			1	1			1		
Kent, Ont.	1			1	1			1		
Middlesex, Ont. .	2	2								
Prince Edward, Ont	3			3	3			2	1	
Stormont, D'das & Glengarry, O.	1			1	1					1
Thunder Bay and Rainy River.	a1									
Victoria, Ont. . .	3	1		2	2				2	
Wellington, Ont. .	3			3	3					
Wentworth, Ont . .	19	6		13	13			1		1
York, Ont.	9	3	2	4	3	1			1	
Totals of Ontario.	48	13	2	1	31	30	1	7	4	2
Westminster, B.C.	1			1		1		1		
Alberta, Southern, N.W.T.	1	1								
Totals of Canada.	71	18	3	1	47	43	2	2	8	7
OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.										
BURGLARY AND HAVING BURGLARS' TOOLS.										
Colchester, N.S.	1	1								
Halifax, N.S.	10	4			6	6				3
Victoria, N.S.	1				1	1				
Totals of Nova Scotia.	12	5			7	7				3
Arthabaska, Que . .	1				1	1				1
Bedford, Que.	1				1		1			
Joliette, Que.	2	2								
Montreal, Que. . .	9	1			8	2	3	3		2
Quebec, Que.	2				2		1	1		
St. Francis, Que . .	14			1	13	13				2
St. Hyacinthe, Que .	3	3								
Three Rivers, Que .	1	1								
Totals of Quebec.	33	7		1	25	16	5	4		5
Bruce, Ont.	1				1	1				1
Carleton, Ont.	3				3	2		1		

a Nolle prosequi.

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. — ETATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- cants.	Do- mestic — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and under five. — Deux ans et moins de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
DIVERS AUTRES OUTRAGES CONTRE LA PERSONNE—Fin.														
										1	1			
					b1					1		1		
										1	1			
										1	1			
										1		1		
										2				2
					a3									
					b11	1	2	1		7	5			8
					b3					4	3			1
					a3, b15	1	2	1		19	11	3		11
							1							1
					a3, b27	1	3	1	5	26	22	3		14
DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.														
VOL AVEC EFFRACTION ET AYANT EN POSSESSION DES OUTILS DE VOLEUR.														
2					1				3	2	2			4
1									1	1	1			1
3					1				4	2	3			4
1								1		1				1
1	1							3		2	1	1	1	6
1	1							1		1	1			1
9								1		4	1			3
											1			8
12	2					a2	1	4	4	8	4	1		20
									1		1			2
	1								2	1	1			2

TABLE I.		OFFENCES AGAINST THE PERSON.												CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.		EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS			
		Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate
					Moins de 16 ans.		16 ans et moins de 21.		21 ans et moins de 40.		40 ans et plus.		Non- donné.			
		Inca- pable de lire ou d'é- crire.	Elé- mé- ntaire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré	Im- mo- déré
VARIOUS OTHER OFFENCES AGAINST THE PERSON—Concluded.																
Brant, Ont.		1											1	1		
Carleton, Ont.			1					1						1		
Elgin, Ont.																
Grey, Ont.																
Haltou, Ont.													1	1		
Hastings, Ont.	1									1						
Kent, Ont.	1									1					1	
Middlesex, Ont.																
Prince-Edouard, Ont.	1									1			2		1	
Storm't, D'das et Gleng'ry, O.			1							1					1	
Th' der Bay et Rainy Riv., Ont.																
Victoria, Ont.	2					1				1					2	
Wellington, Ont.													1	2		
Wentworth, Ont.			13		2	2	1	3	1	4				5	8	
York, Ont.			4			1		1		2				3	1	
Totaux d'Ontario.	5	20			2	4	1	5	1	11			5	2	13	12
Westminster, Col.-B.			1							1						1
Alberta, Sud, T. du N.-O.																
Totaux du Canada	9	31			2	4	1	15	1	16			5	3	16	24
OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.																
BURGLARY AND HAVING BURGLARS' TOOLS.																
Colchester, N.-E.																
Halifax, N.-E.		5	1	1	1			3		1				3	3	
Victoria, N.-E.		1						1						1		
Totaux de la N.-Ecosse		6	1	1	1			4						4	3	
Arthabaska, Qué.			1			1								1		
Bedford, Qué.		1						1							1	
Joliette, Qué.																
Montréal, Qué.		8				1		6		1				3	5	
Québec, Qué.	2					1		1						1	1	
St. François, Qué.	3	10				2		10		1				6		
St. Hyacinthe, Qué.																
Trois-Rivières, Qué.																
Totaux de Québec	5	19	1			5		18		2				11	7	
Bruce, Ont.			1							1					1	
Carleton, Ont.	1	2								3				2	1	

Criminal Statistics.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.															
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of England. — Eglise d'Angleterre.	Methodists. — Méthodistes.	Presbyterians. — Presbytériens.	Protestants — Autres confessions.	Other Denominations. — Autres confessions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales — Angle terre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.													
DIVERS AUTRES OUTRAGES CONTRE LA PERSONNE—Fin.															
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	1	.....	.....	1
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....	.....	1
.....	.....	.....	.....	2	.....	.....	2	.....	.....	.....	.....	.....	.....	2
.....	2	1	10	.....	.....	.....	1	4	4	3	1	.....	12	1
.....	.....	1	3	.....	.....	.....	.....	2	.....	.....	2	.....	4	.....
.....	2	2	19	2	.....	.....	1	9	4	5	4	2	17	8
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	
1	2	2	31	3	1	2	19	7	5	4	2	1	32	8
DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.															
VOL AVEC EFFRACTION ET AYANT EN POSSESSION DES UTILS DE VALEUR.															
1	5	1	2	2	1	6
.....	1	1	1	1	1
1	5	1	1	2	3	1	6	1
.....	1	1	1	1
.....	1	1	5	1	7	1	8
.....	2	2	2
.....	6	7	6	7	10	3
.....	2	1	14	7	1	15	2	1	7	21	4
.....	1	1	1
.....	3	2	1	3

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE.		CLASS II.									
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL		—	
								With the option of a fine.	No OPTION.	EMPRISONNÉS.	
										SANS OPTION	Un- der one year.	One year and over.
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	Sur option entre la pri- son ou l'a- m'nde	Moins d'un an.	Un an et plus.	
		M.	F.								
BURGLARY AND HAVING BURGLARS' TOOLS—Concluded.											
Elgin, Ont.	3			3	2		1		1		
Essex, Ont.	6			6	4	2				4	
Grey, Ont.	2			2	2						
Haldimand, Ont.	1			1	1				1		
Kent, Ont.	1	1									
Leeds and Grenville, Ont.	4	4									
Lincoln, Ont.	4	2		2	1		1				
Muskoka and Parry Sound, Ont.	2			2	2				1	1	
Oxford, Ont.	1			1	1						
Perth, Ont.	2			2	2				2		
Peterborough, Ont.	2	1		1	1					1	
Simcoe, Ont.	2	1		1			1		1		
Thunder Bay and Rainy River	1	1									
Waterloo, Ont.	1	1									
Welland, Ont.	5			5	4	1			3	1	
Wellington, Ont.	3			3	3						
Wentworth, Ont.	6	2		4	4				1	1	
York, Ont.	21	8		13	13				4	3	
Totals of Ontario	71	21		50	43	3	4		16	12	
Victoria, B.C.	1			1	1					1	
Alberta, Southern, N.W.T.	2			2	2						
Totals of Canada	119	33	1	85	69	8	8		24	17	
HOUSE AND SHOPBREAKING.											
Queen's, P.E.I.	5			5	5						
Antigonish, N.S.	4			4	4						
Colchester, N.S.	4	4									
Cumberland, N.S.	3			3	3						
Hants, N.S.	1			1	1						
Yarmouth, N.S.	1			1		1					
Totals of Nova Scotia	13	4		9	8	1					
St. John, N.B.	1			1			1				
Westmoreland, N.B.	3	1		2	2						
Totals of New Brunswick	4	1		3	2		1				
Montreal, Que.	72	20		52	20	10	22		11	4	
Rimouski, Que.	1			1			1		1		
St. Francis, Que.	3			3	3				3		
Totals of Quebec	76	20		56	23	10	23		15	4	

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

SENTENCE.			OCCUPATIONS.						CIVIL CONDITIONS.								
PENITENTIARY. — PÉNITENCIER.			D'th. —	Com- mit- ted to Refor- ma- to- ries	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single			
Two years and un- der five.	Five years and over.	Life.													D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort.	En- voyés à la prison de Réforme.	Autres Senten- ces.	Agriculteurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mariés.	En- veu- vage.	Céli- ba- itaires.
VOL AVEC EFFRACTION ET AYANT EN POSSESSION DES OUTILS DE VOLEUR—Fin.																	
1					a2						1			3			
2					a1		1		4		1	1		5			
											1		1	2			
	2							1			1			2			
					a1	1					2			2			
									1		2			1			
											1			1			
				1			1				3			5			
	1				a2				2		1			3			
2											2			2			
1	2				a3						6	2		11			
6	6			1	a9	1	2		13		22	5	1	42			
							1							1			
1	1										2			2			
22	9			2	a11	2	7		21		34	12	2	69			
BRIS DE MAISONS ET DE MAGASINS.																	
	1				b4						1			5			
	4						1				2			4			
	3										3			3			
1						1								1			
1							1							1			
2	7					1	1	1			5			9			
	1										1	1		2			
2											2			2			
2	1										3	1		4			
13	5				a19	2	3		23		24	15	2	35			
											1			1			
											3			3			
13	5				a19	2	3		23		28	15	2	39			

a Sentence suspended.—Sentence suspendue. b Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.														
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un-able to read or write.	Ele-men-tary.	Supe-rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Im-mo-de-rate
				M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.			
	Inca-pable de lire ou d'é-crire.	Élé-mentaire.	Supé-rieure.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo-déré
—				—	—	—	—	—	—	—	—	—	—	—
BURGLARY AND HAVING BURGLARS' TOOLS—Concluded.														
Elgin, Ont.		3		2		4		2		2			2	1
Essex, Ont.		6						2						6
Grey, Ont.		2						2					1	1
Haldimand, Ont.	1							1						1
Kent, Ont.														
Leeds et Grenville, Ont.														
Lincoln, Ont.		2						2					2	
Muskoka et Parry Sound, O.		2				1		1					2	
Oxford, Ont.		1				1		1					1	
Perth, Ont.		2				2							2	
Peterborough, Ont.		1						1						1
Simcoe, Ont.		1				1								1
Th' der Bay et Rainy Riv., O.														
Waterloo, Ont.														
Welland, Ont.		5		1				4					1	4
Wellington, Ont.		3				2				1			3	
Wentworth, Ont.		2				1		1			2			2
York, Ont.		13		3		3		7					12	1
Totaux d'Ontario.	2	46		6		15		25		2		2	28	20
Victoria, Col.-B.		1						1					1	
Alberta, Sud, T. du N.-O.		2						2					2	
Totaux du Canada.	7	74	2	7		21		50		5		2	46	30
HOUSE AND SHOP BREAKING.														
Queen's, I. du P.-E.	1	4		4				1					4	1
Antigonish, N.-E.		4				2		2					4	
Colchester, N.-E.														
Cumberland, N.-E.		3						3						3
Hants, N.-E.	1					1							1	
Yarmouth, N.-E.		1						1					1	
Totaux de la N.-Ecosse.	1	8				3		6					6	3
St.-Jean, N.-B.		1						1						1
Westmoreland, N.-B.		2				1		1					1	1
Totaux du N.-Brunswick.		3				1		2					1	2
Montréal, Qué.	13	39				25		23		4			15	37
Rimouski, Qué.	1							1					1	
St. François, Qué.		3				2		1					3	
Totaux de Québec.	14	42				27		25		4			19	37

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.	
England and Wales	Ireland.	Scotland.		—	Autres pays étrangers.	Autr's possessions Britanniques.		Catholics.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Protes-tants			Autr's confes-sions.
Angle terre et Galles	Ir-lande.	Ecos-se.	Etats-Unis.			Bap-tistes.	Catho-ques.	Eglise d'An-gle-terre.	Métho-distes.	Pres-bytériens.	Autr's confes-sions.				
.....	2	1	.....	.....	1	.....	.....	.....	1	3	.....	
.....	5	1	.....	.....	2	.....	3	1	.....	6	.....	
1	1	.....	.....	.....	2	.....	1	.....	.....	2	.....	
.....	1	.....	
.....		
.....	2	.....	.....	.....	1	.....	1	.....	.....	2	.....	
.....	1	1	.....	.....	.....	1	1	.....	.....	2	.....	
.....	1	1	.....	.....	.....	.....	1	1	.....	2	1		
.....	1	1	.....	.....	.....	.....	1	1	.....	1	.....	
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	
.....	3	2	.....	.....	3	.....	2	.....	.....	2	3		
.....	2	.....	1	.....	.....	.....	2	1	.....	3	.....	
1	1	.....	.....	.....	.....	1	1	.....	.....	2	.....	
2	1	9	1	.....	.....	1	4	5	3	.....	10	3	
4	1	1	34	7	1	1	13	8	17	6	1	41	7	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	1	.....	
1	1	1	1	2	
6	4	2	54	14	2	1	2	32	14	17	8	8	1	71	12
BRIS DE MAISONS ET DE MAGASINS.															
.....	5	3	2	5	
.....	3	1	2	1	1	4	
.....	3	3	3	
.....	1	1	1	
.....	8	1	5	2	2	5	4	
.....	1	1	1	
.....	2	1	1	2	
.....	3	1	1	1	1	2	
1	3	45	2	1	46	3	1	1	1	48	4
.....	1	1	1
.....	3	3	3
1	3	49	2	1	50	3	1	1	1	51	5

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE.		CLASS II.								
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. — Sur- option entre la pri- son ou l'a- m'nde	NO OPTION.	
									SANS OPTION	Un- der one year.	One year and over. — Un an et plus.
HOUSE AND SHOP BREAKING—Concluded.										
Carleton, Ont.	17	5		12	7	5		3	5	
Elgin, Ont.	1			1	1					
Essex, Ont.	2			2	1	1			1	
Grey, Ont.	4	1		3	2		1	1		
Haldimand, Ont.	7	1	1	5	2	1	2	2	2	
Halton, Ont.	4	3		1			1	1		
Hastings, Ont.	5	4		1	1			1		
Huron, Ont.	2	1		1	1			1		
Kent, Ont.	2			2	2					
Lambton, Ont.	1			1	1			1		
Lanark, Ont.	3			3	2	1		1	1	
Leeds and Grenville, Ont.	4		1	3	1	2		1		
Lincoln, Ont.	3	2		1					1	
Middlesex, Ont.	7	4		3	1	1	1	1		
Muskoka and Parry Sound, Ont.	3			3		2	1	2		
Nipissing, Ont.	2			2	2			2		
Norfolk, Ont.	2	1		1	1				1	
Northumberland & Durham, O.	10	2		8	2	4	2	3	2	
Ontario, Ont.	2			2	2				1	
Oxford, Ont.	5	1		4	4					
Perth, Ont.	3			3		3			1	
Prescott and Russell, Ont.	2			2	2					
Renfrew, Ont.	7			7	5	1	1	1		
Simcoe, Ont.	4	1		3		2	1	1		
Stormont, D'as & Glengary, O.	3	2		1	1				1	
Thunder Bay and Rainy River.	6	2		4	2	2		2		
Victoria, Ont.	2			2			2	1	1	
Welland, Ont.	2			2	2			1		
Wellington, Ont.	1			1	1					
Wentworth, Ont.	9			9	6		3	5	2	
York, Ont.	103	43		60	51	6	3	32	9	
Totals of Ontario.	228	73	1	153	103	31	19	63	28	
Manitoba, Eastern.	7			7	6	1		5	1	
Manitoba, Western.	2	2								
Totals of Manitoba.	9	2		7	6	1		5	1	
Clinton, B.C.	2			2		2				
Victoria, B.C.	6	2		4	2		2	2		
Westminster, B.C.	3	1		2	2			2		
Totals of British Columbia.	11	3		8	4	2	2	4		
Alberta, Northern, N.W.T.	1	1								
Assiniboia, Eastern, N.W.T.	1			1	1					
Saskatchewan, N.W.T.	1			1		1		1		
Totals of the N.W.T.	3	1		2	1	1		1		
Totals of Canada.	349	104	1	243	152	46	45	88	33	

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commercial. — Commerçants.	Domestic. — Servi- teurs.	Indus- trial. — Indus- triels.	Profes- sional. — Profes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
BRIS DE MAISONS ET DE MAGASINS—Fin.														
.....	2	.....	.....	1	a2	.....	5	.....	.....	2	1	1	10
1	2	.....	.....	.....	.....	.....	.....	2	.....	3	.....	.....	2
.....	.....	.....	.....	.....	a1	.....	1	.....	.....	4	2	1	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
1	1	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	1	.....	.....	.....	a1	.....	1	1	.....	2	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3
.....	1	.....	.....	.....	a2	.....	1	.....	.....	2	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2
1	.....	.....	.....	.....	a2	.....	.....	1	.....	6	.....	.....	8
1	.....	.....	.....	1	a3	.....	1	2	.....	2	.....	.....	2
2	.....	.....	.....	.....	.....	.....	.....	2	.....	1	1	.....	2
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
2	1	.....	.....	1	a4	.....	1	1	.....	1	.....	.....	5
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
1	.....	.....	.....	.....	a1	.....	.....	.....	.....	1	1	.....	3
.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	2	.....	.....
1	.....	.....	.....	1	.....	.....	1	.....	.....	1	1	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
4	1	.....	.....	5	a2	.....	.....	1	.....	2	.....	.....	3
.....	.....	.....	.....	.....	a9	.....	.....	.....	.....	44	3	.....	57
16	10	.....	.....	9	a27	1	11	1	14	82	13	2	127
1	.....	.....	.....	.....	.....	.....	1	1	.....	5	.....	.....	7
1	.....	.....	.....	.....	.....	.....	1	1	.....	5	.....	.....	7
2	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	4
2	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	8
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
37	26	.....	.....	9	a46, b4	4	17	3	37	132	29	4	198

a Sentence suspended.—Sentence suspendue. f For 5 charges.—Pour 5 indictements. b Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE											CLASS II.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
H.				F.	H.	F.	H.	F.	H.	F.			
HOUSE AND SHOP BREAKING—Concluded.													
Carleton, Ont.		12		4	2	5	1				5	7	
Elgin, Ont.		1		1							1	1	
Essex, Ont.		2				1	1				1	1	
Grey, Ont.		3			2		1				2	1	
Haldimand, Ont.		3				2	3				1	4	
Halton, Ont.	1					1						1	
Hastings, Ont.		1			1				1		1		
Huron, Ont.		1			1						1		
Kent, Ont.		1				1			1			1	
Lambton, Ont.		1			1						1		
Lanark, Ont.		3			3							3	
Leeds et Grenville, Ont.	1	2		1			1				2	1	
Lincoln, Ont.		1				1						1	
Middlesex, Ont.	1	2		1	1	1					2	1	
Muskoka et Parry Sound, Ont.		3			2	1					3		
Nipissing, Ont.		2			2						2		
Norfolk, Ont.									1				
Northumberland et Durham, O.		8			2	6					4	4	
Ontario, Ont.		2				2						2	
Oxford, Ont.		3		1	1	1			1		3		
Perth, Ont.		3			1	2					3		
Prescott et Russell, Ont.		2							2			2	
Renfrew, Ont.		5		3	2				2		5		
Simcoe, Ont.	1	2			1	2						3	
Storm't, D'das et Gleng'ry, O.		1			1						1		
Th'der Bay et Ramy River, O.	1	3		3	1		1				3	1	
Victoria, Ont.		2				2						2	
Welland, Ont.		2				2						2	
Wellington, Ont.		1		1							1		
Wentworth, Ont.		3			1	2			6		1	2	
York, Ont.		60		13	33	13	1				54	6	
Totaux d'Ontario	5	135		28	56	46	9		14		97	45	
Manitoba, Est	3	4			1	6					3	4	
Manitoba, Ouest													
Totaux de Manitoba	3	4			1	6					3	4	
Clinton, Col.-B.		2							2		2		
Victoria, Col.-B.		4			1	2	1				4		
Westminster, Col.-B.		1				1			1			1	
Totaux de la Col.-Britann.		7			1	3	1		3		6	1	
Alberta, Nord, T. du N.-O.													
Assiniboia, Est, T. du N.-O.						1			1				
Saskatchewan, T. du N.-O.		1				1						1	
Totaux des Ter. du N.-O.		1				1			1			1	
Totaux du Canada	24	204		32	89	90	14		18		136	94	

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.															
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autr's possessions étrangeres.	Other British Possessions. — Autr's possessions Britanniques.	Bap- tists. — Bap- tistes.	R. Catho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Metho- dists — Métho- distes.	Pres- byterians. — Pres- bytériens.	Pro- tes- tants — Autr's con- fession- sions.	Other Deno- minations. — Autr's con- fession- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
2	10	1													
1	1	3	1	1	1	1	1	1	1	1	1	1	1		
1	1	2	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
1	1	1	1	1	1	1	1	1	1	1	1	1	1		
10	1	1	47	1	19	25	8	8	8	12	60	123	21		
21	2	3	113	3	3	49	40	17	15	6	12	123	21		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7	7	2		
1	2	3	3	1	5	2	2	2	2	2	7				

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	
									Un- der one year — Moins d'un an.	One year and over. — Un an et plus.
ROBBERY AND DEMANDING WITH MENACES.										
Queen's, P.E.I.	1			1			1			
Montreal, Que.	16	3		12	6	2	4		1	
Quebec, Que.	2	1		1	1					
Totals of Quebec.	18	4		13	7	2	4		1	
Bruce, Ont.	1	1								
Carleton, Ont.	5			5	5				3	2
Elgin, Ont.	2	2								
Essex, Ont.	7			7	7					1
Frontenac, Ont.	2	1		1	1					1
Grey, Ont.	4			4	3		1			
Halton, Ont.	1	1								
Lanark, Ont.	1			1	1					
Lincoln, Ont.	1	1								
Middlesex, Ont.	2			1	1					
Oxford, Ont.	3			3	3					1
Perth, Ont.	1			1		1			1	
Welland, Ont.	4			4	3		1			
Wellington, Ont.	1			1	1					
Wentworth, Ont.	21	10		11	7	1	3		3	2
York, Ont.	37	18		19	16	2	1		10	3
Totals of Ontario.	93	34		58	48	4	6		17	10
Victoria, B.C.	2			2	1	1		1	1	
Westminster, B.C.	1			1	1					
Totals of British Columbia	3			3	2	1		1	1	
Assiniboia, Eastern, N.W.T.	1	1								
Totals of Canada.	116	39		75	57	7	11	1	19	10
WAREHOUSE AND FREIGHT CAR BREAKING.										
Haldimand, Ont.	1			1	1					1
Leeds and Grenville, Ont.	1			1	1					1
Oxford, Ont.	2			2	2					2
York, Ont.	1			1	1					
Totals of Ontario.	5			5	5					4
Assiniboia, Western, N.W.T.	2	2								
Totals of Canada.	7	2		5	5					4

a 1 left the country.—1 a quitté le pays. b 1 Jury disagreed.—1 juré ne se s'est pas accordé.

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. De mort	Com- mitted to Refor- ma- to- ries En- voyés à la prison de Ré- forme.	Other Senten- ces. Autres Senten- ces.	Agricultural. Agriculteurs.	Com- mer- cial. Com- mer- çants.	Do- mestic Servi- teurs.	In- dus- trial. In- dus- triels.	Pro- fes- sional Pro- fes- sions libé- rales.	La- borers Jour- na- liers.	Mar- ried. Mariés.	Wi- dowed En- veu- vage.	Single Céli- ba- taires.
Two years and un- der five.	Five years and over.	Life.												
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie.												
VOL ET DEMANDES AVEC MENACES.														
.....	1	1	1
8	3	.....	.....	.....	.....	1	1	3	.....	7	3	.....	9
1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
9	3	.....	.....	.....	.....	2	1	3	.....	7	4	.....	9
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	4	.....	.....	5
5	1	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	7
1	.....	.....	.....	1	a1 b1	.....	.....	.....	1	2	1	.....	3
.....	.....	.....	.....	.....	a1	.....	.....	.....	.....	1	1	.....	.....
.....	.....	.....	.....	.....	a1	.....	.....	.....	.....	1	1	.....	1
2	2	.....	.....	.....	a1	1	.....	1	.....	1	1	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
2	4	.....	.....	.....	a1	.....	.....	1	.....	1	.....	.....	4
5	1	.....	.....	.....	.....	.....	.....	4	.....	7	2	.....	9
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	18	.....	.....	19
15	9	.....	.....	1	a5, b1	1	3	.....	8	1	42	5	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	1
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	1
.....	
25	13	.....	.....	1	a5, b1	1	5	1	11	1	52	10	64
BRIS D'ENTREPOTS ET DE WAGONS DE FRET.														
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	1
.....	.....	.....	.....	.....	a1	.....	.....	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	a1	1	.....	.....	.....	1	.....	.....	3
.....	
.....	.....	.....	.....	.....	a1	1	.....	.....	.....	1	.....	.....	3

a Sentence suspended—Sentence suspendue. b Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.		EDUCATIONAL STATUS.		AGES.								USE OF LIQUORS.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	INSTRUCTION.			Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- ré
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Moins de 16 ans.		16 ans et moins de 21.		21 ans et moins de 40.		40 ans et plus.		Non- donné.			
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
				H.	F.	H.	F.	H.	F.	H.	F.	H.	F.		
ROBBERY AND DEMANDING WITH MENACES.															
Queen's, I. du P.-E.		1						1							1
Montréal, Qué.	3	9						12							12
Québec, Qué.	1							1							1
Totaux de Québec.	4	9						13							13
Bruce, Ont.															
Carleton, Ont.		5						5						1	4
Elgin, Ont.															
Essex, Ont.		7				4		3							7
Frontenac, Ont.		1						1						1	
Grey, Ont.	2	2		2		1		1						3	1
Halton, Ont.															
Lanark, Ont.		1						1							1
Lincoln, Ont.															
Middlesex, Ont.		2						1							1
Oxford, Ont.	1	1				2		1						2	1
Perth, Ont.		1						1							1
Welland, Ont.		4				1		3							4
Wellington, Ont.		1						1						1	
Wentworth, Ont.		11				3		6		2				2	9
York, Ont.		19				6		13						15	4
Totaux d'Ontario.	3	55		2		17		37		2				25	33
Victoria, Col.-B.	2							2						2	
Westminster, Col.-B.												1			
Totaux de la Col.-Britann.	2							2				1		2	
Assiniboia, Est, T. du N.-O.															
Totaux du Canada.	9	65		2		17		53		2		1		27	47
WAREHOUSE AND FREIGHT CAR BREAKING.															
Haldimand, Ont.		1				1								1	
Leeds et Grenville, Ont.	1					1								1	
Oxford, Ont.											2				
York, Ont.		1		1											1
Totaux d'Ontario.	1	2		1		2					2			2	1
Assiniboia, Ouest, T. du N.-O.															
Totaux du Canada.	1	2		1		2					2			2	1

Criminal Statistics.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr- es pays étran- gers.	Other Bri- tish Pos- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Cath- oliques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
VOL ET DEMANDES AVEC MENACES.															
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
.....	11	1	.....	.....	8	3	1	.....	.....	.....	11	1	.....
.....	12	1	.....	.....	9	3	1	.....	.....	.....	12	1	.....
.....	5	.....	.....	.....	4	.....	.....	.....	1	.....	5	.....	.....
.....	3	4	.....	.....	3	2	.....	2	.....	.....	6	1	.....
1	4	.....	.....	.....	.....	1	.....	3	1	.....	4	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
.....	2	1	.....	.....	1	.....	2	1	.....	.....	1	.....	2
.....	2	2	.....	.....	4	.....	.....	.....	.....	.....	3	1	.....
.....	1	.....	.....	.....	.....	1	.....	1	.....	.....	1	.....	.....
.....	9	.....	.....	.....	1	6	1	.....	2	.....	10	1	.....
.....	17	1	.....	.....	10	6	6	.....	3	.....	19	.....	.....
.....	4	1	44	8	.....	.....	1	28	12	7	9	1	53	5	.....
.....	2	.....	.....	.....	.....	.....	.....	.....	2	2	.....
.....	2	.....	.....	.....	.....	.....	.....	.....	2	2	.....
.....
1	4	1	57	9	2	.....	1	37	15	8	9	2	68	6	.....
BRIS D'ENTREPOTS ET DE WAGONS DE FRET.															
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
.....	3	.....	.....	.....	1	1	.....	1	.....	.....	2	1	.....
.....
.....	3	.....	.....	.....	1	1	.....	1	.....	.....	2	1	.....

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted.		De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS — CONDAMNATIONS.			SENTENCE.			
		M.	F.		Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION.	
										SANS OPTION.	Under one year. — Moins d'un an.	One year and over. — Un an et plus.
LARCENY FROM DWELLING HOUSES.											
St. Francis, Que.....	2				2	2				2	
Essex, Ont.....	2				2	1	1			2	
Lincoln, Ont.....	2				2	2				1	
York, Ont.....	1		1								
Totals of Ontario.....	5		1		4	3	1			3	
Cariboo, B.C.....	2				2	1	1			2	
Westminster, B.C.....	1		1								
Totals of British Columbia.....	3		1		2	1	1			2	
Totals of Canada.....	10		1	1	8	6	2			2 5	
HORSE, CATTLE AND SHEEP STEALING.											
Hants, N.S.....	1				1	1					
Arthabaska, Que.....	5				5	5				5	
Beauharnois, Que.....	1				1		1			1	
Montreal, Que.....	2				2		1	1			
Richelieu, Que.....	1				1	1					
St. Francis, Que.....	6		2		4	3	1			1	
St. Hyacinthe, Que.....	1		1								
Three Rivers, Que.....	1		1								
Totals of Quebec.....	17		4		13	9	3	1		7	
Brant, Ont.....	1		1								
Bruce, Ont.....	2				2	2					
Carleton, Ont.....	1				1	1				1	
Elgin, Ont.....	1				1	1					
Essex, Ont.....	6				6	4	2			2	
Grey, Ont.....	4		1		3	1	1	1		1	
Haldimand, Ont.....	3				3		1	2		2	
Halton, Ont.....	1		1								
Hastings, Ont.....	14		12		2	2				2	
Huron, Ont.....	2				2	2					
Kent, Ont.....	4		1		3	3				1	
Lambton, Ont.....	1				1	1					
Leeds and Grenville, Ont.....	1				1	1					
Middlesex, Ont.....	1				1	1					
Northumberland & Durham, Ont.....	7		1		6	3	3			2 2	
Peterborough, Ont.....	1		1								
Simcoe, Ont.....	5		1		4	3	1				
Stormont, D'das & Glengary, O.....	2		1		1	1				1	
Victoria, Ont.....	2		2								
York, Ont.....	15		7		8	8				1 1	
Totals of Ontario.....	74		20		45	34	8	3		9 8	

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate	Mo- de- ré	Im- mo- de- ré	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.	
LARCENY FROM DWELLING HOUSES.													
St. François, Qué.	1	1			2							2	
Essex, Ont.		2			2							2	
Lincoln, Ont.		2				2						2	
York, Ont.													
Totaux d'Ontario		4			2	2						4	
Caribou, Col.-B.			2			2						2	
Westminster, Col.-B.													
Totaux de la Col.-Britann.			2			2						2	
Totaux du Canada.....	1	5	2		4	4						8	
HORSE, CATTLE AND SHEEP STEALING.													
Hants, N.-E.		1				1						1	
Arthabaska, Qué.	4	1			2	2		1				5	
Beauharnois, Qué.		1				1						1	
Montréal, Qué.	2					2						2	
Richelieu, Qué.		1				1						1	
St. François, Qué.	4					3		1				4	
St. Hyacinthe, Qué.													
Trois-Rivières, Qué.													
Totaux de Québec.....	10	3			2	9		1	1			10	
Brant, Ont.													
Bruce, Ont.		2				2						1	
Carleton, Ont.	1					1						1	
Elgin, Ont.		1		1								1	
Essex, Ont.		6				5		1				5	
Grey, Ont.		3			3							1	
Haldimand, Ont.		2				2		1				3	
Halton, Ont.													
Hastings, Ont.	1	1				2						2	
Huron, Ont.		2			2							2	
Kent, Ont.	2	1		1		1			1			3	
Lambton, Ont.		1				1						1	
Leeds et Grenville, Ont.		1				1						1	
Middlesex, Ont.		1		1								1	
Northumberl'd et Durham, O.	5	1		1		3		2				4	
Peterborough, Ont.													
Simcoe, Ont.		4			2	2						4	
Stormont, D'das et Gleng'ry, O.	1					1						1	
Victoria, Ont.													
York, Ont.		8		1	3	3		1				7	
Totaux d'Ontario.....	10	34		5	10	24		5	1			26	

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries.	Other British Possessions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.			Autr's posses- sions Brit- tanni- ques.	Autr's pays étran- gers.		Bap- tists.	Catho- liques.	Eglise d'An- gle- terre.	Mé- tho- dis- tes.		Pres- byté- riens.			Autr's con- fes- sions.
VOL DANS DES MAISONS HABITÉES.															
.....	2	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2	.....
2	2	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....	2	2
2	2	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....	.....	4
.....	2	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....
.....	2	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....
2	2	2	2	.....	.....	1	2	.....	.....	2	.....	.....	4	4
VOL DE CHEVAUX, BÉTAILS ET MOUTONS.															
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
.....	5	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	2	3
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	2	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2	2
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1
.....	4	.....	.....	.....	1	.....	.....	.....	3	.....	.....	1	3
.....
.....	13	.....	.....	.....	10	.....	.....	.....	3	.....	.....	3	10
.....	2	.....	.....	.....	.....	.....	1	1	.....	.....	.....	1	1
.....	1	1	.....	.....	1	.....	1	.....	.....	.....	.....	1	1
.....	4	2	.....	.....	1	2	3	.....	.....	.....	.....	1	6
.....	3	.....	.....	.....	.....	1	1	.....	.....	1	.....	3	.....
.....	2	1	.....	.....	.....	2	1	.....	.....	.....	.....	2	1
.....	2	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2	.....
.....	2	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	2
.....	3	.....	.....	.....	.....	1	2	.....	1	.....	.....	.....	3
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	3	3	.....	.....	.....	.....	1	6
1	3	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	2	2
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....
.....	8	.....	.....	.....	1	2	1	2	2	.....	.....	8	.....
1	1	.....	39	4	.....	.....	2	9	13	15	3	2	1	24	21

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.		De- tain- ed for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE.			
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine. — Sur option entre la pri- son ou l'a- m ^{nde}	— SANS OPTION.	
											Under one year. — Moins d'un an.	One year and over — Un an et plus.
HORSE, CATTLE AND SHEEP STEALING—Concluded.											
Manitoba, Eastern.....	3				3	3				3	
Cariboo, B.C.....	2				2	2				2	
Clinton, B.C.....	2				2	2				2	
Victoria, B.C.....	1	1									
Westminster, B.C.....	1				1	1	1				
Totals of British Columbia.....	6	1			5	5	1			4	
Alberta, Northern, N.W.T.....	10	8			2	2				1	
Alberta, Southern, N.W.T.....	12	9			3	3		2		1	
Assiniboia, Eastern, N.W.T.....	5	1			4	4				1	
Assiniboia, Western, N.W.T.....	1				1	1				1	
Saskatchewan, N.W.T.....	6	4			2	2				1	
Totals of the N.W.T.....	34	22			12	12		2	3	2	
Totals of Canada.....	135	56			79	63	12	4	2	22	
BRINGING STOLEN PROPERTY INTO CANADA.											
St. Francis, Que.....	1	1									
Essex, Ont.....	1				1	1				1	
Lambton, Ont.....	1				1		1			1	
Lincoln, Ont.....	1	1									
Middlesex, Ont.....	1				1	1				1	
Oxford, Ont.....	1				1	1				1	
Totals of Ontario.....	5	1			4	3	1		3	1	
Clinton, B.C.....	4				4	3		1		3	
Alberta, Southern N.W.T.....	1	1									
Totals of Canada.....	11	3			8	6	1	1	4	4	
LARCENY FROM THE PERSON.											
Montreal, Que.....	a21	4			15	12	3			9	
Quebec, Que.....	2	2									
St. Francis, Que.....	2				2	2				2	
Terrebonne, Que.....	1				1	1				1	
Totals of Quebec.....	26	6			18	15	3			11	
Carleton, Ont.....	11	3	2		6	4	1	1		4	
Essex, Ont.....	2	1			1	1				1	
Grey, Ont.....	4	3			1	1				1	
Peterborough, Ont.....	1				1	1				1	

a 2 left the country.—2 ont quitté le pays.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. — ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commer- cial. — Commer- çants.	Domestic — —	Indus- trial. — Indus- triels.	Profes- sional — Profes- sions libé- rales.	Labi- orers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- bataires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
VOL DE CHEVAUX, BÉTAIL ET MOUTONS—Fin.														
						1					2			3
											2	1		3
											2			
1											1			
1											5	1		1
					b1									
					b2							1		
					a1									
					a1, b3							1		
24	3			3	a8, b3	5	3		4		48	20		45
EFFETS VOLÉS APPORTÉS EN CANADA.														
												1		
												1		1
												1		1
												3	2	2
												4		4
												7	2	6
VOL SUR LA PERSONNE.														
1	2				a2		2		7		6	4		11
												2		2
												1		1
1	2				a2		2		7		9	4		14
									1		3	2	1	3
									1					1
											1			1

a Sentence suspended.—Sentence suspendue. *b* Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.			Moderé	Immodéré	Moderé	Immodéré	
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Moderé	Immodéré	Moderé	Immodéré	
			M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.						
HORSE, CATTLE AND SHEEP STEALING—Concluded.															
Manitoba, Est.....		3			2		1						3		
Caribou, Col.-B.....		2					2						2		
Clinton, Col.-B.....							2								
Victoria, Col.-B.....												1		1	
Westminster, Col.-B.....		1													
Totaux de la Col.-Britann.....		3					4					1	2	1	
Alberta, Nord, T. du N.O.....												2			
Alberta, Sud, T. du N.-O.....		1					1					2	1		
Assiniboia, Est, T. du N.-O.....												4			
Assiniboia, Ouest, T. du N.-O.....												1			
Saskatchewan, T. du N.-O.....												2			
Totaux des Ter. du N.-O.....		1					1					11	1		
Totaux du Canada.....	20	45		5	14		40		6	1	13		43	23	
BRINGING STOLEN PROPERTY INTO CANADA.															
St. François, Qué.....															
Essex, Ont.....		1						1						1	
Lambton, Ont.....		1			1								1		
Lincoln, Ont.....															
Middlesex, Ont.....		1			1								1		
Oxford, Ont.....		1					1						1		
Totaux d'Ontario.....		4			2		1	1					3	1	
Clinton, Col.-B.....		2					3					1	2		
Alberta, Sud, T. du N.-O.....															
Totaux du Canada.....		6			2		4	1				1	5	1	
LARCENY FROM THE PERSON.															
Montréal, Qué.....	1	14			2		13						1	14	
Québec, Qué.....															
St. François, Qué.....		2			2								2		
Terrebonne, Qué.....		1					1							1	
Totaux de Québec.....	1	17			4		14						3	15	
Carleton, Ont.....		6				2	3		1				5	1	
Essex, Ont.....		1			1								1		
Grey, Ont.....		1			1								1		
Peterborough, Ont.....		1							1				1		

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of Eng-land. — Eglise d'Angle-terre.	Metho-dists — Métho-distes.	Pres-byterians — Pres-bytériens.	Pro-tes-tants — Autr's con-fes-sions.	Other Deno-minations. — Autr's con-fes-sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng-land and Wales — Angle terre et Galles	Ire-land. — Irlande.	Scot-land. — Ecos-se.													
VOL DE CHEVAUX, BÉTAIL ET MOUTONS—Fin.															
1			1		1		1	1					1	1	2
			2				2								2
			2				1								2
															1
			4				3								5
			1							1					1
															1
			1							1					2
	1		59	4	1		3	23	14	15	4	5	2	28	41
EFFETS VOLÉS APPORTÉS EN CANADA.															
			1				1							1	
				1									1	1	
			1					1						1	
			1						1						1
			3	1			1	1		1			1	3	1
			2	2				2							4
			5	3			1	3		1			1	3	5
VOL SUR LA PERSONNE.															
2	2	2	5	2	1	1		5	3	3	4			13	2
			2					2							2
			1					1						1	
2	2	2	8	2	1	1		8	3	3	4			14	4
	1		5					4			1	1		6	
			1	1						1				1	
			1					1						1	

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.													
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations	Ac- quit- ted. — Ac- quit- tés.		De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.					
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- des. —	COMMITTED TO JAIL — EMPRISONNÉS.		With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION	
									Under one year. — Moins d'un an.	One year and over. — Un an et plus.		Under one year. — Moins d'un an.	One year and over. — Un an et plus.
LARCENY FROM THE PERSON—Concluded.													
Prescott and Russell, Ont	1				1		1						
Renfrew, Ont.	1				1	1					1		
Simcoe, Ont.	1				1			1					
Wentworth, Ont.	11	7			4	4					1		
York, Ont.	24	6			18	17	1				10		
Totals of Ontario.	56	20	2		34	29	3	2			19		
Cariboo, B.C.	4				4	4					3		
Victoria, B.C.	1				1	1					1		
Westminster, B.C.	1				1	1							
Totals of British Columbia.	6				6	6					3		
Totals of Canada.	88	26	2		58	50	6	2			33		
EMBEZZLEMENT.													
Lunenburg, N.S.	1				1	1					1		
Brant, Ont.	1	1											
Hastings, Ont.	3	2			1	1					1		
Welland, Ont.	1				1			1					
York, Ont.	2	2											
Totals of Ontario.	7	5			2	1		1			1		
Westminster, B.C.	1				1	1					1		
Alberta, Northern, N.W.T.	1				1	1							
Alberta, Southern, N.W.T.	1				1		1				1		
Assiniboia, Western, N.W.T.	1				1	1							
Totals of the N.W.T.	3				3	2	1				1		
Totals of Canada.	12	5			7	5	1	1			3		
FRAUD AND CONSPIRACY TO DEFRAUD.													
Annapolis, N.S.	2	1			1	1					1		
Inverness, N.S.	1	1											
Pictou, N.S.	1				1	1					a1		
Totals of Nova Scotia	4	2			2	2					2		
Westmoreland, N.B.	3	1											
Montreal, Que.	6	3			1	1							
Quebec, Que.	2				2	2					2		
St. Francis, Que.	6	6											
Totals of Quebec.	14	9			3	3					2		

a Both jail and \$10 fine.—La prison et \$10 d'amende. b 2 *Nolle prosequi*. c 2 Reserved cases.—2 cas réservés.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.															
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.					Com- mit- ted to Refor- ma- to- ries.	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Two years and under five.	Five years and over.	Life.	D'th.	—											
D'ux ans et m'ns de cinq	Cinq ans et plus.	A vie	De mort	—	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	Agriculteurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mariés.	En- veu- vage.	Céli- ba- taires.
VOL SUR LA PERSONNE—Fin.															
1															
	1											1			1
1															1
1					1	a2				3					1
1					3	a1			1	1		11	2		3
2	1				4	a3			2	6		17	5	1	28
1									1						4
						a1						3			1
												1			
1						a1						4			5
4	3				4	a6			5	13		30	9	1	47
DÉTOURNEMENT.															
										1					
1									1					1	1
1									2					1	1
									1						1
						b1									
						b1									
						b2									
1						b2			3	1				1	2
FRAUDE ET CONSPIRATION DE FRAUDE.															
										1			1		
										1			1		
						a1									1
						a1									1

a Sentence suspended. — Sentence suspendue. b Restoration of goods. — A restituer les effets

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.									USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- de- rè		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.	M. F.	M. F.				
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- de- rè	Im- de- rè		
H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.					
LARCENY FROM THE PERSON—Concluded.														
Prescott et Russell, Ont.	1					1					1			
Renfrew, Ont.	1					1					1	1		
Simcoe, Ont.	1						1				1			
Wentworth, Ont.	4			2		1	1				3	1		
York, Ont.	2	16		4	7	6	1				17	1		
Totaux d'Ontario.	3	31		4	11	2	12	1	4		30	4		
Caribou, Col.-B.	2	2				4					1	3		
Victoria, Col.-B.		1					1				1			
Westminster, Col.-B.										1				
Totaux de la Col.-Britann.	2	3				4		1		1	2	3		
Totaux du Canada.	6	51		4	15	2	30	1	5		35	22		
EMBEZZLEMENT.														
Lunenburg, N.-E.								1						
Brant, Ont.														
Hastings, Ont.	1					1					1			
Welland, Ont.	1					1					1			
York, Ont.														
Totaux d'Ontario.	2					2					2			
Westminster, Col.-B.										1				
Alberta, Nord, T. du N.-O.										1				
Alberta, Sud, T. du N.-O.										1				
Assiniboia, Ouest, T. du N.-O.										1				
Totaux des T. du N.-O.										3				
Totaux du Canada.		2				2		1		4		2		
FRAUD AND CONSPIRACY TO DEFAUD.														
Annapolis, N.-E.										1				
Inverness, N.-E.														
Pictou, N.-E.	1						1				1			
Totaux de la N.-Ecosse.	1						1			1	1			
Westmoreland, N.-B.														
Montréal, Qué.	1				1						1			
Québec, Qué.										2				
St. François, Qué.														
Totaux de Québec.	1				1					2	1			

Criminal Statistics,

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.												CLASSE III.			
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States.	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants.	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales.	Ireland.	Scotland.														Etats-Unis.	Autres pays étrangers.	Autres possessions Britanniques.	Baptistes.	Catholiques.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Autres confessions.
VOL SUR LA PERSONNE—<i>Fin.</i>															
1	1		1					1						1	1
1								1		1				1	1
4	3		8	1	2		1	6	7	1	2		2	18	4
6	6		18	2	2		1	14	11	2	3	1	2	32	2
			3					3							2
			1					1						1	2
			4					4						3	2
8	8	2	30	4	3	1	1	26	14	5	7	1	2	49	8
DÉTOURNEMENT.															
1							1							1	
			1					1							1
			1							1					1
			2					1		1					2
1			2				1	1		1				1	2
FRAUDE ET CONSPIRATION DE FRAUDE.															
			1									1		1	
			1									1		1	
			1					1						1	
			1					1						1	

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.		De- tain- ed for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.					
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		With the option of a fine. — Sur option entre la pri- son ou l'a- m ^{nde}	— OPTION. — SANS OPTION	
									Under one year.	One year and over.		Moins d'un an.	Un an et plus.
FRAUD AND CONSPIRACY TO DEFRAUD—Concluded.													
Brant, Ont.	28	19	2	.....	7	5	1	1	.....	2	
Dufferin, Ont.	1	1											
Elgin, Ont.	2	2											
Essex, Ont.	3				3	3					2		
Haldimand, Ont.	1				1	1			1				
Halton, Ont.	1	1											
Hastings, Ont.	6	3			3	3							
Kent, Ont.	4				2	2			1	1			
Lanark, Ont.	4	4											
Leeds and Grenville, Ont.	1	1											
Middlesex, Ont.	11	3			8	4	2	2			5		
Norfolk, Ont.	1				1	1			1				
Northumberland & Durham, O.	1	1											
Ontario, Ont.	2				2	2							
Peterborough, Ont.	1	1											
Simcoe, Ont.	3				3	2		1	1	1			
Stormont, D'das & Glengarry, O.	2	2											
Welland, Ont.	1				1	1				1			
Wellington, Ont.	4				4	3		1					
Wentworth, Ont.	18	13	1	.....	4	4				1		
York, Ont.	39	22	5	.....	12	12			2		1	
Totals of Ontario.	134	73	8	.....	51	43	3	5	6	13	1	
Manitoba, Eastern.	3	2		.....	1	1			1			
Alberta, Northern, N.W.T.	62	1		.....								
Alberta, Southern, N.W.T.	1	1		.....								
Assinibota, Eastern, N.W.T.	2	2		.....								
Saskatchewan, N.W.T.	4	2		.....	2	2				2		
Totals of the N.W.T.	9	6		.....	2	2				2		
Totals of Canada.	167	93	8	.....	59	51	3	5	9	17	1	
FALSE PRETENCES.													
Cape Breton, N.S.	1	1		.....								
Cumberland, N.S.	1	1		.....								
Halifax, N.S.	1	1		.....								
Queen's, N.S.	1	1		.....								
Richmond, N.S.	1			.....	1	1				1		
Yarmouth, N.S.	1			.....	1	1				1		
Totals of Nova Scotia.	6	4		.....	2	2				2		
St. John, N.B.	1	1		.....								
Westmoreland, N.B.	2			.....								
Totals of New Brunswick.	3	1		.....								

a Nolle prosequi. b 1 Nolle prosequi.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort.	Com- mitted to Refor- matories — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic — Servi- teurs.	In- dus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- bataires.
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie.												
FRAUDE ET CONSPIRATION DE FRAUDE—Fin.														
				b2, a3		4		3			5		2	
				a1						3			3	
				a2, c1		1		1		2			3 1	
			1	a2	1			5			2		6	
	1			a1	1					1		1	1	
				a1	1	1				1	1		2	
	1			a3		3				1	4		1	
			1	a3						2			4	
				a8		5				3	7		3	
	2			2 a24, b2, c1	3	14		9		14	19	1	26	
								1			1			
						1							1	
						1							1	
	2			2 a25, b2, c1	3	15		11		14	21	1	28	
FAUX PRÉTEXTES.														
						1								1
										1				1
						1				1				2

a Sentence suspended.—Sentence suspendue. *b* Acquitted on making restitution.—Acquittés en faisant restitution. *c* Goods to be paid.—Effets devant être payés.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.														
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. USAGE DE LIQUEURS		
	Un-able to read or write.	Ele-men-tary.	Supe-rior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non-donné.	Mo- de- rate rate	Im- de- ré rate				
	Inca-pable de lire ou d'écrire.	Élé-men-taire.	Supe-rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.		
FRAUD AND CONSPIRACY TO DEFRAUD—Continued.														
Brant, Ont.		7						4		1		2	5	2
Dufferin, Ont.														
Elgin, Ont.						1		2					2	1
Essex, Ont.		3												
Haldimand, Ont.												1		
Halton, Ont.														
Hastings, Ont.	1	2						3					3	
Kent, Ont.		1						1				1	1	
Lanark, Ont.														
Leeds et Grenville, Ont.														
Middlesex, Ont.		8		1				7					8	
Norfolk, Ont.												1		
Northumb-rl'd et Durham, O Ontario, Ont.		2						1		1			2	
Peterborough, Ont.														
Simcoe, Ont.		3						3					2	1
Storm't, D'das et Glengarry, O Welland, Ont.		1						1					1	
Wellington, Ont.	1	3						2		2			3	1
Wentworth, Ont.		4		2		1				1			3	1
York, Ont.		6	4		2			4	3	1		2	10	
Totaux d'Ontario.....	2	40	4	3	4			28	3	6		7	40	6
Manitoba, Est.		1						1					1	
Alberta, Nord, T. du N.-O.														
Alberta, Sud, T. du N.-O.														
Assiniboia, Est, T. du N.-O.														
Saskatchewan, T. du N.-O.		1						1				1	1	
Totaux des Ter. du N.-O.		1						1				1	1	
Totaux du Canada	2	44	4	3	4	1		30	3	7		11	44	6
FALSE PRETENCES.														
Cap-Breton, N.-E.														
Cumberland, N.-E.														
Halifax, N.-E.														
Queen's, N.-E.														
Richmond, N.-E.		1						1					1	
Yarmouth, N.-E.		1						1					1	
Totaux de la N.-Ecosse.		2						2					2	
St. Jean, N.-B.														
Westmoreland, N.-B.														
Totaux du N.-Brunswick.														

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.				
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Metho- dists	Pres- byte- rians.	Other Deno- mina- tions.	Pro- tes- tants	Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.														
—	—	—	Canada.	Etats- Unis.	—	—	—	—	—	—	—	—	—	—	—	—
Angle terre et Galles	Ir- lande.	Ecos- se.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
FRAUDE ET CONSPIRATION DE FRAUDE—Fin.																
1			6					1	2	1	1	2			7	
			3					1			2				2	1
			3					1				2			2	1
			1								1			1		
			5	3				1	1	3		3			7	1
			2						1			1				2
1			2					1	2						1	2
			1						1						1	
	1		2	1			1				2	1			2	2
	1		3				1	1		2					4	
3			6	1			1	1	6		2				10	
5	2		34	5			3	7	13	8	5	10			37	9
		1									1				1	
			1								1					1
			1								1					1
5	2	1	37	5			3	8	13	8	7	11			40	10
FAUX PRÉTERTES.																
			1												1	
			1				1	1							1	
			2				1	1							2	

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.									
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.	
								With the option of a fine.	No OPTION. — SANS OPTION.
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.		—	—	—	Un- der one year.	One year and over.
		M. F.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	Sur option entre la pri- son ou l'a- m ^{nde}	Moins d'un an.	Un an et plus.
FALSE PRETENCES—Continued.									
Bedford, Que.	3	3		1	1				1
Gaspé, Que.	1	1							
Joliette, Que.	1	1							
Montreal, Que.	26	5		21	15	3	3	4	8
Ottawa, Que.	1			1	1			1	
Quebec, Que.	4	3		1	1				1
Rimouski, Que.	a1								
St. Francis, Que.	3	1		2	2				2
Three Rivers, Que.	4	3		1	1				1
Totals of Quebec	44	16		27	21	3	3	5	13
Algonia and Manitoulin, Ont.	3			3	3				2
Brant, Ont.	7	1		6	6				1
Bruce, Ont.	1	1							
Carleton, Ont.	6	2		4	1	1	2		4
Elgin, Ont.	4	1		3	2	1			
Essex, Ont.	1	1							
Frontenac, Ont.	1			1	1				
Haldimand, Ont.	2			2			2		1
Halton, Ont.	1	1							1
Hastings, Ont.	3	1		2	2				1
Kent, Ont.	8	3	1	4	3	1		1	
Leeds and Grenville, Ont.	2	2							
Lincoln, Ont.	3	2		1	1				1
Middlesex, Ont.	1	1							
Muskoka and Parry Sound, Ont.	3	1		2	2				1
Nipissing, Ont.	2	1		1	1				1
Norfolk, Ont.	2	2							
Northumberland & Durham, O.	3	1		2		2			2
Oxford, Ont.	7	2		5	5				2
Peel, Ont.	2	1		1	1				
Perth, Ont.	17	9	1	7	6	1			2
Peterborough, Ont.	2	2							
Renfrew, Ont.	3			3	2		1		2
Simcoe, Ont.	1			1	1			1	
Victoria, Ont.	2	2							
Waterloo, Ont.	1			1	1				1
Welland, Ont.	3	1		2	2			1	1
Wellington, Ont.	1			1		1			
Wentworth, Ont.	3			3	3				
York, Ont.	3	2		1	1				1
Totals of Ontario	98	40	2	56	44	7	5	3	15
Manitoba, Central	b2			1	1				1
Manitoba, Eastern	2			2	1		1		1
Manitoba, Western	1	1							
Totals of Manitoba	5	1		3	2		1		2

a eft the country, bail forfeited.—A quitté le pays, cautionnement confisqué. b 1 *Nolle prosequi*.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.													
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 and under 21.	21 and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- de- rate	
	—	—	—	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.			—	—	
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- modéré	
FALSE PRETENCES—Continued.													
Bedford, Qué.	1							1			1		
Gaspé, Qué.													
Joliette, Qué.													
Montréal, Qué.		21		1	2	17	1			1	4	17	
Ottawa, Qué.													
Québec, Qué.		1			1						1		
Rimouski, Qué.													
St. François, Qué.		2				1	1				2		
Trois-Rivières, Qué.	1				1							1	
Totaux de Québec.	2	24		1	4	18	2	1	1		8	18	
Algonia et Manitoulin, Ont.	2	1				3						3	
Brant, Ont.	5	1			1	5					5	1	
Bruce, Ont.													
Carleton, Ont.	4						4					4	
Elgin, Ont.	3					1	2				3		
Essex, Ont.													
Frontenac, Ont.	1				1						1		
Haldimand, Ont.	2					1	1					2	
Halton, Ont.													
Hastings, Ont.	1	1				1	1				1	1	
Kent, Ont.	2					2				2	2		
Leeds et Grenville, Ont.													
Lincoln, Ont.	1					1					1		
Middlesex, Ont.													
Muskoka et Parry Sound, Ont.	2					1	1				2		
Nipissing, Ont.	1					1					1		
Norfolk, Ont.													
Northumberl'd et Durham, O.	1	1				2					2		
Oxford, Ont.	4					2	2	1			2	2	
Peel, Ont.	1					1					1		
Perth, Ont.	7					2	1	4			5	2	
Peterborough, Ont.													
Renfrew, Ont.	2	1		1		1	1				2	1	
Simcoe, Ont.										1			
Victoria, Ont.													
Waterloo, Ont.	1				1						1		
Welland, Ont.	2					1	1				2		
Wellington, Ont.	1						1					1	
Wentworth, Ont.	1					1				1	1		
York, Ont.	1					1					1		
Totaux d'Ontario	3	44	3	1	3	27	2	17		5	1	33	
Manitoba, Centre.		1				1						1	
Manitoba, Est.		2				1		1				2	
Manitoba, Ouest.													
Totaux de Manitoba.		3				2		1				3	

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.										
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists	Presbyterians.	Protestants	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.								
England and Wales	Ireland.	Scotland.														Autr's possessions	Autr's possessions	Baptistes.	Catholiques.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Autr's confessions.
Angleterre et Galles	Irlande.	Ecosse.																						Etats-Unis.	Autr's pays étrangers.	Autr's possessions Britanniques.
			1					1							1								
4			17					14	1	3	3			20	1								
			1					1						1									
			2									2		1	1								
			1					1						1									
4			22					17	1	3	3	2		23	3								
			3																				
			6				2	1	1		2			1	2								
			4					4						4	1								
			3							3				3									
			1									1		1									
			1	1						1				2									
			1								1	1		1	2								
			1			2					2			2									
			1			1		1					1		2								
			1											1									
			2								2			2									
			2								2			3	2								
			1								1			1	1								
2		1	3	1			1	2		1	2		1	2	5								
			1	1	1			1					2	1	2								
			1										1		1								
			1										1		2								
			1										1		1								
			1								1			1									
			1											1									
2	1	2	34	7	4		4	11	5	11	9	4	6	30	20								
1														1									
1			1						1	1				1	1								
2			1						1	1		1		2	1								

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.		De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	NO OPTION.	
										SANS OPTION	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
FALSE PRETENCES—Concluded.											
Victoria, B.C.	a4				3	3				1	
Westminster, B.C.	1	1									
Totals of British Columbia.	5	1			3	3				1	
Alberta, Northern, N.W.T.	b3	2									
Alberta, Southern, N.W.T.	b5	2			2	2				1	
Assiniboia, Eastern, N.W.T.	1				1	1				1	
Saskatchewan, N.W.T.	1				1	1				1	
Totals of the N.W.T.	10	4			4	4				3	
Totals of Canada	171	67	2		95	76	10	9	8	36	
LARCENY.											
Prince, P.E.I.	2				2	1	1				
Queen's, P.E.I.	16	2	1		13	9	4			5	
Totals of P.E. Island	18	2	1		15	10	5			5	
Annapolis, N.S.	5	1			4	3		1		1	
Antigonish, N.S.	1				1	1				1	
Cape Breton, N.S.	7	1			6	6				2	
Colchester, N.S.	3	2			1	1					
Cumberland, N.S.	14	3			11	11				3	
Guysborough, N.S.	1				1	1					
Halifax, N.S.	49	8	1		40	35	2	3		25	
King's, N.S.	5				5	5				2	
Lunenburg, N.S.	3				3	3				2	
Pictou, N.S.	26	1			25	21	4			25	
Queen's, N.S.	5	1			4	4				4	
Yarmouth, N.S.	14				14	11	2	1	2	9	
Totals of Nova Scotia	133	17	1		115	102	8	5	2	74	
Carleton, N.B.	2				2	2				2	
Northumberland, N.B.	3	1			2	2				2	
St. John, N.B.	c61	21	7		31	31				16	
Sunbury, N.B.	1				1	1					
Victoria, N.B.	5	1			4	3	1			2	
Westmoreland, N.B.	d30	4	2		20	13	5	2		15	
York, N.B.	6	2			4	4				4	
Total of New Brunswick	108	29	9		64	56	6	2		41	
Arthabaska, Que.	4				4	4				3	
Beauharnois, Que.	2				2	2				1	
Bedford, Que.	6	1			5	3	1	1		4	
Chicoutimi, Que.	1				1	1					

a 1, Left the country, bail forfeited.—a quitté le pays, cautionnement confisqué. b 1, c 2, *Nolle prosequi*. d 3 *Nolle prosequi*, and 1 escape before trial.—Et 1 s'est évadé avant son procès.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.					OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.			
PENITENTIARY. PÉNITENCIER.			D'th. — — De mort	Com- mit- ted to Refor- ma- to- ries. — — En- voyés à la prison de Réfor- me.	Other Senten- ces. — — Autres Senten- ces.	Agricultural. — — Agriculteurs.	Commercial. — — Commerçants.	Domestic. — — Servi- teurs.	Industrial. — — Indus- triels.	Profes- sional. — — Profes- sions libé- rales.	Labi- ors. — — Jour- na- liers.	Married. — — Mariés.	Widowed. — — En- veuve.	Single. — — Céli- bataires.
Two years and un- der five.	Five years and over.	Life.													Deux ans et m'ns. de cinq.	Cinq ans et plus.	A vie
FAUX PRÉTERTES—Fin.														
.....	a1, b1	1	.....	.....	1	.....	.....	.....	.....	2	
.....	a1, b1	1	.....	.....	1	.....	.....	.....	.....	2	
.....	2	1	.....	1	
.....	1	.....	.....	1	
.....	3	1	.....	2	
4	1	1	a29, b5, c1	4	33	6	16	1	20	28	1	57
LARCIN.														
2	a1	.....	.....	1	.....	1	.....	.....	2	
7	3	.....	.....	12	
9	a1	.....	.....	1	.....	4	.....	.....	14	
3	4	2	.....	2	
4	1	1	.....	6	
.....	1	.....	.....	.....	.....	.....	2	.....	.....	1	
2	a6	1	.....	.....	.....	3	1	.....	3	
1	1	
6	1	.....	.....	4	a3	.....	4	2	13	11	11	.....	25
.....	2	.....	2	.....	.....	.....	.....	.....	.....	5	
.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	
.....	1	.....	4	.....	.....	23	
.....	2	.....	.....	4	
.....	2	a1	.....	1	1	1	8	3	.....	11	
16	2	.....	.....	10	a10	4	5	3	15	.....	.....	.....	82
.....	1	.....	.....	.....	1	.....	.....	2	
.....	1	.....	.....	1	
2	3	a10	.....	4	.....	.....	10	8	.....	23	
1	1	.....	.....	1	
2	4	1	.....	3	
4	1	.....	1	.....	.....	.....	13	2	1	17	
.....	1	1	2	.....	.....	4	
9	4	a10	2	4	1	1	32	11	1	51
.....	a1	1	.....	.....	.....	.....	.....	.....	1	
.....	1	.....	.....	.....	.....	.....	3	.....	.....	3	
1	1	.....	.....	2	
.....	a1	1	.....	.....	.....	4	2	.....	1	

a Sentence suspended.—Sentence suspendue. b Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.													
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.	
FALSE PRETENCES— <i>Concluded.</i>													
Victoria, Col.-B.		2		1	1			1			1	1	
Westminster, Col.-B.													
Totaux de la Col.-Britann.		2		1	1			1			1	1	
Alberta, Nord, T. du N.-O.													
Alberta, Sud, T. du N.-O.		2				1		1			2		
Assiniboia, Est, T. du N.-O.										1			
Saskatchewan, T. du N.-O.		1			1						1		
Totaux des T. du N.-O.		3			1	1		1		1	3		
Totaux du Canada.	5	78	3	3	9	50	2	22	1	7	50	36	
LARCENY.													
Prince, I. du P.-E.		2				1	1				2		
Queen's, I. du P.-E.		12		7	2	2		1		1	9	3	
Totaux de l'Ile du P.-E.		14		7	2	3		1		1	11	3	
Annapolis, N.-E.		4			1	1		2			3	1	
Antigonish, N.-E.	1							1			1	1	
Cap-Breton, N.-E.		5	1		4	2					5	1	
Colchester, N.-E.		1		1							1		
Cumberland, N.-E.		4			1						1		
Guysborough, N.-E.		1				3				7		4	
Halifax, N.-E.	13	22	1	7	5	1	14	4	2	3	4	27	
King's, N.-E.	3	2		3			2				3	2	
Lunenburg, N.-E.				1	1						1	2	
Pictou, N.-E.	13	10		9	14					2	23		
Queen's, N.-B.		4		1	1	2					4		
Yarmouth, N.-E.	7	7		3	1	1	9				11	3	
Totaux de la N.-Ecosse.	37	60	2	25	28	2	33	4	5	3	15	80	
Carleton, N.-B.		2					2				2		
Northumberland, N.-B.		1			1					1	1		
St.-Jean, N.-B.	5	26		12	1		10	1	4	3	19	12	
Sunbury, N.-B.							1					1	
Victoria, N.-B.		2			1		2		1		1	1	
Westmoreland, N.-B.	5	15		1	1		3			15	14	6	
York, N.-B.		4			1		2	1			1	3	
Totaux du N.-Brunswick.	10	50		13	5		20	2	5	3	16	38	
Arthabaska, Qué.	2	2			3				1		3	1	
Beauharis, Qué.		2		1			1				2		
Bedford, Qué.		5			3		1	1			1	4	
Chicoutimi, Qué.		1			1						1		

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Baptists.	R. Catholics.	Ch. of Eng-land.	Methodists.	Pres-byterians.	Protes-tants	Other Deno-minations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng-land and Wales — Angle terre et Galles	Ire-land. — Irlande.	Scot-land. — Ecos-se.					Bap-tists.	R. Catho-lics.	Eglise d'An-gle-terre.	Mé-thodistes.	Pres-byté-riens.		Autr's con-fes-sions.		
FAUX PRÉTEXTES—Fin.															
.....	1	.....	1	.....	.....	.....	.....	1	.....	.....	1	2	.....
.....	1	.....	1	.....	.....	.....	.....	1	.....	.....	1	2	.....
.....	2	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	3	.....
8	1	2	61	7	5	.....	5	30	7	16	12	7	7	59	27
LARCIN.															
.....	2	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2
.....	11	.....	1	.....	.....	7	.....	.....	.....	3	.....	12	.....
.....	13	.....	1	.....	.....	8	.....	.....	.....	4	.....	1	.....
.....	4	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	6	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	4	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
.....	4	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	4	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	32	.....	.....	.....	4	17	9	2	3	1	.....	33	.....
.....	5	.....	.....	.....	.....	2	.....	.....	.....	3	.....	5	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	23	.....	.....	.....	1	13	1	1	3	4	.....	23	.....
.....	4	.....	.....	.....	1	.....	1	2	.....	.....	.....	2	.....
.....	13	.....	1	.....	2	5	.....	6	.....	.....	.....	14	.....
.....
2	2	.....	95	.....	1	.....	12	46	11	11	8	9	2	77	23
.....
1	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	2
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	28	3	.....	.....	4	15	2	6	4	.....	.....	31	.....
.....
.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	20	.....	.....	.....	5	10	1	2	.....	2	.....	.....	.....
.....	4	.....	.....	.....	2	.....	.....	2	.....	.....	.....	11	.....
.....	4	.....
1	58	3	.....	.....	12	25	3	10	5	4	.....	47	16
.....
1	3	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....
.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....
.....	1	.....	.....	.....	.....	2	.....	.....	.....	1	.....	2	.....

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'am- nde	NO OPTION. — SANS OPTION	One year and over. — Un an et plus.

LARCENY—Continued.

Iberville, Que.	8			8	8				4	
Joliette, Que.	2			2	2				2	
Kamouraska, Que.	1			1	1				1	
Montreal, Que.	a712	32	3	676	540	38	98	45	445	6
Ottawa, Que.	7	4		3	3				3	
Pontiac, Que.	8	6		2	2				2	
Quebec, Que.	63	8		55	47	5	3		22	1
Richelieu, Que.	28	3		25	21	3	1		25	
Rimouski, Que.	b8			6	6				4	
St. Francis, Que.	24	7		17	15	1	1		12	
St. Hyacinthe, Que.	7			7	7			3	c4	
Terrebonne, Que.	3			3	3				2	
Three Rivers, Que.	15	4		11	10	1			7	
Totals of Quebec	899	65	3	828	675	49	104	48	541	7
Algora and Manitoulin, Ont.	11			11	11				6	3
Brant, Ont.	75	16	1	58	27	9	22		40	2
Bruce, Ont.	20	5	1	14	12	2		2	6	3
Carleton, Ont.	169	46	2	121	94	12	15		99	1
Dufferin, Ont.	6			6	6				4	1
Elgin, Ont.	31	12		19	15	2	2	1	6	2
Essex, Ont.	58	6		52	48	3	1	1	35	3
Frontenac, Ont.	42	3		39	26	9	4	1	12	
Grey, Ont.	47	12	1	34	24	9	1		12	2
Haldimand, Ont.	16	5	1	10	5	4	1		8	1
Halton, Ont.	18	1		17	14	3			12	
Hastings, Ont.	39	1	2	36	32	2	2	1	21	
Huron, Ont.	15	4		11	4	4	3		4	
Kent, Ont.	d57	11	1	43	31	10	2	8	10	9
Lambton, Ont.	20	4		16	14		2		1	
Lanark, Ont.	1			1	1				1	
Leeds and Grenville, Ont.	30	3		27	24	3			7	2
Lennox and Addington, Ont.	2			2	2				2	
Lincoln, Ont.	23	10		13	7	1	5		5	
Middlesex, Ont.	102	28	3	71	41	12	18		34	1
Mu-koka and Parry Sound, Ont.	21	6	1	14	13	1			11	2
Nipissing, Ont.	10			10	7	1	2	1	3	
Norfolk, Ont.	14	3		11	6		5		2	2
Northumberland & Durham, O.	29	9		20	16	3	1	1	13	
Ontario, Ont.	12	1		11	10	1		1	6	
Oxford, Ont.	e33	7	1	24	20		4	5	5	3
Peel, Ont.	4	1		3	2	1			1	
Perth, Ont.	62	27	1	34	26	5	3	4	12	
Peterborough, Ont.	40	11		29	28	1		1	9	2
Prescott and Russell, Ont.	2	1		1	1				1	
Prince Edward, Ont.	6		1	5	4		1		3	
Renfrew, Ont.	11			11	9	1	1		1	
Simcoe, Ont.	32	6		26	19	7		1	11	
Stormont, D'das & Glengarry, O.	5	1		4	4				3	1
Thunder Bay and Rainy River.	18	6		12	11	1			6	2
Victoria, Ont.	39	14	2	23	17	1	5		17	1

a 1 Left the country.—1 a quitté le pays. b 2 Nolle prosequi. c 1 Both jail and fine.—1 La prison et l'amende. d 2 Escaped.—2 se sont évadés. e 1 Nolle prosequi.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- matories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic — Servi- teurs.	Indus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mar- riés.	Wi- dowed — En- veu- vage.	Single — Céli- bataires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
LARCIN— <i>Suite.</i>														
3				a1			1	1		7			8	
										1			1	
28	4			37	b1, a110	9	89	29	147	2	221	136	33	504
							1				2	1		2
1				8	a23	3	7	5	6		25	12		41
						3					12	8		17
4				2				1			3	1		5
					a1		1				15	3		13
				1		1					1	2	1	4
2	2					1								3
						1			1		7	1		8
39	6			49	b1, a137	19	99	36	155	2	314	168	35	616
1					a1	1	1		1		8	1		10
1				1	a14	4	5	3	11		15	11		47
					a3	3			1		5	3		4
7	12			1	a1		14	14	21	1	43	20	9	92
					a1	1	1	1	1		3	1		5
	1			1	a8	1	1	1	6		9	8	1	10
4				1	a8	2	9	4	8		24	12	6	37
2	1			4	a19	2	5	3	4		12	6		33
2				11	a4, b3	2	1		2		10	2		32
					a1		1			1	8	1		9
				2	a3		1		3		8	8		8
					a12, c2	2	5	3	2		11	11	3	22
4	1				a2	2			3		4	1		9
2	2			4	a8	5	1		13		13	9	3	29
6				2	a7			3	5		7	7	2	7
											1			1
	1			1	a11, b5			1	3		11	4	1	22
					a2			3			9	1	2	10
6				5	a23	2	6	5	28		13	19	1	50
					a1	5				1	6	3	1	9
5					a1		1	1	2		5	4		5
				1	a1				5		3			8
1				1	a4	1		1	3		10	7		12
2				2		3					4	2		7
				1	a10	3					11	3		13
					a2						1	1		1
3				1	a14	5	8		4		6	7	2	25
1					a4, b12			4	3		14	6	1	22
														1
1					a3		1				3	1		4
1				1	a6		1		2		5	1		10
3				2	a9	1		1	6		14	9	1	12
							1				3			4
					a4		1		1		5	1		10
				1	a4	4		1	1		15	8		14

a Sentence suspended.—Sentence suspendue. *b* Bound to good behaviour.—A tenir une meilleure conduite. *c* Goods to be paid and costs.—Effets devant être payés et les frais.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.								
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré	
<i>LARCENY—Continued.</i>																
Iberville, Qué.		2						1		1			7	1		2
Joliette, Qué.		1														
Kamouraska, Qué.		1				1								1		
Montréal, Qué.	191	484	2	100	6112	14	362	40	35	4	3		237	436		
Ottawa, Qué.		3					2		1				1	2		
Pontiac, Qué.		1									2		1			
Québec, Qué.	25	29	1	7	39	3	31		2				43	12		
Richelieu, Qué.	13	12		6	14		6		8				12	13		
Rimouski, Qué.	5	1		4			1		1				6			
St. François, Qué.	11	5			1		10				5	1	13	3		
St. Hyacinthe, Qué.		1		1							6		3	2		
Terrebonne, Qué.	2		1	1			1		1				3			
Trois-Rivières, Qué.	7	2			4		4		1		2		9			
Totaux de Québec	256	551	4	120	10138	17	420	41	51	4	25		2336	475		
Algoma et Manitoulin, Ont.	3	8					10		1				8	3		
Brant, Ont.	9	49		11	14		22	1	8		2		45	13		
Bruce, Ont.	1	8					7				5	2	4	5		
Carleton, Ont.	33	87	1	19	120	2	51	7	12	5	4		77	50		
Dufferin, Ont.		6			1		3	1	1				5	1		
Elgin, Ont.	5	14		2	3		10	1	3				14	5		
Essex, Ont.	3	48	1	3	9		31	1	8				22	30		
Frontenac, Ont.	6	33		12	8	3	16						25	14		
Grey, Ont.	7	27		19	14		9		1				29	5		
Haldimand, Ont.	3	4	1		1		7		2				3	7		
Halton, Ont.		16		2	3		10				1		7	9		
Hastings, Ont.	8	25		10	1		11		5	2	6		27	12		
Huron, Ont.		10			6	1			3		1		8	2		
Kent, Ont.	1	40		10	4	1	21	1	4		1	1	30	11		
Lambton, Ont.		16		1			8	1	4	2			4	12		
Lanark, Ont.		1			1									1		
Leeds et Grenville, Ont.	10	17		14	14		5		3				12	8		
Lennox et Addington, Ont.											2					
Lincoln, Ont.		13		1	8				3				5	8		
Middlesex, Ont.	7	60	4	7	215	1	23	6	15	2			51	20		
Muskoka et Parry Sound, Ont.	1	11	1		8		4		1		1		10	3		
Nipissing, Ont.	6	3					7	1	1				7	2		
Norfolk, Ont.	2	6		1	2		5				3		8			
Northumberland et Durham, O.	4	15		1	2	1	10		2		4		12	7		
Ontario, Ont.		9		1	1		6		1		2		4	5		
Oxford, Ont.	2	14		5	3		8		1		7		10	6		
Peel, Ont.		2		1					1		1		1	1		
Perth, Ont.		34		9	3	1	13		7	1			21	13		
Peterborough, Ont.	6	23		11	9		6	1	2				20	9		
Prescott et Russell, Ont.		1			1								1			
Prince-Edouard, Ont.	1	4		2	2				1				5			
Renfrew, Ont.	7	3	1	3	1		4		3				5	6		
Simcoe, Ont.	2	20		2	3		12		4	1	4		8	14		
Storm't, D'das et Gleng'ry, O.	1	3			1		3						2	2		
Th'der Bay et Rainy Riv., O.	1	10		2	2		6		1		1		9	2		
Victoria, Ont.	1	20	1		6		11	1	4		1		17	5		

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. — LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada. — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's pays étran- gers.	Other Bri- tish Pos- ses- ions. — Autr's posses- ions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Meth- odists. — Métho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
LARCIN—Suite.														
38	7		607	9	12	9	586	49	8	11	10	627	46	
2			1		1		2				1	2	1	
1			1				1					1	1	
	1		54				54			1		40	15	
			25				25					15	10	
			6				6					1	5	
			17				5			12		9	8	
			7				7					6	1	
			2		1		2				1		3	
			9				9					3	6	
39	8		752	9	14	9	717	51	8	12	13	713	109	
3	2	1	10				7		1	3		3	8	
1		2	49	1	1	7	7	14	13	11	5	1	40	
5	1	1	6	1			3	1		4		1	4	
		5	100	5	5	1	79	1	4	5	28	3	119	
			6				1	3	2	2			2	
4		1	13	1		2	5	6	4	4		2	10	
3	1		34	14		5	10	11	16	8	2		41	
2	4		32	1			19	1	9		10		36	
2		1	31				3	6	10	11			30	
	3		7				6	1	2			4	2	
5			9	2		1	4	5	5	1		4	11	
2	3	1	36				4		1	31			22	
1		2	7				3	3	1	3			1	
1	1	1	33	6		3	15	9	6	6	1	1	33	
1	2		12	1		2	2	7	1	4			13	
			24	3		1	7	12	4	2			1	
			9				7	2	3	1			8	
3	1		44	4	1	5	19	12	9	6	17	3	66	
19	2	1	8	1			2	4	3	1	2	1	4	
2	2		8				8	1					6	
			8			2	5	5		1			7	
2	1		16				4	5	6	1		1	11	
1			7		1		2	2	3	2			4	
1			15	1		2	2		3	2	7	1	10	
			2				1	1		1			1	
4	1	1	25	2	1	2	4	10	5	10		3	24	
3			26				9	8	11			1	25	
			1				1						1	
1			3	1				1	3		1		1	
2			8	1			4	4				3	8	
4		2	16				1	11	5	5		10	12	
		1	3				3			1		2	2	
2			9			1	3	3	2	2			8	
1	2	1	17	1		1	6	5	2	3	5		9	

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine.	No OPTION.	
									Sur- option entre la pri- son ou l'a- mi'nde	SANS OPTION.	One year and over.
				Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- vives.	Un- der one year.	Moins d'un an.	Un an et plus.	
		M.	F.							

LARCENY—Concluded.

Waterloo, Ont.	23	3	..	..	20	19	1	..	..	8	2
Welland, Ont.	a30	7	..	..	22	20	2	..	3	13	..
Wellington, Ont.	21	8	..	..	13	4	4	5	1	1	1
Wentworth, Ont.	219	58	5	..	156	131	10	15	..	66	12
York, Ont.	818	225	40	1	552	488	46	18	2	297	10
Totals of Ontario.....	2231	561	63	1	1602	1293	171	138	34	814	68
Manitoba, Central	b19	5	..	..	10	9	1	..	2	7	..
Manitoba, Eastern	c93	15	1	..	76	54	11	11	..	58	3
Manitoba, Western	c37	15	..	..	21	19	1	1	..	15	..
Totals of Manitoba.....	149	35	1	..	107	82	13	12	2	80	3
Clinton, B.C.	9	..	..	..	9	9	..	..	..	6	..
Victoria, B.C.	58	1	1	..	56	43	7	6	..	46	2
Westminster, B.C.	d77	12	..	..	63	58	3	2	1	45	4
Totals of British Columbia.	144	13	1	..	128	110	10	8	1	97	6
Alberta, Northern, N.W.T.	e60	43	..	..	16	14	2	..	..	8	..
Alberta, Southern, N.W.T.	33	10	..	..	23	22	1	..	..	18	..
Assiniboia, Eastern, N.W.T.	f37	13	..	..	21	21	..	..	5	13	..
Manitoba, Western	13	7	..	..	6	6	..	..	..	3	..
Saskatchewan, N.W.T.	c13	2	1	..	9	8	1	..	..	8	..
Totals of the N.W.T.	156	75	1	..	75	71	4	..	5	50	..
Totals of Canada.....	3838	797	80	1	2934	2399	266	269	92	1702	85

FELONIOUSLY RECEIVING.

Colchester, N.S.	1	..	..	..	1	1	..	..	..	1	..
Pictou, N.S.	1	..	..	..	1	1	..	..	..	1	..
Totals of New Brunswick..	2	..	..	..	2	2	..	..	..	2	..
York, N.B.	1	..	..	..	1	1	..	..	..	1	..
Montreal, Que.	18	2	..	..	16	7	2	7	..	6	..
Quebec, Que.	e5	1	..	..	3	3	..	..	..	2	..
Totals of Quebec.....	23	3	..	..	19	10	2	7	..	8	..
Carleton, Ont.	3	1	2	..	..	..	..	..	..	..	..
Elgin, Ont.	1	1	..	..	..	..	..	..	..	..	..
Haldimand, Ont.	1	..	..	..	1	..	..	1	..	..	1
Halton, Ont.	1	1	..	..	..	..	..	..	..	..	..
Lambton, Ont.	2	2	..	..	..	..	..	..	..	..	..
Leeds and Grenville, Ont.	2	..	..	..	2	2	..	..	..	1	..

a 1 Left the country, bail forfeited.—1 a quitté le pays, cautionnement confisqué. b 4 *Nolle prosequi*. c 1 *Nolle prosequi*. d 2 Left the country.—2 ont quitté le pays. e 1 Jury disagreed—1 Le juré ne s'est pas accordé. f 3 *Nolle prosequi*.

Criminal Statistics.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.															
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- ma- tories — En- voyés à la prison de Ré- forme.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commer- cial. — Commer- çants.	Do- mestic — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- naliers.	Mar- ried. — Mariés.	Wi- dowed — En- veuve- ge.	Single — Céli- ba- taires.	
Two years and un- der five.	Five years and over.	Life. — A vie.													
LARCIN—Fin.															
.....	.....	.....	.....	4	a6	.....	4	1	8	.....	2	4	2	14
.....	.....	.....	.....	1	a5	.....	4	3	1	.....	9	5	.....	17
.....	2	.....	.....	.....	a8	.....	4	.....	3	.....	5	3	.....	10
10	4	.....	.....	15	a49	.....	19	8	10	.....	68	28	1	107
9	1	.....	.....	37	a196	.....	1	30	34	.....	278	106	.....	486
79	30	100	a445, b20, c2	49	128	91	167	4	681	324	33	1178
.....	.....	.....	.....	.....	a1	.....	4	.....	.....	.....	6	2	.....	8
.....	a10, b5	4	7	6	14	39	16	2	58
1	.....	.....	.....	.....	a5	.....	3	1	.....	.....	7	3	.....	8
.....	a16, b5	11	8	6	14	52	21	2	74
1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	3	1	.....	3
3	3	.....	.....	1	a2, b2	.....	1	4	5	9	3	21	8	48
5	1	.....	.....	.....	a7	.....	.....	7	1	2	5	25	6	44
8	4	.....	.....	1	a9, b2	.....	2	11	6	11	8	49	15	95
1	.....	.....	.....	.....	a7	.....	2	.....	.....	.....	1	1	.....	2
.....	.....	.....	.....	.....	a5	.....	3	.....	.....	.....	1	2	.....	2
.....	.....	.....	.....	.....	a1, b2	.....	6	.....	.....	.....	.....	4	.....	2
.....	.....	.....	.....	.....	a3	.....	.....	.....	.....	.....	3	.....	.....	3
1	.....	.....	.....	.....	a17, b2	.....	11	.....	.....	.....	5	7	.....	9
162	42	164	a655, b30, c2	98	255	143	364	14	1173	564	71	2119
RECEL.															
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
1	1	.....	.....	.....	a8	.....	.....	.....	8	.....	3	11	.....	5
.....	.....	.....	.....	.....	a1	.....	1	.....	.....	.....	2	2	.....	1
1	1	.....	.....	.....	a9	.....	1	.....	8	.....	5	13	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1

a Sentence suspended.—Sentence suspendue. *b* Bound to good behaviour.—A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate		
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.					
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
H.				F.	H.	F.	H.	F.	H.	F.	Mo- déré	Im- modéré	
LARCENY—Concluded.													
Waterloo, Ont.	4	16	.....	4	5	1	4	1	5	.....	.....	16	4
Welland, Ont.	1	21	.....	4	3	.....	12	1	2	.....	.....	12	10
Wellington, Ont.	1	12	.....	.....	5	.....	5	1	2	.....	.....	9	4
Wentworth, Ont.	3	133	.....	41	1	30	3	39	3	15	5	19	80
York, Ont.	13	523	16	132	8	113	17	154	40	62	17	9	467
Totaux d'Ontario.	152	1365	26	330	15	301	32	554	68	189	35	75	31100
Manitoba, Centre.	1	9	.....	.....	1	.....	7	.....	2	.....	.....	10	.....
Manitoba, Est.	11	65	.....	12	12	2	39	1	7	1	2	33	39
Manitoba, Ouest.	1	10	.....	1	4	.....	6	.....	1	.....	9	8	3
Totaux de Manitoba.	13	84	.....	13	17	2	52	1	10	1	11	51	42
Clinton, Col.-B. ....	.....	4	.....	.....	.....	.....	1	.....	.....	.....	8	4	.....
Victoria, Col.-B.	17	31	7	3	7	1	35	2	8	.....	.....	36	20
Westminster, Col.-B.	2	9	4	.....	1	.....	26	.....	3	1	32	10	10
Totaux de la Col.-Britann.	19	44	11	3	8	1	62	2	11	1	40	50	30
Alberta, Nord, T. du N.-O.	1	2	.....	.....	1	.....	1	.....	1	.....	13	3	.....
Alberta, Sud, T. du N.-O. ....	.....	4	.....	.....	1	.....	.....	.....	3	.....	19	4	.....
Assiniboia, Est, T. du N.-O. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21	.....	.....
Assiniboia, Ouest, T. du N.-O. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....
Saskatchewan, T. du N.-O.	2	1	.....	1	1	.....	1	.....	.....	.....	6	1	2
Totaux des T. des N.-O.	3	7	.....	1	3	.....	2	.....	4	.....	65	8	2
Totaux du Canada.	490	2175	43	512	25	502	55	1146	118	276	47	248	51674
FELONIOUSLY RECEIVING.													
Colchester, N.-E. ....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Pictou, N.-E. ....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Totaux de la N.-Ecosse. ....	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	2	.....
York, N.-B. ....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
Montréal, Qué.	6	10	.....	1	2	.....	2	3	7	1	.....	4	12
Québec, Qué.	2	1	.....	.....	.....	.....	2	.....	1	.....	.....	1	2
Totaux de Québec.	8	11	.....	1	2	.....	4	3	8	1	.....	5	14
Carleton, Ont. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elgin, Ont. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haldimand, Ont. ....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Halton, Ont. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lambton, Ont. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leeds et Grenville, Ont.	1	1	.....	.....	.....	.....	2	.....	.....	.....	.....	1	1

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine.	No OPTION.	
									— Sur option entre la pri- son ou l'a- mnde	Un- der one year.	One year and over — Un an et plus.
DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE	Nombre d'accu- sations.	Ac- quit- tés.	Dé- tenues pour cause de folie.		Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.		Moins d'un an.	Un an et plus.
		M.	F.							

FELONIOUSLY RECEIVING—Concluded.

Lincoln, Ont.	3	3		1	1				1	
Muskoka and Parry Sound, Ont.	1			1	1				1	
Norfolk, Ont.	1			1	1				1	
Northumberland & Durham, O.	3	2		1	1				1	
Oxford, Ont.	1			1	1					
Peterborough, Ont.	1			1	1				1	
Renfrew, Ont.	1			1	1					
Welland, Ont.	1	1								
Wentworth, Ont.	4	2		2	2				1	1
York, Ont.	25	11		14	11	3			10	1
Totals of Ontario.	51	24	2	25	21	3	1		15	3
Manitoba, Eastern.	1			1	1				1	
Manitoba, Western.	1			1	1				1	
Totals of Manitoba.	2			2	2				2	
Clinton, B.C.	1			1	1				1	
Victoria, B.C.	3			3	3			1	2	
Westminster, B.C.	3			3	3				3	
Totals of British Columbia.	7			7	7			1	6	
Alberta, Southern, N.W.T.	1	1								
Assiniboia, Western, N.W.T.	2			2	2				2	
Totals of Canada.	89	28	2	58	45	5	8	1	34	3

MALICIOUS OFFENCES AGAINST PROPERTY. CLASS IV.

ARSON.

Hants, N.S.	1			1	1					
Pictou, N.S.	1			1	1					
Totals of Nova Scotia.	2			2	2					
Montreal, Que.	17	3		2	2					
Ottawa, Que.	2			2	2					1
St. Francis, Que.	2			2	1	1				1
St. Hyacinthe, Que.	1			1	1					
Three Rivers, Que.	2			2	2				2	
Totals of Quebec.	24	3		9	8	1			2	2
Brant, Ont.	1	1								
Carleton, Ont.	1	1								
Elgin, Ont.	2	2								
Kent, Ont.	3	1		1			1			
Leeds and Grenville, Ont.	2			2	2					1

a Jury disagreed—Les jurés ne se sont pas accordés. b 12 Nolle prosequi.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.															
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- mo- déré	
—	—	—	—	—	—	—	—	—	—	—	—	—	—		
FELONIOUSLY RECEIVING—Concluded.															
Lincoln, Ont.															
Muskoka et Parry Sound, O.		1			1								1		
Norfolk, Ont.											1				
Northumberland et Durham, O.		1								1			1		
Oxford, Ont.		1						1						1	
Peterborough, Ont.		1						1					1	1	
Renfrew, Ont.		1						1					1		
Welland, Ont.								2						2	
Wentworth, Ont.		2						2						2	
York, Ont.		13		1	5	1	2	2	2			1	13		
Totaux d'Ontario.	1	21		1	6	1	10	2	2	1	2		17	6	
Manitoba, Est.		1						1						1	
Manitoba, Ouest.											1				
Totaux de Manitoba.		1						1			1			1	
Clinton, Col.-B.											1				
Victoria, Col.-B.		3						2		1			1	2	
Westminster, Col.-B.								1			2				
Totaux de la Col.-Britann.		3						3		1	3		1	2	
Alberta, Sud, T. du N.-O.															
Assiniboia, Ouest, T. du N.-O.											2				
Totaux du Canada.	9	39		2	8	1	21	5	10	3	8		25	24	
MALICIOUS OFFENCES AGAINST PROPERTY. CLASS IV.															
ARSON.															
Hants, N.-E.		1								1				1	
Pictou, N.-E.		1								1				1	
Totaux de la N.-Ecosse.		2								2				2	
Montréal, Qué.		2								2				2	
Ottawa, Qué.	1	1					1			1			1	1	
St. François, Qué.	2				1		1						2		
St. Hyacinthe, Qué.	1										1		1		
Trois-Rivières, Qué.	1	1							1	1			2		
Totaux de Québec.	5	4			1		2		3	2	1		8	1	
Brant, Ont.															
Carleton, Ont.															
Elgin, Ont.										1				1	
Kent, Ont.		1												1	
Leeds et Grenville, Ont.		1						1					1	1	

Criminal Statistics,

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.		Etats- Unis.	—	—	—	—	—	—	—	—	—	—	—
Angle terre et Galles	Ir- lande.	Ecos- se.	—	—	Autr's posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.	Mé- tho- dis- tes.	Pres- byte- riens.	—	Autr's con- fes- sions.	—	—	
RECEL—Fin.															
1			1					1							1
				1				1						1	1
			1						1					1	
			1						1					1	
	1		12	1	1		5	4	2	1		1	2	12	1
2	1		18	2	1		5	10	6	1		1	19	4	
			1				1						1		
			1				1						1		
		1		1	1		1			1		1	3		
				1									3		
		1		2	1		1			1		1	6		
3	1	1	39	5	2		1	25	11	7	2	1	2	47	5
DOMMAGES MALICIEUX À LA PROPRIÉTÉ. CLASSE IV.															
INCENDIE PAR MALVEILLANCE.															
			1					1							1
			1					1							1
			2					1	1						2
1					1			2					1	2	2
			2					2				2		2	
			1					1							1
			2					2							2
1			7		1			5	1			2	1	4	5
		1									1				1
					1			1							1

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY— <i>Concluded.</i> CLASS IV.											
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.			
				Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 réci- vées.	COMMITTED TO JAIL — EMPRISONNÉS.		—	
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION.	Un- der one year — Moins d'un an.	One year and over. — Un an et plus.
ARSON—<i>Concluded.</i>											
Lennox and Addington, Ont....	2			2	2				1		
Lincoln, Ont.....	1			1	1					1	
Middlesex, Ont.....	2	1	1								
Peterborough, Ont.....	2	1	1								
Renfrew, Ont.....	1	1									
Thunder Bay and Rainy River	1	1									
Victoria, Ont.....	2	1		1	1						
Wellington, Ont.....	1			1	1						
Wentworth, Ont.....	1			1	1						
York, Ont.....	25	15	2	1	7	7					
Totals of Ontario.....	47	25	4	1	16	15	1		2	1	
Manitoba, Eastern.....	1				1		1				
Manitoba, Western.....	1	1									
Totals of Manitoba.....	2	1			1		1				
Victoria, B.C.....	1				1		1				
Alberta, Northern, N.W.T.....	3	1			2	2					
Alberta, Southern, N.W.T.....	1	1									
Assiniboia, Western, N.W.T.....	1				1	1					
Saskatchewan, N.W.T.....	1	1									
Totals of the N.W.T.....	6	3			3	3					
Totals of Canada.....	82	32	4	1	32	28	3	1	4	3	
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY.											
Prince, P.E.I.....	1	1									
Digby, N.S.....	1				1		1				
Halifax, N.S.....	2				2	2					
Totals of Nova Scotia.....	3				3	2	1				
King's, N.B.....	2	2									
Beauharnois, Que.....	1				1	1			1		
Montreal, Que.....	5	2			3	2		1	2		
St. Francis, Que.....	2	2									
St. Hyacinthe, Que.....	1	1									
Three Rivers, Que.....	3	3									
Totals of Quebec.....	12	8			4	3	1	2	1		
Kent, Ont.....	5				5	5			4		
Middlesex, Ont.....	a9	1			1	1					
Muskoka and Parry Sound, Ont.	3				3	3					

Criminal Statistics.

TABLEAU I. DOMMAGES MALICIEUX À LA PROPRIÉTÉ— <i>Fin.</i> CLASSE IV.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.		D'th. — De mort	Com- mit- ted to Refor- ma- to- ries — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.								ÉTATS CIVILS.		
Two years and un- der five.	Five years and over.							Life. — A vie				Mar- ried.	Wi- dowed	Single
D'ux ans et m'ns de cinq.	Cinq ans et plus.				Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	In- dus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	Lar- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.	
INCENDIE PAR MALVEILLANCE—<i>Fin.</i>														
			1					1			1		1	
					a1	1					1			
	1				a3	1	1				1		1	
1	3					1	1			2	1		6	
1	6		1		a5	2	3		2	3	4		10	
	1								1		1			
	1								1		1			
1							1						1	
1	1								2				2	
	1													
1	2								2				2	
6	13		1		a5	2	5		5	1	9	11	17	
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRIÉTÉS.														
	1									1			1	
2									2			1	1	
2	1								2			1	2	
1										1	2			
										2	2	1		
1										3	3	1		
					a1				1		4	1	4	
					a1								1	
					a3								3	

a Sentence suspended.—Sentence suspendue.

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY.			CLASS IV.											
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate				
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.			M.	F.	M.	F.
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
			H.	F.	H.	F.	H.	F.	H.	F.	H.	F.	Mo- de- ré	Im- mo- de- ré
ARSON—Concluded.														
Lennox et Addington, Ont.				1					1				1	
Lincoln, Ont.	1							1						1
Middlesex, Ont.														
Peterborough, Ont.														
Renfrew, Ont.														
Th' der Bay et Rainy Riv., Ont.														
Victoria, Ont.	1							1					1	
Wellington, Ont.	1							1						1
Wentworth, Ont.	1					1							1	
York, Ont.	7			3	1	2		1					7	
Totaux d'Ontario.		13		4	1	4		5		2			10	4
Manitoba, Est.		1						1						1
Manitoba, Ouest.														
Totaux de Manitoba		1				1							1	
Victoria, Col.-B			1			1							1	
Alberta, Nord, T. du N.-O.	1	1				1	1						1	1
Alberta, Sud, T. du N.-O.														
Assiniboia, Ouest, T. du N.-O.										1				
Saskatchewan, Ter. du N.-O.														
Totaux des Ter. du N.-O.	1	1				1	1			1			1	1
Totaux du Canada	6	21	1	4	2	9	1	10	2	4			23	6
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY.														
Prince, I. du P.-E.														
Digby, N.-E.		1							1				1	
Halifax, N.-E.		2						1		1			1	1
Totaux de la N.-Ecosse.		3						1		2			2	1
King's, N.-B.														
Beauharnois, Qué.		1						1					1	
Montréal, Qué.		3						2		1				3
St. François, Qué.														
St. Hyacinthe, Qué.														
Trois-Rivières, Qué.														
Totaux de Québec.		4						3		1			1	3
Kent, Ont.		5		2	2							1	5	
Middlesex, Ont.		1		1									1	
Muskoka et Parry Sound, Ont.		3			1			2					3	

Criminal Statistics.

TABLEAU I. DOMMAGES MALICIEUX À LA PROPRIÉTÉ. CLASSE IV.														
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants	Other Denominations.	Cities and Towns—Villes. Rural Districts—Districts ruraux.
England and Wales	Ireland.	Scotland.		—	—	—	—	—	—	—	—	—	—	
Angle terre et Galles	Irlande.	Ecosse.	Etats-Unis.	Autres pays étrangers.	Autr's possessions Britanniques.	Baptistes.	Catholiques.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Autr's confessions.	—	—	
INCENDIE PAR MALVEILLANCE—Fin.														
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	1	.....	6	.....	.....	.....	1	1	4	.....	1	.....	1	1
2	1	2	7	.....	1	.....	1	3	5	.....	4	.....	8	5
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	.....	.....	1	1	.....	.....	.....	.....	.....	1	.....	.....	1	2
.....
.....	.....	.....	1	1	.....	.....	.....	.....	.....	1	.....	.....	1	2
4	1	2	18	1	2	.....	1	9	8	1	5	2	2	16 12
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRIÉTÉS.														
.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
2	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2	.....
2	.....	.....	1	.....	.....	.....	.....	2	.....	.....	.....	1	2	1
.....
.....	1	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	3	1
.....	.....	.....	2	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....
.....
.....	1	.....	3	.....	.....	.....	.....	3	1	.....	.....	.....	3	1
.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	1
3	.....	.....	1	.....	.....	.....	.....	1	3	.....	.....	5	1	3

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY—*Concluded.* CLASS IV.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'am- ande	NO OPTION. — SANS OPTION	
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- dés.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY—<i>Concluded.</i>										
Northumberland & Durham, O.	2	1		1	1			1		
Oxford, Ont.	2	1		1	1				1	
Simcoe, Ont.	1	1								
Thunder Bay and Rainy River.	2			2	2			2		
Waterloo, Ont.	1			1	1					
York, Ont.	34	15	5	14	13		1	2	2	
Totals of Ontario	59	19	5	28	27		1	6	5 1	
Manitoba, Central.	a1									
Manitoba, Eastern	4	2		2	2				1	
Manitoba, Western	1			1	1				1	
Totals of Manitoba	6	2		3	3				2	
Westminster, B.C.	2			2	2			2		
Alberta, Northern, N.W.T.	5	5								
Alberta, Southern, N.W.T.	4	3		1	1					
Assiniboia, Eastern, N.W.T.	1	1								
Assiniboia, Western, N.W.T.	3			3	3					
Saskatchewan, N.W.T.	b2	1								
Totals of the N.W.T.	15	10		4	4					
Totals of Canada	100	42	5	44	41	1	2	10	8 1	
FORGERY AND OFFENCES AGAINST THE CURRENCY. CLASS V.										
Queen's, P.E.I.	c1									
Halifax, N.S.	1			1	1				1	
Montreal, Que.	11	5		6	6				1 3	
Ottawa, Ont.	c1									
Rimouski, Que.	a1									
Totals of Quebec	13	5		6	6				1 3	
Algoma and Manitoulin, Ont.	2	2								
Brant, Ont.	1	1								
Bruce, Ont.	6			6	2	3	1		1 1	
Carleton, Ont.	7			7	5	2			2	
Elgin, Ont.	1	1								
Essex, Ont.	1			1	1					
Grey, Ont.	2			2	2				1 1	
Haldimand, Ont.	1	1								
Hastings, Ont.	9	1		8	5	2	1		6	
Kent, Ont.	3	2		1	1					
Leeds and Grenville, Ont.	1			1		1			1	
Lincoln, Ont.	1	1								
Middlesex, Ont.	3			3			3		3	

a *Nolle prosequi.* b 1 Escaped.—1 s'est évadé. c Jury disagreed.—Les jurés ne se sont pas accordés.

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY—*Concluded.* CLASS IV.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years. — Moins de 16 ans.	16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- de- rate
					M.	F.	M.	F.	M.	F.	M.	F.			M.	F.
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- de- ré
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY—<i>Concluded.</i>														
Northumberl'd et Durham, O.	1	1				1							1	1
Oxford, Ont.					1								1	
Simcoe, Ont.				2									2	
Thunder Bay et Rainy River.	1	1											2	
Waterloo, Ont.		1						1					1	1
York, Ont.		14		8	2		2	1		1			13	1
Totaux d'Ontario.	2	26		13	6		5	1	1	1	1		25	3
Manitoba, Centre.														
Manitoba, Est.		2			1		1						2	
Manitoba, Ouest.		1			1								1	
Totaux de Manitoba		3			2		1						3	
Westminster, Col.-B.		2					2						1	1
Alberta Nord, T. du N.-O.														
Alberta Sud, T. du N.-O.		1					1						1	
Assiniboia, Est, T. du N.-O.														
Assiniboia, Ouest, T. du N.-O.												3		
Saskatchewan, T. du N.-O.														
Totaux des T. du N.-O.		1					1					3	1	
Totaux du Canada	2	39		13	8		13	1	3	2	4		33	8
FORGERY AND OFFENCES AGAINST THE CURRENCY. CLASS V.														
Queen's, I. du P.-E.														
Halifax, N.-E.		1					1							1
Montréal, Qué.		4	2		2		3	1					5	1
Ottawa, Qué.														
Rimouski, Qué.														
Totaux de Québec		4	2		2		3	1					5	1
Algoma et Manitoulin, Ont.														
Brant, Ont.														
Bruce, Ont.		6					5		1				3	3
Carleton, Ont.	1	5	1		2		4		1				4	3
Elgin, Ont.														
Essex, Ont.		1					1							1
Grey, Ont.		2					2						2	
Haldimand, Ont.														
Hastings, Ont.		7	1				3		1			4	8	
Kent, Ont.				1									1	
Leeds et Grenville, Ont.		1					1						1	1
Lincoln, Ont.														
Middlesex, Ont.		3					3							3

Criminal Statistics.

TABLEAU I. DOMMAGES MALICIEUX À LA PROPRIÉTÉ—Fin.												CLASSE IV.			
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's posses- sions Brit- tanni- ques.	Other Brit- tish Pos- ses- sions. — Autr's posses- sions Brit- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- riens. — Pres- byté- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
2	2	.....	.....	.....	.....	2	.....
1	1	4	8	.....	1	.....	.....	14	.....
7	21	.....	.....	1	5	14	1	2	5	.....	27	1	
.....	1	.....	1	.....	.....	2	.....	.....	.....	.....	.....	2	
1	1	.....	1	.....	.....	2	1	.....	.....	.....	.....	3	
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	2	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	
10	1	.....	29	.....	1	.....	1	14	16	1	2	6	34	7
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRIÉTÉS—Fin															
FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE. CLASSE V.															
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	
1	4	.....	1	.....	.....	6	.....	.....	.....	.....	6	.....
1	4	.....	1	.....	.....	6	.....	.....	.....	.....	6	.....
1	1	.....	4	.....	.....	.....	.....	4	1	.....	.....	.....	1	5
.....	7	.....	.....	.....	.....	5	2	.....	.....	.....	3	4	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	1	
.....	2	.....	.....	.....	.....	1	.....	1	.....	.....	1	1	
.....	8	.....	.....	.....	.....	3	.....	.....	.....	5	.....	8	
.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....
3	3	.....	.....	.....	3	.....

TABLE I. FORGERY AND OFFENCES AGAINST CURRENCY—*Concluded.* CLASS V.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges — Nombre d'accu- sations.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	— SANSOPTION	
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
					M.	F.	Dé- tenues pour cause de folie.			
Oxford, Ont.....	2	2								
Peel, Ont.....	2			2	1	1			2	
Perth, Ont.....	1	1								
Prescott and Russell, Ont.....	1			1	1					
Simcoe, Ont.....	10	1		9	5	2	2		2 1	
Stormont, D'das & Glengary, O.	1									
Victoria, Ont.....	14	8		6	5	1				
Waterloo, Ont.....	1			1	1					
Welland, Ont.....	1			1		1				
Wellington, Ont.....	1			1	1					
Wentworth, Ont.....	5	2		3	3				3 3	
York, Ont.....	39	18	8	13	10	2	1		3 3	
Totals of Ontario.....	116	40	9	66	43	15	8		18 12	
Manitoba, Eastern.....	5			5	5				4 1	
Cariboo, B.C.....	2			2	1	1				
Clinton, B.C.....	1			1	1				1	
Victoria, B.C.....	1			1	1					
Westminster, B.C.....	3			3	2	1			3	
Totals of British Columbia.....	7			7	5	2			1 5	
Assiniboia, Eastern, N.W.T.....	1	1								
Assiniboia, Western, N.W.T.....	1			1	1					
Saskatchewan, N.W.T.....	1			1	1				1	
Totals of the N.W.T.....	3	1		2	2				1	
Totals of Canada.....	146	46	9	87	62	17	8		26 21	

OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES. CLASS VI.

ATTEMPT TO COMMIT SUICIDE.

St. John, N.B.....	1			1	1				1
Montreal, Que.....	6			6	6				5
Three Rivers, Que.....	1	1							
Totals of Quebec.....	7	1		6	6				5
Haldimand, Ont.....	2	1		1	1				1
Peel, Ont.....	1	1							
Peterborough, Ont.....	1	1							
Simcoe, Ont.....	2		2						
York, Ont.....	2			2	2				
Totals of Ontario.....	8	3	2	3	3				1
Assiniboia, Western, N.W.T.....	1	1							
Totals of Canada.....	17	5	2	10	10				7

a Jury disagreed.—Les jurés ne se sont pas accordés.

TABLE I. FORGERY AND OFFENCES AGAINST CURRENCY—*Concluded.* CLASS V.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.					Im- mo- de- rate	Im- mo- de- rate	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
H.				F.	H.	F.	H.	F.	H.	F.					
Oxford, Ont.		2				2							2		
Peel, Ont.															
Perth, Ont.															
Prescott and Russell, Ont.		1						1					1		
Simcoe, Ont.	4	4				6		2		1			8		
Storm't, D'das et Gleng'ry, O.					1			1					6		
Victoria, Ont.		6				4		1					1		
Waterloo, Ont.		1						1					1		
Welland, Ont.		1				1							1		
Wellington, Ont.		1				2							1		
Wentworth, Ont.		3				2				1			3		
York, Ont.		12	1		1	10		2					13		
Totaux d'Ontario.	5	56	3	1	4	45	10	1	5				42	23	
Manitoba, Est.		4	1			5							3	2	
Caribou, Col.-B.		2						2					2		
Clinton, Col.-B.		1					1						1		
Victoria, Col.-B.		1						1					1		
Westminster, Col.-B.			1			1				2			1		
Totaux de la Col.-Britann.		4	1			1	1	3		2			5		
Assiniboia, Est, T. du N.-O.															
Assiniboia, Ouest, T. du N.-O.		1			1						1		1		
Saskatchewan, T. du N.-O.															
Totaux des Ter. du N.-O.		1			1						1		1		
Totaux du Canada.	5	70	7	2	6	55	2	13	1	8			56	27	

OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES. CLASS VI.

ATTEMPT TO COMMIT SUICIDE.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.					Im- mo- de- rate	Im- mo- de- rate
Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
			H.	F.	H.	F.	H.	F.	H.	F.				
St. Jean, N.-B.		1						1						1
Montréal, Qué.	2	4				1	2	2	1				3	3
Trois-Rivières, Qué.														
Totaux de Québec.	2	4				1	2	2	1				3	3
Haldimand, Ont.			1			1								1
Peel, Ont.														
Peterborough, Ont.														
Simcoe, Ont.														
York, Ont.		2				1		1					2	
Totaux d'Ontario.		2	1			2		1					2	1
Assiniboia, Ouest, T. du N.-O.														
Totaux du Canada.	2	7	1			3	2	4	1				5	5

Criminal Statistics.

TABLEAU I. FAUX ET DÉLITS PAR RAPPORT A LA MONNAIE—Fin. CLASSE V.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autr's pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists.	R. Catholics.	Ch. of England.	Methodists	Presbyterians.	Protestants	Other Denominations.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales — Angle terre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.					Baptists.	R. Catholics.	Ch. of England.	Methodists	Presbyterians.		Other Denominations.		
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	
2	6	.....	.....	.....	4	4	.....	.....	.....	.....	4	4	
.....	6	.....	.....	.....	.....	5	1	.....	.....	.....	.....	6	
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
2	1	.....	.....	.....	2	7	1	1	1	.....	3	.....
.....	12	1	.....	.....	.....	.....	.....	.....	.....	.....	13	.....
8	1	.....	53	2	.....	.....	1	20	27	5	5	6	31	33
1	1	.....	3	.....	.....	1	.....	.....	.....	4	4	1	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....
1	1	.....	1	.....
1	1	.....	.....	.....	.....	1	.....	.....	1	.....	3	2	
.....	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	
11	1	.....	61	2	4	.....	1	28	29	5	6	6	44	38

AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES. CLASSE VI.

TENTATIVE DE SUICIDE.

.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
1	2	.....	2	.....	1	.....	.....	5	.....	.....	1	.....	6	.....
1	2	.....	2	.....	1	.....	.....	5	.....	.....	1	.....	6	.....
1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
.....
1	.....	1	.....	.....	.....	.....	.....	.....	1	.....	1	.....	2	.....
2	.....	1	.....	.....	.....	.....	.....	.....	2	.....	1	.....	2	1
.....
3	2	1	3	.....	1	.....	1	5	2	.....	2	.....	9	1

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.		De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE. — COMMITTED TO JAIL — EMPRISONNÉS.			
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- des.	With the option of a fine. — Sur option entre la pri- son ou l'am- ande	NO OPTION. — SANS OPTION.	
										Un- der one year. — Moins d'un an.	One year and over — Un an et plus.
		PERJURY AND SUBORNATION OF PERJURY.									
Cumberland, N.S.	1	1			2			2			
Halifax, N.S.	4	1	1								
Pictou, Ont.	1				1	1					
Totals of Nova Scotia.	6	2	1		3	1		2			
St. John, N.B.	a1										
Westmoreland, N.B.	b1										
Totals of New Brunswick.	2										
Montreal, Que.	8	4			4	2	2			4	
Quebec, Que.	2	2									
Three Rivers, Que.	2	2									
Totals of Quebec.	12	8			4	2	2			4	
Brant, Ont.	1	1									
Carleton, Ont.	1	1									
Essex, Ont.	1				1	1					
Hastings, Ont.	1	1									
Huron, Ont.	1	1									
Lambton, Ont.	1	1									
Lennox and Addington, Ont.	1				1	1					
Lincoln, Ont.	1				1	1				1	
Middlesex, Ont.	2	1			1		1				
Nipissing, Ont.	1				1	1					
Perth, Ont.	1				1	1					
Prince Edward, Ont.	b1										
Renfrew, Ont.	1	1									
Simcoe, Ont.	1				1		1			1	
Stormont, D'das & Glengarry, O.	b1										
Thunder Bay and Rainy River.	1	1									
Victoria, Ont.	1	1									
Totals of Ontario.	18	9			7	5	2			2	
Westminster, B.C.	3	3									
Alberta, Northern, N.W.T.	3	3									
Alberta, Southern, N.W.T.	a1										
Assiniboia, Eastern, N.W.T.	2				2	2				1	
Assiniboia, Western.	1	1									
Saskatchewan, N.W.T.	1	1									
Totals of the N.W.T.	8	5			2	2				1	
Totals of Canada	49	27	1		16	10	4	2		7	
OFFENCES AGAINST GAMBLING AND LOTTERY ACTS.											
Montreal, Que.	18	2			16	16				16	

a Nolle prosequi. b Jury disagreed.—Les jurés ne se sont pas accordés.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years. — Moins de 16 ans.	16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Mo- de- rate	Im- mo- de- rate
					M.	F.	M.	F.	M.	F.	M.	F.			M.	F.
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré
PERJURY AND SUBORNATION OF PERJURY.														
Cumberland, N.-E.		2					2						2	
Halifax, N.-E.		1						1					1	
Pictou, N.-E.														
Totaux de la N.-Ecosse.		3					2	1					3	
St. Jean, N.-B.														
Westmoreland, N.-B.														
Totaux du N.-Brunswick.														
Montréal, Qué	2	2			1	1			2				1	3
Québec, Qué														
Trois-Rivières, Qué														
Totaux de Québec.	2	2			1	1			2				1	3
Brant, Ont.														
Carleton, Ont.														
Essex, Ont.		1									1			
Hastings, Ont.														
Huron, Ont.														
Lambton, Ont.														
Lennox et Addington, Ont.											1			
Lincoln, Ont.		1					1						1	
Middlesex, Ont.		1							1				1	
Nipissing, Ont.	1								1				1	
Perth, Ont.											1			
Prince-Edouard, Ont.														
Renfrew, Ont.														
Simcoe, Ont.			1				1						1	
Stormont, D'as et Gleng'ry, O														
Th'der Bay et Rainy Riv., Ont														
Victoria, Ont.														
Totaux d'Ontario.	1	3	1				2		2		3		4	
Westminster, Col.-B.														
Alberta, Nord, T. du N.-O.														
Alberta, Sud, T. du N.-O.														
Assiniboia, Est, T. du N.-O.											2			
Assiniboia, Oust, T. du N.-O.														
Saskatchewan, T. du N.-O.														
Totaux des Ter. du N.-O.											2			
Totaux du Canada.	3	8	1		1	1	4	1	4		5		8	3
OFFENCES AGAINST GAMBLING AND LOTTERY ACTS.														
Montréal, Qué		16				2		12		2			15	1

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.		De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.			
		M.	F.		Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 réci- ves.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION.	
										Un- der one year — Moins d'un an.	One year and over. — Un an et plus.
		OFFENCES AGAINST GAMBLING AND LOTTERY ACTS— <i>Concluded.</i>									
Essex, Ont.	3				3	1	2		3		
Wentworth, Ont.	1				1	1					
York, Ont.	10	2			8	8			1		
Totals of Ontario....	14	2			12	10	2		4		
Victoria, B.C.	2	1			1	1				1	
Westminster, B.C.	2	2									
Totals of British Columbia	4	3			1	1				1	
Totals of Canada....	36	7			29	27	2		20	1	
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON.											
Antigonish, N.S.	1				1		1				
Cape Breton, N.S.	1				1		1			1	
Halifax, N.S.	5	1			4		4			4	
Pictou, N.S.	1	1									
Totals of Nova Scotia....	8	2			6		6			5	
Northumberland, N.B.	1				1		1				
Montreal, Que.	7	2			5		4	1		1	1
Brant, Ont.	1				1			1			
Carleton, Ont.	2				2		2				
Frontenac, Ont.	5				5		5				5
Halton, Ont.	1				1			1		1	
Hastings, Ont.	1				1	1			1		
Kent, Ont.	3	1			2		1	1		1	1
Lambton, Ont.	2				2		2			2	
Muskoka and Parry Sound, Ont	1				1		1			1	
Norfolk, Ont.	1				1		1			1	
Northumberland & Durham, Ont	4	2			2		2			1	
Peterborough, Ont.	1				1		1			1	
Simcoe, Ont.	1				1			1		1	
Victoria, Ont.	1				1		1				
Waterloo, Ont.	2				2		2				2
York, Ont.	4	1			3		3			2	
Totals of Ontario....	30	4			26	1	21	4	1	11	8
Manitoba, Central.	2				2		2			2	
Clinton, B.C.	6				6		6			6	
Victoria, B.C.	1				1		1			1	
Westminster, B.C.	1				1		1				
Totals of British Columbia.	8				8		8			7	

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- mo- de- rate	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.	M. F.	M. F.			
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- de- ré	Im- mo- de- ré	
			H. F.	H. F.	H. F.	H. F.	H. F.	H. F.	H. F.				

OFFENCES AGAINST GAMBLING AND LOTTERY ACTS—*Concluded.*

Essex, Ont.	3					3					3	
Wentworth, Ont.									1			
York, Ont.	8			6	1			1			8	
Totaux d'Ontario	11			6	1	3		1		1	11	
Victoria, Col.-B.	1							1			1	
Westminster, Col.-B.												
Totaux de la Col.-Britann.	1							1			1	
Totaux du Canada.....	1	27		6	3	15		4		1	27	1

PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON.

Antigonish, N.-E.		1			1						1	
Cap-Breton, N.-E.		1				1					1	
Halifax, N.-E.		4			2	1		1			3	1
Pictou, N.-E.												
Totaux de la N.-Ecosse		6			3	2		1			5	1
Northumberland, N.-B.		1				1					1	
Montréal, Qué.		5		3		2					3	2
Brant, Ont.		1		1							1	
Carleton, Ont.		2				2					2	
Frontenac, Ont.		5				5					5	
Halton, Ont.		1				1					1	
Hastings, Ont.		1							1		1	
Kent, Ont.		2				2					1	1
Lambton, Ont.		2				2					2	
Muskoka et Parry Sound, Ont.		1			1						1	
Norfolk, Ont.		1			1						1	
Northumberl'd et Durham, O.		2				2					2	
Peterborough, Ont.		1				1					1	
Simcoe, Ont.		1				1					1	
Victoria, Ont.		1				1					1	
Waterloo, Ont.		1				2					2	
York, Ont.		3				2	1				1	2
Totaux d'Ontario	2	24		1	2	21	1			1	16	10
Manitoba, Centre.....		2			2						2	
Clinton, Col.-B.	1	4				5		1			4	
Victoria, Col.-B.		1				1					1	
Westminster, Col.-B.		1							1		1	
Totaux de la Col.-Britann.	1	6				6		1		1	5	1

Criminal Statistics.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES. CLASSE VI.

BIRTH PLACES. LIEUX DE NAISSANCE.				RELIGIONS.							RESI- DENCE.				
BRITISH ISLES. ILES BRITANNIQUES.				United States — Etats- Unis.	Other Foreign Coun- tries. — Autres pays étran- gers.	Other British Pos- sessions. — Autres posses- sions Bri- tanni- ques.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Metho- dists	Pres- byte- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.	Ca- nada.				Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.	Métho- dis- tes.	Pres- byte- riens.	—	—	—	—
.....	3	.....	.....	.....	1	.....	1	.....	.....	.....	3	.....
.....	8	.....	.....	.....	4	1	2	1	.....	.....	8	.....
.....	8	3	.....	.....	5	1	3	1	.....	.....	11	.....
.....	1	.....	.....	.....	.....	.....	.....	1	1	.....
.....	1	.....	.....	.....	.....	.....	.....	1	1	.....
.....	21	3	4	.....	15	4	3	2	.....	3	25	3	
INFRACTIONS AUX LOIS DÉFENDANT LE JEU ET LES LOTERIES—Fin.															
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	4	.....	.....	.....	3	1	1	.....	.....	.....	4	.....
.....	6	.....	.....	.....	4	1	1	.....	.....	.....	6	.....
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	3	.....	1	.....	2	.....	3	.....	.....	.....	5	.....
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
2	3	2	.....	.....	1	3	1	1	.....	1	2	.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	1	1	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	2	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	1	.....	.....	.....	2	.....	1	.....	.....	.....	1	.....
1	2	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
1	2	.....	.....	.....	1	1	1	1	.....	.....	3	.....
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	19	3	.....	.....	5	7	7	2	3	2	12	14	
.....	2	.....	.....	.....	.....	.....	.....	.....	2	2	.....
.....	2	3	.....	.....	2	.....	.....	.....	.....	.....	1	5	
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....
.....	3	3	.....	.....	3	.....	.....	.....	.....	.....	3	5	

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st. Con- dam- nés une fois.	Con- victed 2nd. Con- dam- nés deux fois.	Reite- rated. Plus de 2 rédi- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
								With the option of a fine. Sur- option entre la pri- son ou l'a- n'de	NO OPTION. — SANS OPTION.	
									Un- der one year. Moins d'un an.	One year and over. Un an et plus.
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON—Concluded.										
Alberta, Northern, N.W.T.....	2			2	2			2		
Assiniboia, Eastern, N.W.T.....	1			1	1			1		
Assiniboia, Western, N.W.T.....	3			3	3			3		
Totals of the N.W.T.....	6			6	6			6		
Totals of Canada	62	8		54	1	48	5	1	32	
OFFENCES AGAINST REVENUE LAWS.										
Montreal, Que.....	5			5	1	1	3	5		
Rimouski, Que.....	4			4	4			4		
Totals of Quebec.....	9			9	5	1	3	9		
York, Ont.....	4	3		1	1					
Westminster, B.C.....	1			1	1			1		
Totals of Canada.....	14	3		11	7	1	3	10		
INDECENT EXPOSURE AND OTHER OFFENCES AGAINST PUBLIC MORALS.										
Halifax, N.S.....	3			3	3			2	1	
Pictou, N.S.....	1			1	1				1	
Totals of Nova Scotia.....	4			4	4			2	2	
Iberville, Que.....	1			1	1				1	
Joliette, Que.....	1			1	1				1	
Montreal, Que.....	10	1	1	7	6	1		5	1	
Rimouski, Que.....	2			2	2			1		
Totals of Quebec.....	14	1	1	11	10	1		6	2	
Elgin, Ont.....	1			1	1				1	
Kent, Ont.....	3			3	3					
Middlesex, Ont.....	1			1	1					
Nipissing, Ont.....	1			1	1			1		
Northumberland & Durham, O..	5	2	1	2	2				1	
Thunder Bay and Rainy River..	1			1	1					
Wellington, Ont.....	1			1	1					
York, Ont.....	13	5		8	8			1	5	
Totals of Ontario.....	26	7	1	18	18			2	7	
Manitoba, Eastern.....	1			1	1				1	
Westminster, B.C.....	6	1		5	5			5		
Totals of Canada.....	51	9	1	39	38	1		15	12	

a 1 Left the country.—1 a quitté le pays.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.						USE OF LIQOURS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years	16 and 21 years	21 years and 40 years	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate	
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.			
	Inca- pable de lire ou d'écrire.	Élé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	
			H. F.	H. F.	H. F.	H. F.	H. F.	H. F.			
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON—Continued.											
Alberta, Nord, T. du N.-O.	2			1	1					2	
Assiniboia, Est, T. du N.-O.								1			
Assiniboia, Ouest, T. du N.-O.								3			
Totaux des T. du N.-O.	2			1	1			4		2	
Totaux du Canada.	3	46		4	8	33	1	2	6	34 14	
OFFENCES AGAINST REVENUE LAWS.											
Montréal Qué	5			5						5	
Rimouski, Qué	4				1	3				4	
Totaux de Québec.	9			5	1	3				9	
York, Ont.	1					1				1	
Westminster, Col.-B.								1			
Totaux du Canada.	10			5	1	4		1		10	
INDECENT EXPOSURE AND OTHER OFFENCES AGAINST PUBLIC MORALS.											
Halifax, N.-E.	1	2			2	1				3	
Pictou, N.-E.		1		1						1	
Totaux de la N.-Ecosse.	1	3		1	2	1				4	
Iberville, Qué	1			1						1	
Joliette, Qué	1					1				1	
Montréal, Qué	7				5	1	1			7	
Rimouski, Qué	2			1	1					2	
Totaux de Québec.	2	9		1	1	1	5	1	2	11	
Elgin, Ont	1						1			1	
Kent, Ont	1							2		1	
Middlesex, Ont.	1			1						1	
Nipissing, Ont.	1				1					1	
Northumberl'd et Durham, O.	2				1	1				2	
Th'der Bay et Rainy River, O.	1				1					1	
Wellington, Ont.	1				1					1	
York, Ont.	6	1		1	4		2	1		6	
Totaux d'Ontario	1	13	1	2	8	1	4	3		12 3	
Manitoba, Est		1			1					1	
Westminster, Col.-B								4	1		
Totaux du Canada	4	26	1	1	1	4	16	3	6	7 1 27 4	

Criminal Statistics.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES.											CLASSE VI.				
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists.	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns — Villes.	Rural Districts — Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.			Autr's posses- sions	Autr's pays étran- gers.		Autr's posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.		Mé- tho- dis- tes.			Pres- byté- riens.	Autr's con- fes- sions.
BRIS DE PRISON, ÉVASION ET TENTATIVE D'ÉVASION—Fin.															
			1	1			1		1					2	1
			1	1			1		1					2	1
4	1		33	9		1	16	8	12	2	3	4	31	20	
DÉLITS CONTRE LE REVENU DE L'ÉTAT.															
			5				5							5	4
			4				4								4
			9				9							5	4
		1									1		1		
													1		
		1	9				9			1			7	4	
EXPOSITION INDÉCENTE ET AUTRES DÉLITS CONTRE LA MORALE PUBLIQUE.															
		1	2				1	1		1			2	1	
			1							1			1		
		1	3				1	1		2			3	1	
			1				1						1		
			1				1						1		1
			6		1		6					1	6	1	1
			2				2						1	1	1
			10		1		10						1	8	3
				1								1			1
			1				1						1		
			1										1		1
			2												2
			1				1						1		
			1										1		
3			4				1	3	3				7		1
3			11	1			1	3	4	4	1	1	1	10	5
					1			1							1
			1	4										5	
3		1	25	5	2		1	15	5	4	3	1	2	26	10

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine.	No OPTION. — SANS OPTION
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- des.	Sur option entre la pri- son ou l'a- m'nde	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
CARRYING UNLAWFUL WEAPONS.									
Northumberland, N.B.	1			1	1				
Joliette, Que.	1	1							
Montreal, Que.	9			9	9		6	2	
Quebec, Que.	2	2							
St. Francis, Que.	1			1	1			1	
Totals of Quebec.	13	3		10	10		6	3	
Halton, Ont.	1			1		1			
Hastings, Ont.	2			2	1	1	2		
Kent, Ont.	1			1	1				
Leeds and Grenville, Ont.	1			1		1		1	
Wentworth, Ont.	3			3	3				
Totals of Ontario.	8			8	5	3	2	1	
Manitoba, Western.	1	1							
Westminster, B.C.	7			7	7		5	1	
Alberta, Southern N.W.T.	1	1							
Totals of Canada.	31	5		26	23	3	13	5	
FORCIBLE ENTRY.									
Three Rivers, Que.	1			1	1		1		
Essex, Ont.	2	2							
Hastings, Ont.	1	1							
Prince Edward, Ont.	1			1	1				
Simcoe, Ont.	1			1	1		1		
Victoria, Ont.	1	1							
York, Ont.	1	1							
Totals of Ontario.	7	5		2	2		1		
Totals of Canada.	8	5		3	3		2		
STEALING REGISTERED LETTERS AND OTHER MAIL MATTERS.									
Victoria, N.S.	1			1	1		1		

"Tried under " Juvenile Offenders' Act."—Jugé sous l'autorité de l'Acte des " Jeunes Délinquants."

Criminal Statistics.

TABEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES. CLASSE VI.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mitted to Refor- matories. — Envoyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic. — Servi- teurs.	In- dus- trial. — Indus- triels.	Pro- fes- sional. — Profes- sions libé- rales.	La- borers. — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five.	Five years and over.	Life. — A vie												
PORT D'ARMES ILLÉGAL.														
1											1	1		
				a1		3		2			4	1		8
											1			1
				a1		3		2			5	1		9
				a1		1					2	1		1
				a1		1		1						1
				a2, b1		1		1			1			3
				a4, b1		1	2	2			3	1		7
				a1			1				1			1
1				a6, b1		1	6	4			10	3		17
ENTRÉE FORCÉE.														
						1								1
				a1		1						1		
				a1		1						1		
				a1		2						1	1	
VOL DE LETTRES CHARGÉES ET AUTRES MATIÈRES POSTALES.														
														1

Sentence suspended.—Sentence suspendue. *b* Revolver confiscated.—Revolver confisqué.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- de- rate				
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- déré	Im- modéré
H.				F.	H.	F.	H.	F.	H.	F.	H.	F.			
CARRYING UNLAWFUL WEAPONS.															
Northumberland, N.-B.	1					1								1	
Joliette, Qué.					2	7								2	7
Montréal, Qué.	9														
Québec, Qué.						1								1	
St. François, Qué.	1														
Totaux de Québec.	10				2	8								3	7
Halton, Ont.	1					1									1
Hastings, Ont.	1	1				1		1						2	
Kent, Ont.		1			1									1	
Leeds et Grenville, Ont.		1				1								1	
Wentworth, Ont.		3			1	2									3
Totaux d'Ontario.	1	7			2	5		1						4	4
Manitoba, Ouest.															
Westminster, Col.-B.		1				1					6				1
Alberta, Sud, T. du N.-O.															
Totaux du Canada.	1	19			4	15		1			6			8	12
FORCIBLE ENTRY.															
Trois-Rivières, Qué.	1							1						1	
Essex, Ont.															
Hastings, Ont.															
Prince-Edouard, Ont.		1						1							1
Simcoe, Ont.										1					
Victoria, Ont.															
York, Ont.															
Totaux d'Ontario.	1							1		1				1	
Totaux du Canada.	2							2		1				1	1
STEALING REGISTERED LETTERS AND OTHER MAIL MATTERS.															
Victoria, N.-E.					1									1	

Criminal Statistics.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES.

BIRTH PLACES. LIEUX DE NAISSANCE.					RELIGIONS.							RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada. — Etats- Unis.	United States — Autres pays étran- gers.	Other Fo- reign Coun- tries. — Autres posses- sions Bri- tanni- ques.	Other Bri- tish Pos- ses- sions. — Autres posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Cā- tho- lics. — Cā- tho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Métho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autres con- fes- sions.	Other Deno- mina- tions. — Autres con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
PORT D'ARMES ILLÉGAL.															
			1					1						1	
			4	5			2	6		1				9	
			1					1						1	
			5	5			2	7		1				10	
			1							1				1	
			2					1				1		1	1
			1											1	1
			2	1				1	1	1				3	
			7	1				3	2	2		1		6	2
2			1	2				1						7	
2			14	8			2	12	2	3		1		24	2
ENTRÉE FORCÉE.															
			1					1							1
			1							1					1
			1							1					1
			2					1		1					2
VOL DE LETTRES CHARGÉES ET AUTRES MATIÈRES POSTALES.															
			1												

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Number of Charges Nombre d'accu- sations.	Ac- quit- ted. Ac- quit- tés.	De- tained for Lu- nacy. Dé- tenues pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO JAIL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
STEALING REGISTERED LETTERS AND OTHER MAIL MATTERS—Concluded.										
Montreal, Que.	1			1	1					
Rimouski, Que.	1			1	1					
Totals of Quebec.	2			2	2					
Halton, Ont.	1		1							
Lambton, Ont.	1			1	1				1	
Leeds and Grenville, Ont.	1			1	1					
Welland, Ont.	1			1	1					
Wellington, Ont.	1			1	1					
Totals of Ontario.	5		1	4	4				1	
Saskatchewan, N.W.T.	1									
Totals of Canada.	9		1	7	7			1	1	
VIOLATION OF THE ELECTION ACT.										
Montreal, Que.	1			1	1			1		
Brant, Ont.	1	1								
Simcoe, Ont.	1			1	1				1	
Wentworth, Ont.	3	3								
York, Ont.	1			1	1				1	
Totals of Ontario.	6	4		2	2				2	
Victoria, N.B.	1			1		1				
Totals of Canada.	8	4		4	3	1		1	2	
CONSPIRACY.										
Montreal, Que.	b7	6								
Three Rivers, Que.	c6			2	2				2	
Totals of Quebec.	13	6		2	2				2	
Grey, Ont.	2	2								
York, Ont.	1			1	1				1	
Totals of Ontario.	3	2		1	1				1	
Totals of Canada.	16	8		3	3				3	

a Nolle prosequi. 1 Left the country.—1 A quitté le pays. c 2 m., 2 fem., Nolle prosequi.

Criminal Statistics.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES. CLASSE VI.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. — ÉTATS CIVILS.		
PENITENTIARY. PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — — Pro- fes- sions libé- rales.	La- borers — — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- vage.	Single — — Céli- ba- taires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
VOL DE LETTRES CHARGÉES ET AUTRES MATIÈRES POSTALES—Fin.														
1	1					1			1			1		1
1	1					1		1				1		1
					a1		1				1		1	1
1					a1	1			1				1	1
1					a2	1	1		1	1			2	2
2	1				a2	2	1	1	1	1		1	2	4
INFRACTIONS À LA LOI ÉLECTORALE.														
								1						1
										1		1		1
							1			1		1		1
1								1				1		1
1							1	1		1		2		1
CONSPIRATION.														
						2								2
						2								2
										1				1
										1				1
						2				1				3

a Sentence suspended.—Sentence suspendue.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES. CLASS VI.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate		Im- mo- de- rate		Mo- de- rate	Im- mo- de- rate	
									Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.			Non- donné.
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
—	—	—	H.	F.	H.	F.	H.	F.	H.	F.	H.	F.	H.	F.	
STEALING REGISTERED LETTERS AND OTHER MAIL MATTERS—<i>Concluded.</i>															
Montréal, Qué.....		1				1							1		
Rimouski, Qué.....		1				1							1		
Totaux de Québec.....		2				2							2		
Halton, Ont.....															
Lambton, Ont.....		1			1								1		
Leeds et Grenville, Ont.....		1			1								1	1	
Welland, Ont.....		1				1							1		
Wellington, Ont.....		1					1						1		
Totaux d'Ontario.....		4			1	1	1		1				3	1	
Saskatchewan, T. du N.-O.....															
Totaux du Canada.....		6		1	1	1	3		1				6	1	
VIOLATION OF THE ELECTION ACT.															
Montréal, Qué.....													1		
Brant, Ont.....			1			1							1		
Simcoe, Ont.....															
Wentworth, Ont.....															
York, Ont.....		1				1							1		
Totaux d'Ontario.....		1	1			2							2		
Victoria, Col.-B.....		1							1				1		
Totaux du Canada.....		2	1			2			1				3		
CONSPIRACY.															
Montréal, Qué.....															
Trois-Rivières, Qué.....		2				2							2		
Totaux de Québec.....		2				2							2		
Grey, Ont.....															
York, Ont.....		1				1							1		
Totaux d'Ontario.....		1				1							1		
Totaux du Canada.....		3				3							2	1	

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED.	Number of Charges	Ac- quit- ted.		De- tained for Lu- nacy.	CONVICTIONS. — CONDMANATIONS.			SENTENCE.				
		Nombre d'accu- sations	Ac- quit- tés.		Dé- tenues pour cause de folie.	Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
										With the option of a fine.	NO OPTION.	
											Sur option entre la pri- son ou l'a- m'nde	SANS OPTION	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
M.	F	—	—	—	—	—	—	—	—			
VARIOUS OTHER MISDEMEANOURS.												
Halifax, N.S.	1	1										
Inverness, N.S.	1	1										
Totals of Nova Scotia	2	2										
Montreal, Que.	2				2	2			2			
Brant, Ont.	1				1	1				1		
Hastings, Ont.	1	1										
Kent, Ont.	2	1	1									
Lambton, Ont.	2	2										
Lennox and Addington, Ont.	1	1										
Lincoln, Ont.	1				1	1						
Northumberland & Durham, O.	4	2			2	2				2		
Oxford, Ont.	1	1										
Peterborough, Ont.	1				1		1			1		
Simcoe, Ont.	1				1	1				1		
Welland, Ont.	1				1	1						
York, Ont.	10	5			5	5			4	1		
Totals of Ontario	26	13	1		12	11	1		4	5		
Victoria, B.C.	2	1			1	1			1			
Alberta, Southern, N.W.T.	1				1	1						
Assiniboia, Western, N.W.T.	3				3	3			3			
Totals of the N.W.T.	4				4	4			3			
Totals of Canada	36	16	1		19	18	1		10	5		

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES. CLASS VI.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.		Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.						
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré
H.				F.	H.	F.	H.	F.	H.	F.				

VARIOUS OTHER MISDEMEANOURS.

Halifax, N.-E.														
Inverness, N.-E.														
Totaux de la N.-Ecosse														
Montréal, Qué.		2					1		1				2	
Brant, Ont.		1		1									1	
Hastings, Ont.														
Kent, Ont.														
Lambton, Ont.														
Lennox et Addington, Ont.														
Lincoln, Ont.		1							1					
Northumberl'd et Durham, O.		2				2							1	1
Oxford, Ont.														
Peterborough, Ont.		1				1								1
Simcoe, Ont.		1							1				1	
Welland, Ont.	1							1					1	
York, Ont.		5		1	1	2		1					4	1
Totaux d'Ontario	1	11		2	1	5		2	1	1			8	3
Victoria, Col.-B.			1						1				1	
Alberta, Sud, T. du N.-O.		1				1							1	
Assiniboia, Ouest, T. du N.-O.										3				
Totaux des Ter. du N.-O.		1				1				3			1	
Totaux du Canada	1	14	1	2	1	6	1	3	2	4			12	3

Criminal Statistics.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — LES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of England. — Eglise d'Angleterre.	Methodists — Méthodistes.	Presbyterians. — Presbytériens.	Protestants — Autr's confessions.	Other Denominations. — Autr's confessions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
England and Wales — Angle terre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.													
DIVERS AUTRES DÉLITS.															
.....
.....
.....	.....	.....	1	1	.....	.....	2	.....	.....	.....	.....	.....	2	.....
.....	.....	.....	1	.	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	
1	.....	.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	2	1
1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	3	1	1	.....	2	2	1	.....	.....	.....	5	.....
2	1	.....	6	1	1	.....	6	4	1	.....	.....	.....	11	1
1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....
3	2	.....	7	2	1	.....	9	4	1	1	.....	.....	15	1

Criminal Statistics.

TABLE II.

SUMMARY BY CLASSES AND PROVINCES, WITH TOTALS OF EACH
PROVINCE AND OF CANADA.

TABLEAU II.

RÉCAPITULATION PAR CLASSES ET PAR PROVINCES AVEC TOTAUX
DE CHAQUE PROVINCE ET DU CANADA.

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	Number of Charges	Acquit- ted.		De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
		Nombre d'accu- sations.	Ac- quit- tés.		Total.	Con- vic- ted 1st.	Con- vic- ted 2nd.	Reite- rated.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine.	NO OPTION.	
										Sur option entre la pri- son ou l'a- me'de	Un- der one year.	One year and over.
CLASS I.—OFFENCES AGAINST THE PERSON.											
Prince Edward Island.....	15	2	..	..	13	12	1	....	8	4	.....
Nova Scotia.....	144	21	3	..	120	54	23	43	98	14	2
New Brunswick.....	71	15	1	1	45	33	9	3	19	19	1
Quebec.....	390	50	5	1	328	294	17	17	231	36	2
Ontario.....	808	293	14	3	488	439	30	19	124	163	29
Manitoba.....	62	14	1	..	46	41	2	3	17	18	4
British Columbia.....	54	7	..	..	45	33	6	6	18	18	2
The Territories.....	74	45	6	..	21	21	..	..	11	9	1
Totals of Canada.....	1618	447	30	5	1106	927	83	91	526	281	41
CLASS II.—OFFENCES AGAINST PROPERTY WITH VIOLENCE.											
Prince Edward Island.....	6	..	..	..	6	5	..	1	..	..	..
Nova Scotia.....	25	9	..	..	16	15	1	..	..	3	..
New Brunswick.....	4	1	..	..	3	2	..	1	..	..	..
Quebec.....	127	31	..	1	94	46	17	31	..	21	8
Ontario.....	397	128	1	1	266	199	38	29	..	100	50
Manitoba.....	9	2	..	..	7	6	1	..	..	5	1
British Columbia.....	15	3	..	..	12	7	3	2	1	5	1
The Territories.....	8	4	..	..	4	3	1	..	..	1	..
Totals of Canada.....	591	178	1	2	408	283	61	64	1	135	60
CLASS III.—OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE.											
Prince Edward Island.....	18	2	1	..	15	10	5	..	..	5	..
Nova Scotia.....	147	23	1	..	123	110	8	5	2	81	1
New Brunswick.....	115	31	9	..	65	57	6	..	..	42	..
Quebec.....	1026	104	3	..	910	735	60	115	55	582	9
Ontario.....	2661	753	78	1	1823	1471	197	155	43	889	98
Manitoba.....	162	38	1	..	116	90	13	13	3	87	3
British Columbia.....	176	16	1	..	156	135	12	9	2	109	16
The Territories.....	216	109	1	..	98	93	5	..	8	60	3
Totals of Canada.....	4521	1076	95	1	3306	2701	306	299	113	1855	130
CLASS IV.—MALICIOUS OFFENCES AGAINST PROPERTY.											
Prince Edward Island.....	1	1	..	..	..	..	..	..	..	..	..
Nova Scotia.....	5	..	..	..	5	4	1	..	..	..	..
New Brunswick.....	2	2	..	..	..	..	..	..	..	..	..
Quebec.....	36	11	..	..	13	11	1	1	2	3	2
Ontario.....	106	44	9	1	44	42	..	2	6	7	2
Manitoba.....	8	3	..	..	4	3	1	..	..	2	..
British Columbia.....	3	..	..	..	3	2	1	..	2	..	..
The Territories.....	21	13	..	..	7	7	..	..	..	..	..
Totals of Canada.....	170	74	9	1	76	69	4	3	10	12	4

Criminal Statistics.

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.					Com- mitted to Refor- matories	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Two years and un- der five.	Five years and over.	Life.	D'th.	—												Agricultural.	Com- mer- cants.	Servi- teurs.	Indus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mar- riés.	En- veu- vage.	Céli- ba- taires.
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie.	De mort	—	Autres Senten- ces.	—	—	—	—	—	—	—	—	—	
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie.	De mort	En- voyés à la prison de Ré- forme.	—	Agriculteurs.	Com- mer- cants.	Servi- teurs.	Indus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mar- riés.	En- veu- vage.	Céli- ba- taires.	
CLASSE I.—OUTRAGES CONTRE LA PERSONNE.															
2	1		1	1	1	4	10	2	8		11	3		10	
6					1	5	3		4		13	17	1	21	
7	7		1	1	43	11	45	5	60	3	15	8	15	20	
33	17	1	4	5	112	44	34	7	60	3	117	145	10	119	
2	2	1			2	7	5	1	4	2	244	179	4	247	
2	4				1	7	9	1	8		26	22	4	20	
						5				1	17	7		26	
											5	5		2	
52	31	2	6	7	160	76	107	16	144	10	443	386	31	465	
CLASSE II.—DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ.															
5	2			1	4		1	1	4		2			6	
2	1						1				7	3		13	
34	10				21	3	9	1	30		3	1		2	
37	25			11	43	4	16	1	35	1	43	23	3	68	
1							1	1			5			7	
3	2						1				10	1		10	
2	1						1				2			3	
84	48			12	68	8	29	4	69	1	219	51	6	334	
CLASSE III.—DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.															
9					1				1		4			14	
17	2			10	10	5	6	3	18		38	19		87	
9				4	10	2	4	1	1		33	11	1	52	
47	9			49	159	20	118	37	176	2	340	192	35	671	
102	37			110	544	57	168	97	197	5	775	390	37	1315	
2					21	12	10	6	16		55	24	2	79	
10	4			1	14	3	14	6	14	8	65	19		112	
2					25	11	2				8	9		12	
198	52			174	784	110	322	150	423	15	1318	664	75	2342	
CLASSE IV.—DOMMAGES MALICIEUX CONTRE LA PROPRIÉTÉ.															
3	2								2		2		2	3	
3	3						1			1	8	9	1	3	
3	6			2	18	2	3	1	5		14	7	1	34	
	1				1	2			1		1	2		2	
1							2							3	
1	2				4	1			2					3	
11	14			2	23	5	6	1	11	1	25	18	4	48	

TABLE II. SUMMARY BY CLASSES AND PROVINCES.															
PROVINCES.	EDUCATIONAL STATUS.			AGES.										USE OF LIQUORS.	
	INSTRUCTION.			Under 16 years.		16 years and under 21.		21 years and under 40.		40 years and over.		Not given.		Im-Mo-derate rate	Im-Mo-deré
	Un-able to read or write.	Ele-men-tary.	Supé-rior.	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non-donné.	M. F.	M. F.	M. F.	M. F.			
Inca-pable de lire ou d'é-crire.	Elé-men-taire.	Supé-rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.			
CLASS I.—OFFENCES AGAINST THE PERSON.															
Ile du Prince-Edouard		13			1		11		1				3	10	
Nouvelle-Ecosse	4	34	1	2	9		20	2	8			76	3	33	6
Nouveau-Brunswick	1	26	1		2		13		8			22		16	12
Québec	56	215	6	6	26	1	159	18	60	5	53		71	209	
Ontario	52	375	5	22	52	2	230	13	94	4	68	3	270	161	
Manitoba	9	37			5		28		11	1			27	19	
Colombie-Britannique	5	25					28		3	1	13		8	24	
Les Territoires		2	1				2		1		18		3		
Totaux du Canada	127	727	14	30	95	3	491	33	186	11	251	6	431	441	
CLASS II.—OFFENCES AGAINST PROPERTY WITH VIOLENCE.															
Ile du Prince-Edouard	1	5		4			2						4	2	
Nouvelle-Ecosse	1	14	1	1	4		10		1				10	6	
Nouveau-Brunswick		3			1		2						1	2	
Québec	23	70	1		32		56		6				30	57	
Ontario	11	238		37	90		108		13		18		152	99	
Manitoba	3	4			1		6						3	4	
Colombie-Britannique	2	8			1		6		1		4		9	1	
Les Territoires		3					3				1		2	1	
Totaux du Canada	41	345	2	42	129		193		21		23		211	172	
CLASS III.—OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE.															
Ile du Prince-Edouard		14		7	2	1	3		1		1		11	3	
Nouvelle-Ecosse	37	66	2	25	28	2	38	4	7	3	16		86	21	
Nouveau-Brunswick	10	51		13	5		21	2	5	3	16		38	24	
Québec	278	608	4	122	10	152	18	465	44	62	7	28	2	365	525
Ontario	171	1545	33	344	15	339	35	660	77	223	36	90	4	1255	493
Manitoba	13	92		13		19	2	57	1	11	1	12		58	43
Colombie-Britannique	21	57	13	4		9	1	78	2	13	2	47		60	37
Les Territoires	3	12		1		4		5		5		83		13	2
Totaux du Canada	533	2445	52	529	25	558	59	1327	130	327	52	293	6	1886	1148
CLASS IV.—MALICIOUS OFFENCES AGAINST PROPERTY.															
Ile du Prince-Edouard							1		4				4	1	
Nouvelle-Ecosse		5													
Nouveau-Brunswick															
Québec	5	8			1		5		3	3	1		9	4	
Ontario	2	39		17	7		9	1	6	1	3		35	7	
Manitoba		4			2		2						4		
Colombie-Britannique		2	1				3						2	1	
Les Territoires	1	2					2	1			4		2	1	
Totaux du Canada	8	60	1	17	10		22	2	13	4	8		56	14	

Criminal Statistics.

TABLEAU II. RECAPITULATION PAR CLASSES ET PROVINCES.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.								RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Countries.	Other British Possessions.	Bap- tists.	R. Ca- tholics.	Ch. of Eng- land.	Metho- dists.	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns— Rural Districts— Villages— Districts— ruraux.		
Eng- land and Wales	Ire- land.	Scot- land.		—	—	—	—	—	—	—	—	—	—			
Angle terre et Galles	Ir- lande.	Ecos- se.		Etabs- Unis.	Aut- res pays étran- gers.	Autr's posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.	Métho- dis- tes.	Pres- byté- riens.	—	Autr's con- fes- sions.			
CLASSE I.—OUTRAGES CONTRE LA PERSONNE.																
1	1	1	13		2	1	5	13	6	3	2	7	1	10	3	
1	2	1	35				11	15		4	2			29	12	
22	21	2	24	1			2	10		1	2	2		15	14	
29	23	12	216	6	10		220	13	5	3	30	5	229	51		
15	3		328	21	18	1	8	147	106	70	48	33	17	288	144	
5		1	21	1	6			14	17	4	5	3	3	26	20	
	1		11	4	12	1		16	1	1		10	2	24	11	
				1	1				1			1	1	1	5	
73	51	17	648	34	49	3	26	475	144	84	62	86	29	622	260	
CLASSE II.—DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ.																
1			6			1	1	3				3		6		
			13	1		1		7	3		2	1	2	11	5	
			3					1	1	1				1	2	
1	5	1	75	10	2			74	8	2	2	7	1	84	10	
26	7	5	194	18	1		6	91	60	42	30	8	13	219	34	
1	2		3	1				5	2					7		
		1	4	3	2			3	1	1		1	2	7	4	
1	1		1					1	2					3		
30	15	7	299	33	5	1	7	185	77	48	33	21	16	338	55	
CLASSE III.—DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.																
			13		1			8		1		4	1	12	2	
3	2		100	1	1		15	48	11	12	8	10	2	82	25	
1			59	3			12	25	3	10	5	5		48	16	
46	10	2	816	11	15	1	10	771	56	14	19	19	12	775	126	
164	103	37	1314	101	29	1	69	498	497	278	212	127	64	1436	314	
30	7	6	41	4	17		3	24	35	11	19	6	7	79	29	
21	4	2	40	36	18	1	1	32	6	3	9	22	16	128	17	
		1	9	1	1			3	2	2	2		1	2	20	
265	126	48	2392	157	82	3	110	1409	610	331	274	193	103	2562	549	
CLASSE IV.—DOMMAGES MALICIEUX CONTRE LA PROPRIÉTÉ.																
2			3					3	1			1		2	3	
1	1		10		1			8	2			2	1	7	6	
9	1	2	28		1		2	8	19	1	6	5		35	3	
1			2					2	1		1			1	3	
1			2	1				2	1					3	2	
										1				2	1	
14	2	2	47	1	3		2	23	24	2	7	8	2	50	19	

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	Number of Charges — Nombre d'accusations.	Acquit- ted. — Ac- quit- tés.		De- tain- ed for Lu- nacy. — Dé- tenues pour cause de folie.	CONVICTIONS. — CONDMNATIONS.				SENTENCE.		
		M.	F.		Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- ves.	COMMITTED TO JAIL — EMPRISONNÉS.		
									With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	
		Un- der one year — Moins d'un an.	One year and over. — Un an et plus.								
CLASS V.—FORGERY AND OFFENCES AGAINST THE CURRENCY.											
Prince Edward Island.....	1				1	1				1	
Nova Scotia.....											
New Brunswick.....					6	6				1	3
Quebec.....	13	5			66	43	15	8		18	12
Ontario.....	116	40	9		5	5				4	1
Manitoba.....	5				7	5	2			1	5
British Columbia.....	7				2	2				1	
The Territories.....	3	1									
Totals of Canada.....	146	46	9		87	62	17	8		26	21
CLASS VI.—OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES.											
Prince Edward Island.....	21	6	1		14	6	6	2	3	7	
Nova Scotia.....	5				3	2	1			1	
New Brunswick.....	99	23		1	69	57	8	4	41	17	2
Québec.....	155	52	2	3	96	63	29	4	14	31	9
Ontario.....	4	1			3	1	2			3	
Manitoba.....	32	8			24	15	9		12	9	
British Columbia.....	21	7			12	6	6		3	7	
The Territories.....											
Totals of Canada.....	337	97	3	4	221	150	61	10	73	75	11
GRAND TOTALS BY PROVINCES.											
Prince Edward Island.....	41	5	1		34	27	6	1	8	9	
Nova Scotia.....	343	59	5		279	190	39	50	103	106	3
New Brunswick.....	197	49	10	1	116	94	16	6	19	62	1
Quebec.....	1691	224	8	3	1420	1149	103	168	329	660	26
Ontario.....	4243	1310	113	9	2783	2257	309	217	187	1208	200
Manitoba.....	250	58	2		181	146	19	16	20	119	9
British Columbia.....	287	34	1		247	197	33	17	35	142	24
The Territories.....	343	179	7		144	132	12		22	78	4
Grand Totals of Canada...	7395	1918	147	13	5204	4192	537	475	723	2384	267

a 73 *Nolle prosequi*. 15 Jury disagreed.—Les jurés ne se sont pas accordés. 10 Left the country.—
 —Ont quitté le pays. 4 Settled by consent.—4 Réglées de consentement. 6 Escaped.—6 se sont évadées.
 1 Proceedings suspended.—1 Poursuite suspendue. 1 Charge withdrawn.—1 Plainte retirée. 2 Reserved
 case.—2 Causes réservées. 1 Charge not laid within prescribed time.—1 Accusation non entrée avant le
 temps requis.

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un-able to read or write.	Ele-men-tary.	Supe-rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo-de-rate	Im-mo-de-rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non-donné.			M.	F.	M.	F.	
	Inca-pable de lire ou d'écrire.	Elé-men-taire.	Supé-rieure	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo-déré	Im-mo-déré
			H.	F.	H.	F.	H.	F.	H.	F.	H.	F.			

CLASS V.—FORGERY AND OFFENCES AGAINST THE CURRENCY.

Ile du Prince-Edouard																	
Nouvelle-Ecosse		1															1
Nouveau-Brunswick																	
Québec		4	2														5
Ontario	5	56	3	1		2		3	1			10	1	5			42
Manitoba		4	1					5									3
Colombie-Britannique		4	1					1	1	3				2			5
Les Territoires		1			1									1			1
Totaux du Canada	5	70	7	2		6		55	2	13	1	8				56	27

CLASS VI.—OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES.

Ile du Prince-Edouard																		
Nouvelle-Ecosse	1	12		1		4		6	2	1							13	1
Nouveau-Brunswick		3						2		1							2	1
Québec	6	62		4	1	11	1	33	4	12	2	1					52	16
Ontario	6	79	4	9		9	1	50	2	14	1	10					63	24
Manitoba		3				2		1									2	1
Colombie-Britannique	2	8	1					7		4			12	1			8	2
Les Territoires		3				1		2					9				3	
Totaux du Canada	15	170	5	14	1	27	2	101	8	32	3	32	1	143			45	

GRAND TOTALS BY PROVINCES.

Ile du Prince-Edouard	1	32		11		3	1	16		2		1		18	15
Nouvelle-Ecosse	43	132	4	29		45	2	76	8	21	3	92	3	146	36
Nouveau-Brunswick	11	83	1	13		8		38	2	14	3	38		57	39
Québec	368	967	13	132	11	224	20	721	67	143	17	83	2	532	812
Ontario	247	2332	45	430	15	501	38	1102	93	360	43	194	7	1817	807
Manitoba	25	144	1	13		29	2	99	1	22	2	13		97	69
Colombie-Britannique	30	104	16	4		10	1	123	3	24	3	78	1	92	65
Les Territoires	4	23	1	2		5		14	1	6		116		24	4
Grands totaux du Canada	729	3817	81	634	26	825	64	2189	175	592	71	615	13	2783	1847

Criminal Statistics.

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. LES BRITANNIQUES.				United States — Etats- Unis.	Other Fore- ign Coun- tries. — Aut- res pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Cath- olics. — Cath- oliques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Meth- odists — Méth- odis- tes.	Pres- byte- rians — Pres- byté- riens.	Protes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle- terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.	Cana- da.												
CLASSE V.—FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE.															
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
1	.....	.....	4	.....	1	.....	6	.....	.....	.....	.....	.....	6	33
8	1	.....	53	2	.....	1	20	27	5	5	6	.....	31	4
1	.....	.....	1	.....	3	.....	.....	1	.....	.....	.....	.....	4	1
1	.....	.....	1	.....	.....	.....	1	.....	.....	1	.....	.....	3	2
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
11	1	.....	61	2	4	.....	1	28	29	5	6	6	4	38
CLASSE VI.—AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES.															
.....	.....	1	13	.....	.....	.....	7	2	1	2	1	.....	11	2
.....	.....	.....	3	.....	.....	.....	2	.....	.....	.....	.....	.....	3	.....
1	3	.....	52	6	5	1	1	2	3	4	2	.....	57	11
14	2	2	59	9	1	.....	2	24	20	21	10	6	3	58
.....	.....	.....	.....	2	1	.....	1	.....	.....	.....	.....	.....	2	2
4	.....	.....	5	9	1	.....	5	.....	.....	.....	.....	.....	1	19
.....	1	.....	1	1	.....	.....	1	.....	1	1	.....	.....	3	3
19	6	3	133	27	8	1	5	94	25	27	16	7	9	53	
GRANDS TOTAUX PAR PROVINCES.															
.....	.....	.....	32	.....	1	.....	.....	24	.....	1	.....	7	1	28
7	3	2	165	2	3	2	21	81	23	18	13	21	3	135	
2	2	1	89	4	.....	.....	24	38	4	12	9	7	.....	67
72	40	5	1173	33	34	2	14	1133	82	25	26	58	22	1158	
250	137	58	1976	151	50	2	88	788	729	417	311	185	97	2067	
48	12	6	68	8	28	.....	3	46	56	15	25	9	16	119
32	4	4	63	52	33	2	1	59	9	5	11	33	21	184	
1	3	1	14	4	2	.....	.....	5	6	4	3	1	3	11
412	201	77	3580	254	151	8	151	2174	909	497	398	321	163	3769	

Criminal Statistics.

TABLE III.

SUMMARY CONVICTIONS.

TABLEAU III.

CONDAMNATIONS SOMMAIRES

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF PRINCE EDWARD ISLAND.							
	KING'S.				PRINCE.			
	Con- victions Total Con- dam- na- tions.	Sentence.			Con- victions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		— Sur- option	Empri- sonnés sans option.	Re- mise, etc.		— Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food								
Assaults	3				3			
Breach of peace								1
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals								
Disturbing religious and like meetings								
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against								
Breach of Canada Temperance Act								
Selling liquor during prohibited hours.								
“ to Indians								
“ without license								
Malicious injury to property								
Other damage to property					1			1
Master's and Servant's Acts, offences against								
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of								
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to								
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language								
Trespass								
Vagrancy								
Drunkenness								
Indecent exposure								
Insulting, obscene and profane language								
Keeping, frequenting bawdy houses and inmates thereof								
Loose, idle, disorderly								
Weights and Measures Acts, offences against								
Insanity								
Totals	3		3		5		4	1

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE L'ÎLE DU PRINCE-ÉDOUARD.								OFFENSES.
QUEEN'S.				Totals of P. E. Island. Totaux de l'Île du P.-E.				
Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.			
	Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.	
M.	F			M.	F			
23	1	24		30	1	30	1	Falsification de substances alimentaires.
2		2		2		2		Voies de fait.
1		1		1		1		Perturbation de la paix.
								Port d'armes illégal.
2		2		2		2		Mépris de cour.
1		1		1		1		Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pécheries.
								“ défendant le jeu.
								“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
60	10	50	20	60	10	50	20	Contraventions aux lois de tempérance du Canada.
								Vente de boissons durant les heures défendues aux Sauvages.
								“ sans licence.
10		10		10		10		Dommmages malicieux à la propriété.
1		1		2		2		Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et serveurs.
								Inf. aux lois concernant la méd. et les dent. la milice.
								Divers petits délits.
12		12		12		12		Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
								Infractions aux lois sur l'hygiène publique.
1		1		1		1		Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
2		2		2		2		Infractions aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
2		2		2		2		Menaces et langage injurieux.
								Empiètement.
1	2		3	1	2		3	Vagabondage.
125	4	129		125	4	129		Ivresse.
								Exposition indécente.
1		1		1		1		Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
2		2		2		2		Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
246	17	240	23	254	17	247	24	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA.							
	ANNAPOLIS.				ANTIGONISH.			
	Con- victions Total Con- dam- na- tions.	Sentence.			Con- victions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option	De- ferre &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....				2		2		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game laws.....								
Larceny.....								
" of dogs, birds, &c.....								
" of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....				5		5		
Breach of Canada Temperance Act.....	1		1					
Selling liquor during prohibited hours.....								
" to Indians.....								
" without license.....								
Malicious injury to property.....				4		4		
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....	1		1					
Trespass.....								
Vagrancy.....								
Drunkenness.....	1		1					
Indecent exposure.....								
Insulting, obscene and profane language.....				4		4		
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....	4		4					
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	7		7	15		15		

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE DE LA NOUVELLE-ECOSSE.								OFFENSES.
CAPE BRETON.				COLCHESTER.				
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F			M.	F			
3		3						Falsification de substances alimentaires.
1			1					Voies de fait.
								Perturbation de la paix.
				3		3		Port d'armes illégal.
								Mépris de cour.
								Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								" défendant le jeu.
								" de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								" bois, arbres, fruits, etc.
				11	2	13		Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du
								Canada.
				1		1		Vente de boissons durant les heures défendues
								" aux Sauvages.
								" sans licence.
								Dommages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et
								serviteurs.
								Inf. aux lois concernant la méd. et les dent.
								" de la milice.
								Divers petits délits.
								Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
								Infractions aux lois sur l'hygiène publique.
2		2						Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
1		1						Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
								Menaces et langage injurieux.
								Empiètement.
2			1					Vagabondage.
42		24	7	11		1		Ivresse.
								Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons
								de désordre.
1		1						Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
52		31	9	12	2	18		Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA—Continued.							
	CUMBERLAND.				DIGBY.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food								
Assaults	3		2	1			3	
Breach of peace								
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals								
Disturbing religious and like meetings								
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against								
Breach of Canada Temperance Act								
Selling liquor during prohibited hours								
“ to Indians								
“ without license								
Malicious injury to property								
Other damage to property					1		1	
Master's and Servant's Acts, offences against								
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-Laws, breaches of								
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to	6		6				1	
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language								
Trespass								
Vagrancy								
Drunkenness	21	2	21		2	15	15	
Indecent exposure								
Insulting, obscene and profane language								
Keeping, frequenting lawdy houses and inmates thereof								
Loose, idle, disorderly	2		2					
Weights and Measures Acts, offences against								
Insanity								
Totals	32	2	31	1	2	20	20	

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE DE LA NOUVELLE-ECOSSE— <i>Suite.</i>										
GUYSBOROUGH.					HALIFAX.					OFFENSES.
Con- vic- tions Total		Sentence.			Con- vic- tions Total		Sentence.			
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total Con- dam- na- tions.		— Sur- option	— Empri- sonnés sans option.	— Re- mise, etc.	Total Con- dam- na- tions.		— Sur- option	— Empri- sonnés sans option.	— Re- mise, etc.	
		M.	F.	M.			F.	M.	F.	
6	1	7			111	17	117	3	8	Falsification de substances alimentaires.
					31	32	62	1		Voies de fait.
					4		3	1		Perturbation de la paix.
										Port d'armes illégal.
					10		10			Mépris de cour.
										Cruauté envers les animaux.
										Perturbation de réunions religieuses et autres.
										Infractions aux lois des pêcheries.
										“ défendant le jeu.
										“ de chasse.
2		2								Larcin.
										Vol de chiens, oiseaux, etc.
					48	6	54			“ bois, arbres, fruits, etc.
										Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du
										Canada.
										Vente de boissons durant les heures défendues.
										“ aux Sauvages.
										“ sans licence.
					22	3	24	1		Domages malicieux à la propriété.
										Autres dommages à la propriété.
										Infractions aux lois concernant les maîtres et
										serveiteurs.
										Inf. aux lois concernant la méd. et les dent.
										“ de la milice.
					246	11	218	39		Divers petits délits.
					24		24			Contraventions aux lois municipales.
					2		2			Pratiquant divers états sans licence.
					4		4			Infractions aux lois sur l'hygiène publique.
										Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la
										famille.
					2		2			Infractions aux lois concernant les pharmaciens.
										Profanation du dimanche.
										Infractions aux lois des chemins de fer.
					25		1	17	7	Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
					31	7	24	14		Délits ayant rapport à la corvée.
										Menaces et langage injurieux.
					4	1	2	3		Empiètement.
					1262	139	1384	17		Vagabondage.
										Ivresse.
					261	70	331			Exposition indécente.
										Langage insultant, obscène, profane.
					46	10	56			Tenant, habitant et fréquentant des maisons
										de désordre.
										Conduite déréglée.
										Infractions aux lois des poids et mesures.
										Aliénation mentale.
8	1	9			2133	288	2318	82	29	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA—Continued.							
	HANTS.				INVERNESS.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise. etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....	4		4					5
Breach of peace.....	3		3					
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....	1		1					
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....	24		24					
Malicious injury to property.....				2				1
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....	2		2					
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....	1		1					
Trespass.....								
Vagrancy.....								
Drunkenness.....	3		3					
Indecent exposure.....								
Insulting, obscene and profane language.....	1		1					
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	39		39	8		2		6

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE DE LA NOUVELLE-ÉCOSSE— <i>Suite.</i>								
KING'S.				LUNENBURG.				OFFENSES.
Con- victions Total	Sentence.			Con- victions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.			
1		1		10	2	10		Falsification de substances alimentaires.
4		4		5		5		Voies de fait.
								Perturbation de la paix.
								Port d'armes illégal.
								Mépris de cour.
				5		5		Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
				2		2		“ défendant le jeu.
								“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								“ bois, arbres, fruits, etc.
				2	2	4		Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du Canada.
								Vente de boissons durant les heures défendues.
								“ aux Sauvages.
				20	2	22		“ sans licence.
								Dommmages malicieux à la propriété.
				2		2		Autres dommages à la propriété.
				4		4		Infractions aux lois concernant les maîtres et serviteurs.
								Inf. aux lois concernant la méd. et les dent.
								“ de la milice.
								Divers petits délits.
				6		6		Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
								Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
								Infractions aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
				3				Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
								Menaces et langage injurieux.
				4		4		Empiètement.
				1				Vagabondage.
39		21		3		2		Ivresse.
								Exposition indécente.
1		1						Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
								Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
45		27		18	67	6	66	7
								..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA—Continued.							
	PICTOU.				QUEEN'S.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Emprison- sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Emprison- sans option.	Re- mise, etc.	
	M.	F.		M.	F.			
Adulteration of food								
Assaults	16		16		5	2	7	
Breach of peace	2		2					
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals								
Disturbing religious and like meetings					4		4	
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny	3		3					
" of dogs, birds, &c.								
" of timber, trees, fruits, &c.					2		2	
Liquor License Acts, offences against								
Breach of Canada Temperance Act.	36	6	38	4				
Selling liquor during prohibited hours								
" to Indians								
" without license								
Malicious injury to property								
Other damage to property	4		4		1		1	
Master's and Servant's Acts, offences against								
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of								
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to	4		4					
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language	1		1		2		2	
Trespass								
Vagrancy					1	1	2	
Drunkenness	81		64	17	7		7	
Indecent exposure								
Insulting, obscene and profane language	1		1					
Keeping, frequenting bawdy houses and inmates thereof								
Loose, idle, disorderly	7		7					
Weights and Measures Acts, offences against								
Insanity								
Totals	155	6	140	21	22	3	25	

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE LA NOUVELLE-ECOSSE— <i>Suite.</i>										
SHELburne.					VICTORIA.					OFFENSES.
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			Con- dam- na- tions.	M. | F.	
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	M. | F.		
M. | F.				M. | F.						
1		1		3		3				Falsification de substances alimentaires. Voies de fait. Perturbation de la paix. Port d'armes illégal. Mépris de cour. Cruauté envers les animaux. Perturbation de réunions religieuses et autres Infractions aux lois des pêcheries. " défendant le jeu. " de chasse.
										Larcin. Vol de chiens, oiseaux, etc. " bois, arbres, fruits, etc.
1		1								Infractions aux lois des licences de boissons. Contraventions aux lois de tempérance du Canada. Vente de boissons durant les heures défendues. " aux Sauvages. " sans licence.
										Domages malicieux à la propriété. Autres dommages à la propriété. Infractions aux lois concernant les maîtres et serviteurs. Inf. aux lois concernant la méd. et les dent. " " de la milice.
										Divers petits délits. Contraventions aux lois municipales. Pratiquant divers états sans licence. Infractions aux lois sur l'hygiène publique. Délits ayant rapport aux chemins publics.
				1		1				Négligence de pourvoir aux besoins de la famille. Infrac. aux lois concernant les pharmaciens. Profanation du dimanche. Infractions aux lois des chemins de fer. Délits contre le revenu de l'Etat. Infractions aux lois maritimes. Délits ayant rapport à la corvée.
2		2								Menaces et langage injurieux. Empiètement. Vagabondage.
				6		6				Ivresse. Exposition indécente. Langage insultant, obscène, profane. Tenant, habitant et fréquentant des maisons de désordre. Conduite déréglée.
										Infractions aux lois des poids et mesures. Aliénation mentale.
4		4		10		10				..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA— <i>Concluded.</i>									
	PROVINCE DE LA NOUVELLE-ECOSSE— <i>Fin.</i>									
	YARMOUTH.				Totals of Nova Scotia.					
	Sentence.				Sentence.					
	Con- vic- tions Total Con- dam- na- tions.	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total Con- dam- na- tions.	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
M.	F.	Sur option	Empri- sonnés sans option.	M.	F.	Sur option	Empri- sonnés sans option.			
Adulteration of food										
Assaults	8		6	1	1	182	22	183	5	16
Breach of peace	6		5	1		52	32	81	3	
Carrying fire-arms and unlawful weapons	1		1			5		4	1	
Contempt of court						3		3		
Cruelty to animals						10		10		
Disturbing religious and like meetings	1		1			11		11		
Fishery Acts, offences against										
Gambling Acts						2		2		
Game Laws										
Larceny						5		5		
" of dogs, birds, &c										
" of timber, trees, fruits, &c.						2		2		
Liquor License Acts, offences against						66	10	76		
Breach of Canada Temperance Act	26		25	1		64	6	65	5	
Selling liquor during prohibited hours										
to Indians						1		1		
without license						44	2	46		
Malicious injury to property						6		5		1
Other damage to property						30	3	32	1	
Master's and Servant's Acts, offences against						4		4		
Medical and Dentistry Acts, offences against										
Militia Acts										
Miscellaneous minor offences										
Municipal Acts and By-Laws, breaches of	1		1			255	11	227	39	
Exercising various callings without license	1		1			25		25		
Health By-laws, offences against						2		2		
Highways, offences relating to						18		18		
Neglecting to support family	1			1		1			1	
Pharmacy Acts, offences against										
Profanation of the Lord's Day						2		2		
Railway Acts, offences against										
Revenue Laws						3				3
Seamen Acts	5			1	4	31		2	18	11
Statute Labour, offences relating to										
Threats and abusive language	1		1			39	7	32		14
Trespass						4		4		
Vagrancy	4		3	1		12	2	7	5	2
Drunkenness	27	2	29			1508	143	1578	41	32
Indecent exposure										
Insulting, obscene and profane language	2	2	4			270	72	342		
Keeping, frequenting bawdy houses and inmates thereof	1	5	3	3		1	5	3	3	
Loose, idle, disorderly						60	10	70		
Weights and Measures Acts, offences against										
Insanity										
Totals	85	9	80	9	5	2718	325	2842	122	79

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX. •**

PROVINCE OF NEW BRUNSWICK.								OFFENSES.
PROVINCE DU NOUVEAU-BRUNSWICK.								
ALBERT.				CARLETON.				
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
'Con- dam- na- tions.	— Sur option	— Em- pri- sonnés sans option.	— Re- mise, etc.	Con- dam- na- tions.	— Sur option	— Em- pri- sonnés sans option.	— Re- mise, etc.	
M.	F.			M.	F.			
				10		9	1	Falsification de substances alimentaires.
								Voies de fait.
								Perturbation de la paix.
								Port d'armes illégal.
								Mépris de cour.
5		5						Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								“ bois, arbres, fruits, etc.
12	7	19		75	2	77		Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du Canada.
								Vente de boissons durant les heures défendues.
								“ aux Sauvages.
								“ sans licence.
								Domages malicieux à la propriété.
								Autres domages à la propriété.
								Infractions aux lois concernant les maîtres et serviteurs.
								Inf. aux lois concernant la méd. et les dent.
								“ de la milice.
				1		1		Divers petits délits.
								Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
								Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
								Infractions aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
								Menaces et langage injurieux.
								Empiètement.
				10		10		Vagabondage.
				21		20		Ivresses
								Exposition indécente.
								Langage insultant, obscène, profane.
				2		2		Tenant, habitant et fréquentant des maisons de désordre.
								Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
17	7	24		117	4	107	14	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NEW BRUNSWICK—Continued.							
	CHARLOTTE.				GLOUCESTER.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....	6		6		13	2	15	
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....	1		1					
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....				1			1	
Liquor License Acts, offences against.....	33		33					
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....	7		7					
Malicious injury to property.....								
Other damage to property.....				5			5	
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....								
Exercising various callings without license.....	1		1					
Health By-laws, offences against.....								
Highways, offences relating to.....	3		3					
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....	1		1					
Trespass.....								
Vagrancy.....	4		4		1		1	
Drunkenness.....	61		61		2		2	
Indecent exposure.....								
Insulting, obscene and profane language.....	2		2		2		2	
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	119		119		24	2	25	1

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE DU NOUVEAU-BRUNSWICK— <i>Suite.</i>								OFFENSES.
KENT.				MADAWASKA.				
Con- victions Total	Sentence.			Con- victions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
— Sur option.	— Empri- sonnés sans option.	— Re- mise, etc.	— Sur option.	— Empri- sonnés sans option.	— Re- mise, etc.			
M. F.			M. F.					
3	3			1	1			Falsification de substances alimentaires.
								Voies de fait.
								Perturbation de la paix.
								Port d'armes illégal.
								Mépris de cour.
								Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du Canada.
								Vente de boissons durant les heures défendues aux Sauvages.
								“ sans licence.
								Domages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et serviteurs.
								Inf. aux lois concernant la méd. et les dent.
								“ de la milice.
								Divers petits délits.
								Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
								Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois de chemins de fer.
								Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
				1		1		Menaces et langage injurieux.
								Empiètement.
								Vagabondage.
								Ivresse.
								Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
								Conduite déréglée.
								Infraction aux lois des poids et mesures.
								Aliénation mentale.
3	3			2	1	1		.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NEW BRUNSWICK—Continued.							
	NORTHUMBERLAND.				RESTIGOUCHE.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise etc.	
M.	F.			M.	F.			
Adulteration of food								
Assaults	7		5	1	1	8	7	1
Breach of peace								
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals								
Disturbing religious and like meetings	1		1					
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny								
“ of dogs, birds, &c								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against						1	1	
Breach of Canada Temperance Act.	23	13	35	1				
Selling liquor during prohibited hours								
“ to Indians								
“ without license								
Malicious injury to property								
Other damage to property	1			1				
Master's and Servant's Acts, offences against.								
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences	1				1			
Municipal Acts and By-laws, breaches of	1		1					
Exercising various callings without license.								
Health By-laws, offences against								
Highways, offences relating to	1		1			2	2	
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language	3		1	1	1			
Trespass								
Vagrancy	1			1		1		1
Drunkenness	60	1	59	2		12	7	5
Indecent exposure								
Insulting, obscene and profane language	1		1					
Keeping, frequenting bawdy houses and inmates thereof.								
Loose, idle, disorderly.	1			1				
Weights and Measures Acts, offences against								
Insanity								
Totals	101	14	104	8	3	23	17	7

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DU NOUVEAU-BRUNSWICK—Suite.										
ST. JOHN.					WESTMORELAND.					OFFENSES.
Sentence.					Sentence.					
Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- dam- na- tions.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- dam- na- tions.	
M	F				M	F				
100	8	108			27	2	24	1	4	Falsification de substances alimentaires.
					5				5	Voies de fait.
										Perturbation de la paix.
										Port d'armes illégal.
1		1								Mépris de cour.
					3		3			Cruauté envers les animaux.
1		1								Perturbation de réunions religieuses et autres.
3		3								Infractions aux lois des pêcheries.
										" défendant le jeu.
										" de chasse.
										Larcin.
										Vol de chiens, oiseaux, etc.
										" bois, arbres, fruits, etc.
65	42	107			38	3	41			Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du
										Canada.
14	2	16								Vente de boissons durant les heures défendues
										" aux Sauvages.
10	10	20								" sans licence.
4		4								Domages malicieux à la propriété.
5	2	7			5	1	5		1	Autres dommages à la propriété.
										Infractions aux lois concernant les maîtres et
										serviteurs.
										Inf. aux lois concernant la méd. et les dent.
										" de la milice.
20		20			6		5	1		Divers petits délits.
										Contraventions aux lois municipales.
										Pratiquant divers états sans licence.
										Infractions aux lois sur l'hygiène publique
										Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la
										famille.
										Infrac. aux lois concernant les pharmaciens.
										Profanation du dimanche.
10		10			4		3		1	Infractions aux lois des chemins de fer.
										Délits contre le revenu de l'Etat.
1		1								Infractions aux lois maritimes.
										Délits ayant rapport à la corvée.
11	1	12								Menaces et langage injurieux.
										Empiètement.
12	11	16	7		10	8		9	9	Vagabondage.
662	77	739			118	20	99	34	5	Ivresse.
1		1								Exposition indécente.
13	3	16								Langage insultant, obscène, profane.
3	13	16			2	2	4			Tenant, habitant et fréquentant des maisons
										de désordre.
20		20			1				1	Conduite déréglée.
										Infractions aux lois des poids et mesures.
									1	Aliénation mentale.
956	169	1117	8		220	37	185	45	27	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NEW BRUNSWICK— <i>Concluded.</i>							
	PROVINCE DU NOUVEAU-BRUNSWICK— <i>Fin.</i>							
	YORK.				Totals of New Brunswick. Totaux du N.-Brunswick.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.			
Adulteration of food								
Assaults.....	31	3	34					
Breach of peace.....	2		2					
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....	3		3					
Disturbing religious and like meetings.....	2		2					
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....	64	14	78					
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....	11		11					
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....	1							
Municipal Acts and By-laws, breaches of.....	9		9					
Exercising various callings without license.....								
Health By-laws, offences against.....	2		2					
Highways, offences relating to.....	3		3					
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	5		5					
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....	5	2	7					
Trespass.....								
Vagrancy.....	3	1	2					
Drunkenness.....	204		204					
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	345	20	362	2	1	1927	2064	86
						254		31

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	BEAUHARNOIS.				BEDFORD.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur- option	Com- mitted without option. — Emprison- nés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Emprison- nés sans option.	De- ferred &c. — Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....	9	2	10			1		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....	1		1					
" of dogs, birds, &c.....								
" of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....						1		1
Selling liquor during prohibited hours.....								
" to Indians.....								
" without license.....	3	1	4					
Malicious injury to property.....								
Other damage to property.....	2		2					
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....	1		1					
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	5	1	6					
Indecent exposure.....	2		2					
Insulting, obscene and profane language.....	1		1					
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	24	4	27			1	1	1

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	IBERVILLE.				JOLIETTE.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....	4		4					
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	2		2					
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....								
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....				3		3		
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....	7	1	3	5	4	4		
Drunkenness.....	3		3		3	3		
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....					1	1		
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	16	1	12	5	11	11		

Criminal Statistics.

TABEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE QUÉBEC— <i>Suite.</i>										
MONTMAGNY.					MONTREAL.					OFFENSES.
Con- victions Total	Sentence.			Con- victions Total	Sentence.			De- ferred &c.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.			
M.	F.			M.	F.					
3		3		412	43	376	40	39	Falsification de substances alimentaires.	
				97	6	67	30	6	Voies de fait.	
				12		7		5	Perturbation de la paix.	
				135		120		15	Port d'armes illégal.	
				9	1	9		1	Mépris de cour.	
				4		4			Cruauté envers les animaux.	
				4		4			Perturbation de réunions religieuses et autres	
				20		20			Infractions aux lois des pêcheries.	
				11	1	12			" défendant le jeu.	
									" de chasse.	
									Larcin.	
									" Vol de chiens, oiseaux, etc.	
									" bois, arbres, fruits, etc.	
				29	13	42			Infractions aux lois des licences de boissons.	
									Contraventions aux lois de tempérance du	
									Canada.	
				45	11	55		1	Vente de boissons durant les heures défendues.	
									" aux Sauvages.	
				48	54	102			" sans licence.	
				132	25	144	3	10	Dommmages malicieux à la propriété.	
									Autres dommages à la propriété.	
									Infractions aux lois concernant les maîtres et	
									serviteurs.	
				2		1		1	Inf. aux lois concernant la méd. et les dent.	
				1				1	" " de la milice.	
									Divers petits délits.	
				28	1	28		1	Contraventions aux lois municipales.	
1			1	20	4	24			Pratiquant divers états sans licence.	
									Infractions aux lois sur l'hygiène publique.	
									Délits ayant rapport aux chemins publics.	
									Négligence de pourvoir aux besoins de la	
									famille.	
				3		3			Infrac. aux lois concernant les pharmaciens.	
									Profanation du dimanche.	
									Infractions aux lois des chemins de fer.	
1		1		19	1	20			Délits contre le revenu de l'Etat.	
1			1	26			24	2	Infractions aux lois maritimes.	
									Délits ayant rapport à la corvée.	
				5	1	4		2	Menaces et langage injurieux.	
				41		39		2	Empiètement.	
				1516	383	1338	a227	334	Vagabondage.	
				3192	376	3000	b126	442	Ivresse.	
				10		6		3	Exposition indécente.	
				1		1			Langage insultant, obscène, profane.	
				110	198	193	c59	56	Tenant, habitant et fréquentant des maisons	
									de désordre.	
				21	2	20	2	1	Conduite déréglée.	
									Infractions aux lois des poids et mesures.	
									Aliénation mentale.	
6		4	2	5953	1120	5639	512	922	..... Totaux.

a 100 Both jail and fine—Les deux: la prison et l'amende.

b 85 do do do do

c 52 do do do do

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	OTTAWA.				PONTIAC.			
	Con- victions Total	Sentence.			Con- victions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option	De- ferre &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food								
Assaults	29		29		1		1	
Breach of peace	3		3					
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals	1		1					
Disturbing religious and like meetings								
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny	1		1					
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against	3	1	4					
Breach of Canada Temperance Act								
Selling liquor during prohibited hours								
“ to Indians								
“ without license								
Malicious injury to property								
Other damage to property	9		9					
Master's and Servant's Acts, offences against				1		1		
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of	10		10					
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to								
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language	2	2	4					
Trespass	1	2	3	1		1		
Vagrancy	1	2	3					
Drunkenness	86	4	89				1	
Indecent exposure	1		1					
Insulting, obscene and profane language	8		8					
Keeping, frequenting bawdy houses and inmates thereof	2	4	6					
Loose, idle, disorderly	7		7					
Weights and Measures Acts, offences against								
Insanity								
Totals	163	13	175	1	3	3		

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE QUÉBEC— <i>Suite.</i>										
QUÉBEC.					RICHELIEU.					OFFENSES.
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.					
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions	— Sur option	— Empri- sonnés sans option.	— Re- mise, etc.	Con- dam- na- tions.	— Sur option	— Empri- sonnés sans option.	— Re- mise, etc.			
M.	F.			M.	F.					
48	4	49	1	2	14	13	1	Falsification de substances alimentaires.		
29	1	30			33	33		Voies de fait.		
2		2						Perturbation de la paix.		
1		1						Port d'armes illégal.		
1		1			1	1		Mépris de cour.		
1		1						Cruauté envers les animaux.		
1		1						Perturbation de réunions religieuses et autres.		
								Infractions aux lois des pêcheries.		
								" défendant le jeu.		
								" de chasse.		
								Larcin.		
								Vol de chiens, oiseaux, etc.		
								" bois, arbres, fruits, etc.		
13	1	14			5	5		Infractions aux lois des licences de boissons.		
								Contraventions aux lois de tempérance du Canada.		
								Vente de boissons durant les heures défendues		
								" aux Sauvages.		
39	22	60		1	14	1	15	" sans licence.		
								Dommages malicieux à la propriété.		
9		8		1	3	2	1	Autres dommages à la propriété.		
1		1			1	1		Infractions aux lois concernant les maîtres et serviteurs.		
								Inf. aux lois concernant la méd. et les dent.		
								" de la milice.		
								Divers petits délits.		
387	1	388			42	41	1	Contraventions aux lois municipales.		
64		64			3	3		Pratiquant divers états sans licence.		
5		5						Infractions aux lois sur l'hygiène publique.		
25		25						Délits ayant rapport aux chemins publics.		
					1	1		Négligence de pourvoir aux besoins de la famille.		
								Infractions aux lois concernant les pharmaciens.		
								Profanation du dimanche.		
								Infractions aux lois des chemins de fer.		
10		a10			1	1		Délits contre le revenu de l'Etat.		
								Infractions aux lois maritimes.		
								Délits ayant rapport à la corvée.		
12	1	13						Menaces et langage injurieux.		
								Empiètement.		
5		1	4		14	13	1	Vagabondage.		
450	11	460	1		1	1		Ivresse.		
3		3			3	3		Exposition indécente.		
25		25			1		1	Langage insultant, obscène, profane.		
1	3	4						Tenant, habitant et fréquentant des maisons de désordre.		
239	1	240			1	1		Conduite déréglée.		
								Infractions aux lois des poids et mesures.		
1			1					Aliénation mentale.		
1371	45	1395	16	5	137	2	134	5	Totaux.	

a 10, Both jail and fine.—Les deux : la prison et l'amende.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	RIMOUSKI.				SAGUENAY.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur- option	Com- mitted without option. — Emprisonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Emprisonnés sans option.	De- ferred &c. — Re- mise, etc.
Adulteration of food.....								
Assaults.....	5	5						
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....	1	1						
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....								
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....					1		1	
Trespass.....								
Vagrancy.....	8	1	4	5	1		1	
Drunkenness.....								
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	14	1	10	5	2		2	

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE OF QUÉBEC— <i>Suite.</i>								OFFENSES.
ST. FRANCIS. — ST. FRANÇOIS.				ST. HYACINTHE.				
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M. | F.				M. | F.				
17		16	1	7	1	8		Falsification de substances alimentaires.
15		14		6	5	11		Voies de fait.
1			1					Perturbation de la paix.
2		2						Port d'armes illégal.
								Mépris de cour.
								Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
2		1	1					“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
								“ bois, arbres, fruits, etc.
26	1	18	9					Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du
								Canada.
5		3	2					Vente de boissons durant les heures défendues.
								“ aux Sauvages.
2		2						“ sans licence.
				2		2		Dommmages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et
								serveiteurs.
								Inf. aux lois concernant la méd. et les dent.
								“ de la milice.
								Divers petits délits.
9	1	9	1	5		5		Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
2	6	8						Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
4		4						Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
3			3					Menaces et langage injurieux.
								Empiètement.
	4	4		9		9		Vagabondage.
117	3	116	4	3		3		Ivresse.
								Exposition indécente.
								Langage insultant, obscène, profane.
3	1	4						Tenant, habitant et fréquentant des maisons
								de désordre.
13		11	2					Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
221	16	212	11	32	6	38		..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC— <i>Concluded—Fin.</i>							
	TERREBONNE.				THREE RIVERS. TROIS-RIVIÈRES.			
	Con- victions Total Con- dam- na- tions.	Sentence.			Con- victions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food								
Assaults				2		2		
Breach of peace				31	2	3	a 25	5
Carrying fire-arms and unlawful weapons								
Contempt of court								
Cruelty to animals								
Disturbing religious and like meetings								
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny				1		1		
“ of dogs, birds, &c								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against				2		2		
Breach of Canada Temperance Act								
Selling liquor during prohibited hours								
“ to Indians								
“ without license				3		3		
Malicious injury to property								
Other damage to property				1	1	1		
Master's and Servant's Acts, offences against				1		1		
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of								
Exercising various callings without license.				2		2		
Health By-laws, offences against								
Highways, offences relating to								
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against	4		4					
Revenue Laws				4		4		
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language					1	1		
Trespass								
Vagrancy				1		1		
Drunkenness				19	1	20		
Indecent exposure								
Insulting, obscene and profane language				1		1		
Keeping, frequenting bawdy houses and inmates thereof				1	2	1	2	
Loose, idle, disorderly				1	1	2		
Weights and Measures Acts, offences against								
Insanity								
Totals	4		4	69	8	45	27	5

a { All committed in default of giving security to keep the peace.
Tous emprisonnés à défaut de fournir caution de garder la paix.

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE OF ONTARIO.								PROVINCE D'ONTARIO.								OFFENSES
ALGOMA AND MANITOULIN.				BRANT.												
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			Con- dam- na- tions.	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- dam- na- tions.	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
	M.	F.	—		M.	F.	—									
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
24		24		20	3	22		1				1				Falsification de substances alimentaires.
1		1		1		1		1				1				Voies de fait.
2		2		1		1		1				1				Perturbation de la paix.
				2		2		2				2				Port d'armes illégal.
				4		4		4				4				Mépris de cour.
3		3		1		1		1				1				Cruauté envers les animaux.
				13		13		13				13				Perturbation de réunions religieuses et autres.
				1		1		1				1				Infractions aux lois des pêcheries.
				4		4		4				4				“ défendant le jeu.
				3		3		3				3				“ de chasse.
																Larcin.
																Vol de chiens, oiseaux, etc.
																“ bois, arbres, fruits, etc.
2		1		1		17		17				17				Infractions aux lois des licences de boissons.
																Contraventions aux lois de tempérance du Canada.
																Vente de boissons durant les heures défendues
3		2		1		1		1				1				“ aux Sauvages.
2		2		1		1		1				1				“ sans licence.
				10		18		18				18				Dommmages malicieux à la propriété.
				5	1	6		6				6				Autres dommages à la propriété.
2		2		13		13		13				13				Infractions aux lois concernant les maîtres et serviteurs.
				1		1		1				1				Inf. aux lois concernant la méd. et les dent.
																“ de la milice.
																Divers petits délits.
5		5		248	8	254		2				2				Contraventions aux lois municipales.
2		2														Pratiquant divers états sans licence.
2		2		2		2		2				2				Infractions aux lois sur l'hygiène publique
1		1		2		2		2				2				Délits ayant rapport aux chemins publics.
1			1	1		1		1				1				Négligence de pourvoir aux besoins de la famille.
																Infrac. aux lois concernant les pharmaciens.
				4		4		4				4				Profanation du dimanche.
				6		2		2				2				Infractions aux lois des chemins de fer.
																Délits contre le revenu de l'Etat.
																Infractions aux lois maritimes.
																Délits ayant rapport à la corvée.
1		1		11		9		2				2				Menaces et langage injurieux.
				15		11		4				11				Empiètement.
4		3	1	23	1	16		1				7				Vagabondage.
27		26		122	1	119		3				3				Ivresse.
1		1		1		1		1				1				Exposition indécente.
1		1		10		10		10				10				Langage insultant, obscène, profane.
2	6	8		2	2	4		4				4				Tenant, habitant et fréquentant des maisons de désordre.
4		4		31	2	33		1				33				Conduite déréglée.
				1												Infractions aux lois des poids et mesures.
																Aliénation mentale.
90	6	91	3	2	577	18		567		11		17				Totaux.

a Both jail and fine.— Les deux : la prison et l'amende.

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
DUFFERIN					ELGIN.					OFFENSES.
Sentence.					Sentence.					
Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.	
M.	F.				M.	F.				
11		11			19	3	19	3		
					1		1		Falsification de substances alimentaires.	
					2		2		Voies de fait.	
					6		6		Perturbation de la paix.	
					1		1		Port d'armes illégal.	
					1		1		Mépris de cour.	
					1		1		Cruauté envers les animaux.	
					9		8	1	Perturbation de réunions religieuses et autres.	
					1		1		Infractions aux lois des pêcheurs.	
					1		1		" défendant le jeu.	
					1		1		" de chasse.	
					1		1		Larcin.	
					1		1		Vol de chiens, oiseaux, etc.	
					1		1		" bois, arbres, fruits, etc.	
					53	1	53	1	Infractions aux lois des licences de boissons.	
					4		4		Contraventions aux lois de tempérance du Canada.	
					4		4		Vente de boissons durant les heures défendues aux Sauvages.	
					1		1		" sans licence.	
					1		1		Domages malicieux à la propriété.	
3		3			6		6		Autres dommages à la propriété.	
					1		1		Infractions aux lois concernant les maîtres et serviteurs.	
					1		1		Inf. aux lois concernant la méd. et les dent. de la milice.	
					1		1		Divers petits délits.	
3		3			53	1	53	1	Contraventions aux lois municipales.	
					4		4		Pratiquant divers états sans licence.	
					4		4		Infractions aux lois sur l'hygiène publique	
					1		1		Délits ayant rapport aux chemins publics.	
								1	Négligence de pourvoir aux besoins de la famille.	
									Infractions aux lois concernant les pharmaciens.	
					48		32	10	Profanation du dimanche.	
					6		6		Infractions aux lois de chemins de fer.	
									Délits contre le revenu de l'Etat.	
									Infractions aux lois maritimes.	
									Délits ayant rapport à la corvée.	
2		2			9	2	11		Menaces et langage injurieux.	
	1	1			2		2		Empiètement.	
44	8		52		9		3	6	Vagabondage.	
					38	1	35	3	Ivresse.	
									Exposition indécente.	
2		2			2		2		Langage insultant, obscène, profane.	
					4		2	1	Tenant, habitant et fréquentant des maisons de désordre.	
4		4			17	1	14	2	Conduite déréglée.	
4	1			5	1				Infraction aux lois des poids et mesures.	
									Aliénation mentale.	
73	10	26	52	5	242	12	214	27	13	
									.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.									
	ESSEX.					FRONTENAC.				
	Con- vic- tions Total	Sentence.				Con- vic- tions Total	Sentence.			
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.			Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.					
Adulteration of food.....	66	4	70		8		8			
Assaults.....	1				2	1	1	a2		
Breach of peace.....	3		3							
Carrying fire-arms and unlawful weapons.....	7		7							
Contempt of court.....	5		5		1		1			
Cruelty to animals.....	4		4							
Disturbing religious and like meetings.....	2		2		8		8			
Fishery Acts, offences against.....	15		15							
Gambling Acts.....	1		1							
Game Laws.....	14		14		13		13			
Larceny.....	12		12							
“ of dogs, birds, &c.....	7		7							
“ of timber, trees, fruits, &c.....	4		4							
Liquor License Acts, offences against.....	1		1							
Breach of Canada Temperance Act.....	4		4							
Selling liquor during prohibited hours.....	4		4							
“ to Indians.....	1		1							
“ without license.....	4	1	4		1		1			
Malicious injury to property.....	4		4							
Other damage to property.....	2		2		1		1			
Master's and Servant's Acts, offences against.....										
Medical and Dentistry Acts, offences against.....					1		1			
Militia Acts.....										
Miscellaneous minor offences.....	18		18		21	1	22			
Municipal Acts and By-laws, breaches of.....	1		1		1		1			
Exercising various callings without license.....	5		5							
Health By-laws, offences against.....	14		14		1		1			
Highways, offences relating to.....					1	1				2
Neglecting to support family.....										
Pharmacy Acts, offences against.....					1		1			
Profanation of the Lord's Day.....										
Railway Acts, offences against.....	10		10							
Revenue Laws.....										
Seamen Acts.....										
Statute Labour, offences relating to.....										
Threats and abusive language.....	6		5		1	1	2			
Trespass.....					1	1	1			
Vagrancy.....	11	7	6	12	5	6	1	b10		
Drunkenness.....	106	6	111		1	123	2	120	c5	
Indecent exposure.....	10		8	2						
Insulting, obscene and profane language.....	18	1	19		3		3			
Keeping, frequenting bawdy houses and inmates thereof.....	6	3	9							
Loose, idle, disorderly.....	14		14		4		4			
Weights and Measures Acts, offences against.....										
Insanity.....										
Totals.....	367	22	371	14	4	196	12	189	17	2

a 1 m. 1 f.—Both jail and fine.—Les deux : la prison et l'amende.

b 1 m. 4 f.— do do do

c 2 m.— do do do

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
GREY.					HALDIMAND.					OFFENSES.
Con- victions Total Con- dam- na- tions.	Sentence.			Con- victions Total Con- dam- na- tions.	Sentence.			De- ferred &c.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
M	F	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	M	F	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
24	1	24		1	8		8			Falsification de substances alimentaires.
2		2								Voies de fait.
										Perturbation de la paix.
										Port d'armes illégal.
6		5	1							Mépris de cour.
5		5								Cruauté envers les animaux.
3		3								Perturbation de réunions religieuses et autres.
										Infractions aux lois des pêcheries.
2		2								“ défendant le jeu.
					3		3			“ de chasse.
										Larcin.
										Vol de chiens, oiseaux, etc.
8		8								“ bois, arbres, fruits, etc.
										Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du
										Canada.
7	1	8			1		1			Vente de boissons durant les heures défendues.
2		2								“ aux Sauvages.
1		1			2		2			“ sans licence.
1		1			3		3			Dommages malicieux à la propriété.
4		3		1	1		1			Autres dommages à la propriété.
6		6								Infractions aux lois concernant les maîtres et
										serviteurs.
					2		2			Inf. aux lois concernant la méd. et les dent.
										“ de la milice.
										Divers petits délits.
19		19			9		9			Contraventions aux lois municipales.
										Pratiquant divers états sans licence.
										Infractions aux lois sur l'hygiène publique.
7		7			1		1			Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la
										famille.
1		1								Infractions aux lois concernant les pharmaciens.
3		3								Profanation du dimanche.
										Infractions aux lois des chemins de fer.
										Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
										Délits ayant rapport à la corvée.
12	4	11	3	2	1		1			Menaces et langage injurieux.
5		5								Empiètement.
55	3		58		12	1	1	12		Vagabondage.
13	1	14			13	1	13	1		Ivresse.
										Exposition indécente.
4		4			3	2	5			Langage insultant, obscène, profane.
										Tenant, habitant et fréquentant des maisons
										de désordre.
7		7								Conduite déréglée.
										Infractions aux lois des poids et mesures.
					2				2	Aliénation mentale.
197	107	141	62	4	61	4	50	13	2	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.									
	HALTON.					HASTINGS.				
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
		— Sur- option	Empri- sonnés sans option.	Re- mise, etc.		— Sur- option	Empri- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.					
Adulteration of food										
Assaults	11		11		64	3	67			
Breach of peace	4	1	5		3		3			
Carrying fire-arms and unlawful weapons										
Contempt of court										
Cruelty to animals	5		5		4		4			
Disturbing religious and like meetings	1		1							
Fishery Acts, offences against										
Gambling Acts										
Game Laws										
Larceny										
“ of dogs, birds, &c.										
“ of timber, trees, fruits, &c										
Liquor License Acts, offences against	5	1	6		7		7			
Breach of Canada Temperance Act										
Selling liquor during prohibited hours	2		2		2		2			
“ to Indians					1		1			
“ without license	2		2		2		2			
Malicious injury to property	3		3		2		1	1		
Other damage to property	1		1							
Master's and Servant's Acts, offences against	1		1		17	1	18			
Medical and Dentistry Acts, offences against										
Militia Acts										
Miscellaneous minor offences					3		3			
Municipal Acts and By-laws, breaches of	12	1	13		32	2	34			
Exercising various callings without license					3		3			
Health By-laws, offences against					5	2	7			
Highways, offences relating to					8		8			
Neglecting to support family					2		2			
Pharmacy Acts, offences against										
Profanation of the Lord's Day										
Railway Acts, offences against										
Revenue Laws										
Seamen Acts										
Statute Labour, offences relating to										
Threats and abusive language	1			1	27	7	33			1
Trespass					18		17			1
Vagrancy	4	1		5	5	2		7		
Drunkenness	3		3		69	1	65	4		1
Indecent exposure										
Insulting, obscene and profane language										
Keeping, frequenting bawdy houses and inmates thereof										
Loose, idle, disorderly	4		4		21	2	16	1		6
Weights and Measures Acts, offences against										
Insanity					1					1
Totals	59	4	57	5	1	296	20	293	13	10

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
HURON.					KENT.					OFFENSES.
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			De- ferred &c.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.			
M.	F.			M.	F.					
14		14		68	4	70	2			Falsification de substances alimentaires.
				13		12	1			Voies de fait.
				1		1				Perturbation de la paix.
				4		4				Port d'armes illégal.
				2		2				Mépris de cour.
				3		3				Cruauté envers les animaux.
3		3		3		3				Perturbation de réunions religieuses et autres.
				3		3				Infractions aux lois des pêcheries.
				1		1				“ défendant le jeu.
				2		2				“ de chasse.
				12	2	14				Larcin.
20		20		5		5				Vol de chiens, oiseaux, etc.
				1		1				“ bois, arbres, fruits, etc.
				1		1				Infractions aux lois des licences de boissons.
2		2		4	1	5				Contraventions aux lois de tempérance du Canada.
				19		19				Vente de boissons durant les heures défendues.
				1		1				“ aux Sauvages.
1		1		22	1	23				“ sans licence.
				6		6				Domages malicieux à la propriété.
				1		1				Autres dommages à la propriété.
1		1		17		17				Infractions aux lois concernant les maîtres et serviteurs.
				1		1				Inf. aux lois concernant la méd. et les dent.
				22	1	23				“ de la milice.
				1		1				Divers petits délits.
1		1		5		5				Contraventions aux lois municipales.
				17		16				Pratiquant divers états sans licence.
				1		1				Infractions aux lois sur l'hygiène publique.
				6		6				Délits ayant rapport aux chemins publics.
				1		1				Négligence de pourvoir aux besoins de la famille.
				5		5				Infractions aux lois concernant les pharmaciens.
2		2		17		16				Profanation du dimanche.
				1		1				Infractions aux lois des chemins de fer.
				10		6				Délits contre le revenu de l'Etat.
				11		7				Infractions aux lois maritimes.
				1		1				Délits ayant rapport à la corvée.
1		1		64	1	62	3			Menaces et langage injurieux.
				5		5				Empiètement.
6		6	3	17	4	20				Vagabondage.
				5		5				Ivresse.
				17	4	20				Exposition indécente.
				2		2				Langage insultant, obscène, profane.
3	2	5		17		17				Tenant, habitant et fréquentant des maisons de désordre.
				4		4				Conduite déréglée.
				316	15	313	8	10		Infractions aux lois des poids et mesures.
										Aliénation mentale.
										..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.									
	LAMBTON.					LANARK.				
	Con- victions Total	Sentence.			Con- victions Total	Sentence.			Con- dam- na- tions.	De- ferred &c.
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise. etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise. etc.	Con- dam- na- tions.	De- ferred &c.	
M.	F.			M.	F.			M.	F.	
Adulteration of food					1					
Assaults	40		38	2	25		24		1	
Breach of peace	5		5		2		2			
Carrying fire-arms and unlawful weapons.	2		2		1		1			
Contempt of court.										
Cruelty to animals	2		2		1		1			
Disturbing religious and like meetings	1		1							
Fishery Acts, offences against										
Gambling Acts					1		1			
Game Laws	1		1							
Larceny										
" of dogs, birds, &c										
" of timber, trees, fruits, &c.										
Liquor License Acts, offences against	10	3	13		20		20			
Breach of Canada Temperance Act.										
Selling liquor during prohibited hours	2		2		17	3	20			
" to Indians.	1		1							
" without license.										
Malicious injury to property.	6		6							
Other damage to property					1		1			
Master's and Servant's Acts, offences against	4		4		2		2			
Medical and Dentistry Acts, offences against					2		2			
Militia Acts										
Miscellaneous minor offences.					1		1			
Municipal Acts and By-Laws, breaches of	12		12		10	2	12			
Exercising various callings without license.	2		2		3		3			
Health By-laws, offences against	1		1		1		1			
Highways, offences relating to	4		3	1	6		6			
Neglecting to support family										
Pharmacy Acts, offences against										
Profanation of the Lord's Day	2		2							
Railway Acts, offences against	3		3		1		1			
Revenue Laws										
Seamen Acts										
Statute Labour, offences relating to	1		1							
Threats and abusive language	4	1	5		5		5			
Trespass					6		6			
Vagrancy	63	1	62	2	31	4	35			
Drunkenness.	132	6	122	11	5	9	9			
Indecent exposure.	1		1							
Insulting, obscene and profane language.	9	2	9		2	4	5			
Keeping, frequenting bawdy houses and inmates thereof.										
Loose, idle, disorderly.	8		8		16	2	18			
Weights and Measures Acts, offences against.										
Insanity										1
Totals	316	13	306	15	8	166	13	142	36	1

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE D'ONTARIO— <i>Suite.</i>										
LEEDS AND GRENVILLE.					LENNOX AND ADDINGTON.					OFFENSES.
Con- victions Total	Sentence.			Con- victions Total	Sentence.			Con- victions Total	Con- victions Total	
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	— Sur- option	— Empri- sonnés sans option.	— Re- mise, etc.	Con- dam- na- tions.	— Sur- option	— Empri- sonnés sans option.	— Re- mise, etc.	Con- dam- na- tions.	Con- victions Total	
M.	F.			M.	F.			M.	F.	
2		2		2		2				Falsification de substances alimentaires.
42	4	45	1	9	1	10				Voies de fait.
1		1								Perturbation de la paix.
										Port d'armes illégal.
5		5		1		1				Mépris de cour.
				1		1				Cruauté envers les animaux.
										Perturbation de réunions religieuses et autres
5		5								Infractions aux lois des pêcheries.
4		4		2		2				“ défendant le jeu. de chasse.
										Larcin.
										Vol de chiens, oiseaux, etc.
										“ bois, arbres, fruits, etc.
9		9		5		5				Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du Canada.
1		1		2		2				Vente de boissons durant les heures défendues. aux Sauvages.
1		1								“ sans licence.
1		1		3	1	4				Donnages malicieux à la propriété.
10		10								Autres dommages à la propriété.
13		13		2		2				Infractions aux lois concernant les maîtres et serveurs.
				2		2				Inf. aux lois concernant la méd. et les dent. de la milice.
										Divers petits délits.
22		22								Contraventions aux lois municipales.
3		3								Pratiquant divers états sans licence.
2		2								Infractions aux lois sur l'hygiène publique.
4		4		1		1				Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la famille.
										Infrac. aux lois concernant les pharmaciens.
4		4								Profanation du dimanche.
2		2								Infractions aux lois des chemins de fer.
										Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
1		1								Délits ayant rapport à la corvée.
2		1	1	1		1				Menaces et langage injurieux.
8		8		3		3				Empiètement.
14	1	4	11	14	11	3				Vagabondage.
125	3	127		11	9	2				Ivresse.
				1	1					Exposition indécente.
15	6	21		6	6					Langage insultant, obscène, profane.
										Terant, habitant et fréquentant des maisons de désordre.
58	2	58	1	1						Conduite déréglée.
										Infractions aux lois des poids et mesures.
										Aliénation mentale.
356	16	356	14	2	66	2	63	5		..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.											
	LINCOLN.					MIDDLESEX.						
	Sentence.					Sentence.						
	Con- victions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- victions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- dam- na- tions.	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of food												
Assaults	35	2	37		49	2	41		7	3		
Breach of peace	1		1									
Carrying fire-arms and unlawful weapons												
Contempt of court					2		1					
Cruelty to animals	3		3		2		2					
Disturbing religious and like meetings	1		1									
Fishery Acts, offences against	5		5									
Gambling Acts					5		3					
Game Laws					2		2					
Larceny												
“ of dogs, birds, &c.	1		1									
“ of timber, trees, fruits, &c.												
Liquor License Acts, offences against	5		5		15	1	16					
Breach of Canada Temperance Act												
Selling liquor during prohibited hours	3		3		3		3					
“ to Indians					3		3					
“ without license												
Malicious injury to property	6		6		1		1					
Other damage to property	1		1		6		6					
Master's and Servant's Acts, offences against	3		3		7		7					
Medical and Dentistry Acts, offences against												
Militia Acts												
Miscellaneous minor offences												
Municipal Acts and By-laws, breaches of	30	3	33		133	2	130				5	
Exercising various callings without license					1		1					
Health By-laws, offences against												
Highways, offences relating to	3		3		7		6				1	
Neglecting to support family												
Pharmacy Acts, offences against												
Profanation of the Lord's Day	25		25									
Railway Acts, offences against					9		7				2	
Revenue Laws					4		4					
Seamen Acts												
Statute Labour, offences relating to												
Threats and abusive language	4	1	5		5	1	5				1	
Trespass	22	2	22		46	1	41				6	
Vagrancy	5		3	2	48	8	5	44			7	
Drunkenness	58	6	64		151	10	106	45			10	
Indecent exposure					2		1				1	
Insulting, obscene and profane language	1		1		1	1	2				1	
Keeping, frequenting bawdy houses and inmates thereof					1	12	11	2				
Loose, idle, disorderly	3	1	4		15		15					
Weights and Measures Acts, offences against												
Insanity												
Totals	215	15	226	2	2	516	38	419	99		36	

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>									
MUSKOKA AND PARRY SOUND					NIPISSING.				
Con- victions Total	Sentence.			Con- victions Total	Sentence.			OFFENSES.	
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.				
27	1	28		34	1	35		Falsification de substances alimentaires.	
2		2		5		5		Voies de fait.	
2		1	1					Perturbation de la paix.	
								Port d'armes illégal.	
1		1		1				Mépris de cour.	1
1		1						Cruauté envers les animaux.	
								Perturbation de réunions religieuses et autres.	
				3		3		Infractions aux lois des pêcheries.	
				9		9		“ défendant le jeu.	
11		11						“ de chasse.	
4		4		9		9		Larcin.	
								Vol de chiens, oiseaux, etc.	
								“ bois, arbres, fruits, etc.	
3		3		8		8		Infractions aux lois des licences de boissons.	
								Contraventions aux lois de tempérance du Canada.	
2		2						Vente de boissons durant les heures défendues	
1		1		1		1		“ aux Sauvages.	
4	2	5	1					“ sans licence.	
								Domages malicieux à la propriété.	
6		6		4		4		Autres dommages à la propriété.	
13		13		13		13		Infractions aux lois concernant les maîtres et serveurs.	
1		1						Inf. aux lois concernant la méd. et les dent.	
								“ la milice.	
11		11		4	1	5		Divers petits délits.	
								Contraventions aux lois municipales.	
								Pratiquant divers états sans licence.	
6		6						Infractions aux lois sur l'hygiène publique.	
								Délits ayant rapport aux chemins publics.	
								Négligence de pourvoir aux besoins de la famille.	
1		1						Infractions aux lois concernant les pharmaciens.	
11		11		2		2		Profanation du dimanche.	
2		2						Infractions aux lois des chemins de fer.	
1		1						Délits contre le revenu de l'Etat.	
								Infractions aux lois maritimes.	
3		3						Délits ayant rapport à la corvée.	
1		1		1		1		Menaces et langage injurieux.	
2		2						Empiètement.	
5	3	2	3	2		1	1	Vagabondage.	
11		9	2	38	1	39		Ivresse.	
				2	1	3		Exposition indécente.	
6	3	8		1	1	2		Langage insultant, obscène, profane.	
6	5	11		1	2	3		Tenant, habitant et fréquentant des maisons de désordre.	
								Conduite déréglée.	
				1				Infractions aux lois des poids et mesures.	
								Aliénation mentale.	1
144	14	146	7	139	7	143	1	.....Totaux.	2

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.										
	NORFOLK.					NORTHUMBERLAND AND DURHAM.					
	Con- victions Total Con- dam- na- tions.	Sentence.				Con- victions Total Con- dam- na- tions.	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.	
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.	
M.	F.				M.	F.					
Adulteration of food					1				1		
Assaults	20	2	21		1	40	2	41		1	
Breach of peace	4		4			9		6			3
Carrying fire-arms and unlawful weapons.											
Contempt of court						7		4			3
Cruelty to animals						1		1			
Disturbing religious and like meetings.	3		2	1		1		1			
Fishery Acts, offences against						4		4			
Gambling Acts											
Game Laws	5		4		1						
Larceny											
“ of dogs, birds, &c.	1		1			2		2			
“ of timber, trees, fruits, &c.						7		7			
Liquor License Acts, offences against	1		1			7	2	9			
Breach of Canada Temperance Act											
Selling liquor during prohibited hours	4		4								
“ to Indians						2		2			
“ without license.	2		2			1		1			
Malicious injury to property						4		4			
Other damage to property	3		3			8		7		1	
Master's and Servant's Acts, offences against.	3		3			13		13			
Medical and Dentistry Acts, offences against	1		1								
Militia Acts											
Miscellaneous minor offences											
Municipal Acts and By-Laws, breaches of	12		12			30	1	31			
Exercising various callings without license.						3		3			
Health By-laws, offences against											
Highways, offences relating to						6		6			
Neglecting to support family						4	4				8
Pharmacy Acts, offences against											
Profanation of the Lord's Day											
Railway Acts, offences against	7		5	1	1						
Revenue Laws											
Seamen Acts											
Statute Labour, offences relating to											
Threats and abusive language	2		1		1	9		7			2
Trespass	5		5			9		8		1	
Vagrancy	9			8	1	53	20	8		62	3
Drunkenness	6	1		4		43		37		6	
Indecent exposure	3		2		1	1		1			
Insulting, obscene and profane language.	22	1	18		5	7	1	8			
Keeping, frequenting lawdy houses and inmates thereof.	2	3	2	1	2						
Loose, idle, disorderly						3	1	3		1	
Weights and Measures Acts, offences against.											
Insanity		1			1	1	2				3
Totals	115	8	94	15	14	275	33	214		72	22

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
ONTARIO.					OXFORD.					OFFENSES
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.					
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.			
M. | F.				M. | F.						
29	3	30	2	2	2	2	2	2	Falsification de substances alimentaires.	
3		3		49	1	46	2	2	Voies de fait.	
				9		8	1		Perturbation de la paix.	
				2		1		1	Port d'armes illégal.	
1		1		1	1	2			Mépris de cour.	
				14		13		1	Cruauté envers les animaux.	
				2		2			Perturbation de réunions religieuses et autres.	
1		1							Infractions aux lois des pêcheries.	
				3		3			" défendant le jeu.	
1		1							" de chasse.	
3		3							Larcin.	
12		12							Vol de chiens, oiseaux, etc.	
2		2							" bois, arbres, fruits, etc.	
6		6							1 Infractions aux lois des licences de boissons.	
1		1							Contraventions aux lois de tempérance du	
2		2							Canada.	
3		3							Vente de boissons durant les heures défendues	
12		12							" aux Sauvages.	
2		2							" sans licence.	
6		6							Dommages malicieux à la propriété.	
1		1							Autres dommages à la propriété.	
2		2						2	1 Infractions aux lois concernant les maîtres et	
3		3							serviteurs.	
1		1							Inf. aux lois concernant la méd. et les dent.	
									" " de la milice.	
2		2							Divers petits délits.	
3		3		103	6	94		15	Contraventions aux lois municipales.	
1		1		1	1	2			Pratiquant divers états sans licence.	
4		4							Infractions aux lois sur l'hygiène publique	
									Délits ayant rapport aux chemins publics.	
									Négligence de pourvoir aux besoins de la	
									famille.	
									Infrac. aux lois concernant les pharmaciens.	
									Profanation du dimanche.	
									23 11 9 3 Infractions aux lois de chemins de fer.	
									Délits contre le revenu de l'Etat.	
									Infractions aux lois maritimes.	
									Délits ayant rapport à la corvée.	
									1 Menaces et langage injurieux.	
1		1							1 Empiètement.	
13	3	16							2 Vagabondage.	
2		2							18 Ivresse.	
									5 Exposition indécente.	
7	1	8							Langage insultant, obscène, profane.	
									11 1 12 3 Tenant, habitant et fréquentant des maisons	
									de désordre.	
2		2							24 2 26 Conduite déréglée.	
									Infraction aux lois des poids et mesures.	
									6 3 9 Aliénation mentale.	
100	7	89	16	2	702	22	627	41	56 Totaux.	

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.									
	PEEL.					PERTH.				
	Con- victions Total	Sentence.			Con- victions Total	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise. etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.					
Adulteration of food.....										
Assaults.....	12	2	14					1	55	
Breach of peace.....								1	1	
Carrying fire-arms and unlawful weapons.....								1	1	
Contempt of court.....										
Cruelty to animals.....	1		1					6	6	
Disturbing religious and like meetings.....								3	3	
Fishery Acts, offences against.....										
Gambling Acts.....										
Game Laws.....								1	1	
Larceny.....										
“ of dogs, birds, &c.....										
“ of timber, trees, fruits, &c.....								1	1	
Liquor License Acts, offences against.....	2		2					10	10	
Breach of Canada Temperance Act.....										
Selling liquor during prohibited hours.....								5	5	
“ to Indians.....										
“ without license.....	2		2							
Malicious injury to property.....								13	13	
Other damage to property.....								1	1	
Master's and Servant's Acts, offences against.....	3		3					7	7	
Medical and Dentistry Acts, offences against.....										
Militia Acts.....										
Miscellaneous minor offences.....										
Municipal Acts and By-Laws, breaches of.....	3		3					204	8	212
Exercising various callings without license.....								5		5
Health By-laws, offences against.....								1		1
Highways, offences relating to.....								5		5
Neglecting to support family.....										
Pharmacy Acts, offences against.....										
Profanation of the Lord's Day.....								2		2
Railway Acts, offences against.....								6		6
Revenue Laws.....										
Seamen Acts.....										
Statute Labour, offences relating to.....										
Threats and abusive language.....	2		2					6		6
Trespass.....	8		8					15		15
Vagrancy.....	12	1	13					91	2	19
Drunkenness.....	3							36	1	36
Indecent exposure.....										
Insulting, obscene and profane language.....	2	1	3					9	1	10
Keeping, frequenting bawdy houses and inmates thereof.....								2	1	3
Loose, idle, disorderly.....								24		21
Weights and Measures Acts, offences against.....										
Insanity.....								1		
Totals.....	50	4	40	13	1	508	17	446		78
										1

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
PETERBOROUGH.					PRESCOTT AND RUSSELL.					
Con- vic- tions Total Con- dam- na- tions.	Sentence.				Con- vic- tions Total Con- dam- na- tions.	Sentence.				OFFENSES.
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.	
M	F				M	F				
1		1								Falsification de substances alimentaires.
20	1	21			8	1	9			Voies de fait.
9	2	10		1						Perturbation de la paix.
1		1								Port d'armes illégal.
										Mépris de cour.
1		1								Cruauté envers les animaux.
					1		1			Perturbation de réunions religieuses et autres.
15		15								Infractions aux lois des pêcheries.
2		2								" défendant le jeu.
1		1								" de chasse.
										Larcin.
										Vol de chiens, oiseaux, etc.
3	1	4								" bois, arbres, fruits, etc.
12	1	13			1		1			Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du
										Canada.
					5		5			Vente de boissons durant les heures défendues.
1		1								" aux Sauvages.
					1		1			" sans licence.
1		1								Dommmages malicieux à la propriété.
7		6		1						Autres dommages à la propriété.
6		6			2		2			Infractions aux lois concernant les maîtres et
										serveurs.
										Inf. aux lois concernant la méd. et les dent.
3		3								" de la milice.
										Divers petits délits.
23		19		9						Contraventions aux lois municipales.
2		2			1		1			Pratiquant divers états sans licence.
3		3								Infractions aux lois sur l'hygiène publique.
5		5			2		2			Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la
										famille.
										Infractions aux lois concernant les pharmaciens.
2		1		1	1		1			Profanation du dimanche.
2		2								Infractions aux lois des chemins de fer.
										Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
8		8								Délits ayant rapport à la corvée.
7		6		1	2	2	4			Menaces et langage injurieux.
7		7			3		3			Empiètement.
38			34	4	1		1			Vagabondage.
41		41			3		3			Ivresse.
1		1								Exposition indécente.
5	1	6			1		1			Langage insultant, obscène, profane.
	2		2							Tenant, habitant et fréquentant des maisons
										de désordre.
20		18		2						Conduite déréglée.
										Infractions aux lois des poids et mesures.
3				3						Aliénation mentale.
255	8	205	36	22	32	3	34	1		..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	PRINCE EDWARD.				RENFREW.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.		Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.			
Adulteration of food.....								
Assaults.....	9	1	9		1			
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....	1		1					
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	4		4					
“ to Indians.....								
“ without license.....	2		2					
Malicious injury to property.....								
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical and Dentistry Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....	1		1					
Highways, offences relating to.....	1		1					
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labour, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	21	2	23					
Indecent exposure.....	1		1					
Insulting, obscene and profane language.....	1		1					
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....	1		1					
Weights and Measures Acts, offences against.....	1		1					
Insanity.....								
Totals.....	43	3	45		1	196	11	198
								9

α 1, Both jail and fine.—Les deux, la prison et l'amende.

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— Suite.										
SIMCOE.					STORMONT, DUNDAS AND GLENGARRY.					
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			OFFENSES.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	— Sur option	— Empri- sonnés sans option.	— Re- mise, etc.	Con- dam- na- tions.	— Sur option	— Empri- sonnés sans option.	— Re- mise, etc.			
M.	F.			M.	F.					
51	3	52	1	1	36	2	33	4	1	Falsification de substances alimentaires.
11	1	12			4	1	5			Voies de fait.
2		2			1		1			Perturbation de la paix.
										Port d'armes illégal.
1		1			1		1			Mépris de cour.
4		4								Cruauté envers les animaux.
4		4								Perturbation de réunions religieuses et autres
2		2								Infractions aux lois des pêcheries.
2		2			6		6			“ défendant le jeu.
2		2			1		1			“ de chasse.
2				2						Larcin.
4		4								Vol de chiens, oiseaux, etc.
8		8			9	1	10			“ bois, arbres, fruits, etc.
										Infractions aux lois des licences de boissons.
										Contraventions aux lois de tempérance du
										Canada.
3	2	5			2	4	6			Vente de boissons durant les heures défendues.
3		3								“ aux Sauvages.
1	2	3			4		4			“ sans licence.
2		2								Dommages malicieux à la propriété.
2		2								Autres dommages à la propriété.
d7		7			3		3			Infractions aux lois concernant les maîtres et
										serviteurs.
1				1						Inf. aux lois concernant la méd. et les dent.
										“ “ de la milice.
66	3	63		6	7		7			Divers petits délits.
1		1			4		4			Contraventions aux lois municipales.
2		2			1		1			Pratiquant divers états sans licence.
2		2			1		1			Infractions aux lois sur l'hygiène publique.
2		e1	1		1		1			Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la
										famille.
										Infrac. aux lois concernant les pharmaciens.
3		3			9		9			Profanation du dimanche.
										Infractions aux lois des chemins de fer.
										Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
										Délits ayant rapport à la corvée.
12	2	13		1	1		1			Menaces et langage injurieux.
8		6		2	1		1			Empiètement.
56	5	37	23	1	17	2	9	8	2	Vagabondage.
69	1	65	2	3	17	1	18			Ivresse.
3		2	1		1		1			Exposition indécente.
6		6			9		9			Langage insultant, obscène, profane.
1	11	9	3							Tenant, habitant et fréquentant des maisons
										de désordre.
14	2	12	1	3	13		13			Conduite déréglée.
					1		1			Infractions aux lois des poids et mesures.
5	3			8						Aliénation mentale.
362	35	337	32	28	149	11	145	12	3	Totaux.

d 1, Ordered to pay, but no amount given.—Condamné à payer, mais aucun montant indiqué.
e 1, Ordered to pay \$2 per week.—Condamné à payer \$2 par semaine.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	THUNDER BAY AND RAINY RIVER.				VICTORIA.			
	Con- victions Total	Sentence.			Con- victions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
M. F.				M. F.				
Adulteration of food				2				
Assaults	26	23	2	1	38	36	1	
Breach of peace	4			4	16	15	1	
Carrying fire-arms and unlawful weapons			3		1	1		
Contempt of court	3							
Cruelty to animals	5	5			4	4		
Disturbing religious and like meetings	7	2		5	5	5		
Fishery Acts, offences against								
Gambling Acts								
Game Laws	3	3			2	2		
Larceny					1	1		
“ of dogs, birds, &c.	1	1			1		1	
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against	15	2	4	11	2	4	4	
Breach of Canada Temperance Act								
Selling liquor during prohibited hours	2	2			4	4		
“ to Indians	18	1	12	6	1			
“ without license	1	1	2		4	1	4	
Malicious injury to property	1		1		5	5	1	
Other damage to property	15		11	4	1	1		
Master's and Servant's Acts, offences against	22		22		d9	9		
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences	1		1					
Municipal Acts and By-laws, breaches of	4		3		1	3	1	
Exercising various callings without license					4	4		
Health By-laws, offences against	2		2					
Highways, offences relating to	2		2		3	3		
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against					1		1	
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language	6		2	2	4	4		
Trespass	7		6	1				
Vagrancy	18	1	10	9	40	2	8	
Drunkenness	90		48	32	10	35	31	
Indecent exposure					1	1		
Insulting, obscene and profane language					8	8		
Keeping, frequenting bawdy houses and inmates thereof		4	3	d1		2	2	
Loose, idle, disorderly	1		1		36	36		
Weights and Measures Acts, offences against					1	7	5	
Insanity		1					12	
Totals	254	10	156	72	36	239	11	
						191	30	
							29	

a Condemned, both jail and fine.—Condamnée à la prison et à l'amende. d Ordered to pay, but no amount given.—Condamné à payer, le montant non indiqué.

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>										
WATERLOO.					WELLAND.					OFFENSES.
Con- vic- tions Total		Sentence.			Con- vic- tions Total		Sentence.			
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
		M.	F.	M.			F.	M.	F.	
41		41			45	3	40	1	7	Falsification de substances alimentaires.
					1		1			Voies de fait.
					1		1			Perturbation de la paix.
					2		2			Port d'armes illégal.
1		1								Mépris de cour.
10		10			4		4			Cruauté envers les animaux.
2		2			2		1		1	Perturbation de réunions religieuses et autres.
3		3								Infractions aux lois des pêcheries.
										“ défendant le jeu.
										“ de chasse.
										Larcin.
					4		1		3	Vol de chiens, oiseaux, etc.
19		19			8		8			“ bois, arbres, fruits, etc.
7	1	8			1		1			Infractions aux lois des licences de boissons.
2		2			1		1			Contraventions aux lois de tempérance du Canada.
					2		2			Vente de boissons durant les heures défendues
					7		7			“ aux Sauvages.
					1		1			“ sans licence.
					2		2			Dommages malicieux à la propriété.
					7		7			Autres dommages à la propriété.
					1		1			Infractions aux lois concernant les maîtres et serviteurs.
										Inf. aux lois concernant la méd. et les dent.
17	1	18			37	2	36	1	2	Divers petits délits.
2		2			4		4			Contraventions aux lois municipales.
5		5			3		3			Pratiquant divers états sans licence.
					1		1			Infractions aux lois sur l'hygiène publique
					1		1			Délits ayant rapport aux chemins publics.
					1		1			Négligence de pourvoir aux besoins de la famille.
7		7			7	2	9			Infractions aux lois concernant les pharmaciens.
					18		5		11	Profanation du dimanche.
					10	2	11			Infractions aux lois des chemins de fer.
11		11			1		1			Délits contre le revenu de l'Etat.
5		5			1		1			Infractions aux lois maritimes.
13		13			88		19	66	3	Délits ayant rapport à la corvée.
8		8			51		42	1	8	Menaces et langage injurieux.
1		1			2		1			Empiètement.
9	1	10			1		2			Vagabondage.
					2		2			Ivresse.
					2		2			Exposition indécente.
49		49			10		7		3	Langage insultant, obscène, profane.
					1		1			Tenant, habitant et fréquentant des maisons de désordre.
					2	1			3	Conduite déréglée.
										Infractions aux lois des poids et mesures.
										Aliénation mentale.
212	3	215			318	10	215	80	33	Totaux.

c Ordered to pay \$2 per week.—Condamné à payer \$2 per semaine.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.									
	WELLINGTON.				WENTWORTH.					
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
	Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.					
Adulteration of food	21		19	1	1	108	10	117		1
Assaults	3		2		1					
Breach of peace					1			1		
Carrying fire-arms and unlawful weapons.										
Contempt of court					2			2		
Cruelty to animals	2		2					1		1
Disturbing religious and like meetings					1			1		1
Fishery Acts, offences against					1			1		
Gambling Acts	1		1							
Game Laws								2		2
Larceny								7		7
“ of dogs, birds, &c	1		1					6		6
“ of timber, trees, fruits, &c.					3			2		1
Liquor License Acts, offences against	11	3	14		16	2		18		
Breach of Canada Temperance Act.										
Selling liquor during prohibited hours					3			3		
“ to Indians.										
“ without license	1		1		1			1		
Malicious injury to property	1		1							
Other damage to property					27			22		1
Master's and Servant's Acts, offences against	1		1							4
Medical and Dentistry Acts, offences against										
Militia Acts										
Miscellaneous minor offences.										
Municipal Acts and By-Laws, breaches of	25	2	27		173	14		180		1
Exercising various callings without license.					2			2		
Health By-laws, offences against	1		1							
Highways, offences relating to	2		2		1					1
Neglecting to support family										
Pharmacy Acts, offences against										
Profanation of the Lord's Day	5		5		12			12		
Railway Acts, offences against					15			15		
Revenue Acts										
Seamen Acts										
Statute Labour, offences relating to										
Threats and abusive language	6		6		2			1		1
Trespass	4		4		49	4		53		
Vagrancy	8			8	73	6		67	11	1
Drunkenness	17		17		92	11		101	1	1
Indecent exposure										
Insulting, obscene and profane language	8		8		3	2		5		
Keeping, frequenting bawdy houses and inmates thereof.					16			16		
Loose, idle, disorderly	28	1	29		47	2		48		1
Weights and Measures Acts, offences against										
Insanity	1				1			2		2
Totals	147	6	141	9	3	646	69	682	16	17

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Fin.</i>										
YORK.					Totals of Ontario. Totaux d'Ontario.					OFFENSES.
Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
M.	F.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	M.	F.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
160	15	116	22	37	14	14	14	55	61	Falsification de substances alimentaires.
11		9		2	1618	89	166	5	14	Voies de fait.
9		7		2	37	21	33	1	3	Perturbation de la paix.
1		1			8		4			Port d'armes illégal.
93		91		2	184	1	178	1	6	Mépris de cour.
					74		67		6	Cruauté envers les animaux.
14		12		2	75		73		2	Perturbation de réunions religieuses et autres.
13	5	17		1	48	5	51		2	Infractions aux lois des pêcheries.
10		10			85		84		1	“ défendant le jeu de chasse.
1		1			46		46		2	Larcin.
12		8		4	29		26	1	7	Vol de chiens, oiseaux, etc.
69	15	81	3		44	1	37	1	4	“ bois, arbres, fruits, etc.
					448	36	465	15	4	Infractions aux lois des licences de boissons.
					12		12			Contraventions aux lois de tempérance du Canada.
					118	17	135			Vente de boissons durant les heures défendues
					44	1	37	7	1	“ aux Sauvages.
					57	9	64	2		“ sans licence.
29	6	20		15	106	7	97	1	15	Dommmages malicieux à la propriété.
8		5		3	137	4	122	8	11	Autres dommages à la propriété.
73	2	75			310	3	313			Infractions aux lois concernant les maîtres et serviteurs.
					17		17			Inf. aux lois concernant la méd. et les dent.
10		2		8	15		6		9	“ de la milice.
					7		6		1	Divers petits délits.
1100	56	1088	6	112	2561	120	2513	9	159	Contraventions aux lois municipales.
7		7			73	1	74			Pratiquant divers états sans licence.
5	1	6			48	3	51			Infractions aux lois sur l'hygiène publique.
3		3			141		138	1	2	Délits ayant rapport aux chemins publics.
5	4			9	19	9	4	3	21	Négligence de pourvoir aux besoins de la famille.
2	1	3			7	1	8			Infrac. aux lois concernant les pharmaciens.
7	2	9			133	4	136		1	Profanation du dimanche.
19		18		1	205		153	32	20	Infractions aux lois des chemins de fer.
2	2	4			14	2	16			Délits contre le revenu de l'Etat.
					18		18			Infractions aux lois maritimes.
15	1	8		8	219	25	205	7	32	Délits ayant rapport à la corvée.
216	7	160		63	517	15	446	2	84	Menaces et langage injurieux.
275	58	125	130	78	1470	157	655	844	128	Empiètement.
356	236	535	46	11	2310	314	2368	179	77	Vagabondage.
14	2	14		2	61	3	55	5	4	Ivresse.
8	2	9		1	264	44	298		10	Exposition indécente.
24	34	21	28	9	56	124	125	42	12	Langage insultant, obscène, profane.
										Tenant, habitant et fréquentant des maisons de désordre.
448	79	364	1	162	1113	107	1029	11	180	Conduite déréglée.
					3		3			Infractions aux lois des poids et mesures.
2				2	32	21			58	Aliénation mentale.
3021	58	2779	236	534	12965	4	11939	1238	932	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF MANITOBA. — PROVINCE DU MANITOBA.							
	CENTRAL—CENTRE.				EASTERN—EST.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur- option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.
		M.	F.			M.	F.	
Adulteration of food								
Assaults				31	1	30		2
Breach of peace	1	1						
Carrying fire-arms and unlawful weapons				1		1		
Contempt of court				3		3		
Cruelty to animals				2		2		
Disturbing religious and like meetings				7		7		
Fishery Acts, offences against				2		2		
Gambling Acts				7		7		
Game Laws				2		2		
Larceny								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against	5	5		9	1	10		
Breach of Canada Temperance Act.								
Selling liquor during prohibited hours.	3	3		3	1	4		
“ to Indians	1	1		7		5		2
“ without license	3	3		5		5		
Malicious injury to property				5	3	7		
Other damage to property				5	3	7		1
Master's and Servant's Acts, offences against	5	5		34	6	40		
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of	8	8		103	6	107		2
Exercising various callings without license	3	3		18		18		
Health By-laws, offences against				21	1	21		1
Highways, offences relating to	4	4		12		12		
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day				12	1	12		1
Railway Acts, offences against				8		8		
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language				2		2		
Trespass				12		8		4
Vagrancy	1			1	33	11		29
Drunkenness	65	1	66	422	85	479		28
Indecent exposure	1	1		1				1
Insulting, obscene and profane language	1		1					
Keeping, frequenting bawdy houses and inmates thereof				31	29	43		10
Loose, idle, disorderly	4	4		81	4	81		4
Weights and Measures Acts, offences against								
Insanity	2	2		4				
Totals	107	3	104	1	5	865	149	907
								42
								65

Criminal Statistics.

**TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.**

PROVINCE OF MANITOBA— <i>Concluded.</i>				PROVINCE DU MANITOBA— <i>Fin.</i>				OFFENSES.	
WESTERN—OUEST.				Totals of Manitoba Totaux de Manitoba.					
Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.				
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
M. | F.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	M. | F.	Sur option	Empri- sonnés sans option.	Re- mise, etc.		
7	7			38	1	37	2	Falsification de substances alimentaires.	
				1		1		Voies de fait.	
				1		1		Perturbation de la paix.	
				3		3		Port d'armes illégal.	
				2		2		Mépris de cour.	
				7		7		Cruauté envers les animaux.	
				2		2		Perturbation de réunions religieuses et autres.	
				7		7		Infractions aux lois des pêcheries.	
				2		2		“ défendant le jeu, de chasse.	
1	1			1		1		Larcin.	
				2		2		Vol de chiens, oiseaux, etc.	
2	2			2		2		“ bois, arbres, fruits, etc.	
				14	1	15		Infractions aux lois des licences de boissons.	
				6	1	7		Contraventions aux lois de tempérance du Canada.	
				8		8		Vente de boissons durant les heures défendues.	
				8		8	2	“ aux Sauvages. “ sans licence.	
				5	3	7		Dommmages malicieux à la propriété.	
				39	6	45	1	Autres dommages à la propriété.	
								Infractions aux lois concernant les maîtres et serveurs.	
								Inf. aux lois concernant la méd. et les dent. “ de la milice.	
				111	6	115	2	Divers petits délits.	
				21		21		Contraventions aux lois municipales.	
				21	1	21	1	Pratiquant divers états sans licence.	
				16		16		Infractions aux lois sur l'hygiène publique.	
								Délits ayant rapport aux chemins publics.	
								Négligence de pourvoir aux besoins de la famille.	
				12	1	12	1	Infractions aux lois concernant les pharmaciens.	
				8		8		Profanation du dimanche.	
								Infractions aux lois des chemins de fer.	
								Délits contre le revenu de l'Etat.	
								Infractions aux lois maritimes.	
								Délits ayant rapport à la corvée.	
1			1	3		2	1	Menaces et langage injurieux.	
				12		8	4	Empiètement.	
13	7		6	47	11	7	29	Vagabondage.	
				487	86	545	28	Ivresse.	
				2		1	1	Exposition indécente.	
				1		1		Langage insultant, obscène, profane.	
				31	29	43	7	Tenant, habitant et fréquentant des maisons de désordre.	
				85	4	85	4	Conduite déréglée.	
				2	2		4	Infractions aux lois des poids et mesures.	
								Aliénation mentale.	
24	17		7	996	162	1028	43	77 Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF BRITISH COLUMBIA.							
	PROVINCE DE LA COLOMBIE-BRITANNIQUE.							
	CLINTON.				VICTORIA.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Em- pri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.			
Adulteration of food								
Assaults	3		3					
Breach of peace								
Carrying fire-arms and unlawful weapons	1		1					
Contempt of court								
Cruelty to animals	1		1					
Disturbing religious and like meetings								
Fishery Acts, offences against								
Gambling Acts								
Game laws								
Larceny								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against								
Breach of Canada Temperance Act								
Selling liquor during prohibited hours								
“ to Indians	3		1		2			
“ without license								
Malicious injury to property								
Other damage to property	1		1					
Master's and Servant's Acts, offences against								
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of	3		3					
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to	3		2		1			
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language								
Trespass								
Vagrancy								
Drunkenness	23		11		9		3	
Indecent exposure	1		1					
Insulting, obscene and profane language								
Keeping, frequenting bawdy houses and inmates thereof	1	6	7					
Loose, idle, disorderly								
Weights and Measures Acts, offences against								
Insanity								
Totals	40	6	31		12		3	
					446	58	381	23
								100

a 2, Condemned to jail and fined.—Condannés à la prison et mis à l'amende.

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE OF BRITISH COLUMBIA— <i>Concluded.</i>					PROVINCE DE LA COLOMBIE-BRITANNIQUE— <i>Fin.</i>					OFFENSES.	
WESTMINSTER.				Totals of British Columbia.							
Sentence.				Sentence.							
Con- victions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- victions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- dam- na- tions.	Sur- option		Empri- sonnés sans option.	Re- mise, etc.
M.	F.			M.	F.						
60	2	58	2	2	97	5	89	5	8	Falsification de substances alimentaires.	
4		4			9		4		5	Voies de fait.	
1			1		5		4	1		Perturbation de la paix.	
					1		1			Port d'armes illégal.	
										Mépris de cour.	
										Cruauté envers les animaux.	
3		3			8		8			Perturbation de réunions religieuses et autres.	
12		12			14		14			Infractions aux lois des pêcheries.	
					1					" défendant le jeu.	
										" de chasse.	
										Larcin.	
1		1			7		7			Vol de chiens, oiseaux, etc.	
										" bois, arbres, fruits, etc.	
										Infractions aux lois des licences de boissons.	
										Contraventions aux lois de tempérance du Canada.	
29		17	11	1	62		48	13	1	Vente de boissons durant les heures défendues.	
										" aux Sauvages.	
										" sans licence.	
3		3			9		5	1	3	Dommages malicieux à la propriété.	
										Autres dommages à la propriété.	
1		1			2		2			Infractions aux lois concernant les maîtres et serviteurs.	
										Inf. aux lois concernant la méd. et les dent.	
										" de la milice.	
2		2			78	6	82		2	Divers petits délits.	
					9		9			Contraventions aux lois municipales.	
					5		5			Pratiquant divers états sans licence.	
					4		3	1		Infractions aux lois sur l'hygiène publique.	
1				1	4	2	4		2	Délits ayant rapport aux chemins publics.	
										Négligence de pourvoir aux besoins de la famille.	
										Infractions aux lois concernant les pharmaciens.	
2		2			2		2			Profanation du dimanche.	
1		1			3		3			Infractions aux lois des chemins de fer.	
12			7	5	12			7	5	Délits contre le revenu de l'Etat.	
										Infractions aux lois maritimes.	
5		1		4	7		2		5	Délits ayant rapport à la corvée.	
										Menaces et langage injurieux.	
59	2	1	26	34	74	2	1	38	37	Empiètement.	
230	55	245	9	31	480	100	448	21	111	Vagabondage.	
					17		15	2		Ivresse.	
4		3		1	4		3			Exposition indécente.	
2	53	55		4	61		62	2	1	Langage insultant, obscène, profane.	
				3	20		17			Tenant, habitant et fréquentant des maisons de désordre.	
20		17							3	Conduite déréglée.	
										Infractions aux lois des poids et mesures.	
1				1	1				1	Aliénation mentale.	
453	112	426	56	83	939	176	838	91	186	..... Totaux.	

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	THE TERRITORIES.									
	Alberta, Northern—Nord.					Alberta, Southern—Sud.				
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
	Con- dam- na- tions.	Sur- option	Emp- ris- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Emp- ris- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.					
Adulteration of food										
Assaults	45	3	38	6	4	13	10	1	2	
Breach of peace	3		3			7	6	1		
Carrying fire-arms and unlawful weapons	1		1							
Contempt of court	1	1	1			1		a1		
Cruelty to animals	6		6			1	1			
Disturbing religious and like meetings	1		1							
Fishery Acts, offences against										
Gambling Acts										
Game Laws	9		8		1	3		1	2	
Larceny	2		2							
“ of dogs, birds, &c										
“ of timber, trees, fruits, &c.										
Liquor License Acts, offences against	8	1	9			7	1	2	5	
Breach of Canada Temperance Act										
Selling liquor during prohibited hours						2	2			
“ to Indians	12	1	9	4		3		3		
“ without license	1		1							
Malicious injury to property				1		5	2	2	1	
Other damage to property	1					5	2	2	1	
Master's and Servant's Acts, offences against	5		d5			3	1	4		
Medical and Dentistry Acts, offences against										
Militia Acts										
Miscellaneous minor offences										
Municipal Acts and By-laws, breaches of	25		16	3	6	9	8		1	
Exercising various callings without license										
Health By-laws, offences against										
Highways, offences relating to	11		11			1	1			
Neglecting to support family										
Pharmacy Acts, offences against										
Profanation of the Lord's Day	3		3							
Railway Acts, offences against	43		23	20		15	3	10	2	
Revenue Laws										
Seamen Acts										
Statute Labour, offences relating to										
Threats and abusive language						5	1		4	
Trespass						1		1		
Vagrancy	44		4	33	7	5		5		
Drunkenness	114	6	93	26	1	40	1	34	5	
Indecent exposure	3		2	1		1	1			
Insulting, obscene and profane language	1		1			2	2			
Keeping, frequenting bawdy houses and inmates thereof						2	11	13		
Loose, idle, disorderly	3		3							
Weights and Measures Acts, offences against										
Insanity	6	2				8	2		2	
Totals	347	14	240	94	27	128	14	89	36	

d Ordered to pay, but no amount given.—Condamnés à payer, mais aucun montant indiqué.

a Both jail and fine.—Les deux : la prison et l'amende.

Criminal Statistics.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

LES TERRITOIRES.										OFFENSES.
Assiniboia, Eastern—Est.					Assiniboia, Western—Ouest.					
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			De- ferred &c.	De- ferred &c.	
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	M.	F.	
M.	F.			M.	F.					
33	2	34	1	19	17	2				Falsification de substances alimentaires.
1		1		1		1				Voies de fait.
1			1	1						Perturbation de la paix.
10		9	1	1	1					Port d'armes illégal.
1		1		7		3				Mépris de cour.
8		8		1		1				Cruauté envers les animaux.
6		6		2		2				Perturbation de réunions religieuses et autres.
1		1		1		1				Infractions aux lois des pêcheries.
8		8		1		1				“ défendant le jeu.
1		1		1		1				“ de chasse.
8		8		1		1				Larcin.
1		1		1		1				Vol de chiens, oiseaux, etc.
8		8		1		1				“ bois, arbres, fruits, etc.
1		1		1		1				Infractions aux lois des licences de boissons.
3		3		2		1	1			Contraventions aux lois de tempérance du Canada.
4		3	1	5		5				Vente de boissons durant les heures défendues.
15		15		1		1				“ aux Sauvages.
1		1		1		1				“ sans licence.
3		3		2		1	1			Dommmages malicieux à la propriété.
4		3	1	5		5				Autres dommages à la propriété.
15		15		1		1				Infractions aux lois concernant les maitres et serviteurs.
1		1		1		1				Inf. aux lois concernant la méd. et les dent.
24		24		3		3				“ la milice.
2		2		1		1				Divers petits délits.
1		1		1		1				Contraventions aux lois municipales.
7		4	1	2		2				Pratiquant divers états sans licence.
15		5	10	28		11	17			Infractions aux lois sur l'hygiène publique.
1		1		1		1				Délits ayant rapport aux chemins publics.
2		2		2		2				Négligence de pourvoir aux besoins de la famille.
1		1		1		1				Infractions aux lois concernant les pharmaciens.
33		33		12	1	6	7			Profanation du dimanche.
27		26	1	17		12	3	2		Infractions aux lois des chemins de fer.
2		2		2		2				Délits contre le revenu de l'Etat.
2		2		2		2				Infractions aux lois maritimes.
2		2		2		2				Délits ayant rapport à la corvée.
1		1		1		1				Menaces et langage injurieux.
33		33		12	1	6	7			Empiètement.
27		26	1	17		12	3	2		Vagabondage.
2		2		2		2				Ivresse.
2		2		2		2				Exposition indécente.
2		2		2		2				Langage insultant, obscène, profane.
4	3		7	7						Tenant, habitant et fréquentant des maisons de désordre.
1		1		1		1				Conduite déréglée.
4		4		4		4				Infractions aux lois des poids et mesures.
1		1		1		1				Aliénation mentale.
212	5	159	46	12	110	1	67	29	15	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	THE TERRITORIES— <i>Concluded.</i>							
	LES TERRITOIRES— <i>Fin</i>							
	SASKATCHEWAN.				Totals of the Territories.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
M.	F.			M.	F.			
Adulteration of food								
Assaults	6		6		116	5	105	7
Breach of peace	5		4	1	16		14	2
Carrying fire-arms and unlawful weapons					2		1	1
Contempt of court					2	1	1	2
Cruelty to animals					18		17	1
Disturbing religious and like meetings					2		2	
Fishery Acts, offences against								
Gambling Acts					7		3	4
Game Laws	1			1	22		17	1
Larceny					10		10	
“ of dogs, birds, &c.					1		1	
“ of timber, trees, fruits, &c.					1		1	
Liquor License Acts, offences against	1		1		25	2	21	5
Breach of Canada Temperance Act								1
Selling liquor during prohibited hours					3		3	
“ to Indians	4		4		24	1	17	8
“ without license					1		1	
Malicious injury to property								
Other damage to property	1		1		16		11	3
Master's and Servant's Acts, offences against	1		1		24	2	26	2
Medical and Dentistry Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-Laws, breaches of	5	1	6		66	1	57	3
Exercising various callings without license					2		2	7
Health By-laws, offences against								
Highways, offences relating to	1		1		14		14	
Neglecting to support family								
Pharmacy Acts, offences against					1		1	
Profanation of the Lord's Day					10		7	1
Railway Acts, offences against					101		42	57
Revenue Laws								2
Seamen Acts								
Statute Labour, offences relating to								
Threats and abusive language	3			3	12		4	4
Trespass	6		5	1	8		6	2
Vagrancy	2			2	96	1	10	80
Drunkenness	20		14	5	218	7	179	39
Indecent exposure					6		5	1
Insulting, obscene and profane language					5		5	
Keeping, frequenting bawdy houses and inmates thereof	1		1		3	11	14	
Loose, idle, disorderly					3		3	
Weights and Measures Acts, offences against								
Insanity	2				2	21	5	26
Totals	58	2	44	12	4	855	36	599
								217
								75

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

GRAND TOTALS—GRANDS TOTAUX.										
PRINCE EDWARD ISLAND. — ILE DU PRINCE-EDOUARD.					NOVA SCOTIA. — NOUVELLE-ECOSSE.					
Con- vic- tions Total		Sentence.			Con- vic- tions Total		Sentence.			OFFENSES.
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.			Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.		
		M.	F.	M.	F.	M.	F.			
30	1	30	1		182	22	183	5	16	Falsification de substances alimentaires.
2		2			52	32	81	3		Voies de fait.
1		1			5		4	1		Perturbation de la paix.
					3		3			Port d'armes illégal.
2		2			10		10			Mépris de cour.
1		1			11		11			Cruauté envers les animaux.
										Perturbation de réunions religieuses et autres.
					2		2			Infractions aux lois des pêcheries.
										" défendant le jeu.
					5		5			" de chasse.
										Larcin.
					2		2			Vol de chiens, oiseaux, etc.
										" bois, arbres, fruits, etc.
60	10	50	20		66	10	76			Infractions aux lois des licences de boissons.
					64	6	65	5		Contraventions aux lois de tempérance du Canada.
										Vente de boissons durant les heures défendues.
					1		1			" aux Sauvages.
					44	2	46			" sans licence.
10		10			6		5		1	Dommages malicieux à la propriété.
2		2			30	3	32	1		Autres dommages à la propriété.
					4		4			Infractions aux lois concernant les maîtres et serviteurs.
										Inf. aux lois concernant la méd. et les dent.
										" de la milice.
12		12			255	11	227	39		Divers petits délits.
					25		25			Contraventions aux lois municipales.
					2		2			Pratiquant divers états sans licence.
1		1			18		18			Infractions aux lois sur l'hygiène publique.
					1			1		Délits ayant rapport aux chemins publics.
										Négligence de pourvoir aux besoins de la famille.
2		2			2		2			Infractions aux lois concernant les pharmaciens.
										Profanation du dimanche.
					3			3		Infractions aux lois des chemins de fer.
					31		2	18	11	Délits contre le revenu de l'Etat.
										Infractions aux lois maritimes.
2		2			39	7	32		14	Délits ayant rapport à la corvée.
					4		4			Menaces et langage injurieux.
1	2				11	2	7	5	1	Empiètement.
125	4	129	3		1508	143	1578	41	32	Vagabondage.
										Ivresse.
1		1			270	72	342			Exposition indécente.
					1	5	3	3		Langage insultant, obscène, profane.
										Tenant, habitant et fréquentant des maisons de désordre.
2		2			60	10	70			Conduite déréglée.
										Infractions aux lois des poids et mesures.
										Aliénation mentale.
254	17	247	24	...	2717	222	2842	122	78	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	GRAND TOTALS—Continued.									
	NEW BRUNSWICK. — NOUVEAU-BRUNSWICK.					QUEBEC.				
	Con- victions Total	Sentence.			Con- victions Total	Sentence.				
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.		
M.	F.			M.	F.					
Adulteration of food										
Assaults	206	15	212	4	5	558	53	525	43	43
Breach of peace	7		2		5	214	14	161	55	12
Carrying fire-arms and unlawful weapons						15		9		6
Contempt of court										
Cruelty to animals	4		4			140		135		15
Disturbing religious and like meetings	12		12			10	1	10		1
Fishery Acts, offences against	1		1			12		12		
Gambling Acts	3		3			5		5		
Game Laws						20		20		
Larceny						16	1	16		1
“ of dogs, birds, &c.										
“ of timber, trees, fruits, &c.	1		1							
Liquor License Acts, offences against	99	42	141			90	16	93	9	4
Breach of Canada Temperance Act	212	39	250	1		1		1		
Selling liquor during prohibited hours	14	2	16			50	11	58	2	1
“ to Indians										
“ without license	17	10	27			134	82	216		
Malicious injury to property	15		15			134	25	146	3	10
Other damage to property	16	3	17	1	1	23	1	22	1	1
Master's and Servant's Acts, offences against						4		4		
Medical and Dentistry Acts, offences against						3		2		1
Militia Acts						1				1
Miscellaneous minor offences	2				2					
Municipal Acts and By-laws, breaches of	37		36	1		487	3	487	1	2
Exercising various callings without license	1		1			96	11	106	1	
Health By-laws, offences against	2		2			5		5		
Highways, offences relating to	10		10			25		25		
Neglecting to support family						1		1		
Pharmacy Acts, offences against						3		3		
Profanation of the Lord's Day	5		5							
Railway Acts, offences against	14		13		1	4		4		
Revenue Laws						45	1	35	10	1
Seamen Acts	1			1		28			26	2
Statute Labour, offences relating to										
Threats and abusive language	21	3	21	2	1	23	5	22	1	5
Trespass						41		39		2
Vagrancy	41	21	22	31	9	1570	391	1383	243	335
Drunkenness	1140	98	1191	42	5	3879	396	3701	128	446
Indecent exposure	1		1			19		15	1	3
Insulting, obscene and profane language	18	3	21			37		36	1	
Keeping, frequenting bawdy houses and inmates thereof	5	17	20	2		117	208	208	61	56
Loose, idle, disorderly	22		20	1	1	282	5	282	2	3
Weights and Measures Acts, offences against										
Insanity						1				1
Totals	1927	324	2064	86	31	8093	324	7777	588	952

Criminal Statistics.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

GRANDS TOTAUX— <i>Suite.</i>										OFFENSES.
ONTARIO.					MANITOBA.					
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			Con- dam- na- tions.	De- fer- ré &c.	
	Op- tion of a fine.	Com- mitted without option.	De- fer- ré &c.		Op- tion of a fine.	Com- mitted without option.	De- fer- ré &c.			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.			
M.	F.			M.	F.					
14		14								Falsification de substances alimentaires.
1618	89	1591	55	61	38	1	37		2	Voies de fait.
164	21	166	5	14	1		1			Perturbation de la paix.
37		33	1	3	1		1			Port d'armes illégal.
8		4	4							Mépris de cour.
184	1	178	1	6	3		3			Cruauté envers les animaux.
74		67	1	6	2		2			Perturbation de réunions religieuses et autres.
75		73		2						Infractions aux lois des pêcheries.
48	5	51		2	7		7			“ défendant le jeu.
85		84		1	2		2			“ de chasse.
46		46		1	1		1			Larcin.
29		26	1	2						Vol de chiens, oiseaux, etc.
44	1	37	1	7	2		2			“ bois, arbres, fruits, etc.
448	36	465	15	4	14	1	15			Infractions aux lois des licences de boissons.
12		12								Contraventions aux lois de tempérance du Canada.
118	17	135			6	1	7			Vente de boissons durant les heures défendues
44	1	37	7	1	8		6		2	“ aux Sauvages.
57	9	64	2		8		8			“ sans licence.
106	7	97	1	15						Dommmages malicieux à la propriété.
137	4	122	8	11	5	3	7		1	Autres dommages à la propriété.
310	3	313			39	6	45			Infractions aux lois concernant les maîtres et serviteurs.
17		17								Inf. aux lois concernant la méd. et les dent.
15		6		9						“ de la milice.
7		6	1							Divers petits délits.
2561		2513	9	159	111	6	115		2	Contraventions aux lois municipales.
73	120	74			21		21			Pratiquant divers états sans licence.
48	3	51			21	1	21		1	Infractions aux lois sur l'hygiène publique.
141		138	1	2	16		16			Délits ayant rapport aux chemins publics.
19	9	4	3	21						Négligence de pourvoir aux besoins de la famille.
7	1	8								Infrac. aux lois concernant les pharmaciens.
133	4	136		1	12	1	12		1	Profanation du dimanche.
205		153	32	20	8		8			Infractions aux lois des chemins de fer.
14	2	16								Délits contre le revenu de l'Etat.
18		18								Infractions aux lois maritimes.
219		205	7	32	3		2		1	Délits ayant rapport à la corvée.
517	25	446	2	84	12		8		4	Empiètement.
1470	15	655	844	128	47	11	7		29	Vagabondage.
2310	157	2368	179	77	487	86	545		28	Ivresse.
61	314	55	5	4	2		1		1	Exposition indécente.
264	4	298		10	1		1		1	Langage insultant, obscène, profane.
55	124	125	42	12	31	23	43		10	Tenant, habitant et fréquentant des maisons de désordre.
1113	107	1029	11	180	85	4	85		4	Conduite déréglée.
3		3								Infractions aux lois des poids et mesures.
37	21			58	2	2			4	Aliénation mentale.
12965	1144	11939	1238	932	996	53	1028		43	.....Totaux.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

OFFENCES.	GRAND TOTALS— <i>Concluded.</i>									
	BRITISH COLUMBIA. — COLOMBIE-BRITANNIQUE.					THE TERRITORIES. — LES TERRITOIRES.				
	Con- vic- tions Total Con- dam- na- tions.	Sentence.				Con- vic- tions Total Con- dam- na- tions.	Sentence.			
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	De- ferred &c.
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Re- mise, etc.
M.	F.				M.	F.				
Adulteration of food										
Assaults	97	5	89	5	8	116	5	105	7	9
Breach of peace	9		4		5	16		14	2	
Carrying fire-arms and unlawful weapons	5		4	1		2		1	1	
Contempt of court						2	1	1	2	
Cruelty to animals	1		1			18		17	1	
Disturbing religious and like meetings						2		2		
Fishery Acts, offences against						7		3		4
Gambling Acts	8		8			7		3		4
Game Laws	14		14			22		17	1	4
Larceny	1				1	10		10		
“ of dogs, birds, &c.						1		1		
“ of timber, trees, fruits, &c.						1		1		
Liquor License Acts, offences against	7		7			25	2	21	5	1
Breach of Canada Temperance Act.										
Selling liquor during prohibited hours.						3		3		
“ to Indians	62		48	13	1	24	1	17	8	
“ without license						1		1		
Malicious injury to property						16		11	3	2
Other damage to property	9		5	1	3	24	2	26		
Master's and Servant's Acts, offences against										
Medical and Dentistry Acts, offences against	2		2							
Militia Acts										
Miscellaneous minor offences										
Municipal Acts and By-laws, breaches of	78	6	82		2	66	1	57	3	7
Exercising various callings without license	9		9			2		2		
Health By-laws, offences against	5		5							
Highways, offences relating to	4		3	1		14		14		
Neglecting to support family	4	2	4		2					
Pharmacy Acts, offences against						1		1		
Profanation of the Lord's Day						10		7	1	2
Railway Acts, offences against	2		2			101		42	57	2
Revenue Laws	3		3							
Seamen Acts	12			7	5					
Statute Labour, offences relating to										
Threats and abusive language	7		2		5	12		4	4	4
Trespass						8		6	2	
Vagrancy	74	2	1	38	37	96	1	10	80	7
Drunkenness	480	100	448	21	111	218	7	179	39	7
Indecent exposure	17		15	2		6		5	1	
Insulting, obscene and profane language	4		3		1	5		5		
Keeping, frequenting bawdy houses and inmates thereof	4	61	62	2	1	3	11	14		
Loose, idle, disorderly	20		17		3	3		3		
Weights and Measures Acts, offences against										
Insanity	1				1	21	5			26
Totals	939	161	888	91	186	855	36	599	217	75

Criminal Statistics.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

GRANDS TOTAUX— <i>Fin.</i>					
CANADA.					
Convictions.		SENTENCE.			OFFENSES.
Total.		Option of a fine. — Sur option.	Committed without option.	Deferred, &c.	
Condamnations.			Emprisonnés sans option.	Remise, etc.	
M.	F.				
14		14			Falsification de substances alimentaires.
2,845	191	2,772	120	144	Voies de fait.
465	67	431	65	36	Perturbation de la paix.
66		53	4	9	Port d'armes illégal.
13	1	8	6		Mépris de cour.
362	1	340	2	21	Cruauté envers les animaux.
112	1	105	1	7	Perturbation de réunions religieuses et autres.
88		86		2	Infractions aux lois des pêcheries.
80	5	79		6	“ défendant le jeu.
143		137	1	5	“ de chasse.
79	1	78		2	Larcin.
29		26	1	2	Vol de chiens, oiseaux, etc.
50	1	43	1	7	“ bois, arbres, fruits, etc.
749	107	818	29	9	Infractions aux lois des licences de boissons.
349	55	378	26		Contraventions aux lois de tempérance du Canada.
191	31	219	2	1	Vente de boissons durant les heures défendues.
139	2	109	30	2	“ aux Sauvages.
261	103	362	2		“ sans licence.
271	32	273	4	26	Domages malicieux à la propriété.
238	14	218	15	19	Autres dommages à la propriété.
381	11	392			Infractions aux lois concernant les maîtres et serviteurs.
22		21		1	Inf. aux lois concernant la méd. et les dent. de la milice.
16		6		10	
9		6	1	2	Divers petits délits.
3,607	147	3,529	53	172	Contraventions aux lois municipales.
227	12	238	1		Pratiquant divers états sans licence.
83	4	86		1	Infractions aux lois sur l'hygiène publique.
229		225	2	2	Délits ayant rapport aux chemins publics.
25	11	9	4	23	Négligence de pourvoir aux besoins de la famille.
11	1	12			Infract. aux lois concernant les pharmaciens.
164	5	164	1	4	Profanation du dimanche.
334		222	89	23	Infractions aux lois des chemins de fer.
65	3	54	10	4	Délits contre le revenu de l'Etat.
72		2	52	18	Infractions aux lois maritimes.
18		18			Délits ayant rapport à la corvée.
326	40	290	14	62	Menaces et langage injurieux.
582	15	503	4	90	Empiètement.
3,310	587	2,085	1,273	539	Vagabondage.
10,147	1,148	10,139	450	706	Ivresse.
106	3	92	10	7	Exposition indécente.
600	119	706	2	11	Langage insultant, obscène, profane.
216	455	475	120	76	Tenant, habitant et fréquentant des maisons de désordre.
1,587	126	1,508	14	191	Conduite déréglée.
3		3			Infractions aux lois des poids et mesures.
62	29			91	Aliénation mentale.
28,746	3,328	27,334	2,409	2,331	..... Totaux.

Criminal Statistics.

TABLE IV.

NUMBER OF PERSONS FINED AND AMOUNTS OF FINES.

TABLEAU IV.

NOMBRE DE PERSONNES MISSES À L'AMENDE ET MONTANTS
DES AMENDES.

TABLE IV.—NUMBER OF PERSONS FINED AND AMOUNTS OF FINES.

OFFENCES.	P. E. ISLAND. — ILE DU P.-E.		NOVA SCOTIA. — NOUV.-ECOSSE		N. BRUNSWICK		QUEBEC.		ONTARIO.	
	No. of persons fined.	Am't of fines, costs or damage.	No. of persons fined.	Am't of fines, costs or damage.	No. of persons fined.	Am't of fines, costs or damage.	No. of persons fined.	Am't of fines, costs or damage.	No. of persons fined.	Am't of fines, costs or damage.
	Nom- bre de per- sonnes mises à l'a- mende	Mon- tants des amen- des, frais ou dom- mages.	Nom- bre de per- sonnes mises à l'a- mende	Mon- tants des amen- des, frais ou dom- mages.	Nom- bre de per- sonnes mises à l'a- mende	Mon- tants des amen- des, frais ou dom- mages	Nom- bre de per- sonnes mises à l'a- mende	Mon- tants des amen- des, frais ou dom- mages.	Nom- bre de per- sonnes mises à l'a- mende	Mon- tants des amen- des, frais ou dom- mages.
				\$		\$		\$		\$
Adulteration of food.....			183	881	212	1946	525	2544	14	274
Assaults.....	30	96	81	320	2	16	161	552	1591	6496
Breach of peace.....	2	7	4	69			9	58	f168	846
Carry'g fire-arms & unlawf. weapons	i	20	3	30					33	423
Contempt of court.....			3	30					4	15
Cruelty to animals.....	2	14	10	73	4	80	125	453	178	762
Disturb'g religious & like meetings	1	5	11	59	12	46	10	25	67	259
Fishery Acts, offences against.....					1	20	12	48	73	416
Gambling Acts.....			2	8	3	3	5	350	51	575
Game Laws.....							20	69	84	970
Larceny.....			5	27			16	55	46	133
“ of dogs, birds, &c.....									26	73
“ of timber, trees, fruits, &c.....			2	3	1	2			37	110
Liq. License Acts, offences against			76	2355	141	3859	93	10240	465	11502
Breach of Canada Temperance Act.	50	2828	65	3632	250	12386	1	50	12	360
Selling liq. during prohib'd hours					16	930	58	4345	135	3171
“ to Indians.....			1	150					g38	2205
“ without license.....			46	2300	27	1305	216	23460	64	3461
Malicious injury to property.....	10	35	5	25	15	86	146	1145	97	593
Other damage to property.....	2	11	32	191	17	184	22	76	122	547
Master's and Servant's Acts, offences against.			m4				4	26	m313	4253
Medical & Dent'y Acts, off. against							2	50	17	455
Militia Acts, offences against.....									6	35
Miscellaneous minor offences.....									6	17
Munic. Acts & By-laws, breaches of	12	17	277	437	36	244	487	1876	2513	5469
Exerc'g various callings with't lic.			25	73	1	11	106	665	74	888
Health By-laws, offences against			2	4	2	8	5	24	51	149
Highways, offences relating to...	1	1	18	48	10	58	25	85	138	347
Neglecting to support family.....							1	5	n4	29
Pharmacy Acts, offences against.....							3	75	8	143
Profanation of the Lord's Day.....	2	50	2	8	5	10			136	424
Railway Acts, offences against.....					13	27	4	8	153	532
Revenue Laws.....							a45	4178	16	858
Seamen Acts.....			2	7						
Statute Labour, offences relating to									18	45
Threats and abusive language.....	2	9	32	136	21	112	22	242	205	764
Trespass.....			4	6			39	97	446	1361
Vagrancy.....			7	44	22	319	b1483	4696	b671	2784
Drunkenness.....	129	877	1578	4889	1191	5786	c3786	10379	f2370	6686
Indecent exposure.....					1	25	15	296	g56	203
Insulting, obscene and profane language.	1	5	342	694	21	122	36	200	298	859
Keeping, frequenting bawdy houses and inmates thereof.			3	65	20	900	d260	6198	g114	2388
Loose, idle, disorderly.....	2	10	70	206	20	45	282	1696	1030	3016
Weights & Meas. Acts, offenc. ag'st									3	27
Totals.....	247	3985	2842	16740	2064	29030	e8024	74266	f11951	64923

a 10, b 100, c 85, d 52, e 247, f 2, g 1, h 5, i 12—Committed to jail and fined.—Emprisonnés et mis à l'amende.

m 6.—Ordered to pay but no amount given.—Condamnés à payer, le montant non indiqué.

n 2.—Ordered to pay \$2 per week.—Condamnés à payer \$2 par semaine.

Criminal Statistics.

TABLEAU IV.—NOMBRE DE PERSONNES MISES A L'AMENDE ET MONTANTS DES AMENDES.

MANITOBA.		BRIT. COLUMBIA COL.-BRITAN.		N. W. TER. TER. DU N.-O.		CANADA.		OFFENSES.
No. of persons fined.	Am't of fines, costs or dam- age.	No. of persons fined.	Am't of fines, costs or dam- age.	No. of persons fined.	Am't of fines, costs or dam- age.	Number of persons fined.	Amount of fines, costs or damage.	
— Nom- bre de per- sonnes mises à l'a- mende.	— Mon- tants des amen- des, frais ou dom- mages.	— Nom- bre de per- sonnes mises à l'a- mende.	— Mon- tants des amen- des, frais ou dom- mages.	— Nom- bre de per- sonnes mises à l'a- mende.	— Mon- tants des amen- des, frais ou dom- mages.	— Nom- bre de per- sonnes mises à l'amende	— Mon- tants des amen- des, frais ou dom- mages.	
—	\$	—	\$	—	\$	—	\$	
						14	\$ 274	Falsification de substances alimentaires.
37	269	89	735	105	589	2772	13556	Voies de fait.
1	10	4	30	14	45	a133	1826	Perturbation de la paix.
1	10	4	60	1	5	53	645	Port d'armes illégal.
				b2	18	69	63	Mépris de cour.
3	28	1	10	17	113	340	1533	Cruauté envers les animaux.
2	7			2	10	105	411	Perturbation de réunions religieuses et autres
						86	484	Infractions aux lois des pêcheries.
7	214	8	173	3	30	79	1353	“ défendant le jeu.
2	20	14	303	17	107	137	1469	“ de chasse.
1	4			10	60	78	279	Larcin.
						26	73	Vol de chiens, oiseaux, etc.
2	8			1	5	43	128	“ bois, arbres, fruits, etc.
15	389	7	339	21	636	818	29320	Infractions aux lois des licences de boissons.
						378	19756	Contraventions aux lois de tempérance du
								Canada.
7	513			3	150	219	9109	Vente de boissons durant les heures défendues.
6	435	48	2495	17	1150	1110	6435	“ aux Sauvages.
8	1425			1	50	362	32001	“ sans licence.
						273	1884	Dom-mages malicieux à la propriété.
7	59	5	67	11	57	218	1192	Autres dom-mages à la propriété.
45	1084			j26	327	k392	5690	Infractions aux lois concernant les maîtres et
								serveurs.
		2	78			21	583	Inf. aux lois concernant la méd. et les dent.
						6	35	“ de la milice.
						6	17	Divers petits délits.
115	467	82	565	57	379	3529	9454	Contraventions aux lois municipales.
21	172	9	80	2	12	238	1901	Praticquant divers états sans licence.
21	79	5	56			86	320	Infractions aux lois sur l'hygiène publique.
16	63	3	18	14	30	225	650	Délits ayant rapport aux chemins publics.
		4	41			9	75	Négligence de pourvoir aux besoins de la
								famille.
				1	25	12	243	Infrac. aux lois concernant les pharmaciens.
12	31			7	10	164	533	Profanation du dimanche.
8	38	2	20	42	178	222	803	Infractions aux lois des chemins de fer.
		3	22			d64	5058	Délits contre le revenu de l'Etat.
						2	7	Infractions aux lois maritimes.
						18	45	Délits ayant rapport à la corvée.
2	8	2	27	4	12	290	1310	Menaces et langage injurieux.
8	33			6	15	503	1512	Empiètement.
7	27	1	8	10	47	e2190	7925	Vagabondage.
545	1751	448	3435	179	670	f10226	34473	Ivresse.
1	3	a17	390	5	57	g95	974	Exposition indécente.
		3	11	5	37	706	1928	Langage insultant, obscène, profane.
43	557	a64	1350	14	103	h530	11561	Tenant, habitant et fréquentant des maisons
								de désordre.
85	365	17	130	3	12	1508	5480	Conduite déréglée.
						3	27	Infractions aux lois des poids et mesures.
1028	8069	c842	10443	b605	4939	i27598	212395	..... Totaux.

a 2, b 1, c 4, d 10, e 105, f 87, g 3, h 55, i 264.—Committed to jail and fined.—Emprisonnés et mis à l'amende.

j 5, k 11.—Ordered to pay, but no amount given.—Condamnés à payer, le montant non indiqué.

Criminal Statistics.

TABLE V.

Statement showing by classes the Number of Convictions and the Proportion of each class per 10,000 of the population, for the years 1884 to 1896.

TABLEAU V.

Etat montrant le nombre de condamnations par classes, et la proportion de chaque classe par 10,000 de la population pour les années 1884 à 1896.

TABLE V.—STATEMENT showing by Classes the Number of Convictions and the Proportion of each Class per 10,000 of the Population for the Years 1884 to 1896.

PROVINCE OF P. E. ISLAND.—PROVINCE DU L'ILE DU PRINCE-EDOUARD.														
Classes.	1884-1886.		1887-1889.		1890-1892.		1893.		1894.		1895.		1896.	
	No. of convictions.	Proportion.	No. of convictions.	Proportion.	No. of convictions.	Proportion.	No. of convictions.	Proportion.	No. of convictions.	Proportion.	No. of convictions.	Proportion.	No. of convictions.	Proportion.
I.	190	5·81	126	3·85	151	4·61	32	2·93	57	5·22	58	5·31	46	4·21
II.	5	0·15	1	0·03	7	0·21	.....	.....	4	0·37	8	0·73	6	0·55
III.	47	1·44	44	1·35	42	1·28	16	1·47	22	2·01	19	1·74	17	1·56
IV.	6	0·18	1	0·03	14	0·42	8	0·73	11	1·01	2	0·18	10	0·92
V.	2	0·06	2	0·06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VI.	1633	49·95	1340	40·97	1394	42·60	303	27·77	367	33·63	287	26·30	226	20·70
Total..	1883	57·59	1514	46·28	1608	49·13	359	32·90	461	42·24	374	34·26	305	27·94
PROVINCE OF NOVA SCOTIA.—PROVINCE DE LA NOUVELLE-ECOSSE.														
I.	793	5·94	728	5·42	780	5·77	252	5·57	275	6·06	354	7·78	371	8·14
II.	41	0·31	41	0·30	42	0·31	29	0·64	18	0·39	13	0·29	16	0·35
III.	421	3·16	308	2·29	332	2·46	99	2·19	121	2·67	114	2·51	163	3·58
IV.	29	0·22	37	0·28	35	0·26	20	0·44	6	0·13	11	0·24	11	0·24
V.	.....	.....	5	0·04	6	0·04	5	0·11	2	0·04	.....	.....	1	0·02
VI.	3380	25·33	2723	20·27	3581	25·00	1549	34·22	2026	44·66	2685	59·06	2759	60·55
Total..	4664	34·96	3842	28·60	4576	33·84	1954	43·17	2448	53·95	3177	69·88	3321	72·88
PROVINCE OF NEW BRUNSWICK.—PROVINCE DU NOUVEAU-BRUNSWICK.														
I.	986	10·23	979	10·16	942	9·77	256	7·96	264	8·22	268	8·34	290	9·03
II.	20	0·21	19	0·19	19	0·20	3	0·09	9	0·28	12	0·37	3	0·09
III.	207	2·16	156	1·62	182	1·89	53	1·65	43	1·34	64	1·99	85	2·65
IV.	77	0·79	71	0·73	56	0·58	29	0·90	32	0·99	11	0·34	15	0·47
V.	2	0·02	2	0·02	1	0·01	1	0·03	.....	.....	.....	.....	.....	.....
VI.	5384	55·86	4951	51·37	6204	64·37	2081	64·77	1857	57·80	1875	58·36	1904	59·26
Total..	6676	69·27	6178	64·09	7404	76·82	2423	75·42	2205	68·63	2230	69·41	2297	71·50
PROVINCE OF QUEBEC.—PROVINCE DE QUÉBEC.														
I.	3098	7·31	3980	9·13	3869	8·64	1287	8·47	1196	7·80	1025	6·61	968	6·20
II.	217	0·51	198	0·45	214	0·48	81	0·53	109	0·71	100	0·65	94	0·60
III.	2306	5·44	2875	6·60	3068	6·85	945	6·22	1166	7·60	1016	6·56	1108	7·10
IV.	28	0·07	41	0·09	42	0·09	37	0·24	10	0·07	170	1·10	15	0·10
V.	23	0·06	24	0·05	38	0·08	5	0·03	7	0·05	25	0·16	6	0·04
VI.	15595	36·77	20120	46·18	24306	54·29	7407	48·75	8359	54·52	9013	58·25	8546	54·73
Total..	21267	50·17	27238	62·52	31537	70·45	9762	64·25	10847	70·75	11349	73·35	10737	68·77
PROVINCE OF ONTARIO.—PROVINCE D'ONTARIO.														
I.	8938	14·86	8632	13·96	8207	12·91	2404	11·13	2434	11·17	2557	11·62	2467	11·11
II.	385	0·64	406	0·65	464	0·73	204	0·94	283	1·30	293	1·33	266	1·20
III.	5358	8·92	4641	7·50	4833	7·60	1703	7·89	1845	8·47	2127	9·67	2084	9·39
IV.	537	0·89	550	0·89	530	0·83	236	1·09	273	1·25	150	0·68	157	0·71
V.	76	0·13	78	0·13	64	0·10	25	0·12	21	0·10	32	0·15	66	0·30
VI.	40253	66·89	51867	83·86	43673	68·75	12790	59·24	11859	54·42	11522	52·39	11852	53·39
Total..	55547	92·32	66174	106·99	57771	90·93	17362	80·41	16715	76·71	16681	75·84	16892	76·10

Criminal Statistics.

TABLEAU V.—ETAT montrant le nombre de condamnations par classes et la proportion de chaque classe par 10,000 de la population pour les années 1884 à 1896.

PROVINCE OF MANITOBA.—PROVINCE DE MANITOBA.

Classes.	1884-1886.		1887-1889.		1890-1892.		1893.		1894.		1895.		1896.	
	No de con-dam-nations.	Pro-portion.	No. of con-vic-tions.	Pro-portion.	No de con-dam-nations.	Pro-portion.	No. of con-vic-tions.	Pro-portion.	No de con-dam-nations.	Pro-portion.	No. of con-vic-tions.	Pro-portion.	No de con-dam-nations.	Pro-portion.
I.	326	11·08	223	5·78	248	5·37	74	4·36	89	5·00	76	4·07	86	4·39
II.	17	0·56	27	0·69	21	0·46	11	0·65	10	0·56	12	0·64	7	0·36
III.	266	9·06	168	4·40	192	4·16	131	7·78	135	7·58	124	6·64	127	6·49
IV.	40	1·38	22	0·57	32	0·70	23	1·35	11	0·62	17	0·92	4	0·20
V.	6	0·20	6	0·16	10	0·22	4	0·24	5	0·28	1	0·05	5	0·26
VI.	4586	156·27	2308	60·63	2715	58·86	1057	62·27	926	52·02	955	51·16	1100	56·19
Total..	5241	178·55	2754	72·23	3218	69·77	1300	76·65	1176	66·06	1185	63·48	1329	67·89

PROVINCE OF BRITISH COLUMBIA.—PROVINCE DE LA COLOMBIE-BRITANNIQUE.

I.	179	8·80	219	8·92	340	11·23	156	13·61	130	10·59	152	11·56	160	11·37
II.	19	0·93	20	0·80	27	0·90	33	2·88	14	1·14	16	1·22	12	0·85
III.	189	9·27	202	8·26	233	7·86	137	11·95	171	13·93	216	16·43	166	11·79
IV.	11	0·52	18	0·74	7	0·23	19	1·66	31	2·53	23	1·75	3	0·21
V.	2	0·09	11	0·47	4	0·13	4	0·35	1	0·08	1	0·08	7	0·50
VI.	1381	68·43	1943	79·44	3146	104·79	1395	121·73	1090	88·81	1153	87·72	1014	72·04
Total..	1781	88·07	2413	98·62	3762	125·14	1744	152·18	1437	117·09	1561	118·76	1362	96·76

THE TERRITORIES.—LES TERRITOIRES.

I.	123	8·53	150	8·59	297	14·52	128	16·97	154	13·73	162	13·88	154	12·68
II.	11	0·80	8	0·47	16	0·80	1	0·13	3	0·27	7	0·60	4	0·33
III.	149	10·37	119	6·78	238	11·73	101	13·39	130	11·59	123	10·54	125	10·29
IV.	14	0·97	7	0·41	31	1·54	14	1·86	13	1·15	6	0·51	7	0·58
V.	3	0·21	2	0·11	...	...	2	0·26	1	0·09	2	0·17	2	0·16
VI.	683	47·37	644	36·92	1157	56·47	503	66·69	575	51·26	728	62·38	743	61·17
Total..	983	68·25	930	53·28	1739	85·06	749	99·30	876	78·09	1028	88·08	1035	85·22

CANADA.

I.	14633	10·75	15037	10·69	14834	10·20	4589	9·25	4599	9·16	4652	9·15	4544	8·87
II.	715	0·53	720	0·51	810	0·56	362	0·73	450	0·89	461	0·91	408	0·80
III.	8943	6·57	8513	6·05	9125	6·27	3185	6·41	3633	7·23	3803	7·48	3875	7·56
IV.	742	0·54	747	0·53	747	0·51	386	0·78	387	0·77	390	0·77	222	0·43
V.	114	0·08	130	0·09	123	0·08	46	0·09	37	0·07	61	0·12	87	0·17
VI.	72895	53·54	85896	61·07	85976	59·12	27085	54·59	27059	53·89	28218	55·51	28142	54·91
Total..	98042	72·01	111043	78·94	111615	76·75	35653	71·86	36165	72·02	37585	73·94	37278	72·74

TABLE VI.

SUMMARY CONVICTIONS AND CASES SUBJECT TO BE
TRIED BY JURY.

TABLEAU VI.

CONDAMNATIONS SOMMAIRES ET CAUSES DE LA
COMPÉTENCE D'UN JURÉ.

TABLE VI.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. DISTRICTS JUDICIAIRES.	Summary Convictions.			CASES SUBJECT TO BE TRIED BY JURY BUT TRIED SUMMARILY BY CONSENT.											
	Condamnations sommaires.			By Police or other Magistrate.						Under the Speedy Trials Act.					
				Par un Magistrat de Police ou autre.			En vertu de l'Acte des procès expéditifs.								
				Con- victions	Ac- quittals.	Totals.	Con- victions	Ac- quittals.	Totals.	Con- victions	Ac- quittals.	Totals.	Con- victions	Ac- quittals.	Totals.
	M.	F.	To- tals.	Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.
		To- taux.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	
King's, P.E.I.—I. du P.E.	3	3													
Prince, P.E.I.—I. du P.E.	5	5													
Queen's, P.E.I.—I. du P.E.	246	17	263	15	4	1	19	1							
Totals of P.E. Island.	254	17	271	15	4	1	19	1							
Totaux de l'I. du P.E.															
PROVINCE OF ONTARIO.															
Algoma and Manitoulin	90	6	96	15			15		6	1			6	1	
Brant	577	18	595	75	2	30	3	105	5	8		15		23	
Bruce	294	6	300	7				7	2	19		7	1	26	
Carleton	590	86	676	139	16	52	5	191	21	18		8		26	
Dufferin	73	10	83	3	1	1		4	1	1				1	
Elgin	242	12	254	18		13		31		18	1	14		29	
Essex	367	22	389	69	1			69	1	17	2	5		22	
Frontenac	196	12	208	26	1			26	1	13	2	1		14	
Grey	197	10	207	40		15	1	55	1	8	1			8	
Haldimand	61	4	65	10		1		11		16		7	2	23	
Halton	59	4	63	4				4		21		10		31	
Hastings	296	20	316	42	5	8	3	50	8	19		21		40	
Huron	65	2	67	1				1		15	1	6		21	
Kent	316	15	331	40		17	3	57	3	19	3	4		23	
Lambton	316	13	329							21	4	2		23	
Lanark	166	13	179							6		1		7	
Leeds and Grenville	356	16	372	30	1	6		36	1	11		3		14	
Lennox and Addington	66	2	68	5				5							
Lincoln	215	15	230	15		19		34		11		2	1	13	
Middlesex	516	38	554	65	8	26	2	91	10	29	3	23	1	52	
Muskoka and Parry Sound	144	14	158	1				1		21		3		24	
Nipissing	139	7	146	11	1			11	1	5	1	2		7	
Norfolk	115	8	123	10				10		9		7		16	
Northumberland & Durham	275	33	308	19	1	6		25	1	21	1	12	1	33	
Ontario	100	7	107	6				6		14				14	
Oxford	702	22	724	30		2	1	32	1	7		5		12	
Peel	50	4	54	1				1		5		2		7	
Perth	508	17	525	49	3	33	1	82	4	8	1			8	
Peterborough	255	8	263	32		17		49		6	1	1		7	
Prescott and Russell	32	3	35	1				1		1				1	
Prince Edward	43	3	46	7				7		3			1	3	
Renfrew	196	11	207	11	1	1		12	1	12		1		13	
Sincoe	362	35	397	30		1		31		43	1	13	1	56	
Storm't, D'das and Gleng'ry	149	11	160	4				4		7		2		9	
Thunder Bay & Rainy River	254	10	264	21		16		37						37	
Victoria	239	11	250	35	1	16	2	51	3	7		4		11	
Waterloo	212	3	215							28	2	6		34	
Welland	318	10	328	31		7		38		6	1	2		8	
Wellington	147	6	153	9	3	8		17	3	22				22	
Wentworth	646	69	715	192	16	119	7	311	23	18	1	9		27	
York	3021	528	3549	712	95	450	63	1162	158	25	2	8		33	
Totals of Ontario	12965	1144	14109	1816	158	864	91	2680	249	544	29	203	8	747	
Totaux d'Ontario														37	

Criminal Statistics.

TABLEAU VI.—CONDAMNATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE D'UN JURÉ.

CASES TRIED BY JURY.						TOTALS OF INDICTABLE OFFENCES.						GRAND TOTALS OF INDICTABLE OFFENCES AND SUMMARY CONVICTIONS.						Grand Totals of all offences.
CAUSES JUGÉES PAR JURÉS.						TOTALS DES DÉLITS SUJETS À POURSUITE.						GRANDS TOTALS DES DÉLITS SUJETS À POURSUITE ET DES CONDAMNATIONS SOMMAIRES.						
Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.			Grands Totaux de toutes les of- fences.
Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	Con- damna- tions.	Ac- quitte- ments.	
M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	
3	1	1	...	4	1	3	1	1	...	4	1	6	1	1	...	7	1	8
15	15	...	30	...	4	1	34	1	276	17	4	1	280	18	298
18	1	1	...	19	1	33	1	5	1	38	2	287	18	5	1	292	19	311
PROVINCE D'ONTARIO.																		
4	...	3	...	7	...	25	1	3	...	28	1	115	7	3	...	118	7	125
...	83	2	45	3	128	5	660	20	45	3	705	23	728
...	26	2	7	1	33	3	320	8	7	1	327	9	336
10	2	4	1	14	3	167	18	64	6	231	24	757	104	64	6	821	110	931
1	1	...	5	1	1	...	6	1	78	11	1	...	79	11	90
2	...	5	1	7	1	38	1	29	1	67	2	280	13	29	1	309	14	323
18	...	6	1	24	1	104	3	11	1	115	4	471	25	11	1	482	26	508
9	...	3	...	12	...	48	3	4	...	52	3	244	15	4	...	248	15	263
4	1	10	...	14	1	52	2	25	1	77	3	249	12	25	1	274	13	287
1	...	3	...	4	...	27	...	11	2	38	2	88	4	11	2	99	6	105
2	2	...	27	...	10	...	37	...	86	4	10	...	96	4	100
7	...	5	1	12	1	68	5	34	4	102	9	364	25	34	4	398	29	427
7	...	2	...	9	...	23	1	8	...	31	1	88	3	8	...	96	3	99
14	...	7	...	21	...	73	3	28	3	101	6	389	18	28	3	417	21	438
...	...	11	...	11	...	21	4	13	...	34	4	337	17	13	...	350	17	367
4	...	4	1	8	1	10	...	5	1	15	1	176	13	5	1	181	14	195
3	...	4	...	7	...	44	1	13	...	57	1	400	17	13	...	413	17	430
1	...	1	...	2	...	6	...	1	...	7	...	72	2	1	...	73	2	75
2	...	9	...	11	...	28	...	30	1	58	1	243	15	30	1	273	16	289
7	...	6	1	13	1	101	11	55	4	156	15	617	49	55	4	672	53	725
14	...	7	1	21	1	36	...	10	1	46	1	180	14	10	1	190	15	205
...	16	2	2	...	18	2	155	9	2	...	157	9	166
2	...	2	...	4	...	21	...	9	...	30	...	136	8	9	...	145	8	153
12	1	9	...	21	1	52	3	27	1	79	4	327	36	27	1	354	37	391
3	...	1	...	4	...	23	...	1	...	24	...	123	7	1	...	124	7	131
6	...	12	...	18	...	43	...	19	1	62	1	745	22	19	1	764	23	787
3	...	3	...	6	...	9	...	5	...	14	...	59	4	5	...	64	4	68
1	1	10	1	11	2	58	5	43	2	101	7	566	22	43	2	609	24	633
...	...	1	1	1	1	38	1	19	1	57	2	293	9	19	1	312	10	322
3	...	1	...	4	...	5	...	1	...	6	...	37	3	1	...	38	3	41
...	...	1	...	1	...	10	...	1	1	11	1	53	3	1	1	54	4	58
...	...	2	...	2	...	23	1	4	...	27	1	219	12	4	...	223	12	235
2	1	10	...	12	1	75	2	24	1	99	3	437	37	24	1	461	38	499
2	...	8	...	10	...	13	...	10	...	23	...	162	11	10	...	172	11	183
6	...	6	...	12	...	27	...	22	...	49	...	261	10	22	...	303	10	313
9	...	15	...	24	...	51	1	35	2	86	3	290	12	35	2	325	14	339
...	...	1	...	1	...	28	2	7	...	35	2	240	5	7	...	247	5	252
9	...	2	...	11	...	46	1	11	...	57	1	364	11	11	...	375	11	386
3	3	...	34	3	8	...	42	3	181	9	8	...	189	9	198
15	...	5	...	20	...	225	17	133	7	358	24	871	86	133	7	1004	93	1097
41	3	64	5	105	8	778	100	522	68	1300	168	3799	628	522	68	4321	696	5017
227	9	243	14	470	23	2587	196	1310	113	3897	309	15552	1340	1310	113	16862	1453	18315

TABLE VI.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. — DISTRICTS JUDICIAIRES.	Summary Convictions.			CASES SUBJECT TO BE TRIED BY JURY BUT TRIED SUMMARILY BY CONSENT. CAUSES DE LA COMPÉTENCE D'UN JURÉ MAIS JUGÉES SOMMAIREMENT DE CONSENTEMENT.											
	Condamnations sommaires.			By Police or other Magistrate. Par un Magistrat de Police ou autre.						Under the Speedy Trials Act. En vertu de l'Acte des procès expeditifs.					
				Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.	
				Con- damna- tions.		Ac- quitte- ments.		— Totaux.		Con- damna- tions.		Ac- quitte- ments.		— Totaux.	
	M.	F.	To- tals.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.
PROVINCE OF QUEBEC.															
Arthabaska	25	4	29							11	1			11	1
Beauce	23	4	27	1				1							
Beauharnois	24	4	28	1				1		5				5	
Bedford	1		1							9	2	4		13	2
Chicoutimi	7		7							1		1		2	
Gaspé	11		11	1	1	1		2	1						
Iberville	16	1	17	1				1		7	1			7	1
Joliette	11		11							3		4		7	
Kanouraska										1				1	
Montmagny	6		6												
Montreal	5953	1120	7073	794	91	40	3	834	94	140	9	37		177	9
Ottawa	163	13	176	3				3		3		1		4	
Pontiac	3		3	2		4		6		1		5		6	
Quebec	1371	45	1416	93	6	8		101	6	5				5	
Richelieu	137	2	139	20	1			20	1	8		3		11	
Rimouski	14	1	15	4				4		12	1	1		13	1
Saguenay	2		2												
St. Francis	221	16	237	17	1	21		38	1	18		4	1	22	1
St. Hyacinthe	32	6	38	9				9		4		6		10	
Terrebonne	4		4							4				4	
Three Rivers	69	8	77	10		6		16		9	1	12		21	1
Totals of Quebec	8093	1224	9317	956	100	80	3	1036	103	241	15	78	1	319	16
Totaux de Québec															
PROVINCE OF NEW BRUNSWICK															
Albert	17	7	24							1				1	
Carleton	117	4	121	3				3		1				1	
Charlotte	119		119	1				1				1		1	
Gloucester	24	2	26												
Kent	3		3												
King's						2		2							
Madawaska	2		2												
Northumberland	101	14	115	5				5		3		1		4	
Queen's															
Restigouche	23	1	24	1				1							
St. John	956	169	1125	39	4	22	7	61	11						
Sunbury										1				1	
Victoria										2				2	
Westmoreland	220	37	257	16		14	2	30	2	14				14	
York	345	20	365	7	1			7	1	1		3		4	
Totals of New Brunswick	1929	254	2181	72	5	38	9	110	14	23		5		28	
Totaux du N.-Brunswick															

Criminal Statistics.

TABLEAU VI.—CONDAMNATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE D'UN JURE.

CASES TRIED BY JURY. — CAUSES JUGÉES PAR JURÉS.						TOTALS OF INDICTABLE OFFENCES. — TOTALS DES DÉLITS SUJETS A POURSUITE.						GRAND TOTALS OF INDICTABLE OFFENCES AND SUMMARY CONVICTIONS. — GRAND TOTALS DES DÉLITS SUJETS A POURSUITE ET DES CONDAMNATIONS SOMMAIRES.						Grand Totals of all offences. — Grands Totaux de toutes les offences.
Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.		
Con- damna- tions.	Ac- quitte- ments.	— Totaux.		Con- damna- tions.	Ac- quitte- ments.	— Totaux.		Con- damna- tions.	Ac- quitte- ments.	— Totaux.		Con- damna- tions.	Ac- quitte- ments.	— Totaux.				
M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	
PROVINCE DE QUÉBEC.																		
						11	1			11	1	36	5			36	5	
						1				1		24	4			24	4	
1						7				7		31	4			31	4	
						9	2	4		13	2	10	2	4		14	2	
						1		1		2		8		1		9		
						1	1	1		2	1	12	1	1		13	1	
						8	1			8	1	24	2			24	2	
						3		4		7		14		4		18		
						1				1		1				1		
												6				6		
76		43	2	119	2	1010	100	120	5	1130	105	6963	1220	120	5	7083	1225	
2	1	4	1	6	2	8	1	5	1	13	2	171	14	5	1	176	15	
						3		9		12		6		9		15		
4		15		19		102	6	23		125	6	1473	51	23		1496	51	
						28	1	3		31	1	165	3	3		168	3	
						16	1	1		17	1	30	2	1		31	2	
												2				2		
13		4	1	17	1	48	1	29	2	77	3	269	17	29	2	298	19	
						13		6		19		45	6	6		51	6	
10	1			10	1	14	1			14	1	18	1			18	1	
						19	1	18		37	1	88	9	18		106	9	
106	2	66	4	172	6	1303	117	224	8	1527	125	9396	1341	224	8	9620	1349	
PROVINCE DU NOUVEAU BRUNSWICK.																		
1				1		2				2		19	7			19	7	
2				2		6				6		123	4			123	4	
						1		1		2		120		1		121		
												24	2			24	2	
												3				3		
		1		1				3		3				3		3		
												2				2		
		1	1	1	1	8		2	1	10	1	109	14	2	1	111	15	
						1				1		24	1			24	1	
3		1		4		42	4	23	7	65	11	998	173	23	7	1021	180	
1				1		2				2		2				2		
4		1		5		6		1		7		6		1		7		
5		1		6		35		15	2	50	2	255	37	15	2	270	39	
		1		1		8	1	4		12	1	353	21	4		357	21	
16		6	1	22	1	111	5	49	10	160	15	2038	259	49	10	2087	269	

TABLE VI.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. — DISTRICTS JUDICIAIRES.	Summary Convictions.		CASES SUBJECT TO BE TRIED BY JURY BUT TRIED SUMMARILY BY CONSENT.											
	—		CAUSES DE LA COMPÉTENCE D'UN JURÉ MAIS JUGÉES SOMMAIREMENT DE CONSENTEMENT.											
	Condamnations sommaires.		By Police or other Magistrate.						Under the Speedy Trials Act.					
			Par un Magistrat de Police ou autre.						En vertu de l'Acte des procès expéditifs.					
	M.	F.	Totals.	Con- vic- tions.	Ac- quit- tals.	Totals.	Con- vic- tions.	Ac- quit- tals.	Totals.	Con- vic- tions.	Ac- quit- tals.	Totals.	Con- vic- tions.	Ac- quit- tals.	Totals.
M.	F.	Totals.	Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.	H.	F.	M.	F.	H.	F.
PROVINCE OF NOVA SCOTIA.														
Annapolis	7	7	4		4									
Antigonish	15	15		1	1				4					4
Cape Breton	52	52	1		1				5		1			6
Colchester	16	2 18							3		5			8
Cumberland	32	2 34	7		2 2 9	2		8		3				11
Digby	20	20						1						1
Guysborough	8	1 9						2						2
Halifax	2133	296 2429	106	9	106	9		24	4	17	2	41	6	
Hants	39	39						5						5
Inverness	8	8		2	2									
King's	45	45	2		2			4						4
Lunenburg	66	6 72	2		2			1						1
Pictou	155	6 161	31	1	31	1		2		1				3
Queen's	22	3 25						2		2				4
Richmond								1						1
Shelburne	4	4	1		1									
Victoria	10	10	1		3	4								
Yarmouth	85	9 94	20	1	20	1	1							1
Totals of Nova Scotia.. } Totaux de la N.-Ecosse }	2717	325 3042	175	11	8 2 183	13	63	4	29	2	92	6		
Central Manitoba—Centre..	107	3 110	13		10	23		11						11
Eastern Manitoba—Est..	865	149 1014	70	4	20	2	90	6	46		1			47
Western Manitoba—Ouest..	24	24	11		12	23		11		7				18
Totals of Manitoba	996	152 1148	94	4	42	2	136	6	68		8			76
Cariboo, B.C.—C.-B.								14						14
Clinton, B.C.—C.-B.	40	6 46	11			11		16						16
Victoria, B.C.—C.-B.	446	58 504	56	4		56	4	27		4	1	31	1	
Westminster, B.C.—C.-B.	453	112 565	83	2	15	98	2	15		3		18		
Totals of B. Columbia. } Totaux de la Col.-Brit. }	939	176 1115	150	6	15	165	6	72		7	1	79	1	
Alberta N.—N., N.W.T.	347	14 361	19		78	1	97	1						
Alberta S.—Sud, N.W.T.	128	14 142	26		33	3	59	3						
Assiniboia E.—E., N.W.T.	212	5 217	26		22		48							
Assiniboia W.—O., N.W.T.	110	1 111	6		13		19							
Saskatchewan, N.W.T.	58	2 60	10		11	1	21	1						
Totals of the Territories } Totaux des Territoires. }	855	36 891	87		157	5	244	5						
Totals of Canada	28746	3328 32074	3365	284	1208	113	4573	397	1011	48	330	12	1341	60
Totaux du Canada														

Criminal Statistics.

TABLEAU VI.—CONDAMNATIONS SOMMAIRES, ET CAUSES DE LA COMPÉTENCE D'UN JURE.

CASES TRIED BY JURY.						TOTALS OF INDICTABLE OFFENCES.						GRAND TOTALS OF INDICTABLE OFFENCES AND SUMMARY CONVICTIONS.						Grand Totals of all offences.
CAUSES JUGÉES PAR JURÉS.						TOTAUX DES DÉLITS SUJETS À POURSUITE.						GRAND TOTAUX DES DÉLITS SUJETS À POURSUITE ET DES CONDAMNATIONS SOMMAIRES.						
Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.		Con- victions.		Ac- quittals.		Totals.		Grands Totaux de toutes les of- fences.
Con- damna- tions.		Ac- quitte- ments.		Totaux.		Con- damna- tions.		Ac- quitte- ments.		Totaux.		Con- damna- tions.		Ac- quitte- ments.		Totaux.		
M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	H.	F.	M.	F.	
PROVINCE DE LA NOUVELLE-ÉCOSSE.																		
4			2		6	8		2		10		15		2		17		17
4			1		5	8		2		10		23		2		25		25
1			1		2	7		2		9		59		2		61		61
1			3	1	4	4		8	1	12	1	20	2	8	1	28	3	31
			1		1	15		6	2	21	2	47	2	6	2	53	4	57
1					1	2				2		22				22		22
						2				2		10	1			10	1	11
3			10		13	133	13	27	2	160	15	2266	309	27	2	2293	311	2604
						5		2		5		44		2		44		44
						8				2		8				10		10
2					2	5				5		53				53		53
2			2		2	35	2	3		38	2	71	6	3		71	6	77
2	1		2		4	4		3		7		190	8	3		193	8	201
2			1		3	4		3		7		26	3	3		29	3	32
			1		1	1		1		2		1		1		2		2
1					1	2				2		6				6		6
2					2	3		3		6		13		3		16		16
						21	1			21	1	106	10			106	10	116
25	1	22	1	47	2	263	16	59	5	322	21	2980	341	59	5	3039	346	3385
2					2	26		10		36		133	3	10		143	3	146
10	1		5		15	126	5	26	2	152	7	991	154	26	2	1017	156	1173
2			3		5	24		22		46		48		22		70		70
14	1	8		22	1	176	5	58	2	234	7	1172	157	58	2	1230	159	1389
						14				14		14				14		14
4	1				4	31	1			31	1	71	7			71	7	78
6	1		4		10	89	5	8	1	97	6	535	63	8	1	543	64	607
7			8		15	105	2	26		131	2	558	114	26		584	114	698
17	2	12		29	2	239	8	34	1	273	9	1178	184	34	1	1212	185	1397
6	1	8		14	1	25	1	86	1	111	2	372	15	86	1	458	16	474
13			5	1	18	39		38	4	77	4	167	14	38	4	205	18	223
14			2	1	16	46		24	1	64	1	252	5	24	1	276	6	282
16			6		22	22		19		41		132	1	19		151	1	152
7			1		8	17		12	1	29	1	75	2	12	1	87	3	90
56	1	22	2	78	3	143	1	179	7	322	8	998	37	179	7	1177	44	1221
479	17	380	22	859	39	4855	349	1918	147	6773	496	33601	3677	1918	147	35519	3824	39343

TABLE VII.
PARDONS AND COMMUTATIONS.

TABLEAU VII.
PARDONS ET COMMUTATIONS

TABLE VII—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1896, in favour of Prisoners committed to the following Prisons.

(Province of Ontario.)						PROVINCIAL PENITENTIARY—KINGSTON.	
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Commit- tal.	Pardon or Commuta- tion.		M	F	
Manslaughter	7 yrs.	Oct. 15, '91	Nov. 29, '95	*	55		Assize, London.
Rape	10 "	Apr. 26, '93	Oct. 22, '95	When he shall have served 5 years with remission.	44		Oyer & Terminer, Woodstock.
"	3 "	Oct. 23, '94	Nov. 13, '95	*	18		Assize, Brockville.
Placing obstructions on railway.	5 "	Nov. 29, '93	" 20, '95	*	20		County, Cornwall.
Wounding	3 "	Apr. 7, '96	Apr. 29, '96	*	21		Police, Ottawa.
Buggery	15 "	Sept. 28, '95	May 1, '96	Sentence reduced to one of 5 years.	27		Sessions, Toronto.
Arson	14 "	" 4, '88	Mar. 3, '96	*	38		County, Perth.
"	14 "	" 4, '88	" 3, '96	*	40		"
"	7 "	Mar. 14, '93	Jan. 3, '96	When he shall have served 3½ years with remission.	20		Assize, Belleville.
"	2 "	" 28, '95	Sept. 1, '96	*	23		Sessions, Toronto.
Robbery	10 "	" 25, '93	Jan. 13, '96	*	25		Assize "
"	5 "	Nov. 12, '94	July 8, '96	*	35		County, Ottawa.
Shopbreaking and larceny.	5 "	Oct. 27, '94	Feb. 26, '96	When he shall have served 2 years with remission.	21		Police, Ottawa.
Larceny	5 "	Jan. 17, '93	June 18, '96	*	52		County, St. Thomas.
"	5 "	May 12, '95	Oct. 15, '95	Sentence reduced to one of 3 years.	47		Sessions, Port Arthur.
"	4 "	Dec. 17, '94	Aug. 28, '96	*	41		Sessions, Sandwich.
"	3 "	Jan. 22, '96	June 18, '96	*	19		County, Goderich.
"	2½ "	Nov. 30, '95	Feb. 28, '96	When she shall have served 10 months.	24		Police, Hamilton.
"	2 "	Oct. 15, '95	July 8, '96	*	23		Police, Toronto.

(Province of Ontario.) PROVINCIAL REFORMATORY—PENETANGUISHENE.

Shopbreaking and larceny.	5 yrs.	Jan. 17, '93	Oct. 11, '95	*	16		Police, Port Hope.
Housebreaking and larceny.	5 "	May 9, '92	Sept. 26, '96	*	17		" Pembroke.
"	2 "	June 4, '95	" 21, '96	*	15		Sessions, Bracebridge.
"	2 "	" 4, '95	" 21, '96	*	15		" "
"	a1	Apr. 16, '92	Dec. 3, '95	*	20		Police, St. Catharines.
Forgery	b	Jan. 8, '96	Aug. 24, '96	*	14		Wallaceburg.
Larceny	4 "	Sept. 20, '92	Sept. 3, '96	*	18		Assize, Orangeville.
"	4 "	" 1, '93	Dec. 3, '95	*	17		" Owen Sound.
"	4 "	Nov. 13, '93	Oct. 1, '95	*	16		County, Sarnia.
"	3½ "	Dec. 11, '94	Aug. 22, '96	*	17		" Toronto.
"	3 "	Jan. 26, '94	" 20, '96	*	16		Police, Owen Sound.
"	3 "	May 13, '95	Sept. 3, '96	*	17		" Toronto.
"	a3	June 25, '92	June 1, '96	*	17		" Cornwall.
"	a2	Aug. 15, '93	Aug. 5, '96	*	14		" Whitby.
"	a2	Dec. 19, '94	Jan. 29, '96	*	18		" St. Catharines.
"	a2	Nov. 28, '93	Dec. 30, '95	*	17		" Lindsay.

a And an indefinite period not to exceed 5 years.

b An

* No reason given for pardon or commutation.

Criminal Statistics.

TABLEAU VII.—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1896, en faveur des prisonniers envoyés aux prisons suivantes.

(Province d'Ontario.) PÉNITENCIER PROVINCIAL—KINGSTON.							
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe.		Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.		H	F	
Homicide non prém.	7 ans	15 oct. '91	29 nov. '95	*	55		Assises, London.
Viol.	10 "	26 avril '93	22 oct. '95	A être libéré après avoir servi 5 ans avec rémission.	44		Oyer et Terminer, Wood- stock.
"	3 "	23 oct. '94	13 nov. '95	*	18		Assises, Brockville.
Placant des obstacles sur la voie ferrée.	5 "	29 nov. '93	20 " '95	*	20		Comté, Cornwall.
Blessures avec int.	3 "	7 avril '96	29 avril '96	*	21		Police, Ottawa.
Bestialité	15 "	28 sept. '95	1 mai '96	Sentence réduite en une de 5 ans.	27		Sessions, Toronto.
Incendie	14 "	4 " '88	3 mars '96	*	38		Comté, Perth.
"	14 "	4 " '88	3 " '96	*	40		"
"	7 "	14 mars '93	3 janv. '96	A être libéré après avoir servi 3½ ans avec rémission.	20		Assises, Belleville.
"	2 "	28 " '95	1 sept. '96	*	23		Sessions, Toronto.
Vol de unit.	10 "	25 " '93	13 janv. '96	*	25		Assises "
"	5 "	12 nov. '94	8 juil. '96	*	35		Comté, Ottawa.
Bris de magasin et lar- cin.	5 "	27 oct. '94	26 fév. '96	A être libéré après avoir servi 2 ans avec rémission.	21		Police "
Larcin	5 "	17 janv. '93	18 juin '96	*	52		Comté, St-Thomas.
"	5 "	12 mai '95	15 oct. '95	Sentence réduite en une de 3 ans.	47		Sessions, Port Arthur.
"	4 "	17 déc. '94	28 août '96	*	41		" Sandwich.
"	3 "	22 janv. '96	18 juin '96	*	19		Comté, Goderich.
"	2½ "	30 nov. '95	28 fév. '96	A être libéré après qu'elle aura servi 10 m's.	24		Police, Hamilton.
"	2 "	15 oct. '95	8 juil. '96	*	23		" Toronto.

(Province d'Ontario.) ÉCOLE DE RÉFORME—PÉNÉTANGUISENE.							
Bris de magasin et lar- cin.	5 ans	17 janv. '93	11 oct. '95	*	16		Police, Port Hope.
Bris de maison et lar- cin.	5 "	9 mai '92	26 sept. '96	*	17		" Pembroke.
"	2 "	4 juin '95	21 " '96	*	15		Sessions, Bracebridge.
"	2 "	4 " '95	21 " '96	*	15		" "
"	a1	16 avril '92	3 déc. '95	*	20		Police, Ste-Catherine.
Faux	b.	8 janv. '93	24 août '96	*	14		Wallaceburg.
Larcin	4 ans	20 sept. '92	3 sept. '96	*	18		Assises, Orangeville.
"	4 "	13 " '93	3 déc. '95	*	17		" Owen Sound.
"	4 "	13 nov. '93	1 oct. '95	*	16		Comté, Sarnia.
"	3½	11 déc. '94	22 août '96	*	17		" Toronto.
"	3 "	26 janv. '94	20 " '96	*	16		Police, Owen Sound.
"	3 "	13 mai '95	3 sept. '96	*	17		" Toronto.
"	a3	25 juin '92	1 juin '96	*	17		" Cornwall.
"	a2	15 août '93	5 août '96	*	14		" Whitby.
"	a2	19 déc. '94	29 janv. '96	*	18		" Ste-Catherine.
"	a2	28 nov. '93	30 déc. '95	*	17		" Lindsay.

a Et une période indéfinie ne devant pas excéder 5 ans.

b Une " " " " " " " "

* Aucune raison donnée pour le pardon ou la commutation.

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1896, in favour of Prisoners committed to the following Prisons.

<i>(Province of Ontario.)</i> PROVINCIAL REFORMATORY—PENETANGUISHENE— <i>Concluded.</i>						
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex. M | F	By what Court tried.
		Sentence or Committal.	Pardon or Commuta- tion.			
Larceny	a 2 yrs.	Aug. 29, '93	Oct. 9, '95 *		16	Police, St. Catharines.
"	a 1 "	" 4, '94	Aug. 25, '96 *		19	" Brantford.
"	a 1 "	Feb. 1, '94	" 20, '96 *		16	County, Barrie.
"	b	June 26, '93	June 1, '96 *		16	Police, St. Thomas.
Receiving stolen goods	5 "	Sept. 2, '92	" 1, '96 *		16	" Lindsay.
Incorrigible conduct.	c	" 28, '91	Dec. 30, '95 *		17	" Trenton.
<i>(Province of Ontario.)</i> MERCER REFORMATORY—TORONTO.						
Larceny	1 yr. & 364 d.	May 10, '94	Nov. 25, '95 *		17	Police, Hamilton.
Shoplifting	18 m's	Nov. 11, '95	Mar. 6, '96	To be released at the end of 4 months.	59	" Toronto.
"	12 "	" 11, '95	Aug. 8, '96 *		23	" "
<i>(Province of Ontario.)</i> CENTRAL PRISON—TORONTO.						
Housebreaking	18 m's	Oct. 27, '94	Oct. 1, '95	6 months remitted	20	Police, Ottawa.
Burglary	4 "	July 13, '96	Aug. 18, '96 *		28	County " "
Larceny	23 "	Oct. 4, '95	Apr. 13, '96	Sentence reduced to 9 months.	18	Police, St. Thomas.
" (2 indictm'ts)	3 " &	Apr. 27, '96				Barrie.
"	6 "	May 4, '96	Sep. 10, '96 *		29	County " "
"	6 "	June 19, '95	Nov. 13, '95 *		22	Police, Ottawa.
Vagrancy	3 "	July 9, '96	Aug. 8, '96 *		21	J.P., Berlin.
<i>(Province of Ontario.)</i> ONTARIO BOY'S REFORMATORY.						
Receiving stolen goods	3 yrs.	Feb. 1, '94	Dec. 7, '95 *		16	County, Lambton.
Larceny	a 2 "	Mar. 26, '91	" 11, '95 *		19	Police, Brantford.
<i>(Province of Ontario.)</i> COMMON JAILS.						
<i>Berlin Jail—</i> Vagrancy	3 m. or \$5 & c.	July 9, '96	Aug. 8, '96 *		32	J.P.'s, Berlin.
"	"	" 9, '96	" 8, '96 *		46	" "
<i>North Bay Jail—</i> Neglect'g to procure aid at childbirth.	5 m's	Nov. 13, '95	Feb. 11, '96 *		19	Sessions, North Bay.
<i>Owen Sound Jail—</i> Larceny	3 "	Oct. 28, '95	Dec. 7, '95 *		26	Police, Owen Sound.
<i>Peterborough Jail—</i> Vagrancy	6 "	" 12, '95	Nov. 15, '95 *		75	" Peterborough.
<i>Port Arthur Jail—</i> Inmates of disorder- ly house.	d	May 13, '96	Aug. 20, '96	Upon payment of \$50	20	" Port Arthur.
<i>Sandwich Jail—</i> Assault, aggravated	6 "	Dec. 12, '95	Jan. 6, '96 *		49	Sessions, Sandwich.

a And an indefinite period not to exceed five years.

b An

c Term indefinite

"

"

"

four

five

"

d 6 months and \$50 or 6 additional months.

* No reason given for pardon or commutation.

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the Year ended the 30th September, 1896, in favour of Prisoners committed to the following Prisons.

(Province of Quebec.) PROVINCIAL PENITENTIARY—ST. VINCENT DE PAUL.						
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.	By what Court tried.
		Sentence or Commit-tal.	Pardon or Commuta-tion.				M	F
Murder.....	aLife.	Dec. 10, '90	Feb. 22, '96	*	34	Q. Bench, Montmagny.
Manslaughter.....	5 yrs	Mar. 7, '93	Aug. 28, '96	*	50	" Sweetburg.
Rape.....	10 "	June 19, '93	June 18, '96	*	59	" Aylmer
Criminally knowing a girl under 14 years.	10 "	" 30, '93	Apr. 29, '96	Sentence reduced to one of 5 years.	28	" Montreal.
"	4 "	" 15, '95	Oct. 30, '95	Sentence reduced to one of 2 years.	18	" "
Burglary.....	7 "	Mar. 14, '92	Sept. 26, '96	*	48	Sessions, Quebec.
"	2 "	Aug. 13, '95	" 3, '96	*	19	Dist. Mag., Kamouraska
Arson.....	5 "	Oct. 31, '95	June 11, '96	*	26	Q. Bench, Hull.
Attempt at house-breaking.	5 "	Mar. 16, '95	Oct. 9, '95	*	19	" Montreal.
Shopbreaking.....	2 "	" 16, '95	Feb. 22, '96	When he shall have served 1 year with remission.	59	" "
Aggravated robbery..	2 "	Sept. 14, '94	" 19, '96	*	46	" "
Forgery.....	8 "	Oct. 20, '91	June 11, '96	*	35	" Sherbrooke.
"	3 "	" 2, '94	Dec. 30, '95	When he shall have served 18 months with remission.	21	Sessions, Montreal.
Bestiality.....	3 "	May 9, '95	Aug. 22, '96	*	67	Dist. Mag. Chicoutimi.
Larceny.....	7 "	Mar. 18, '91	" 20, '96	*	30	Q. Bench, Montreal.
"	5 "	Oct. 18, '92	" 7, '95	*	28	Sessions "
"	3 "	Sept. 24, '94	Mar. 11, '96	*	19	Dist. Mag. St. Hyacinthe
"	2 "	" 14, '94	" 23, '96	*	26	Q. Bench, Montreal.
Escaping from jail....	2 "	" 11, '95	July 10, '96	Sentence reduced to 6 months.	20 22 32 33	" "

(Province of Quebec.) COMMON JAIL.						
<i>Beauce Jail—</i>						
Illicit distillation...	b1 mo.	May 12, '96	June 2, '96	Imprisonment remitted upon payment of fine of \$100 and taxable costs.	40	J. P's., St. Joseph, Beauce
<i>Montreal Jail—</i>						
Larceny.....	20 m's	Oct. 14, '95	" 27, '96	*	23	Q. Bench, Montreal.
"	12 "	Nov. 14, '95	Dec. 19, '95	*	32	" "
"	6 "	Oct. 29, '95	" 19, '95	*	25	Police "
Attempt to commit theft.	6 "	Mar. 21, '96	Aug. 31, '96	*	35	Q. Bench "
Larceny.....	4 "	Jan. 14, '96	Mar. 25, '96	*	30	Sessions "
Embezzlement.....	23 "	Apr. 5, '94	Dec. 19, '95	*	25	" "
Having an illicit still in his possession.	c6 "	June 23, '95	Oct. 3, '95	*	30	" "
Intemperance and not supporting his wife.	6 "	Sept. 6, '95	Dec. 16, '95	*	33	" "
Vagrancy.....	d6 "	Dec. 26, '95	Feb. 6, '96	*	16	Recorder, Ste. Cunegronde
"	3 "	" 7, '95	" 11, '96	*	46	Sessions, Montreal.

a Death sentence previously commuted to imprisonment for life.
 b And a fine of \$150 and costs or 4 additional months.
 c " 500 " 2 "
 " 25 " 3 "
 * No reason given for pardon or commutation.

Criminal Statistics.

TABLEAU VII.—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1896, en faveur des prisonniers envoyés aux prisons suivantes.

(Province de Québec.) **PENITENCIER PROVINCIAL—SAINT-VINCENT DE PAUL.**

CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe		Par quelle cour mis en jugement.	
		Sentence ou emprison- nement.	Pardon ou commuta- tion.					
						H		F
Meurtre	a Vie	10 déc. '90	22 fév. '96	*	34		Banc R., Montmagny.	
Homicide non prém.	5 ans	7 mars '93	23 août '96	*	50		" Sweetburg.	
Viol	10 "	19 juin '93	18 juin '96	*	59		" Aymer.	
Commerce criminel avec une fille au des- sous de 14 ans.	10 "	30 " '93	29 avril '96	Sentence réduite en une de 5 ans.	28		" Montréal.	
" "	4 "	15 " '95	30 oct. '95	Sentence réduite en une de 2 ans.	18		" "	
Vol avec effraction ..	7 "	14 mars '92	26 sept. '96	*	48		Sessions, Québec.	
" "	2 "	13 août '95	3 " '96	*	19		Mag. du dist., Kamourka	
Incendie	5 "	31 oct. '95	11 juin '96	*	26		Banc R., Hull.	
Tentative de bris de maison.	5 "	16 mars '95	9 oct. '95	*	19		" Montréal.	
Bris de magasin	2 "	16 " '95	22 fév. '96	A être libéré après avoir servi 1 an avec rémission.	59		" "	
Vol de nuit aggravé ..	2 "	14 sept. '94	19 " '96	*	46		" "	
Faux	8 "	20 oct. '91	11 juin '96	*	35		" Sherbrooke.	
"	3 "	2 " '94	30 déc. '95	A être libéré après avoir servi 18 mois avec rémission.	21		Sessions, Montréal.	
Bestialité	3 "	9 mai '95	22 août '96	*	67		Mag. du dist., Chicoutimi	
Larcin	7 "	18 mars '91	20 " '96	*	30		Banc R., Montréal.	
"	5 "	18 oct. '92	7 " '96	*	28		Sessions " "	
"	3 "	24 sept. '94	11 mars '96	*	19		Mag. du D., St. Hyacinthe	
"	2 "	14 " '94	23 " '96	*	26		Banc R., Montréal.	
Evasion de prison	2 "	11 " '95	10 juil. '96	Sentence réduite à 6 mois.	20 22 32 33		" "	

(Province de Québec.)

PRISONS COMMUNES.

<i>Prison de la Beauce—</i> Distillation illicite.	61 m's	12 mai '96	2 juin '96	Emprisonnement re- mis sur paiement d'une amende de \$100 et les frais.	40		J. de P., Saint-Joseph, Beauce.
<i>Prison de Montréal—</i> Larcin	20	14 oct. '95	27 " '96	*	23		Banc R., Montréal.
"	12	14 nov. '95	19 déc. '95	*	32		" " "
"	6	29 oct. '95	19 " '95	*	25		Police " "
Tentative de larcin.	6	21 mars '96	31 août '96	*	35		Banc R. " "
Larcin	4	14 janv. '96	25 mars '96	*	30		Sessions " "
Détournement	23	5 avril '94	19 déc. '95	*	25		" " "
Ayant illicitement en possession un alambic.	6	23 juin '95	3 oct. '95	*	30		" " "
Intempérance et ne pourvoyant pas aux besoins de sa femme.	6	6 sept. '95	16 déc. '95	*	33		" " "
Vagabondage	46	26 déc. '95	6 fév. '96	*	16		Recorder, Ste-Cunégonde
"	3	7 " '95	11 " '96	*	46		Sessions, Montréal.

a La sentence de mort ayant été antérieurement commuée en emprisonnement à vie.

b Et une amende de \$150 et les frais ou 4 autres mois.

c " " 500 " 2 "

d " " 25 " 3 "

* Aucune raison donnée pour le pardon ou la commutation.

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1896, in favour of Prisoners committed to the following Prisons.

		COMMON JAILS—Concluded.					
(Province of Quebec.)							
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex	By what Court tried.	
		Sentence or Commit- tal.	Pardon or Commuta- tion.				M	F
<i>Montreal Jail—</i>							
Vagrancy	a 3 m's	July 28, '96	Aug. 28, '96	*	29	Recorder, Montreal.	
Drunkennes	3 "	Dec. 24, '95	Mar. 3, '96	*	83	" "	
Vagrancy	b 2 "						
Assault on female	c 2 "						
Disorderly conduct.	3 "	June 21, '96	Aug. 20, '96	*	40	J.P's "	
<i>Sherbrooke Jail—</i>							
Setting fire to a load of oats.	12 "	Oct. 28, '95	Feb. 22, '96	*	18	Queen's B., Sherbrooke.	
Theft.	12 "	Nov. 5, '95	June 16, '96	*	42	Dist. Mag. "	
<i>Sorel Jail—</i>							
Receiv'g stolen goods	6 "	Jan. 21, '96	" 18, '96	*	47	" Sorel.	
Stealing	6 "	" 21, '96	" 18, '96	*	16	" "	
<i>Three Rivers Jail—</i>							
Consp'cy to defraud.	6 "	Nov. 8, '95	Feb. 23, '96	*	22	" Three Rivers.	
"	6 "	" 8, '95	" 23, '96	*	23	" "	
Theft.	6 "	Jan. 27, '96	Apr. 22, '96	*	28	J.P's "	
<i>Not imprisoned—</i>							
Having illicit still in his possession.	d	Feb. 18, '96	Mar. 18, '96	That he pays the pecuniary penalty and all the costs of the prosecution to the satisfaction of the Department of In-land Revenue.	M	J.P's, St. Joseph, Beauce.	
Having illegally in his possession a bottle of spirits.	e	Dec. 13, '95	Apr. 13, '96	Upon the payment of \$10 as a penalty and all the costs incurred by prosecution.	M	Sessions, Laurentides.	

(Nova Scotia and New Brunswick.) PROVINCIAL PENITENTIARY—DORCHESTER.

Manslaughter	20 yrs.	Oct. 11, '89	Oct. 1, '95	When he shall have served 10 years with remission.	29	Supreme, Amherst, N.S.
Arson	4 " & 11 m's	Aug. 21, '94	Jan. 10, '96	When he shall have served 2 years and 5½ months.	23	County, New Castle, N.B.
Shopbr'king and steal- ing.	3 yrs.	June 25, '94	Dec. 31, '95	*	22	Supreme, Pictou, N.S.
"	3 "	" 28, '94	Nov. 8, '95	*	19	" Yarmouth, N.S.
"	2 "	Mar. 12, '95	Feb. 26, '96	To be released on the 15th March, 1896.	22	" Dalhousie, N.B.
Embezzlement	5 "	Nov. 12, '92	Nov. 25, '95	*	42	County, St. John, N.B.
Larceny	2½ "	" 28, '93	Oct. 3, '95	*	22	" Kentville, N.S.
"	2 "	Sep. 28, '94	Nov. 11, '95	*	19	" Bathurst, N.B.
"	2 "	" 2, '95	Sep. 10, '96	*	19	" Liverpool, N.S.

a And \$10 or 3 months additional.
b Or \$10.
c Or \$21.50.

d \$100 and costs.
e \$50.
* No reason given for pardon or commutation.

Criminal Statistics.

TABLEAU VII.—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1896, en faveur des prisonniers envoyés aux prisons suivantes.

(Province de Québec.)		PRISONS COMMUNES—Fin.					
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe.		Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.		H	F	
<i>Prison de Montréal—</i>							
Vagabondage	a 3 m's	28 juill. '96	28 août '96 *			29	Recorder, Montreal.
Ivresse	3 "	24 déc. '95	3 mars '96 *			33	" "
Vagabondage	b 2 "						
Voies de fait sur fem. Conduite déréglée . . .	c 3 "			21 juin '96	20 août '96 *					40	J. de P. "
<i>Prison de Sherbrooke—</i>							
Mettant le feu à un voyage d'avoine. Larcin	12 "	28 oct. '95	22 fév. '96 *			18	Banc Reine, Sherbrooke.
<i>Prison de Sorel—</i>							
Recel	6 "	21 janv. '96	18 " '96 *			47	" Sorel.
Larcin	6 "	21 " '96	18 " '96 *			16	" "
<i>Prison de Trois-Riv.—</i>							
Conspir'n de fraude. " " " " " "	6 "	8 nov. '95	23 fév. '96 *			22	" Trois-Riv.
" " " " " "	6 "	8 " '95	23 " '96 *			23	" " "
Larcin	6 "	27 janv. '96	22 avril '96 *			28	J. de P. "
<i>Non emprisonnés—</i>							
Ayant illicitement en sa possession un alambic. Ayant illégalement en sa possession une bouteille de boisson.	d e	18 fév. '96	18 mars '96	En payant la peine pécuniaire et tous les frais de la pour- suite à la satisfac- tion du Dép. du Revenu de l'In- térieur. Sur paiement de \$10 comme peine, et tous les frais de la pour- suite.	M		" St-Joseph, Beauce Sessions, Laurentides.

(Nouvelle-Ecosse, Nouv.-Brunswick)		PÉNITENCIER PROVINCIAL—DORCHESTER.					
Homicide non prém.	20 ans	11 oct. '89	1 oct. '96	A être libéré après avoir servi 10 ans avec rémission.		29	Suprême, Amherst, N.E.
Incendie	4 " et 11 m's	21 août '94	10 janv. '96	A être libéré après avoir servi 2 ans et 5½ mois.		23	Comté, New-Castle, N.B.
Bris de magasin et larcin. " " " "	3 ans	25 juin '94	31 déc. '95			22	Suprême, Pictou, N.E.
" " " "	2 "	28 " '94	8 nov. '95 *			19	" Yarmouth, N.E.
" " " "	2 "	12 mars '95	26 fév. '96	A être libéré le 15 mars 1896.		22	" Dalhousie, N.E.
Détournement.	5 "	12 nov. '92	25 nov. '95 *			42	Comté, St-Jean, N.B.
Larcin.	2½ "	28 " '93	3 oct. '95 *			22	" Kentville, N.E.
" " " "	2 "	28 sept. '94	11 nov. '95 *			19	" Bathurst, N.B.
" " " "	2 "	2 " '95	10 sept. '96 *			19	" Liverpool, N.E.

a Et \$100 ou 3 autres mois.	d \$100 et les frais.
b Ou \$10.	e \$50.
c Ou \$21.50.	* Aucune raison donnée pour le pardon ou la commutation.

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1896, in favour of Prisoners committed to the following Prisons.

(P. E. Island, Nova Scotia and New Brunswick.) COMMON JAILS.

CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Commit- tal.	Pardon or Commuta- tion.		M	F	
<i>Andover Jail—</i> Assault	1 yr.	Nov. 17, '92	Dec. 7, '95	Prison' escaped from jail, Dec. 4, 1892; voluntarily returned thereto to complete his term, Aug. 7, 1895.	31		County, Andover, N.B.
<i>Charlottetown Jail—</i> Vio. of the Scott Act	2 m's	Feb. 6, '96	Mar. 9, '96 *		33		Stipendiary Magistrate, Charlottetown, P. E. I.
“ “	2 “	Sept. 30, '95	Nov. 13, '95 *		46		“ “
Larceny	18 “	Feb. 4, '95	Dec. 19, '95 *		33		Supreme Court, Charlotte- town, P. E. I.
<i>Halifax Jail—</i> Larceny	9 “	July 30, '95	Mar. 23, '96 *		16		County, Halifax, N.S.
Having in possession unstamped cigar- ettes. “ “	6 “	Oct. 11, '95	Oct. 22, '95 *		50		Exchequer, Halifax, N.S.
“ “	6 “	“ 11, '95	“ 22, '95 *		32		“ “
“ “	S. def.	“ 11, '95	“ 22, '95	Was not imprisoned.		F	“ “
<i>King's Co. Jail—</i> Vio. of Canada Tem- perance Act.	2 m's	Nov. 6, '95	Nov. 22, '95 *		31		J.P's, King's Co., N.S.
<i>Lunenburg Jail—</i> Larceny	4 “	Apr. 5, '96	July 8, '96 *		21		Co., Bridgewater, N.S.
<i>Pictou Jail—</i> Vio. of Canada Tem- perance Act.	689 d.	Sept. 27, '95	Nov. 22, '95 *		45		Stipendiary Magistrate, New Glasgow, N.S.
<i>Sydney Jail—</i> Assault	1 yr.	Aug. 8, '95	“ 29, '95 *		24		County, Sydney, N.S.

(Province of Manitoba.) MANITOBA PENITENTIARY.

Sodomy	15 yrs.	Nov. 23, '91	Dec. 7, '95	When they shall have served 7 years with remission.	25		Assizes, Victoria, B.C.
“	15 “	“ 23, '91	“ 7, '95		35		“ “
Attempted abortion and larceny.	10 “	July 13, '94	Mar. 17, '96	When he shall have served 2 years with remission.	36		Supr., Calgary, N.W.T.
Theft and embezzle- ment.	7 “	Mar. 24, '94	July 3, '96	Sentenced reduced to 5 years.	40		Assizes, Winnipeg.
Perjury	3 “	“ 24, '94	Nov. 8, '95	Remission of 1 year for services rendered by prisoner to the penitentiary, leaving him also the benefit of his good conduct.	50		“ “

a Or fine and costs. b Or \$50 fine. *No reason given for pardon or commutation.

Criminal Statistics.

TABEAU VII.—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1896, en faveur des prisonniers envoyés aux prisons suivantes.

(I. du P.-E., N.-E. et du N.-B.) PRISONS COMMUNES.

CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe.		Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.		H	F	
<i>Prison d'Andover—</i> Voies de fait.....	1 an.	17 nov. '92	7 déc. '95	Le prisonnier s'est évadé de la prison le 4 déc. 1892; il est retourné volontairement pour compléter son terme le 7 août 1895.	31		Comté, Andover, N.B.
<i>Pris. de Charlottetown</i> Inf. à l'Acte Scott..	2 m's	6 fév. '96	9 mars '96	*	33		Mag. Stip., Charlottet'n, I. du P.-E.
“ “	2 “	30 sept. '95	13 nov. '95	*	46		“ “
Larcin.....	13 “	4 fév. '95	19 déc. '95	*	33		Suprême, Charlottetown, I. du P.-E.
<i>Prison d'Halifax—</i> Larcin.....	9 “	30 juil. '95	23 mars '96	*	16		Comté, Halifax, N.-E.
Ayant en possession des cigarettes sans timbres.	6 “	11 oct. '95	22 oct. '95	*	50		Echiquier “
“ “	6 “	11 “ '95	22 “ '95	*	32		“ “
“ “	S. sus.	11 “ '95	22 “ '95	Non emprisonné.....	F		“ “
<i>Prison du Co. de King</i> Cont. à la loi de tem- pérance du Canada	12 m's	6 nov. '95	22 nov. '95	*	31		J. de P., comté de King's, N.-E.
<i>Prison de Lunenburg</i> Larcin.....	4 “	5 avril '96	8 juil. '96	*	21		Co., Bridgewater, N.-E.
<i>Prison de Pictou—</i> Cont. à la loi de tem- pérance du Canada	89 jrs	27 sept. '95	22 nov. '95	*	45		Mag. Stip., New-Glas- gow, N.-E.
<i>Prison de Sydney—</i> Voies de fait.....	1 an.	8 août '95	29 “ '95	*	24		Comté, Sydney, N.-E.

(Province de Manitoba.)

PÉNITENCIER DE MANITOBA

Sodomie.....	15 ans.	23 nov. '91	7 déc. '95	A être libérés après	25		Assises, Victoria, C.-B.
“	15 “	23 “ '91	7 “ '95	qu'ils auront servis	35		“ “
Tentative d'avortement et larcin.	10 “	13 juil. '94	17 mars '96	7 ans avec rémission A être libéré après	36		Suprême, Calgary, T.N.O.
Larcin et détournement.	7 “	24 mars '94	3 juil. '96	avoir servi 2 ans avec rémission.	40		Assises, Winnipeg.
Parjure.....	3 “	24 “ '94	8 nov. '95	Un an remis pour services rendus par le prisonnier au pén- itencier, lui laissant aussi le bénéfice de sa bonne conduite.	50		“ “

a Ou l'amende et les frais. b Ou \$50 d'amende.

*Aucune raison donnée pour le pardon ou la commutation.

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the Year ended the 30th September, 1896, in favour of prisoners committed to the following prisons.

<i>(Province of Manitoba.)</i> BRANDON INSANE ASYLUM.							
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Commit- tal.	Pardon or Commu- tation.		M	F	
Stealing a post office letter.	3 yrs.	Aug. 17, '93	May 6, '96 *	.....	38	..	Sup'me, Calgary, N.W.T.
WINNIPEG JAIL.							
Aggravated assault...	9 m's	Feb. 3, '96	July 25, '96	To be released on the 2nd Aug., 1896.	44	..	County, Winnipeg.
“ “	9 “	“ 3, '96	“ 25, '96	“ “	16	..	“ “
BRITISH COLUMBIA PENITENTIARY.							
Arson	2½ yrs.	Feb. 12, '95	June 20, '96	Insane. To be removed to a lun. asylum.	46	..	County, Ashcroft, B.C.
Gross indecency.....	a2 “	May 15, '94	Feb. 7, '96	12 lashes remitted.	45	..	Assizes, Vancouver, B.C.
“ “	a2 “	“ 15, '94	“ 7, '96	“ “	18	..	“ “
Larceny	4 “	Nov. 28, '92	Nov. 25, '95 *	.....	25	..	“ Victoria, B.C.
NEW WESTMINSTER JAIL.							
Aggravated assault...	2 yrs.	Aug. 2, '95	June 1, '96 *	.....	23	..	County, Revelstoke, Yale
STONY MOUNTAIN PENITENTIARY.							
Bringing stolen property into Canada.	7 yrs.	Aug. 2, '90	Feb. 28, '96	Remission of 6 mos. imprisonment imposed by the courts for an attempted escape.	39	..	Supreme, Moosomin.
POLICE BARRACKS.							
Vagrancy.....	2 m's	Jan. 29, '96	Feb. 22, '96 *	.....	34	..	Police, Calgary.
“ “	3 “	“ 6, '96	Jan. 18, '96 *	.....	45	..	“ “
Housebreaking and larceny.	2 yrs.	Nov. 28, '94	Dec. 19, '95 *	.....	19	..	Supreme, Prince Albert.
Housebreaking. . .	2 “	Mar. 11, '95	July 10, '96 *	.....	25	..	“ Edmonton.
DEATH SENTENCES COMMUTED DURING THE YEAR ENDED 30TH SEPTEMBER, 1896.							
Murder.	Death	June 20, '96	Sep. 21, '96	Imprisonment for life in Kingston Pen.	M	..	Assizes, Victoria.
“	“	Nov. 4, '95	Dec. 31, '95	Imprisonment for life in St. Vincent de Paul Penitentiary.	20	..	Queen's Bench, Valley-field.
a And 24 lashes. *No reason given for pardon or commutation.							

Criminal Statistics.

TABLEAU VII.—Cus où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1896, en faveur des prisonniers envoyés aux prisons suivantes.

(Province de Manitoba.) ASILE D'ALIÉNÉ DE BRANDON.							
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe		Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.		H	F	
Vol d'une lettre du bureau de poste.	3 ans	17 août '93	6 mai '96	*	38		Supr., Calgary, N.W.T.
PRISON DE WINNIPEG.							
Voies de fait graves	9 m's	3 fév. '96	25 juill. '96	A être libéré le 24 août 1896.	24		Comté, Winnipeg.
“ “	9 “	3 “ '96	25 “ '96	*	16		“ “
PÉNITENCIER DE LA COLOMBIE-BRITANNIQUE.							
Incendie	2½ ans	12 fév. '95	20 juin '96	Aliéné. A être transféré dans un asile.	46		Comté, Ashcroft, C.B.
Indécence grossière	2 “	15 mai '94	7 fév. '96	12 coups de fouet remis	45		Assises, Vancouver.
“ “	2 “	15 “ '94	7 “ '96	“ “	18		“ “
Larcin	4 “	28 nov. '92	25 nov. '95	*	25		“ Victoria.
PRISON DE NEW WESTMINSTER.							
Voies de fait graves	2 ans	2 août '95	1 juin '96	*	23		Comté, Revelstoke, Yale.
PÉNITENCIER DE STONY MOUNTAIN.							
Effets volés apportés en Canada.	7 ans	2 août '90	28 fév. '96	Emprisonnement de 6 m's remis, imposé par le cour pour tentative d'évasion.	39		Suprême, Moosomin.
CASERNE DE POLICE.							
Vagabondage	2 m's	29 janv. '96	22 fév. '96	*	34		Police, Calgary.
“ “	3 “	6 “ '96	18 janv. '96	*	45		“ “
Bris de maison et larcin.	2 ans	28 nov. '94	19 déc. '95	*	19		Suprême, Prince Albert.
Bris de maison.	2 “	11 mars '95	10 juill. '96	*	25		“ Edmonton.
SENTENCES DE MORT COMMUÉES DURANT L'ANNÉE FINISSANT LE 30 SEPT. 1896.							
Meurtre	Mort	20 juin '96	21 sept. '96	Empris. à vie dans le pén. de Kingston.	H		Assises, Victoria.
“	“	4 nov. '95	31 déc. '95	Empris. à vie dans le pén. de St-Vincent de Paul.	20		Banc Reine, Valleyfield.

a Et 24 coups de fouet. * Aucune raison donnée pour le pardon ou la commutation.

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