Ontario. Legislative assembly

Sessional papers.

SESSIONAL PAPERS.

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SECOND SESSION

OF THE

TWELFTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

SESSION 1910.

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No. 4..... Report of the Bureau of Mines, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

No. 5..... Report of the Inspector of Division Courts, for the year 1909. Presented to the Legislature, 8th February, 1910. *Printed.*

No. 6..... Report of the Inspector of Legal Offices, for the year 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 7..... Report of the Inspector of Registry Offices, for the year 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 8..... Report of the Provincial Municipal Auditor, for the year 1909. Presented to the Legislature, 14th March, 1910. *Printed.*

No. 9.... Report of the Commissioners for the Queen Victoria Niagara Falls Park, for the year 1909. Presented to the Legislature, 4th March, 1910. *Printed.*

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No. 11.... Financial Statements made by Loan Corporations, Building Societies, Loaning Land Companies and Trust Companies, for the year 1909. Presented to the Legislature, 18th February, 1910. *Printed.*

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No. 20.... Report of the Provincial Board of Health, for the year 1909. Presented to the Legislature, 21st February, 1910. *Printed.*

No. 21.... Report upon the Hospitals for the Insane of Ontario, for the year ending 30th September, 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 22.... Report upon the Hospital for Idiots and Epileptics, for the year 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 23.... Report upon the Feeble-Minded in Ontario, for the year 1909. Presented to the Legislature, 9th March, 1910. *Printed.*

No. 24.... Report upon the Hospitals and Charities of Ontario, for the year ending 30th September, 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

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No. 27.... Report upon the Operation of the Liquor License Acts in Ontario, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

No. 28.... Report of the Department of Agriculture, for the year 1909. Presented to the Legislature, 14th March, 1910. *Printed.*

No. 29.... Report of the Ontario Agricultural College and Experimental Farm, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

No. 30.... Report of the Ontario Veterinary College, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

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No. 36.... Report of the Entomological Society of Ontario, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

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No. 46.... Report of the Inspectors of Factories of Ontario, for the year 1909. Presented to the Legislature, 10th March, 1910. *Printed.*

No. 47.... Report of the Temiskaming and Northern Ontario Railway Commission, for the year 1909. Presented to the Legislature, 27th January, 1910. *Printed.*

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No. 49.... Report of the Ontario Railway and Municipal Board, for the year 1909. Presented to the Legislature, 1st February, 1910. *Printed.*

No. 50.... A Return from the Records of the General and Subsequent Elections to the Legislative Assembly on the 8th day of June, 1908, shewing:— (1) The number of Votes Polled for each Candidate in each Electoral District in which there was a contest; (2) The majority whereby each successful Candidate was returned; (3) The total number of Votes Polled; (4) The number of Votes remaining unpolled; (5) The number of names on the Polling Lists; (6) The number of Ballot Papers sent out to each Polling Place; (7) The Used Ballot Papers; (8) The Unused Ballot Papers; (9) The Rejected Ballot Papers; (10) The Cancelled Ballot Papers; (11) The Declined Ballot Papers; (12) The Ballot Papers taken from Polling Places; (13) A General Summary of Votes cast in each Electoral District; (14) A similar statement as to any Elections held since the General Election. Presented to the Legislature, 26th January, 1910. *Printed.*

No. 51.... Report upon the Archives of the Province, for the year 1909. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 52.... Report of the Librarian on the state of the Library. Presented to the Legislature, 27th January, 1910. *Printed.*

No. 53.... Agreement and Contract with William Briggs, D.D., Book Steward of the Methodist Church, in connection with the Printing and Binding for the Legislative Assembly of Ontario. Presented to the Legislature, 26th January, 1910. *Printed.*

No. 54.... Agreement and Contract with E. H. Harcourt Company, Limited, in connection with the Binding, etc., for the Legislative Assembly of Ontario. Presented to the Legislature, 26th January, 1910. *Printed.*

No. 55.... Report of the Milk Commission appointed to enquire into the production, care and distribution of Milk. Presented to the Legislature, 21st February, 1910. *Printed*

No. 56.... Copies of Regulations and Orders in Council in the matter of Education, made pursuant to the provisions of 6 Edward VII., Cap. 52, Section 27, since the last Session of the Legislature. Presented to the Legislature, 27th January, 1910. *Not printed.*

No. 57.... Statement of the Auditor made pursuant to the provisions of Section 13, Sub-section 2, of the Audit Act as amended by Section 6, Chapter 10, 9 Edward VII. Presented to the Legislature, 27th January, 1910. *Printed.*

No. 58.... Return to an Order of the House of the Thirtieth day of March, 1909, for a Return shewing, during the past twelve months all permits to effect insurance in foreign unregistered Corporations, Insurers or Underwriters issued by the Insurance Registrar, under Section 86a of the Ontario Insurance Act, as amended by 2 Edward VII., Cap. 12, and 4 Edward VII., Cap. 15, and of all letters and applications in respect of which such permits were issued. Presented to the Legislature, 27th January, 1910. Mr. *Proudfoot. Not printed.*

No. 59.... Copies of Orders in Council in accordance with the provisions of Subsection 2 of Section 84 of the Surrogate Courts Acts, and Subsection 4 of Section 164 of the Land Titles Act. Presented to the Legislature, 3rd February, 1910. *Not printed.*

No. 60.... The Province of Ontario, Situation and Size, Climate, Products, Resources, Progress and Advantages. Presented to the Legislature, 4th February, 1910. *Printed for distribution only.*

No. 61.... Copy of an Order in Council under Sub-section 2 of Section 84 of the Surrogate Courts Act, authorizing payment of surplus surrogate fees to His Honour Judge Wismer, Junior Judge of the County Court of the County of Simcoe. Presented to the Legislature, 7th February, 1910. *Not printed.*

No. 62.... Return to an Order of the House of the Twenty-eighth day of January, 1910, for a Return: 1. Shewing the number of Licenses Granted to Fishermen in each of the following Districts in the years 1908 and 1909; (*a*) Lake Superior. (*b*) The Northern Channel of Lake Huron. (*c*) Georgian Bay. (*d*) Lake Huron and Lake St. Clair. (*e*) Lake Erie and Grand River. (*f*) Rivers St. Clair, Thames

and Detroit, and (*g*) Lake Ontario and Bay of Quinte. 2. The kind of License Granted to each Fisherman. 3. The cost of Licenses to each Fisherman of each of the above Districts. Presented to the Legislature, 7th February, 1910. Mr. *Proudfoot*. *Not printed.*

No. 63.... Rules and Regulations made by order of His Honour the Lieutenant-Governor in Council, for the carrying into effect the Succession Duty Act. Presented to the Legislature, 14th February, 1910. *Printed for distribution only.*

No. 64. .. Statement on the distribution of the Revised and Sessional Statutes, up to 31st December, 1909. Presented to the Legislature, 14th February, 1910. *Not printed.*

No. 65.... Return of an Order of the House of the Seventh day of February, 1910, for a Return shewing: 1. A copy of the advertisement calling for tenders for the printing, publishing and supply of "Ontario Readers"; 2. Copies of all tenders received; 3. Copies of correspondence between the Government of Ontario or any official thereof and any tenderer or tenderers; 4. A copy of the contract entered into on behalf of the Government for the printing, publishing and supplying of "Ontario Readers"; 5. A detailed statement of the cost to the Government of supplying to the publisher electro-plates for each reader. Presented to the Legislature, 28th February, 1910. Mr. *MacKay (Grey)*. *Not printed.*

No. 66.... Report upon Infant Mortality in the Province. Presented to the Legislature, 8th March, 1910. *Printed.*

No. 67.... Return to an Order of the House of the Sixteenth day of February, 1910, for a Return shewing: 1. The number of male teachers granted County Model School Certificates in the years 1906, 1907, 1908 and 1909, respectively. 2. The number of female teachers granted County Model School Certificates in the years 1906, 1907, 1908 and 1909, respectively. 3. The number of male teachers granted Normal School Certificates in the years 1906, 1907, 1908 and 1909, respectively. 4. The number of female teachers granted Normal School Certificates in the years 1906, 1907, 1908 and 1909, respectively. Presented to the Legislature, 8th March, 1910. Mr. *MacKay (Grey)*. *Not printed.*

No. 68.... Return of an Order of the House of the Fourth day of March, 1910, for a Return of Copies of the Reports relating to the cause of the fire in the Parliament Buildings. Presented to the Legislature, 9th March, 1910. Mr. *Elliott*. *Not printed.*

No. 69.... Return to an Order of the House, of the Twenty-second February, 1910, for a Return shewing: All awards by any Arbitrator or Board of Arbitration, to settle disputes between the Hydro-Electric Power Commission and those over whose lands the Commission have taken easements. Presented to the Legislature, 10th March, 1910. Mr. *Reed (Wentworth.)* *Not printed.*

No. 70.... Return to an Order of the House, of the Twenty-fifth day of February, 1910, for a Return shewing: The total amount paid for inspection

and overseeing work done on building Colonization Roads during the years 1908 and 1909. Presented to the Legislature, 10th March, 1910. Mr. *Proudfoot. Not printed.*

No. 71.... Return to an Order of the House, of the Twenty-fifth day of February, 1910, for a Return shewing: 1. The amount of Provincial Money (if any) loaned to Municipalities of the Province for Drainage purposes during each of the years 1904 to 1909, both inclusive. 2. The names of the Municipalities and the amount loaned to each in each of the said years. 3. The rate of interest charged the Municipalities, if other than four per cent. 4. The Special Grants (if any) given to Municipalities for Drainage Schemes during the said years, the names of the Municipalities to which given, and the amount given each. Presented to the Legislature, 10th March, 1910. Mr. *Stock. Not printed.*

No. 72.... Return to an Order of the House, of the Sixteenth day of February, 1910, for a Return shewing the number of permits and extensions granted to Public School Teachers during the years 1908 and 1909: 1. The reason for granting such permits and extensions. 2. How many of the teachers who received permits had previously taught. 3. The ages of the teachers who received such permits and extensions. Presented to the Legislature, 10th March, 1910. Mr. *Proudfoot. Not printed.*

No. 73.... Return to an Order of the House, of the Third day of March, 1910, for a Return shewing what steps (if any) the Canadian Northern Ontario Railway Company has taken towards the building of a section of the Railway into the clay belt of Northern Ontario in aid of which this House voted to the Company at its last Session a subsidy of four thousand acres of land for every mile of the Railway which may be constructed by the Company on certain conditions, among others that operations be commenced within one year from the date of the passing of the Act, April 13th, 1909. Presented to the Legislature, 10th March, 1910. Mr. *Johnson. Not printed.*

No. 74.... Report of the Bureau of Colonization, for the year 1909. Presented to the Legislature, 14th March, 1910. *Printed.*

No. 75.... Return to an Order of the House of the Twenty-fourth day of February, 1910, for a Return shewing: 1. The names of the gentlemen who compose the Commission for the Revision of the Statutes. 2. The total cost of the Revision to date, showing in detail, the persons to whom and on what account the money was paid. 3. When will the Statutes be completed. 4. What steps have the Government taken to induce or insist on the Commissioners completing their work at an early date. Presented to the Legislature, 15th March, 1910. Mr. *Proudfoot. Not printed.*

No. 76.... Return to an Order of the House of the Twenty-fifth day of February, 1910, for a Return shewing: 1. When was the resignation of the late Game Warden, T. A. Hand, accepted. Was it voluntary, or was he forced to resign. 2. What moneys had been collected by the said Hand and not accounted for or returned, and if Fishermen had fished and Hunters had hunted on receipts only given by the said Hand. If so, the amount of money unaccounted for and the number

of such receipts given and to whom, together with copies of all correspondence covering the matters referred to in this clause. 3. All correspondence in connection with the resignation of the said Hand. 4. All moneys collected by the said Hand during the years 1907 and 1908 and of all moneys collected by the present officer, A. Calbeck, during the year 1909, together with the names of the persons from whom the said collections were made. Presented to the Legislature, 15th March, 1910. Mr. *Proudfoot. Not printed.*

No. 77.... Return to an Order of the House of the Thirtieth day of March, 1909, for a Return shewing: 1. How often had the present Government been asked for permission to institute an action in cases where a fiat was necessary. 2. How often had such permission been granted. 3. In what cases. 4. How often was such permission refused. 5. In what cases. Presented to the Legislature, 15th March, 1910. Mr. *Elliott. Not printed.*

No. 78.... Return to an Order of the House of the Twenty-fifth of February, 1910, for a Return shewing: 1. How many Emigrants the Salvation Army brought out from Great Britain and Ireland during the season 1909. How many were male and how many female. 3. How many were placed in the homes of the farmers of the Province of Ontario. 4. The names and addresses of the farmers. Also shewing: 1. How many Emigrants the Government of this Province brought out from Great Britain and Ireland during the season of 1909. 2. How many male and how many female. 3. How many were placed in the homes of the farmers of the Province of Ontario. 4. The names and addresses of the farmers. Presented to the Legislature, 16th March, 1910. Mr. *Studholme. Not printed.*

REPORT

OF THE

Minister of Lands, Forests and Mines

OF THE

PROVINCE OF ONTARIO

For Ten Months Ending 31st October

1909

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
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1910

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REPORT OF THE

Minister of Lands, Forests and Mines

OF THE

PROVINCE OF ONTARIO

For the Ten Months Ending 31st October, 1909.

To His Honour THE HONOURABLE J. M. GIBSON,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

As required by law, I submit for the information of your Honour and the Legislative Assembly a report of the management of the Crown Lands of the Province for the ten months ending 31st October, 1909.

CLERGY LANDS.

The area sold during the ten months was three acres for $5. The amount collected on account of sales of clergy lands was $903.70. (See Appendix No. 3, page 6.)

COMMON SCHOOL LANDS.

The area of these lands sold during the ten months was 51 acres for $144. The collection on account of these and former sales was $6,088.60. (See Appendix No, 3, page 6.)

GRAMMAR SCHOOL LANDS.

The area of these lands sold during the ten months was 100 acres for $50. The collection on account of these and former sales was $807.90. (See Appendix No, 3, page 6.)

UNIVERSITY LANDS.

The area of these lands sold during the ten months was 3,740 for $1,869.57. The collection on account of these and former sales was $908.30. (See Appendix No, 3, page 6.)

CROWN LANDS.

There was sold for agricultural purposes during the ten months, 78,658 acres for $128,154.28. There was collected on account of these and former sales $118,995.12. There was sold for mining purposes 10,708 acres for $363,635.78. There was collected on account of these sales $235,098.04. There was leased for mining purposes 3,296 acres for $3,295.64. There was collected on account of mining leases $19,016.74. There was 8,265 acres leased for other than mining

purposes and collected on account of Crown leases $6,911.12. The total area of lands of the Crown disposed of during the ten months was 104,821 acres, and the total collection on account of lands sold and leased was $388,729.52.

The region lying north of Lake Temiskaming has continued to attract the largest number of settlers. The land is known to be good. It has been demonstrated beyond question that grains and roots of all varieties can be successfully grown there. The country is being opened up by the Temiskaming and Northern Ontario Railway, and colonization roads are being built in various directions. Labour has been in demand and good wages paid. The mining industry and the construction of the Transcontinental Railway have employed a large number of men, and there is a good market for all that can be grown. The actual settler who is residing on his lot with a small clearing of two acres has the privilege of selling any timber other than pine growing upon his land. Spruce is plentiful in the Temiskaming region and the bona fide settler can, therefore, earn considerable money taking out pulpwood which commands a ready sale. This enables him to remain on his lot during the winter months instead of having to go away in search of employment.

A number of townships were opened for settlement along the line of the Transcontinental Railway; a considerable area of land has been taken up therein and many settlers have gone into occupation. Other intending settlers are waiting the completion of the Transcontinental before moving their families in permanently. It is only a short time since the town site of Cochrane was put upon the market in what was a veritable wilderness. Now it is a flourishing incorporated town with a Mayor and Council and a population of about 800 souls. When the railway is constructed east and west, Cochrane, as the divisional point for both railways and an important junction, will no doubt become a large and flourishing town. The additional surveys made recently afford additional evidence that the statements concerning the agricultural possibilities of that great territory were if anything too moderate. The recent gold discoveries at Porcupine have given an added interest to that region, and as soon as the spring opens there will be a great influx of population.

In the Sudbury region, also in the vicinity of Port Arthur and Fort Frances, considerable settlement has taken place.

The Department has endeavoured to make certain that only land capable of cultivation is being taken up and that settlers prosecute their improvements in compliance with the law and regulations. Lands are inspected upon application being made, and if they are not suitable for agriculture they are not sold. Careful and systematic inspection of sold and located lands is made in order to see that parties are in residence and prosecuting their settlement duties in a satisfactory manner. If they fail to do so they are immediately warned to go into actual residence within a certain period and failure to do this entails forfeiture of their claim. By means of these inspections settlers are kept alive to their duties, and people taking up land, hoping to strip it of the timber, are baulked in their efforts.

Free Grants.

The best land available in the old free grant districts has been taken up. The Department has considered that a location should not be taken up as a farm unless it has enough land to warrant the expectation that a man can make a living on it by agricultural pursuits, for which purpose at least 50 per cent. of it should be good land. In old townships, too, there is a desire to obtain land just to strip it

of its timber and then abandon it. The close inspections we are now making are having a good effect and people are realizing that they must take up land to farm it, not dispose of the timber and then leave it. In the carrying out of this policy it is inevitable that there should be disappointment and complaint on the part of those who cannot get the timber they want, and sometimes on the part of the licensees when the Department locates lots covered by their licenses which are good for agricultural purposes.

During the year 1909 two new townships were opened for settlement, Morson and Temple, the former in the Rainy River Valley, attached to the Stratton Agency, and the latter in Kenora district, attached to the Dryden Agency. These townships were opened under Section 4, Chapter 8, Edward VII., which provides that the pine and minerals may be included in a free grant location or sale. Settlers in these townships, after having been in occupation for six months with a house 16 x 20 feet, and six acres cleared and under crop, are entitled to dispose of all pine trees free of any charge. Already a number of settlers have availed themselves of the opportunity of locating in these townships.

Military Grants.

During the year 1909, only 30 Military Certificates were issued; this brings the total number granted, under 1 Edward VII., Cap. 6, to 13,987.

Location certificates issued this year numbered 250, and 350 new locations were made, bringing the total number of locations up to 7,195.

$50.00 each were paid for 161 military certificates surrendered to the Crown, making a total of 3,211 disposed of in this way.

There were 434 notices issued to military settlers and assignees of veterans, calling upon them to show that they were in actual occupation and the nature of the duties they have performed.

The Mining Industry.

The production of ores and minerals proceeded vigorously during the ten months ending 31st October, 1909, but until the statistics for the calendar year are compiled, an exact comparison cannot be made with previous years.

The silver mines of the Cobalt camp again surpassed all their previous records, and judging from the output during the ten months, the total yield for 1909 will be not less than 25,000,000 ounces, and will possibly exceed that quantity. The chief producing mines continue as before, namely: Nipissing, Crown Reserve, Kerr Lake, O'Brien, Buffalo, Coniagas, Trethewey, Temiskaming, McKinley-Darragh-Savage, etc. The output of silver in Ontario for 1909 will probably be about one-half that of the entire United States during the same period.

The newer silver fields are coming into yield, namely, South Lorrain, Elk Lake and Gowganda; shipments from mines in all three districts will doubtless be made when the winter roads are available.

Towards the close of the ten months' period, reports of the discovery of rich gold ores came from the neighbourhood of Porcupine Lake in the Townships of Tisdale and Whitney, lying north of the height of land between Hudson Bay and the great lakes, and about 30 or 35 miles due west of Matheson Station on the Temiskaming and Northern Ontario Railway. Investigations showed the reports to be correct; a number of quartz veins from one foot to 25 feet and over in width and of considerable length having been located, with fine showings of free

gold in many places. One deposit exhibited a width of 75 feet and much free gold. A rush followed upon the discoveries being made known and there is every likelihood of many claims being staked out during the coming months. Should the veins prove to be of workable value and depth, there are good prospects for the establishment of a permanent gold mining camp, since the bodies of ore are large.

Nickel-copper mining in the Sudbury district has also been active, and the aggregate output of nickel and copper in the form of matte will probably prove to be greater in 1909 than in any previous year. The Province of Ontario now produces from 60 to 70 per cent. of the world's supply of nickel. The producing companies are the same as before, namely, the Canadian Copper Company, Copper Cliff, and the Mond Nickel, Victoria Mines. The Dominion Nickel-Copper Company have undertaken the exploitation of the Whistle mine and other deposits of ore near Blue Lake on the North Nickle Range, and are proposing to construct a branch line of railway from the Canadian Northern through the Township of Norman to the mines.

The total revenue from mining sources for the ten months was $254,114.78.

Collections.

The total collections of the Department from all sources for the ten months ending 31st October was $2,028,224.48. Of this amount $235,098.04 was derived from mining lands; $338,426.66 from royalties; $885,892.44 from woods and forests; $49,730.03 from supplementary revenue; $108,701.00 from mining licenses and $110,772.95 from recording fees. (See Appendix No. 4, page 7.)

Disbursements.

The gross expenditure of the Department for all services during the ten months was $522,813.23. The principal services were: Agents' salaries and disbursements, $40,475.76; forest ranging, $46,656.69; fire ranging, $132,827.26; forest reserves, $65,992.22; mines and mining, $17,197.79; exploration and investigations, $12,639.00; mining recorders, $22,651.77; surveys, $83,357.33; veterans' commutation, $8,050.00; provincial mines, $13,777.72; refunds, $14,064.53; parks, $11,847.82; contingencies, $31,609.19. (See Appendices Nos. 6 and 7, pages 9 to 47.)

Woods and Forests.

The total revenue from Woods and Forests for ten months was $885,892.44, consisting of Bonus, $285,571.41; Timber dues, $529,422.50; Ground Rent, $68,528.53; Transfer Fees, $2,370.00. (See Appendix No. 4, page 7.) The revenue from Timber dues, being for ten months only, ending 31st October, is small as compared with amounts appearing in previous reports. The explanation is that the accounts for the previous season's cutting were not collected, as they do not accrue due until the 1st December following the winter in which the cutting took place. The Bonus consists of deposits made on account of the sale held in the month of September. For a number of years a system of issuing permits to cut timber for railway and other purposes had prevailed. The system was originally established to meet an emergency which had largely passed away, and it appeared reasonable that so far as possible no timber in that region should be disposed of except by public sale. Plenty of notice was given of the intended change and in conformity with such notice no permits were renewed after the 30th April last. It seemed proper

that those who had been operating and were still contracting and had acquired lumbering plants and mills, etc., under a proper system of public sale and license, should be given an opportunity of acquiring timber to enable them to carry on their business. The Department had been preparing for the proposed change and had the territory formerly under permit and some additional areas damaged by fire, surveyed into berths and estimated and put them up for public competition on the 15th day of September last. Many of the berths offered had been previously cut over under permit and, therefore, the sale was largely a cleaning up sale. The timber was sold by the thousand feet with the object of making sure that the Crown would be paid for every foot on the territory, and that the purchaser would only pay for what he got. Under the old system of selling by the mile the estimates were often faulty, and the Province did not get paid for all the timber on the berths. Under the present system strict justice is done both the buyer and seller as to quantity. The purchasers were required to deposit substantial sums as security for the due performance of all the conditions. The sale was very successful in that good prices were obtained, much beyond what was expected in many instances. The damaged timber is now being cut so that the fire loss will not be large.

A serious fire having occurred in the Mississaga Reserve, the damaged timber in that Reserve was also divided into berths and offered for public competition. The bids were to be on the basis of a thousand feet B.M.—that is to say, parties were invited to state how much per thousand feet B.M. they were willing to pay for the timber in addition to $2 per thousand feet dues and $5 per mile ground rent. It was also a condition of the sale that all timber should be measured by cullers appointed by the Department whose measurements are to be the basis of payment as the timber is removed, the licensees paying half the expense. The right to cut is limited to a period of ten years, after which the timber remaining is to revert to the Crown.

The lumber trade is in a better condition because there is an increased demand and an advance in prices. What effect the tariff legislation of the United States will have when applied remains to be seen. The output for the season of 1909-10 is estimated to be from sixty to one hundred millions in excess of last year.

Fire Ranging.

The fire ranging system has been continued on the same lines as described in my last annual report. The history and regulations of this important service were reviewed and explained last year, and it is, therefore, unnecessary to refer to anything except the work of last season. The danger points are, along the lines of railways under construction, in Forest Reserves where mineral prospecting or development is going on, and on licensed territory where settlers are clearing land. It is a testimony to the good effect of the service on licensed lands that very few fires are reported as having been caused by clearing of land by settlers.

In the Mississaga Forest Reserve as well as in the Temiskaming forest fires occurred. The quantity of timber damaged in the Mississaga would probably be seventy-five million feet. As the fire ran in streaks it was necessary to sell the green timber interspersed through the burnt. Every effort was made to trace the cause of this fire and fix the responsibility, but it was found impossible to do so. Serious fires had occurred on territories south of the Reserve damaging licensed territory, and the fire which injured the Reserve ran up from the licensed lands. There were a few fires in the Temagami Reserve which damaged small quantities of red

and white pine of the Crown and spruce and jack pine, the property of the pulp concessionaire. The quantity of pine was offered for sale and is being cut this winter. It is expected between two and three million feet will have to be cut. It was impossible to establish the origin of the fire or bring it home to any particular person. There are hundreds of miners and prospectors moving about, and working in this Reserve, using fire for cooking, for warmth, smudges for flies and smoking. We have a large staff of fire rangers on duty in this Reserve under two efficient superintendents and they are believed to give good service. Considering how careless the average man is in the use of fire it is not to be wondered at that we had fires in this immense reserve during last summer, which was the driest and most prolific of forest fires we have had for years. In the Nepigon Reserve we had a few fires, but no large quantity of timber was damaged. In the Quetico Reserve in Rainy River District no fires were reported. In the Eastern Reserve there were no serious fires, nor were there any in the Thunder Cape Reserve. In the case of these Reserves, as on the licensed territory and that in the Crown, the great value of the fire ranging system is the prevention of forest fires by warning everybody to be careful in the use of fire, by rangers moving about and letting people know they are on the spot prepared to enforce the law, and generally inculcating a spirit of care and respect for the law on the part of every one with whom they come in contact. They are able to suppress fires before they attain any large proportion and put out smouldering fire after a rain. After a forest fire attains considerable proportions it is impossible to control it. In Forest Reserves the rangers have to move in canoes to some extent, but a good deal of their work is done on land. In selecting the ranging staff every effort is made to ascertain if the applicant for the position is a good canoe man, and if he is he is selected for Reserve work. It sometimes occurs that a ranger is not as good a canoe man as those experts he comes in contact with and criticism arises. It also happens that rangers, like other individuals, are careless, or the victims of accident, and frequently criticism without a knowledge of the circumstances is unfair and unjust. In some cases rangers have lost their tents and blankets by fire. The loss has been made the subject of investigation, and if it appears the loss was the result of carelessness or ignorance the ranger is charged up with the loss whatever it may be. If, on the other hand, it has occurred through an accident that might have happened to any one, nothing is done beyond cautioning the ranger to be careful. The Department obtains a report each season on the capacity of each man, and if any man is careless or is no use he is not again employed.

On the lines of railway where rangers are employed the territory is divided up into ten-mile beats and placed in charge of two rangers. They camp on the centre of the ten-mile beat and every day one goes five miles in one direction and back at night, the other does the same in the other direction. They post up proclamations, interview the foremen of the work and tell them what is required to be done and request them to caution their men to be careful in the use of fire, etc. Passing along the work every day they can soon judge whether proper precautions are observed, and call the foreman's attention to any neglect, and if necessary put the law in motion to punish the offender. Rangers have been put on the T. & N. O. in this way, on the Canadian Pacific and the Canadian Northern where necessary and Port Arthur Junction Railway, and these railway companies have aided the rangers in every way possible, and paid for them at the end of the season. Until quite recently the great pulpwood forest lying on the height of land and extending on both sides has been quite safe from danger, there being no dangerous element there.

Now the region has been pierced by the Transcontinental Railway from one end to the other, thousands of men being employed, a large proportion of whom are foreigners without any knowledge of our laws or efforts to preserve the forests from destruction, and caring nothing whether it is burnt up so long as they can use fire to suit their object. They have no interest in or care for public property. This makes the whole line of construction a menace to the forests on each side of it. Not only so but tote roads are built which are veritable lines of danger to the forests on each side. The Province is not responsible for this danger, as the railway builds under Dominion legislation, and we cannot enforce our legislation with respect to efficient protection. It was hoped, as the danger was caused by the construction under the Dominion Government, that in common with other railways they would bear a share of the expense of fire protection, but so far no contribution has been made.

The fire ranging on licensed territory as heretofore has been conducted by men selected by the Timber Licensees. The work has been efficiently performed and continues to give satisfaction to the limit holders. The number of Rangers on Forest Reserves was 185 and the cost was $65,992.22. The number on railways was 187 and the cost was $66,712.49. The number on licensed lands was 450, costing $66,-114.71. The railways refund the expense, except the Transcontinental, which contributes nothing. The Licensees pay half the expense of fire ranging on their limits.

Cullers' Examinations.

Cullers' Examinations were held at North Bay, Arnprior, Thessalon, Kenora and Fort Frances. Fifty-eight candidates were successful at these examinations and were granted certificates authorizing them to act as cullers.

(For list of cullers see Appendix No. 28, pages 87 to 98.)

Crown Surveys.

The following Crown Surveys have been undertaken this year:—

Instructions for subdivision of two townships were issued, namely:—

District of Nipissing, Township of Blount. District of Kenora, Township of Wabigoon.

Instructions also issued for a number of base and meridian lines and township outlines in the Mississaga Forest Reserve and in the Temagami Forest Reserve.

The base and meridian lines were in the Districts of Sudbury and Algoma and there were 190 miles run.

Survey of outlines of townships in the Temagami Forest Reserve, 457 miles run.

Survey of township outlines in the Mississaga Forest Reserve, 347 miles run.

A number of timber berths in the Districts of Thunder Bay, Rainy River and Kenora, Algoma and Nipissing, have also been surveyed during the year.

The town plot of Gowganda has also been laid out, also an addition to the town plot of Smyth, in the District of Nipissing, also preliminary surveys of several proposed town sites.

The survey of Lake Abitibi and Islands therein has been completed.

Several other minor surveys have been performed.

The reports of the surveyors of the base and meridian lines in the Clay Belt in Northern Ontario continue to give favourable impressions on the soil passed over by their lines.

The surveyors' reports so far as received and examined will be found in Appendices 16 to 25 inclusive, pages 60 to 83 inclusive.

Municipal Surveys.

On the petitions of the municipal councils of the town of Niagara, town of Haileybury, township of Winchester and town of Niagara, instructions have been issued to survey the lines of certain streets in the several towns and to survey the concession line and road between the 10th and 11th concessions of the township of Winchester across lots Nos. 12, 13, 14, 15, 16, and the west half of lot No. 17, in the 10th concession thereof.

The following municipal surveys have been confirmed under the provisions of the Revised Statutes of Ontario, 1897, Chapter 181, sections 14 and 15, such surveys being final and conclusive. The original road allowance between the 3rd and 4th concessions of the township of Garafraxa. The boundary road allowance between the township of McKillop and Grey.

Particulars relating to these surveys will be found in Appendices No. 14 and 15, pages 58 and 59.

Mining and Other Surveys.

The Mining Act of Ontario requires that applicants to purchase or lease mining lands in unsurveyed territory shall file in the Department, surveyor's plans (in triplicate) of the proposed mining claims with field notes and description by metes and bounds, before any sale or lease can be carried out, and under Orders-in-Council, dated February 26th, 1906, 2nd October, 1907, 7th November, 1907, applicants to purchase islands, or locations for pleasure and summer resorts or for agricultural purposes in unsurveyed territory, are required to file surveyor's plans (in triplicate) of their islands or locations as the case may be, with field notes and descriptions by metes and bounds, together with the necessary affidavits as to there being no adverse claim by occupation or improvement, etc.

Under the above Act, Orders-in-Council and Regulations in the Districts of Parry Sound, Nipissing, Sudbury, Algoma, Thunder Bay, Rainy River and Kenora, an area of 14,298 acres has been sold and patented during the year, for which the sum of $185,394.22 has been received, and an area of 17,040 6-10 acres has been leased at $1 per acre for the first year's rental.

F. COCHRANE,

Minister.

Department of Lands, Forests and Mines,
Toronto, October 31st, 1909.

APPENDICES.

Appendix No. 1.

Return of Officers and Clerks of the Department of Lands, Forests and Mines for 10 months ending October 31st, 1909.

Branch.	Name.	Designation.	When appointed.	Salary per annum.	Remarks.
				$ c.	
	Hon. F. Cochrane	Minister	1905, May 13	6,000 00	
	Aubrey White	Deputy Minister	1882, Jan. 1	4,000 00	
	George Kennedy	Law Clerk	1872, Feb. 1	2,500 00	
	George W. Yates	Minister's Secretary	1899, Feb. 26	2,000 00	
	E. S. Williamson	Secretary to Department	1889, May 1	1,650 00	
	Janet Garvie	Stenographer	1905, Jan. 1	650 00	
	M. M. McCrea	do	1907, April 12	550 00	
Sales and Free Grants ...	J. J. Murphy	Chief Clerk	1872, May 1	2,000 00	
	Walter C. Cain	Clerk	1903, March 6	1,450 00	
	W. R. Ledger	do	1894, Feb. 5	1,100 00	
	Selby Draper	do	1903, Jan. 1	1,100 00	
	W. A. Collins	do	1906, July 1	800 00	Died August 12, 1909.
	S. A. Platt	do	1907, March 13	900 00	
	F. Lucas	do	1909, March 24	850 00	
	F. Samuels	do	1909, March 24	700 00	
	May Bengough	Stenographer	1896, Oct. 23	650 00	
	Jean C. Oram	do	1907, Jan. 16	575 00	
	Nan McQueen	do	1909, March 24	550 00	
Military Grants	R. H. Browne	Chief Clerk	1900, March 2	1,700 00	
	R. T. Winter	Clerk	1904, Jan. 13	900 00	
	E. F. O'Neil	Stenographer	1904, Nov. 9	575 00	
	E. M. Browne	Clerk	1909, March 24	550 00	
Surveys and Patents .	G. B. Kirkpatrick	Director of Surveys	1866, Jan. 30	2,450 00	
	J. F. Whitson	Surveyor and Draughtsman	1892, Sept. 1.	2,100 00	
	L. V. Rorke	Ass't Surveyor & Draughtsm'n	1909, May 1	2,000 00	
	W. F. Lewis	Clerk	1872, Feb. 5	1,150 00	
	D. G. Boyd	Draughtsman	1897, Sept. 27	1,350 00	
	E. M. Jarvis	Clerk	1904, Oct. 19	1,050 00	
	J. B. Proctor	do	1897, Jan. 15	1,000 00	
	H. Treeby	Draughtsman	1904, Jan. 13	1,050 00	
	J. H. Patterson	do	1906, April 21	800 00	Resigned April 1, 1909.
	F. C. Blanchet	do	1907, March 13	850 00	
	J. L. Byrne	do	1909, March 24	850 00	
	Alexander Leaman	do	1909, March 24	850 00	
	M. H. Kirkland	Stenographer	1904, Nov. 23	575 00	
	E. G. Halliday	do	1909, March 24	550 00	
	C. S. Jones	Chief Clerk	1890, May 22	1,800 00	

	C. E. Burns	Clerk	1900, April 9.	1,050 00	
	W. S. Sutherland	do	1902, Jan. 13.	1,100 00	
	W. Carrell	do	1904, Jan. 15.	1,000 00	
	A. E. Robillard	do	1894, May 8.	900 00	
	A. E. Roe	do	1909, March 24.	800 00	
	J. A. G. Crozier	Chief Clerk	1867, Dec. 1.	2,050 00	
	Kenneth Miller	Clerk	1891, Nov. 1.	1,300 00	
	J. B. Cook	do	1898, Aug. 1	1,450 00	
	H. Gillard	do	1900, April 9.	1,200 00	
	F. J. Niven	do	1903, March 6.	1,050 00	
	F. W. Trivett	do	1904, Jan. 13.	1,000 00	
	R. H. Hodgson	do	1904, Nov. 23.	950 00	
Woods and Forests	John Houser	do	1907, March 13.	950 00	
	Chester Dies	do	1907, March 13.	850 00	
	A. J. Lamb	do	1907, March 13.	850 00	
	A. H. O'Neil	do	1909, March 24.	750 00	
	G. W. Harris	do	1909, March 24.	700 00	
	Florence Lennon	Stenographer	1907, March 13.	575 00	
	Winnifred M. Morrow	do	1907, July 1.	550 00	Resigned August 5, 1909.
	Amy Thompson	do	1909, March 24.	550 00	
	Mary E. Bliss	do	1909, Sept. 1.	500 00	
	D. George Ross	Accountant	1861, April 15.	2,200 00	
	E. Leigh	Clerk	1873, Dec. 20.	1,200 00	
	H. M. Lount	do	1904, Jan. 13.	1,200 00	
Accounts	H. E. Johnston	do	1907, March 13.	1,000 00	
	H. G. Harris	do	1907, March 13.	900 00	
	C. J. Clarke	do	1907, March 13.	900 00	
	Frank Yeigh	Registrar	1880, March 1.	1,500 00	
	H. Cartwright	Clerk	1893, Oct. 1.	1,200 00	Resigned September 23, 1909.
	Thomas W. Gibson	Deputy Minister	1891, June 19	3,250 00	
	R. D. Fisher	Secretary	1907, March 13.	1,050 00	
	W. H. Morris	Clerk	1907, March 13.	900 00	
	R. A. Sinclair	do	1907, March 13.	900 00	
	W. Lemoine	do	1908, April 8.	900 00	
	A. Burritt	do	1908, April 8.	900 00	
Bureau of Mines	Anne Moffatt	do	1901, March 1.	850 00	
	D. H. Barr	do	1907, March 13.	900 00	
	A. G. Scovill	do	1909, March 24.	800 00	
	Ethel Craig	Stenographer	1906, May 16.	625 00	
	Flossie McDougall	do	1907, March 13.	575 00	
	J. L. McNaughton	do	1909, March 24.	575 00	
	H. Brophy	Messenger	1893, Oct. 1.	700 00	

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Deputy Minister Lands and Forests.

Appendix No. 2.

List of Land Agents and Homestead Inspectors for ten months ending October 31st, 1909.

Name.	Post office address.	District or county.	Date of appointment.	Salary per annum.	Remarks.
				$ c.	
Baker, R. H.	Minden	Part of Victoria	1907, Oct. 1	350 00	
Barr, James	Fort Frances	Homestead Inspector	1906, Nov. 23	200 00	
Belyea, C. W.	Kenora	Part of District of Rainy River	1907, Jan. 16	300 00	Retired Aug. 11, 1909.
Both, Charles	Denbigh	do Frontenac and Addington	1905, Oct. 20	100 00	
Brown, James B.	Bracebridge	Homestead Inspector and Crown Land Agent	1905, July 28	900 00	
Byers, R. J.	Massey	Part of District of Sudbury	1905, July 3	500 00	
Buchanan, Thomas.	Thessalon	do do Algoma	1901, Nov. 30	300 00	
Burnes, C. W.	Parry Sound	Homestead Inspector	1905, Nov. 15	900 00	
Campbell, William.	Stratton Station.	Part of District of Rainy River	1897, Aug. 12	500 00	
Campbell, J. G.	Cochrane	do do Nipissing	1908, Nov. 19	500 00	
Chester, Thomas	New Liskeard	Homestead Inspector	1906, June 8	1,200 00	
Child, Frank A.	Matheson	Part of District of Nipissing	1909, Jan. 8	500 00	
Dean, Thomas	Sault Ste. Marie.	Homestead Inspector	1908, July 29	600 00	
Eastland, T. G.	Apsley	Part of County of Peterboro	1896, July 10	300 00	
Ellis, H. J.	Powassan	do District of Parry Sound	1909, May 21	500 00	
Freeborn, Dr. J. S.	Maganetawan	do do Parry Sound	1905, Nov. 10	500 00	
Grills, John J.	New Liskeard	Lake Temiskaming, District of Nipissing	1905, July 3	500 00	
Groulx, R. J.	Chelmsford	Homestead Inspector	1906, May 7	600 00	
Hollands, C. J.	Fort Frances	Town Plot of Alberta and part of District of Rainy River	1892, Oct. 12	300 00	
Hughes, Thomas	Murillo	Homestead Inspector	1908, July 20	600 00	
Jenks, James	Mattawa	Part of District of Nipissing	1908, March 31.	500 00	
Jenkin, William.	Emsdale	do do Parry Sound	1908, July 29.	500 00	
Keefer, Harold A.	Port Arthur	do do Thunder Bay	1907, Oct. 30	500 00	
Lemieux, J A.	Blezard Valley	do do Sudbury	1908, June 26	400 00	
MacLennan, J. K.	Sudbury	do do Sudbury	1905, July 3	500 00	
McFayden, Alex	Emo	do do Rainy River	1905, Sept. 8	500 00	
Parsons, W. J.	North Bay	do do Nipissing	1908, April 8	500 00	
Philion, James A.	Sturgeon Falls	do do Nipissing	1907, Sept. 13.	500 00	
Powell, Fred R.	Parry Sound	do do Parry Sound	1907, May 31.	500 00	
Prince, Adam	Wilno	do Renfrew	1905, July 12.	500 00	
Pronger, R. H.	Dryden	do District of Rainy River	1906, May 7	300 00	

Quenneville, Isadore	Sturgeon Falls...	Homestead Inspector.....	1906, May 7....	600 00	
Rothwell, B. J.	Sault Ste. Marie.	Part of District of Algoma.....	1909, March 1..	300 00	
Scarlett, J. S.....	Powassan	do do Parry Sound	1880, June 17...	500 00	Died May 21, 1909.
Spry, W. L.....	Kenora	do do Rainy River.....	1909, Sept. 21	300 00	Also Mining Recorder.
Tait, J. R.	L'Amable	Part of Hastings.....	1869, May 28 ..	500 00	
Wilson, James	Kinmount	do Peterboro.....	1905, May 31...	150 00	
Warren, D. B.	Pembroke	do Renfrew.....	1905, July 3....	300 00	
Wright, E. A.	Warren	do District of Sudbury.....	1905, July 14...	500 00	
Whybourne, W. E...	Marksville	do St. Joseph Island.....	1905, April 7...	250 00	
Watson, T. P.	Englehart	Assistant Homestead Inspector.....	1905, May 10...	760 00	
Woollings, Joseph...	Englehart, J.	Part of District of Nipissing.....	1908, June 30 ..	500 00	
Young, H. N.....	Sault Ste. Marie.	do do Algoma	1901, Nov. 23 .	300 00	Resigned, Feb. 28, 1909.

D. GEO. ROSS
Accountant.

AUBREY WHITE,
Deputy Minister Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for 10 months ending October 31st, 1909.

Service.	Acres sold and leased.	Amount of sales and leases.	Collection on sales and leases.
Crown Lands:		$ c.	$ c.
Agricultural	78,658	128,154 28	118,995 12
Mining	10,708	363,635 78	235,098 04
Clergy Lands	3	5 00	903 70
Common School Lands	51	144 00	6,088 60
Grammar School Lands	100	50 00	807 90
University Lands	3,740	1,869 57	908 30
Leases:			
Mining	3,296	3,295 64	19,016 74
Crown	8,265	527 00	6,911 12
	104,821	$497,681 27	$388,729 52

D. GEO. ROSS.
Accountant.

AUBREY WHITE,
Deputy Minister Lands and Forests.

Appendix No. 4.

Statement of Revenue of the Department of Lands, Forests and Mines for 10 months ending October 31st, 1909.

Service.	$ c	$ c.	$ c.
LAND COLLECTIONS.			
Crown Lands:			
Agricultural	118,995 12		
Mining	235,098 04		
		354,093 16	
Clergy Lands	903 70		
Common School Lands	6,088 60		
Grammar School Lands	807 90		
University Lands	908 30		
		8,708 50	
Rent:			
Mining Leases	19,016 74		
Crown Leases	6,911 12		
		25,927 86	
Mining Licenses	108,701 00		
Recording Fees	110,772 95		
		219,473 95	
Royalties	338,426 66		
Provincial Mines	115,411 71		
		453,838 37	
Supplementary Revenue:			
Acreage Tax	10,719 85		
Profit Tax	28,812 60		
Gas Tax	10,197 58		
		49,730 03	
			1,111,771 87
WOODS AND FORESTS.			
Bonus		285,571 41	
Timber Dues		529,422 50	
Ground Rent		68,528 53	
Transfer Fees		2,370 00	
			885,892 44
Provincial Assay Fees	789 60		
Casual Fees	523 83		
Cullers' Fees	352 00		
		1,665 43	
Rondeau Park	288 50		
Algonquin Park	438 50		
Forest Reserves	400 35		
		1,127 35	
			2,792 78
REFUNDS.			
Wood Ranging		1,384 56	
Fire Ranging		24,511 41	
Diamond Drill		1,517 42	
Surveys		200 00	
Quebec Agency		14 00	
Agents' Salaries		50 00	
Temagami Timber Cutting		30 00	
Inspection Fees		10 00	
Explorations and Investigations		10 00	
Contingencies		40 00	
			27,767 39
			2,028,224 48

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands, Forests and Mines for 10 months ending October 31st, 1909, which are considered as Special Funds.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	501 90	
Interest	401 80	
		903 70
Common School Lands.		
Principal	2,020 45	
Interest	4,068 15	
		6,088 60
Grammar School Lands.		
Principal	319 85	
Interest	488 05	
		807 90
University Lands.		
Principal	796 14	
Interest	112 16	
		908 30
		$8,708 50

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands, Forests and Mines for 10 months ending October 31st, 1909.

Service.	$ c.	$ c	$ c.
AGENTS' SALARIES.			
Land.			
Baker, R. H.	291 66		
Belyea, C. W.	187 40		
Both, Charles	83 34		
Brown, James B.	750 00		
Buchanan, Thomas	250 00		
Byers, R. J.	416 66		
Campbell, John G.	473 86		
Campbell, William	416 66		
Child, F. A.	395 77		
Eastland, T. G.	250 00		
Ellis, H. J.	223 66		
Freeborn, J. S.	416 66		
Grills, J. J.	416 66		
Hollands, C. J.	250 00		
Jenks, James	416 66		
Jenkin, William	416 66		
Keefer, H. A.	416 66		
Lemieux, J. A.	333 34		
McFayden, Alex	416 66		
MacLennan, J. K.	416 66		
Parsons, W. J.	416 66		
Philion, J. A.	416 66		
Powell, F. R.	416 66		
Prince, Adam	416 66		
Pronger, R. H.	250 00		
Rothwell, B. J.	200 00		
Scarlett, James	193 00		
Tait, J. R.	416 66		
Warren, D. B.	250 00		
Whybourne, W E.	179 16		
Wilson, James	125 00		
Woollings, Joseph	416 66		
Wright, E. A.	416 66		
Young, H. N.	50 00		
		11,402 75	
Timber.			
Christie, W. P.	1,333 33		
Hawkins, S. J.	1,166 66		
Henderson, Charles	1,333 33		
Howie, R. J.	1,000 00		
Johnson, S. M.	1,333 33		
McDonald, Hector	1,166 66		
Margach, William	1,333 33		
Maughan, Joseph	1,166 66		
Oliver, J. A.	1,250 00		
Stevenson, A.	1,166 66		
McDougall, James T.	1,333 33		
Watts, George (Acting Agent)	1,170 00		
		14,753 29	
Homestead Inspectors.			
Barr, James	1,000 00		
Burnes, C. W.	750 00		
Chester, Thomas	1,000 00		
Carried forward	2,750 00	26,156 04	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	2,750 00	26,156 04	
AGENTS' SALARIES.—*Continued.*			
HOMESTEAD INSPECTORS.—*Concluded.*			
Dean, Thomas	500 00		
Groulx, R. J.	500 00		
Hughes, Thomas	500 00		
Quenneville, I.	500 00		
Watson, T. P.	760 00		
		5,510 00	
AGENTS' DISBURSEMENTS.			
Land.			
Belyea, C. W.	87 40		
Brown, James B.	127 80		
Buchanan, Thomas	11 50		
Byers, R. J.	9 96		
Campbell, John G.	46 25		
Campbell, William	19 50		
Child, F. A.	10 90		
Jenks, James	14 02		
Jenkin, William	6 73		
Keefer, H. A.	30 95		
McFayden, Alex	70 74		
MacLennan, J. K.	91 94		
Parsons, W. J.	13 75		
Philion, J. A.	10 99		
Powell, F. R.	14 00		
Prince, Adam	30 00		
Pronger, R. H.	33 04		
Rothwell, B. J.	1 00		
Scarlett, James	3 00		
Spry, William L.	6 00		
Warren, D. B.	5 04		
Whybourne, W. E.	2 00		
Wilson, James	20 94		
Woollings, Joseph	21 50		
		688 95	
Timber.			
Christie, W. P.	311 48		
Hawkins, S. J.	352 38		
Henderson, Charles	258 64		
Howie, R. G.	352 06		
Johnson, S. M.	82 05		
McDonald, Hector	424 95		
Margach, William	975 50		
Maughan, Joseph	421 96		
Oliver, J. A.	845 83		
Stevenson, A.	454 27		
McDougall, J. T.	136 19		
Watts, George (Acting Agent)	350 02		
		4,965 33	
Homestead Inspectors.			
Barr, James	471 25		
Burnes, C. W.	490 99		
Chester, Thomas	190 45		
	1,152 69		
Carried forward		37,320 32	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	1,152 69	37,320 32	
AGENTS' DISBURSEMENTS.—*Concluded.*			
HOMESTEAD INSPECTORS.—*Concluded.*			
Dean, Thomas	151 10		
Groulx, R. J.	344 80		
Hughes, Thomas	155 95		
Quenneville, I.	129 06		
Watson, T. P.	317 95		
		2,251 55	
Miscellaneous.			
Ames, D. H., Caretaker Islands in Dog and Loughborough Lakes	20 00		
Black, W. D., Inspection E. ½ 17 in 7 Olden	10 00		
Bilton, Geo., Caretaker of Islands in Mud and Loon Lakes	25 00		
Coyne, Phin., Inspection of lots in Townships Carr and Taylor	175 80		
Davis, Samuel, Caretaker Leonard Island	20 00		
Gartshore, Geo., Inspection Township of Wilson	86 00		
Guthrie, William, Caretaker Devil's Island	31 00		
Hunt, John McKay, Inspection of lots in Townships Dorion, Oliver and Marks	11 61		
McCormack, John, Inspection of lots 3 and 4, N. side of Manchester Street, Village of Warwick	7 00		
McDonell, Angus, Inspection Township of Burns	270 00		
Macinnes, W. J., Estimation of Lands	4 00		
Reckie, A. E., Inspection Township of Wilson	110 58		
Smith, James, Inspection of lots in Townships of Southworth, Sanford, Dryden	127 90		
Tapping, Thomas, Inspection of lot 29, Con. 6, Barrie	5 00		
		903 89	
			40,475 76
OTTAWA.			
Darby, E. J., Agent		1,250 00	
Larose, S. C., Clerk		833 33	
Rent	375 00		
Disbursements	52 90		
		427 90	
			2,511 23
QUEBEC.			
Nicholson, Byron, Agent		875 00	
Rent	156 25		
Disbursements	410 30		
		566 55	
			1,441 55
WOOD RANGING.			
Allen, R. A.		1,245 00	
Ansley, J. J.		760 00	
Arnill, William		252 00	
Barrett, Thomas		1,125 00	
Carried forward		3,382 00	44,428 54

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		3,382 00	44,428 54
WOOD RANGING.—*Continued.*			
Bates, Robert		582 00	
Bliss, Lidden		235 00	
Bliss, L. E.	850 00		
Disbursements	90 39		
		940 39	
Cameron, Alex		220 00	
Carter, George		1,225 00	
Carson, Samuel		190 00	
Castonguay, A. C.		695 00	
Chenier, D.		1,480 00	
Clarke, R. H.		55 00	
Collector of Customs		17 50	
Coyne, Phin		490 00	
Corrigan, R. T.		965 00	
Didier, Peter		640 00	
Dodds, William		155 00	
Dodds, Thomas		309 00	
Durrell, William		1,165 00	
Durl, William		115 00	
Ewan, John		288 00	
Fisher, George		710 00	
Fitzgerald, E. C.	1,085 00		
Disbursements	121 28		
		1,206 28	
Foster, E. G.		713 85	
Fraser, William		870 00	
Gorman, J. P.		414 23	
Gordon, Joseph		175 00	
Hartley Charles		1,090 00	
Hatch, J. W.		100 00	
Hawkesbury Lumber Co		10 81	
Henderson, Charles, Disbursements		76 19	
Herring, E. C.		60 00	
Hickerson, M. T.		165 00	
Hornick, George		175 00	
Huckson, A. H.		830 00	
Hurdman, W H.		450 00	
Hutton, John	100 00		
Disbursements	35 25		
		135 25	
Irwin, C. W.		50	
Kerr, Charles D.		60 00	
Kelly, Joseph		152 00	
Lee, James B.		665 00	
Londry, W. E.		99 62	
McCaw, John G.	630 00		
Disbursements	14 70		
		644 70	
McCreight, John	1,300 00		
Disbursements	129 04		
		1,429 04	
McDonald, A. J.	1,255 00		
Disbursements	42 39		
		1,297 39	
McDonald, Thomas		216 00	
McDonell, J. A.		50 00	
Carried forward		24,894 75	44,428 54

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		24,894 75	44,428 54
WOOD RANGING.—*Continued.*			
McDougall, James T., disbursements		19 95	
McLeod, Charles		215 00	
McLean, John	230 00		
Disbursements	84 95		
		314 95	
McPherson, J. S.		1,115 00	
McNabb, A. D.		500 00	
Macdonell, R. D.	1,125 00		
Disbursements	39 50		
		1,164 50	
MacGillivray, Duncan D.	114 00		
Disbursements	4 20		
		118 20	
Mackey, L. R.		275 00	
Mackie, Nathan		514 00	
Manice, William		1,095 00	
Margach, William, disbursements		197 22	
Margach, J. A.	272 00		
Disbursements	4 75		
		276 75	
Matheson, William	1,125 00		
Disbursements	28 30		
		1,153 30	
Menzies, Alex.		1,015 00	
Milway, J. H.	1,310 00		
Disbursements	34 25		
		1,344 25	
Morley, J. R.		10 00	
Muir, Angus		85 00	
Murray, William		1,175 00	
Nash, John	401 00		
Disbursements	5 00		
		406 00	
Newburn, William		785 00	
Oliver, J. A., disbursements		40 59	
Porter, H. R.		100 00	
Ragon, Joseph	175 00		
Disbursements	9 35		
		184 35	
Ridley, Robert		720 00	
Rogers, F. W.		355 00	
Roos, George		35 00	
Shaw, George		570 00	
Shaw, Alfred		510 00	
Shields, Foster	120 00		
Disbursements	86 56		
		206 56	
Smith, J. D. C.	1,015 00		
Disbursements	56 00		
		1,071 00	
Smith, Dryden		50 00	
Thompson, George S.	780 00		
Disbursements	14 60		
		794 60	
Tappin, Thomas, disbursements		14 30	
Urquhart, A.		795 00	
Carried forward		42,120 27	44,428 54

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		42,120 27	44,428 54
WOOD RANGING.—*Concluded.*			
Vincent, H. T.		915 00	
Wagner, Fred	440 00		
Disbursements	70 75		
		510 75	
Wagner, F. W.	224 00		
Disbursements	6 00		
		230 00	
Watts, George		348 45	
Weston, Frank R., disbursements		20 30	
Whelan, P. J.		1,345 00	
Wood, W. D.		456 92	
Yuill, Thomas		710 00	
			46,656 69
EXPLORATION AND ESTIMATION OF TIMBER BERTHS.			
Burns, William	495 00		
Disbursements	265 60		
		760 60	
Cox, T.	115 00		
Disbursements	2 89		
		117 89	
Fraser, Duncan		390 00	
Kinney, W.	92 00		
Disbursements	7 80		
		99 80	
McCreight, John	378 00		
Disbursements	527 44		
		905 44	
Margach, William		208 00	
Milligan, Wallace		1,025.00	
Oliver, J. A.		701 95	
Taylor, John		100 00	
Watts, George ..... services		138 00	
			4,536 68
FIRE RANGING.			
Acheson, Lloyd		165 20	
Adams, A.	342 50		
Disbursements	3 90		
		346 40	
Adsett, F. V.	322 50		
Disbursements	23 40		
		345 90	
Algoma Central and Hudson Bay Co.'y		698 53	
Algonquin Lumber Co.		14 50	
Allen, T. W. E.	297 50		
Disbursements	33 85		
		331 36	
Allin, G. C.	342 50		
Disbursements	18 95		
		361 45	
Allison, M. B.	357 50		
Disbursements	20 25		
		377 75	
Carried forward		2,641 08	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		2,641 08	95,621 91
FIRE RANGING.—*Continued.*			
Anger, Leon	222 50		
Disbursements	3 70		
		226 20	
Armstrong, W. J.		75 00	
Armstrong, R.		115 00	
Armstrong, J. C.		131 00	
Arnott, William		131 00	
Arnill, R.		129 00	
Arnup, J.	332 50		
Disbursements	16 40		
		348 90	
Atkinson, T. A.		132 00	
Aylward, James		48 00	
Baird, J. McC.	257 50		
Disbursements	8 40		
		265 90	
Baker, B.		150 00	
Baldwin, J. P.	152 50		
Disbursements	26 90		
		179 40	
Baldwin, Roy	152 50		
Disbursements	29 40		
		181 90	
Bateman, W. R.	362 50		
Disbursements	62 15		
		424 65	
Barnhart, Ernest	307 50		
Disbursements	7 13		
		314 63	
Bayes, Roderick	285 00		
Disbursements	10 60		
		295 60	
Beaudry, John		131 00	
Beaudry, William	222 50		
Disbursements	3 70		
		226 20	
Beck, C. Mfg. Co.		103 35	
Belanger, John		80 50	
Belanger, E.	340 00		
Disbursements	42 35		
		382 35	
Belfry, R.	325 00		
Disbursements	22 85		
		347 85	
Bennett, G. A.....disbursements		3 80	
Benson, J. B.		131 00	
Bell, John H.		125 00	
Berlet, O. R.	320 00		
Disbursements	27 65		
		347 65	
Birmingham, E. B.		225 00	
Bissaillon, John	825 00		
Disbursements	361 98		
		1,186 98	
Bisaillon, James	225 00		
Disbursements	10 75		
		235 75	
Carried forward		9,315 69	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		9,315 69	95,621 91
FIRE RANGING.—*Continued.*			
Bliss, L. E.	750 00		
Disbursements	1,440 30		
		2,190 30	
Booth, J. R.	.....	435 33	
Bookhout, H.	322 50		
Disbursements	6 20		
		328 70	
Boleau, J.	.....	131 00	
Boldt, A.	347 50		
Disbursements	19 55		
		367 05	
Bonnycastle, R. H.	330 00		
Disbursements	68 60		
		398 60	
Boucher, W.	347 50		
Disbursements	2 90		
		350 40	
Brasher, S. M.	312 50		
Disbursements	6 20		
		318 70	
Brazeau, X.	260 00		
Disbursements	5 00		
		265 00	
Breadon, L. H. M.	320 00		
Disbursements	16 40		
		336 40	
Brennan, M., & Sons	.....	310 64	
Brennan, R. L.	.....	122 00	
Brennan, Dan	.....	49 00	
Bridgman, P.	.....	128 00	
Brooks, M. C.	.....	93 00	
Brooks, F. W.	.....	131 00	
Bromley, Ed. H.	.....	108 00	
Brown, Henry	.....	67 00	
Brown, J.	.....	131 00	
Brownlee, Sam	.....	43 00	
Brownlee, J. J.	.....	131 00	
Bruce, George	345 00		
Disbursements	18 65		
		363 65	
Bruley, Marcus	.....	68 00	
Brunet, Alphonse	355 00		
Disbursements	17 70		
		372 70	
Buchanan, R. F.	.....	325 50	
Burger, William	315 00		
Disbursements	13 75		
		328 75	
Burns, W.	.....	275 00	
Burns, G.	250 00		
Disbursements	30 85		
		280 85	
Burns, William	.....	131 00	
Burton, E. T.	.....	101 00	
Campbell, J. L.	500 00		
Disbursements	256 11		
		756 11	
Carried forward	.....	18,753 37	95,621 91

Appendix No. 6.—Continued.

Service.		$ c.	$ c.	$ c.
Brought forward			18,753 37	95,621 91
FIRE RANGING.—*Continued.*				
Campbell, Archie	1908		91 00	
Campbell, A. J.	1908		55 00	
Campbell, Duncan		342 50		
Disbursements		3 95		
			346 45	
Campbell, W.		340 00		
Disbursements		22 15		
			362 15	
Campbell, R.			122 00	
Campbell, Bruce			131 00	
Canadian Copper Co.			7 00	
Cantin, Xavier			23 00	
Card, W.		332 50		
Disbursements		45 50		
			378 00	
Carnochan, G.		332 50		
Disbursements		26 80		
			359 30	
Carney Lumber Co.			44 00	
Cartier, A.			292 50	
Carruthers, Robert		345 00		
Disbursements		32 60		
			377 60	
Cassidy, James		460 00		
Disbursements		14 40		
			474 40	
Charlton, W. R.	1908		82 00	
Charlton, J & T.	1908		115 00	
Charlton, J. & W. A.			3 00	
Chalne, Antoine			49 00	
Chaput, Isadore	1908	131 00		
do	1909	131 00		
			262 00	
Chambers, E. V.		337 50		
Disbursements		24 15		
			361 65	
Chambers, J. R.		275 00		
Disbursements		1 60		
			276 60	
Chamberlain, E. H.			64 00	
Chamberlain, B. E.			135 00	
Chevier, Charles		315 00		
Disbursements		48 65		
			363 65	
Christie, W. J.			95 00	
Christilaw, Henry			131 00	
Chittick, W. J.			250 00	
Clark, David			72 00	
Clarke, S. C.		352 50		
Disbursements		24 70		
			377 20	
Clarke, R. H.			155 00	
Clarkson, G. E.			131 00	
Clement, G. H.		252 50		
Disbursements		25 25		
			277 75	
Carried forward			25,017 62	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		25,017 62	95,621 91
FIRE RANGING.—*Continued.*			
Cline, George	165 00		
Disbursements	28 20		
		193 20	
Clysdale, A.		131 00	
Coderre, A.		63 00	
Coghlan, Samuel J.		30 00	
Coghlan, John S.	295 00		
Disbursements	20 05		
		315 05	
Coghlan, Thomas		131 00	
Collins, James		110 00	
Colway, G. H.		59 00	
Connolly, John 1908		93 85	
Conlin, John		103 00	
Conger Lumber Co.		14 75	
Constantine, E.		131 00	
Conway, Richard		131 00	
Corrigan, M. B.		131 00	
Cooney, James C.		131 00	
Cottenham, William		131 00	
Coughlin, Herbert		51 00	
Coughlin, Ed.		131 00	
Coulter, Charles	345 00		
Disbursements	18 55		
		363 55	
Cousineau, A.	327 50		
Disbursements	8 90		
		336 40	
Cox, Joseph		128 00	
Coyne, Phin	594 42		
Disbursements	175 56		
		769 98	
Crawford, Ephraim	307 50		
Disbursements	2 20		
		309 70	
Crawford, C. M.	322 50		
Disbursements	65 85		
		388 35	
Cross, J.		282 50	
Croteau, Euzebe		131 00	
Cruise, W. W.	310 00		
Disbursements	21 35		
		331 35	
Cunningham, L. E.		50 00	
Cunningham, J.		131 00	
Currie, R.		131 00	
Curtin, David		131 00	
Curry, L.		131 00	
Cuthbertson, W.		131 00	
Dane, A.		131 00	
Daniels, R.	632 00		
Disbursements	42 75		
		674 75	
Darly, William	305 00		
Disbursements	2 20		
		307 20	
Carried forward		31,957 25	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		31,957 25	95,621 91
FIRE RANGING.—*Continued.*			
Davie, W. H.	342 50		
Disbursements	5 85		
		348 35	
David, Antoine	.....	103 00	
Davis, M. J.	.....	146 00	
Davison, Ira	350 00		
Disbursements	22 00		
		372 00	
Decoteau, Alex.	.....	131 00	
Dedagne, E. J.	302 50		
Disbursements	236 00		
		538 50	
Dedine, Joel	367 50		
Disbursements	1 15		
		368 65	
De Guerre, Claude	342 50		
Disbursements	27 70		
		370 20	
Delahaye, A. L.	210 00		
Disbursements	31 10		
		241 10	
Dempsey, J.	.....	131 00	
Desantils, Noe	.....	13 00	
Deschamps, F.	240 00		
Disbursements	12 00		
		252 00	
D'Eye, H. D.	265 00		
Disbursements	24 78		
		289 78	
Dewar, William	75 00		
Disbursements	5 00		
		80 00	
Dixon, L. A.	360 00		
Disbursements	50 05		
		410 05	
Dixon, J. H.	302 50		
Disbursements	21 65		
		324 15	
Dodds, James	130 00		
Disbursements	3 90		
		133 90	
Dolan, A.	305 00		
Disbursements	5 10		
		310 10	
Dolan, E.	305 00		
Disbursements	5 10		
		310 10	
Doherty, A.	265 00		
Disbursements	28 30		
		293 30	
Donald, Robert	355 00		
Disbursements	27 20		
		382 20	
Donahoe, L.	280 00		
Disbursements	6 30		
		286 30	
Carried forward	.....	37,791 93	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		37,791 93	95,621 91
FIRE RANGING.—*Continued.*			
Dow, W.		125 00	
Doxsee, J. E.	312 50		
Disbursements	18 55		
		331 05	
Dreany, Alex.	342 50		
Disbursements	2 80		
		345 30	
Drescoll, James		108 00	
Driver, Joseph		131 00	
Driver, J.		131 00	
Dufond, Ignace		90 00	
Dunbar, J.		80 00	
Duncan, Robert	307 50		
Disbursements	246 00		
		553 50	
Dunn, Frank 1908		27 00	
Dupuis, Joseph		38 00	
Duquette, H.		131 00	
Dwight, Theodore W.		135 00	
Edwards, E. D.		135 00	
Eddy Bros. & Co'y 1908		560 75	
Egan, D.		93 00	
Eilber, George	347 50		
Disbursements	25 15		
		372 65	
Elliott, J.	327 50		
Disbursements	31 60		
		359 10	
England, J.		111 00	
Eno, George		131 00	
Erickson, J.	305 00		
Disbursements	2 75		
		307 75	
Eveline, W.		108 00	
Fairbairn, N. H.		79 00	
Felskie, E.		111 00	
Ferguson, E. A.		125 00	
Ferguson, William	347 50		
Disbursements	2 90		
		350 40	
Ferris, R. H.	302 50		
Disbursements	58 30		
		360 80	
Fidler, S. J.		10 00	
Fisher, George		532 00	
Finlayson, J. H.		131 00	
Fitzpatrick, A.		131 00	
Fitzgerald, J.		131 00	
Flagherty, John		122 00	
Fortune, M.	305 00		
Disbursements	2 75		
		307 75	
Foster, John R.		131 00	
Fraser, W. A.	375 00		
Disbursements	8 05		
		383 05	
Carried forward		45,101 03	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		45,101 03	95,621 91
FIRE RANGING.—*Continued.*			
Fraser, W. G.	207 50		
Disbursements	22 70		
		230 20	
Fraser, H.	335 00		
Disbursements	21 95		
		356 95	
Fraser, John		131 00	
Frechette, O.....1908		131 00	
Gale, W. J.	347 50		
Disbursements	14 45		
		361 95	
Gagne, F.	849 60		
Disbursements	247 55		
		1,097 15	
Gagnon, Achille 1908		131 00	
Gagnon, Noel		134 00	
Ganly, R. J.	312 50		
Disbursements	25 75		
		338 25	
Gemmell, John		580 00	
German, J. P.		74 00	
Gibson, Thomas 1908		62 00	
Gibson, J.		80 00	
Gibson, M.	322 50		
Disbursements	71 90		
		394 40	
Gillies Bros.		200 45	
Gilpin, William	325 00		
Disbursements	1 20		
		326 20	
Golden Lake Lumber Co.		17 00	
Gould, A.		46 00	
Grant, Allen		27 00	
Grant, Robert		118 00	
Graves, Bigwood & Co.....1908		619 90	
Gray, V. E.	357 50		
Disbursements	61 75		
		419 25	
Gray, A. H. G.		131 00	
Griffin, James 1908		117 00	
Grier, W. J.		131 00	
Groulx, E.	340 00		
Disbursements	46 85		
		386 85	
Groulx, A.		131 00	
Groulx, C.		131 00	
Grozelle, A. D.....1908	131 00		
do 1909	131 00		
		262 00	
Gunter, P. M.		131 00	
Guthrie, William	345 00		
Disbursements	5 80		
		350 80	
Hackett, William	335 00		
Disbursements	3 75		
		338 75	
Carried forward		53,087 13	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		53,087 13	95,621 91
FIRE RANGING.—*Continued.*			
Haggerty, F.		85 00	
Haley, Ed.		131 00	
Hambly, W. R.	352 50		
Disbursements	20 00		
		372 50	
Hammond, W. H.	355 00		
Disbursements	21 10		
		376 10	
Hamilton, G.	325 00		
Disbursements	23 70		
		348 70	
Hardy, F.	332 50		
Disbursements	13 50		
		346 00	
Hand, Thomas		544 00	
Harrison, John & Sons		131 00	
Harper, Thomas		131 00	
Harvey, F. R.	345 00		
Disbursements	37 15		
		382 15	
Haskin, W.		129 00	
Hatch, James		79 00	
Hawley, James 1908		142 00	
Hawley, D. J.	322 50		
Disbursements	54 25		
		376 75	
Hawkesbury Lumber Company		226 00	
Hayes, Joseph	315 00		
Disbursements	54 55		
		369 55	
Henderson, Charles		428 63	
Hennessy, B. E. 1908		152 70	
Herringer, W. J.	247 50		
Disbursements	63 05		
		310 55	
Hickey, W.		131 00	
Hilary, C. E.		48 00	
Hillman, J. H.		131 00	
Hillier, John		50 00	
Hipwell, Thomas	300 00		
Disbursements	7 30		
		307 30	
Hiscock, H. G.	325 00		
Disbursements	14 60		
		339 60	
Hodge, W. R.	285 00		
Disbursements	56 65		
		341 65	
Hodgson, John	265 00		
Disbursements	36 60		
		301 60	
Hoath, R.		130 00	
Hooey, George	342 50		
Disbursements	12 35		
		354 85	
Carried forward		60,283 76	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		60,283 76	95,621 91
FIRE RANGING.—*Continued.*			
Holdsworth, J.		94 00	
Howlett, W. M.	317 50		
Disbursements	27 83		
		345 33	
Hughes, James		80 00	
Hudson Bay Company.....1908		31 75	
Hunt, J. W.		132 00	
Hunter, Lorne		131 00	
Huston, J.		99 00	
Hutton, R. B.		45 00	
Hurtubise, A.	225 00		
Disbursements	4 00		
		229 00	
Irwin, H. S.	360 00		
Disbursements	51 05		
		411 05	
Irwin, E.		133 00	
Irwin, T.		127 00	
Jacko, John	175 00		
Disbursements	5 80		
		180 80	
Jackson, George		24 00	
Jamieson, D. D.	357 50		
Disbursements	4 20		
		361 70	
Jardine, A. J.	300 00		
Disbursements	21 00		
		321 00	
Johnson, Thomas	235 00		
Disbursements	1 60		
		236 60	
Johnson, H. C.		127 00	
Johnston, Robert	305 00		
Disbursements	9 82		
		314 82	
Jordan, William	360 00		
Disbursements	3 45		
		363 45	
Judge, S.	330 00		
Disbursements	27 65		
		357 65	
Kelly, Ed.	220 00		
Disbursements	3 50		
		223 50	
Kelly, John		131 00	
Keily, M.	277 50		
Disbursements	24 00		
		301 50	
Keen, Walter		105 00	
Keenahan, Matt	362 50		
Disbursements	14 25		
		376 75	
Kennedy, Robert		84 00	
Kerby, John		103 00	
Kerr, A. W.		131 00	
King, F. J.		275 00	
Carried forward		66,159 66	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		66,159 66	95,621 91
FIRE RANGING.—*Continued.*			
King, James 1908	92 00		
" " 1909	131 00		
		223 00	
Kring, W. A.	.....	113 00	
Kruger, A. P.	270 00		
Disbursements	4 25		
		274 25	
Labelle, A.	360 00		
Disbursements	21 20		
		381 20	
Lafleur, Thomas	.....	100 00	
Lafrance, Thomas 1908	.....	131 00	
Lang, James	.....	52 00	
Langevin, Joseph	.....	143 00	
Lapine, A.	.....	80 00	
Laurin, Joseph	320 00		
Disbursements	2 70		
		322 70	
Lavoie, X.	.....	131 00	
Law, W. J.	.....	131 00	
Lawson, E.	347 50		
Disbursements	25 15		
		372 65	
Legary, Frank 1908	.....	154 25	
Lee, James B.	846 40		
Disbursements	189 21		
		1,035 61	
Leach, W. J.	277 50		
Disbursements	13 65		
		291 15	
Leblanc, Fred	.....	222 50	
Leblanc, Mathias	.....	131 00	
Lennox, T. C.	337 50		
Disbursements	24 70		
		362 20	
Ledward, T. H.	.....	90 00	
Lindop, H.	.....	1 13	
Livingston, A.	.....	84 00	
Long, H. E.	640 00		
Disbursements	11 10		
		651 10	
Lorenz, Fred	.....	131 00	
Lorenz, Charles	.....	136 00	
Lorenz, William	.....	80 00	
Lougheed, R. J.	330 00		
Disbursements	26 65		
		356 65	
Loveland & Stone	.....	32 50	
Lovering Lumber Co.	.....	43 50	
Lunan, W. A.	.....	235 00	
Lusk, William	305 00		
Disbursements	1 30		
		306 30	
Lynn, W.	220 00		
Disbursements	3 50		
		223 50	
Carried forward	.....	73,181 85	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		73,181 85	95,621 91
FIRE RANGING.—*Continued.*			
McArthur, E. C.	332 50		
Disbursements	17 00		
		349 50	
McArthur, G. J.		9 53	
McBain, Roderick		132 00	
McCaw, James		131 00	
McCaw, Wesley		111 00	
McCaw, J. G.	380 00		
Disbursements	76 70		
		456 70	
McCagherty, P.		115 00	
McCauley, Jerry		123 00	
McClelland, Robert		80 00	
McClure, A.	235 00		
Disbursements	16 00		
		251 00	
McColl, Archibald		131 00	
McCombe, Alex.		131 00	
McCormack, Walter		94 00	
McCrimmon, N. K.		131 00	
McCulloch, Chris	355 00		
Disbursements	33 85		
		388 85	
McCulloch, David	402 50		
Disbursements	21 90		
		424 40	
McDermott, Alex.		106 00	
McDermott, W. B.	315 00		
Disbursements	22 40		
		337 40	
McDonald, Dan	300 00		
Disbursements	10 80		
		310 80	
McDonald, James	362 50		
Disbursements	13 50		
		376 00	
McDonald, Alex		66 00	
McDonald, A. J.		132 00	
McDonell, G. D.		131 00	
McDougall, J. T.		522 39	
McFadden & Malloy		121 00	
McGuay, Dennis		131 00	
McIver, H.	345 00		
Disbursements	35 70		
		380 70	
McInnis, D. C.		95 00	
McKay, Angus		146 00	
McKenzie, Robert		250 00	
McKinnon, H.	330 00		
Disbursements	35 35		
		365 35	
McKinnon, A.		64 00	
McKinsey, Joseph		26 00	
McLachlin Bros.		2 00	
McLaughlin, J. S.		250 00	
McLaughlin, John		131 00	
Carried forward		80,184 47	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		80,184 47	95,621 91
FIRE RANGING.—*Continued.*			
McLeish, W. J.		140 00	
McLeod, William	287 50		
Disbursements	8 40		
		295 90	
McLeod, Dougald		65 00	
McLelland, James	312 50		
Disbursements	31 75		
		344 25	
McMahon, M.		122 00	
McMillan, D. H.	295 00		
Disbursements	11 70		
		306 70	
McMillan, V.	340 00		
Disbursements	28 05		
		368 05	
McMullen, Alex.		118 00	
McNeil, E. H.	300 00		
Disbursements	52 90		
		352 90	
McNichol, William J.		89 00	
McPhee, D. J.	282 50		
Disbursements	21 30		
		303 80	
McPherson, W. C.	345 00		
Disbursements	22 55		
		367 55	
McQuabie, Henry		82 00	
McQuay, B.		105 00	
McQuay, J.		104 00	
McRae, J. D. 1908		460 50	
McRae, D.	332 50		
Disbursements	23 35		
		355 85	
MacBeth, R. E.		82 00	
Macdonald, J. D.		133 00	
Macfarlane, R. L.		112 00	
MacGillivray, E. F.	135 00		
Disbursements	108 00		
		243 00	
Mackie, Thomas	317 59		
Disbursements	3 00		
		320 50	
Madigan, W. J. 1908		12 00	
Madigan, W.		131 00	
Magner, Thomas		73 00	
Maguire, T. C.	255 00		
Disbursements	28 10		
		283 10	
Maher, Thomas		93 00	
Mairs, Eli		50 00	
Malloy, Mark 1908		17 00	
Manning, William	345 00		
Disbursements	28 00		
		373 00	
Margach, William, disbursements 1908	43 97		
Margach, William, disbursements 1909	467 15		
		511 12	
Carried forward		86,598 69	95,621 91

Appendix No. 6.—Continued.

Service.	$ c	$ c.	$ c.
Brought forward		86,598 69	95,621 91
FIRE RANGING.—*Continued.*			
Martin, A. J.	327 50		
Disbursements	22 55		
		350 05	
Martin, Thomas		131 00	
Martin, J. C.	305 00		
Disbursements	6 00		
		311 00	
Martin, G.		131 00	
Marshall, William 1908		27 00	
Matt, Joseph		252 50	
May, A.		131 00	
Menard, E.	320 00		
Disbursements	2 70		
		322 70	
Merchant, John, disbursements		24 50	
Merchant, Herbert		290 00	
Mercier, W.		130 00	
Mickle, Dyment & Son 1908		113 75	
Middleton, John 1908	131 00		
Middleton, John 1909	131 00		
		262 00	
Midland Lumber Co.		13 00	
Miller, A. M.	322 50		
Disbursements	25 95		
		348 45	
Miller, R. R.	352 50		
Disbursements	6 80		
		359 30	
Miller, J.		105 00	
Milne, S.		79 00	
Millichamp, F. A.	297 50		
Disbursements	22 00		
		319 50	
Mitchell, James	345 00		
Disbursements	15 90		
		360 90	
Mitchell, J.		110 00	
Mole, W. H.	337 50		
Disbursements	15 65		
		353 15	
Montgomery, W.	310 00		
Disbursements	40 80		
		350 80	
Montroy, J. J.		131 00	
Montreuil, L. 1908		132 00	
Monro, Robert		131 00	
Morton, R. R.		23 00	
Morand, L.	335 00		
Disbursements	8 80		
		343 80	
Moore and Moulthrop 1908	810 00		
Moore and Moulthrop 1909	452 00		
		1,262 00	
Moore and Macdonald		53 00	
Morris, D.		78 00	
Morris, J.		36 00	
Carried forward		93,664 09	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		93,664 09	95,621 91
FIRE RANGING.—*Continued.*			
Morrison, W. F. 1908	.....	80 00	
Morrison, H. L.	327 50		
Disbursements	18 90		
		346 40	
Morrison, John	.....	131 00	
Morrin, Paul	.....	64 00	
Moulthrop, G. H.	.....	10 00	
Mounsteven, J.	.....	101 00	
Mulvahill, Thomas	.....	175 00	
Murray, Thomas 1908	.....	141 00	
Murray, Z.	307 50		
Disbursements	4 30		
		311 80	
Murphy, J.	.....	131 00	
Nancekivelle, Thomas	332 50		
Disbursements	26 65		
		359 15	
Neely, A. H.	345 00		
Disbursements	22 65		
		367 65	
Netterville, William	.....	63 00	
Newburn, William	.....	560 00	
Newman, R. J. 1908	.....	95 00	
Newell, John	342 50		
Disbursements	22 25		
		364 75	
Nichol, Dan	.....	131 00	
Nicholson, A.	.....	129 00	
Nixon, William	.....	13 00	
Nipissing Lumber Co.	.....	4 69	
Nolan, C.	.....	131 00	
Northern Timber Co.	.....	1 00	
Norton, R. D.	.....	131 00	
Nundy, George	337 50		
Disbursements	3 40		
		340 90	
O'Brien, Phil	.....	102 00	
O'Connor, L.	.....	175 00	
O'Grady, M.	.....	79 00	
Oliver, J. A.	.....	535 44	
O'Neil, P. F.	.....	57 00	
O'Neil, W. S.	335 00		
Disbursements	27 80		
		362 80	
Ontario Lumber Co. 1908	.....	44 50	
O'Keefe, Thomas	.....	105 00	
Ouinque, J.	.....	320 00	
Owens, R.	.....	131 00	
Pappin, Joseph	.....	131 00	
Parlow, A.	330 00		
Disbursements	36 50		
		366 50	
Pateman, E.	302 50		
Disbursements	3 30		
		305 80	
Carried forward	.....	100,561 47	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		100,561 47	95,621 91
FIRE RANGING.—*Continued.*			
Patterson, B. C.	292 50		
Disbursements	19 40		
		311 90	
Patterson, William		97 00	
Paul, H. S., disbursements 1908		12 00	
Paquette, O. 1908		123 00	
Pearce Lumber Co. 1908		41 84	
Pelow, Robert		15 00	
Pelot, John 1908		131 00	
Pembroke Lumber Co. 1908		935 00	
Pepeguis, Angus		79 00	
Perrault, A.		131 00	
Perrault, W. N. 1908		136 00	
Perrigo, A.		131 00	
Phillion, A. W. 1908		154 25	
Philbin, T. H.		88 00	
Platt, S.	322 50		
Disbursements	55 15		
		377 65	
Playfair and White 1908		49 25	
Pigeon, C.	347 50		
Disbursements	10 00		
		357 50	
Poulin, D.	357 50		
Disbursements	46 85		
		404 35	
Poulin, William	335 00		
Disbursements	46 85		
		381 85	
Ponninville, Joseph		131 00	
Powell, John	337 50		
Disbursements	25 65		
		363 15	
Powell, Abner		132 00	
Power, J. P.	337 50		
Disbursements	5 40		
		342 90	
Price, R.	332 50		
Disbursements	26 80		
		359 30	
Pringle, A.	345 00		
Disbursements	26 50		
		371 50	
Proulx, A.		192 75	
Quesnell, Fred	342 50		
Disbursements	5 20		
		347 70	
Quilty, John	337 50		
Disbursements	39 15		
		376 65	
Ranger, P.	257 50		
Disbursements	11 25		
		268 75	
Rathbun Co. 1908	30 08		
Rathbun Co. 1909	1 50		
		31 58	
Carried forward		107,435 34	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		107,435 34	95,621 91
FIRE RANGING.—*Continued.*			
Regan, J.		118 00	
Reid, Adam 1908		105 00	
Renand, Cypien 1908		131 00	
Renand, Nels	245 00		
Disbursements	1 40		
		246 40	
Reynolds, N.	272 50		
Disbursements	12 98		
		285 48	
Rhoades, F. M.	302 50		
Disbursements	2 15		
		304 65	
Richardson, Sam	292 50		
Disbursements	15 10		
		307 60	
Richardson, Stanley	267 50		
Disbursements	14 63		
		282 13	
Rickson, Ainslie Stoddart		8 00	
Riddell, Drew	322 50		
Disbursements	60 90		
		383 40	
Ritchie, R. and T. 1908		79 00	
Robinson, Bert	325 00		
Disbursements	57 90		
		382 90	
Roche, H.	337 50		
Disbursements	31 00		
		368 50	
Rogers, D. 1908	75 00		
Disbursements	5 00		
		80 00	
Rogers, Fred 1908		14 00	
Ross, A. C.		131 00	
Ross, H. E.	332 50		
Disbursements	26 45		
		358 95	
Rozell, P.	340 00		
Disbursements	42 70		
		382 70	
Ryan, J.		131 00	
Scantlin, James		105 00	
Scheich, J.		81 00	
Scott, Robert		548 00	
Scott, Howard	342 50		
Disbursements	26 45		
		368 95	
Sheppard-Morse Lumber Co. 1908		293 00	
Sheppard and Wallace 1908		195 00	
Sherlock, S.	277 50		
Disbursements	20 00		
		297 50	
Sheridan, William		85 00	
Shields, G.		61 00	
Shields, T.		118 00	
Shores, D.		102 00	
Carried forward		113,689 50	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		113,689 50	95,621 91
FIRE RANGING.—*Continued.*			
Sicard, Frank		119 00	
Sills, Charles	280 00		
Disbursements	50 95		
		330 95	
Simpson, Alex.		77 00	
Smeltzer, J. H.	187 50		
Disbursements	7 50		
		195 00	
Smith, J. B., and Son	1908	41 00	
Smith, A. L.	347 50		
Disbursements	22 55		
		370 05	
Smith, W. I.		130 00	
Smith, B.		119 00	
Smith, Charles		131 00	
Smith, William		131 00	
Smith, John		131 00	
Spanish River Pulp & Paper Co.		342 52	
Spohn, P. D.	1908	101 00	
St. Anthony Lumber Co.		13 50	
St. Dennis, Charles	1908	163 95	
St. Pierre, Fred	1908	43 00	
Stevenson, W. O.	320 00		
Disbursements	50 00		
		370 00	
Stevenson, William		29 00	
Stewart, J. A.	1908	159 25	
Stewart, Charles	305 00		
Disbursements	34 35		
		339 35	
Stewart, D. R.		66 00	
Stewart, R. M.		131 00	
Stillar, F.		72 00	
Straus Philip		131 00	
Strong Lumber Co.		234 00	
Stroud, A. M.	320 00		
Disbursements	60 60		
		380 60	
Sullivan, John		292 50	
Sullivan, Pat		127 00	
Sutter, F. J.	322 50		
Disbursements	60 15		
		382 65	
Swale, William		119 00	
Tanton, T. L.	345 00		
Disbursements	25 55		
		370 55	
Taylor, G. S.	327 50		
Disbursements	19 75		
		347 25	
Taylor, Dean	337 50		
Disbursements	34 40		
		371 90	
Teeter, J.		105 00	
Thibert, P.	260 00		
Disbursements	9 00		
		269 00	
Carried forward		120,425 52	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		120,425 52	95,621 91
FIRE RANGING.—*Continued.*			
Thomas, James 1908	.....	133 00	
Thomson, W.	257 50		
Disbursements	27 05		
		284 55	
Todd, C. C.	307 50		
Disbursements	2 20		
		309 70	
Towers, Oratus	.....	92 00	
Turrell, V. L.	342 50		
Disbursements	16 35		
		358 85	
Turner Lumber Co. 1908	5 00		
Turner Lumber Co. 1909	411 97		
		416 97	
Townsend, Ernest	.....	131 00	
Urquhart, A.	.....	536 00	
Vaillant, G.	.....	131 00	
Vallincourt, D.	325 00		
Disbursements	14 95		
		339 95	
Valentine, David	.....	122 00	
Vankoughnet, R.	.....	68 00	
Varcoe, Fred	335 00		
Disbursements	56 10		
		391 10	
Vaughan, C.	285 00		
Disbursements	62 40		
		347 40	
Vennette, John 1908	.....	131 00	
Victoria Harbor Lumber Co.	.....	20 50	
Viverais, M.	342 50		
Disbursements	4 50		
		347 00	
Wagner, H. W.	.....	160 00	
Wallace, S. A. 1908	.....	139 00	
Wallace, A. J.	335 00		
Disbursements	4 50		
		339 50	
Wallace, S.	.....	131 00	
Wallace, Sam	.....	131 00	
Wallace, E.	.....	131 00	
Wallace, George	.....	131 00	
Walker, Robert 1908	.....	85 00	
Walker, G.	282 50		
Disbursements	17 50		
		300 00	
Walsh, James	.....	131 00	
Ward, James	360 00		
Disbursements	7 50		
		367 50	
Ward, W. C.	.....	150 00	
Warren, Fletcher 1908	.....	159 25	
Washburn, B.	337 50		
Disbursements	2 40		
		339 90	
Carried forward	.....	127,280 69	95,621 91

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		127,280 69	95,621 91
FIRE RANGING.—*Continued.*			
Watts, George		653 07	
Watson, William	307 50		
Disbursements	7 30		
		314 80	
Wattie, T. D.		97 00	
Weir, G. A.		330 00	
Wendt-Wreidt, A. J. P.	315 00		
Disbursements	1 45		
		316 45	
Webster, H.		131 00	
Wilder, H. J. 1894		264 00	
Wilkins, George		536 00	
Williamson, H.	347 50		
Disbursements	41 80		
		389 30	
Wilson, G. A. 1908		82 00	
Wilson, Edward		58 00	
Wilson, John 1908		58 00	
Wilson, R.	285 00		
Disbursements	3 25		
		288 25	
Wilson, I. W.		80 00	
Winters, John W.		157 00	
White, Harry		66 00	
Whyte, J. T. G.		125 00	
Woodcock, George		225 00	
Woollings, James	337 50		
Disbursements	3 35		
		340 85	
Wolverine Cedar & Lumber Co. 1908	19 50		
Wolverine Cedar & Lumber Co. 1909	78 50		
		98 00	
Wright, Colin	200 00		
Disbursements	13 60		
		213 60	
Young, R. J.		131 00	
Young, D.	280 00		
Disbursements	8 45		
		288 45	
Zumstein, E. W.	267 50		
Disbursements	36 30		
		303 80	
			132,827 26
FOREST RESERVE.			
Temagami Reserve.			
$38,927.62			
Allan, David	367 50		
Disbursements	14 55		
		382 05	
Baker, C. R.	332 50		
Disbursements	16 05		
		348 55	
Barrett, Thomas		100 00	
Berkley, G. L.	265 00		
Disbursements	10 88		
		275 88	
Carried forward		1,106 48	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		1,106 48	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Continued.			
Bond, St. George	.....	125 60	
Brock, G. M.	325 00		
Disbursements	19 45		
		344 45	
Brown, E. W.	325 00		
Disbursements	19 50		
		344 50	
Burroughs, C. M.	332 50		
Disbursements	12 05		
		344 55	
Buisson, William	.....	300 00	
Butler, A. J.	262 50		
Disbursements	6 03		
		268 53	
Cameron, William	252 50		
Disbursements	6 65		
		259 15	
Clarke, W. K.	327 50		
Disbursements	14 05		
		341 55	
Copping, R. V.	325 00		
Disbursements	16 05		
		341 05	
Davidson, E. I.	295 00		
Disbursements	16 05		
		311 05	
Deacon, W. A.	315 00		
Disbursements	16 05		
		331 05	
Dobson, Harold	312 50		
Disbursements	20 30		
		332 80	
Donovan, J. A.		160 00	
Duncan, J. M.	330 00		
Disbursements	16 05		
		346 05	
Evans, Edward	332 50		
Disbursements	16 05		
		348 55	
Evans, R.	202 50		
Disbursements	16 05		
		218 55	
Faries, R.	.....	1,115 00	
Fawcett, W. J.	327 50		
Disbursements	16 05		
		343 55	
Fennell, T. H.	.....	205 00	
Findlay, H.	325 00		
Disbursements	5 70		
		330 70	
George, Ruggles	315 00		
Disbursements	16 05		
		331 05	
Carried forward	.....	8,148 61	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		8,148 61	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Continued.			
Gordon, Thomas	312 50		
Disbursements	24 05		
		336 55	
Greenwood, J. Y.	312 50		
Disbursements	12 05		
		324 55	
Hagerman, G.	280 00		
Disbursements	14 60		
		294 60	
Hall, Morton	312 50		
Disbursements	16 05		
		328 55	
Haywood, James	315 00		
Disbursements	14 05		
		329 05	
Herliky, Dan	335 00		
Disbursements	16 65		
		351 65	
Hill, M.	362 50		
Disbursements	6 65		
		369 15	
Hodgins, E. P.	367 50		
Disbursements	20 55		
		388 05	
Hodgins, Lyall	342 50		
Disbursements	18 85		
		361 35	
Huggard, A. E.	330 00		
Disbursements	20 05		
		350 05	
Hutchison, J.		125 00	
Jackson, W.	335 00		
Disbursements	18 90		
		353 90	
James, C.	362 50		
Disbursements	6 00		
		368 50	
Jamieson, R. A.	247 50		
Disbursements	18 20		
		265 70	
Jardine, A. J.		20 00	
Johnston, W.	330 00		
Disbursements	19 55		
		349 55	
Keeley, A. J.	325 00		
Disbursements	25 75		
		350 75	
Keys, A. B.	182 50		
Disbursements	3 65		
		186 15	
King, Charles L.	300 00		
Disbursements	20 00		
		320 00	
Carried forward		13,921 71	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		13,921 71	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Continued.			
Knox, J. E.	312 50		
Disbursements	16 05		
		328 55	
Lamarche, A.		675 00	
Lamarche, Charles		222 50	
Ladouceur, David	47 50		
Disbursements	7 70		
		55 20	
Lampson, L.	335 00		
Disbursements	18 85		
		353 85	
Lavigne, Louis	852 50		
Disbursements	65		
		853 15	
Lawson, G. W.	305 00		
Disbursements	17 20		
		322 20	
Leach, F.	327 50		
Disbursements	23 75		
		351 25	
Leach, W. J.		27 50	
Leggett, R. Preston	245 00		
Disbursements	22 50		
		267 50	
Leitch, J. M.	295 00		
Disbursements	14 05		
		309 05	
Le Seuer, N. L.	325 00		
Disbursements	22 95		
		347 95	
Lloyd, Hoyles	340 00		
Disbursements	14 55		
		354 55	
Lougheed, R. J.		20 00	
Lunny, J. W.	285 00		
Disbursements	14 15		
		299 15	
MacDonald, S. C.	1,083 33		
Disbursements	1,720 85		
		2,804 18	
Milligan, G.	367 50		
Disbursements	16 05		
		383 55	
Montgomery, A.		250 00	
McCallum, P.		140 00	
McCammon, J. G.		250 00	
McCart, E.	320 00		
Disbursements	28 10		
		348 10	
McCormack, C.	260 00		
Disbursements	8 03		
		268 03	
Carried forward		23,152 97	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		23,152 97	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Continued.			
McDonald, Charles		100 00	
McDougall, Eric	307 50		
Disbursements	12 05		
		319 55	
McKenzie, C. H.	325 00		
Disbursements	11 60		
		336 60	
McNaughton, F.	550 00		
Disbursements	56 40		
		606 40	
McNulty, E.	337 50		
Disbursements	13 55		
		351 05	
McPhee, D. J.	.....	20 00	
Nelson, George	310 00		
Disbursements	10 80		
		320 80	
Nesbitt, B.	332 50		
Disbursements	14 85		
		347 35	
O'Connor, J.	237 50		
Disbursements	5 80		
		243 30	
Paloquin, N.	312 50		
Disbursements	7 90		
		320 40	
Petrant, William		362 50	
Phelps, R. C.	335 00		
Disbursements	18 40		
		353 40	
Platt, S.	227 50		
Disbursements	9 55		
		237 05	
Prudhomme, Ad.	400 00		
Disbursements	22 95		
		422 95	
Raney, Fraser	332 50		
Disbursements	16 05		
		348 55	
Reed, W. J.	325 00		
Disbursements	16 05		
		341 05	
Reid, John A.	337 50		
Disbursements	26 30		
		363 80	
Rhodes, Harold	325 00		
Disbursements	16 05		
		341 05	
Richards, K.	335 00		
Disbursements	16 05		
		351 05	
Rochon, Joseph	.....	790 00	
Ross, O.	340 00		
Disbursements	17 90		
		357 90	
Carried forward	....	30,387 72	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		30,387 72	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Continued.			
Savage, D. H.	327 50		
Disbursements	16 05		
		343 55	
Scandrett, W. L.	322 50		
Disbursements	16 05		
		338 55	
Scott, W. R.	337 50		
Disbursements	19 45		
		356 95	
Sharp, A. H.	335 00		
Disbursements	7 70		
		342 70	
Shelson, H.	332 50		
Disbursements	17 80		
		350 30	
Simpson, W. C.	340 00		
Disbursements	7 30		
		347 30	
Skinner, P.	335 00		
Disbursements	16 05		
		351 05	
Spereman, James	320 00		
Disbursements	19 45		
		339 45	
Spence, William, Jr.	317 50		
Disbursements	14 70		
		332 20	
Stark, W. B.	330 00		
Disbursements	17 05		
		347 05	
Stewart, Charles		30 00	
Stewart, J. A.	315 00		
Disbursements	18 75		
		333 75	
Stuart, Cecil	310 00		
Disbursements	16 05		
		326 05	
Sweeney, D.	310 00		
Disbursements	21 75		
		331 75	
Tait, Joseph	325 00		
Disbursements	11 25		
		336 25	
Thompson, F.	320 00		
Disbursements	18 45		
		338 45	
Thompson, G. S.	315 00		
Disbursements	12 10		
		327 10	
Thompson, J. C.	347 50		
Disbursements	11 40		
		358 90	
Carried forward		36,219 07	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c	$ c.
Brought forward		36,219 07	228,449 17
FOREST RESERVE.—*Continued.*			
Temagami Reserve.—Concluded.			
Turner, John		372 50	
Turner, Joseph		340 00	
Tutt, W. R.	310 00		
Disbursements	14 05		
		324 05	
Tytler, Norman B.	332 50		
Disbursements	16 05		
		348 55	
Vivaris, D.	720 00		
Disbursements	3 60		
		723 60	
Whitesides, J. R.	325 00		
Disbursements	17 80		
		342 80	
Willis, G. C.	245 00		
Disbursements	12 05		
		257 05	
Metagami Reserve.			
$95,816.77			
Adams, G. W.	325 00		
Disbursements	14 70		
		339 70	
Beauchamp, A.		357 50	
Black, Davidson		170 00	
Bruce, T. L.	335 00		
Disbursements	16 70		
		351 70	
Burden, John	620 00		
Disbursements	439 37		
		1,059 37	
Clark, Frank	315 00		
Disbursements	22 50		
		337 50	
Dowling, Charles	342 50		
Disbursements	21 65		
		364 15	
Eveline, Andrew		360 00	
Fuller, Carlos	297 50		
Disbursements	23 15		
		320 65	
Howard, R. N.		175 00	
Kitt, A. N.	295 00		
Disbursements	18 20		
		313 20	
Laurence, Robert		295 00	
Lewis, R. G.	187 50		
Disbursements	9 35		
		196 85	
Lyons, Harold	320 00		
Disbursements	20 55		
		340 55	
Shearme, William	332 50		
Disbursements	13 40		
		345 90	
Steape, E. D.		150 00	
Wodehouse, R. P.	322 50		
Disbursements	17 20		
		339 70	
Carried forward		41,744 39	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		44,744 39	228 449 17
FOREST RESERVE.—*Continued.*			
Mississaga Reserve.—Continued.			
$8,653.04			
Arnill, Lorne	322 50		
Disbursements	19 60		
		342 10	
Albright, L.	402 50		
Disbursements	21 00		
		423 50	
Bothwell, George	330 00		
Disbursements	23 45		
		353 45	
Boyd, W. J.	322 50		
Disbursements	24 10		
		346 60	
Clark, Alfred	312 50		
Disbursements	19 00		
		331 50	
Clark, Karl A.	342 50		
Disbursements	16 70		
		359 20	
Dean, Thomas	320 00		
Disbursements	16 20		
		336 20	
Emery, E. V.	310 00		
Disbursements	18 70		
		328 70	
Foote, Walter S.	237 50		
Disbursements	15 85		
		253 35	
Graham, Summer W.	335 00		
Disbursements	18 70		
		353 70	
Graham, J. H.	310 00		
Disbursements	13 50		
		323 50	
Harper, C. J.	390 00		
Disbursements	20 70		
		410 70	
Keitch, N. M.	287 50		
Disbursements	17 70		
		305 20	
Kingston, Paul S.	325 00		
Disbursements	27 80		
		352 80	
Kinney, William	525 00		
Disbursements	347 74		
		872 74	
Long, A.	327 50		
Disbursements	21 45		
		348 95	
Porte, Alex. H.	320 00		
Disbursements	16 75		
		336 75	
Price, G. C.	307 50		
Disbursements	16 70		
		324 20	
Carried forward		51,447 53	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		51,447 53	228,449 17
FOREST RESERVE.—*Continued.*			
Mississaga Reserve.—Concluded.			
Reilly, W. J.	310 00		
Disbursements	31 30	341 30	
Scott, R. R.	330 00		
Disbursements	23 45	353 45	
Thomas, E. G.	332 50		
Disbursements	14 70	347 20	
Thompson, Harry	200 00		
Disbursements	12 40	212 40	
Warwick, Robert W.	322 50		
Disbursements	24 10	346 60	
Wilkins, Bert	330 00		
Disbursements	18 95	348 95	
Nepigon Reserve.			
$7,919.71.			
Day, Oswald	327 50		
Disbursements	36 05	363 55	
Deschamps, D.		227 50	
De Laronde, Charles	292 50		
Disbursements	2 00	294 50	
Duff, Joseph	325 00		
Disbursements	35 70	360 70	
Harvey, Alfred P.	317 50		
Disbursements	52 90	370 40	
Halliday, W.	250 00		
Disbursements	2 00	252 00	
James, C. H. J.	325 00		
Disbursements	54 30	379 30	
Leitch, P. A.	825 00		
Disbursements	1,248 76	2,073 76	
McGillivray, Roy	287 50		
Disbursements	6 60	294 10	
McKechnie, W. A.	150 00		
Disbursements	1 50	151 50	
Mutch, D. A.	325 00		
Disbursements	85 30	410 30	
Orr, W. A.	325 00		
Disbursements	45 45	370 45	
Carried forward		58,945 49	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		58,945 49	228,449 17
FOREST RESERVE.—*Continued.*			
Nepigon Reserve.—Concluded.			
Ritchie, Walter	317 50		
Disbursements	62 50		
		380 00	
Rolph, Michael	300 00		
Disbursements	16 50		
		316 50	
Scott, Harry	315 00		
Disbursements	16 50		
		331 50	
Servais, Albert	.....	225 00	
Simmons, Roy	.....	225 00	
Skead, Eric	147 50		
Disbursements	53 75		
		201 25	
Smith, Rex	325 00		
Disbursements	54 30		
		379 30	
Widdifield, Russell	277 50		
Disbursements	35 60		
		313 10	
Eastern Reserve.			
$1,319.34.			
Gilmour, John	.....	305 00	
Godkin, Jacob	.....	332 50	
McGregor, Charles	.....	332 50	
Tapping, Thomas	333 34		
Disbursements	16 00		
		349 34	
Sibley Reserve.			
Oliver, J. A	.....	83 34	
Quetico Reserve.			
$3,272.40.			
Adams, J. M	307 50		
Disbursements	2 50		
		310 00	
Armstrong, John	307 50		
Disbursements	1 30		
		308 80	
Bury, H. J	307 50		
Disbursements	2 20		
		309 70	
Campbell, J. Stuart	.....	312 50	
McDonald, John	307 50		
Disbursements	2 50		
		310 00	
Martin, W. A	496 00		
Disbursements	70		
		496 70	
Carried forward	.....	64,767 52	228,449 17

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		64,767 52	228,449 17
FOREST RESERVE.—*Concluded.*			
Quetico Reserve.—Concluded.			
Preston, H. F.	307 50		
Disbursements	1 50		
		309 00	
Readman, R.		312 50	
Sutton, George		67 50	
Tichborne, Arthur		227 50	
Wall, George	307 50		
Disbursements	70		
		308 20	
			65,992 22
MINES AND MINING.			
Miller, G. W., Provincial Geologist, services	3,541 67		
Disbursements	460 91		
		4,002 58	
Mickle, G. R., Mine Assessor, services	3,333 34		
Disbursements	844 70		
		4,178 04	
Price S., Mining Commissioner, services	2,666 67		
Dance, R. W., services	592 50		
Disbursements	915 82		
		4,174 99	
Corkill, E. T., Inspector of Mines, services	1,666 67		
Disbursements	1,116 60		
		2,783 27	
Knight, C. W., Assistant Geologist, services	1,500 00		
Disbursements	392 91		
		1,892 91	
Coleman, A. P., Geologist & Mineralogist, services		166 00	
			17,197 79
EXPLORATION AND INVESTIGATION.			
Bartlett, James	1,250 00		
Disbursements	558 98		
		1,808 98	
Bowen, N. L.		367 52	
Bruce, E. L.		329 22	
Burrows, A. G.	1,333 33		
Disbursements	421 56		
		1,754 89	
Farrell, Samuel		161 92	
Gray, W. B.		60 00	
Lowry, G. H.		217 50	
MacKenzie, G. C.	745 18		
Disbursements	99 78		
		844 96	
Moore, E. S.	380 77		
Disbursements	928 81		
		1,309 58	
Rogers, W. R.	692 30		
Disbursements	676 60		
		1,368 90	
Carried forward		8,223 47	311,639 18

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		8,223 47	311,639 18
EXPLORATIONS AND INVESTIGATIONS.—*Concluded*			
Robinson, A. H. A.	1,666 66		
Disbursements	601 85		
		2,268 51	
Scott, John	500 00		
Disbursements	289 35		
		789 35	
Toyn, John	500 00		
Disbursements	250 95		
		750 95	
William, English Canoe Co.	74 25		
Gill, Lester W.	500 00		
Micklethwaite, F. W.	1 40		
Stewart, W.	2 00		
Express	29 07		
		606 72	
			12,639 00
SPECIAL SERVICES AND UNFORESEEN EXPENSES.			
MacKenzie, G. C.		331 72	
Disbursements re Toronto Exhibition		1,061 81	
			1,393 53
SPECIAL SURVEYS IN MINING DISTRICTS			1,758 32
MINING RECORDERS.			
Belyea, C. W., Recorder	312 33		
Disbursements	143 19		
		455 52	
Bowker, S. T., Recorder	708 34		
Disbursements	286 32		
		994 66	
Hough, J. A., Recorder	1,000 00		
Browning, A. J., Clerk	750 00		
Disbursements	304 51		
		2,054 51	
Lemieux, F. F., Recorder	625 00		
Campbell, C. A., Clerk	415 38		
Disbursements	156 80		
		1,197 18	
McArthur, T. A., Recorder	1,000 00		
McLaren, Kate, Stenographer	400 00		
Disbursements	430 00		
		1,830 00	
McGuire, H. F.	416 66		
Disbursements	126 15		
		542 81	
Morgan, J. W., Recorder	567 33		
Disbursements	251 90		
		819 23	
Sheppard, H., Recorder	712 10		
Gordon, T. C., Clerk	678 74		
Jones, T., Clerk	253 39		
Carried forward	1,644 23	7,893 91	327,430 03

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	1,644 23	7,893 91	327,430 03
MINING RECORDERS.—*Concluded.*			
Blair, F. J., Clerk	294 23		
Keenan, H., Clerk	152 88		
Disbursements	2,434 04		
		4,525 38	
Smith, George T., Recorder	1,750 00		
McAulay, N. J., Assistant Recorder	1,000 00		
Bruce, A. E. D., Clerk	1,000 00		
Meagher, T. J. Clerk	650 00		
Monroe, Eva, Stenographer	600 00		
Smith, M. H., Stenographer	400 00		
Disbursements	12 69		
		5,412 69	
Skill, A., Recorder	700 00		
Torrance, T. H., Recorder	300 00		
Knapp, A. E., Clerk	210 00		
Adams, W. G., Clerk	320 39		
Gladwell, C. E., Clerk	175 00		
Disbursements	1,899 82		
		3,605 21	
Canadian Express Co.	45		
Dominion Express Co.	235 35		
King's Printer	735 68		
Warwick Bros. & Rutter	242 00		
Methodist Book Room	1 10		
		1,214 58	
			22,651 77
PROVINCIAL ASSAY OFFICE.			
Turner, N. L.	976 78		
Disbursements	521 21		
		1,497 99	
Rothwell, T. E.	833 30		
Disbursements	218 35		
		1,051 65	
Supplies	477 00		
Disbursements	227 59		
Equipment	162 57		
		867 16	
			3,416 80
CULLERS' ACT.			
Oliver, J. A., Disbursements	.....	11 35	
Johnson, S. M., Disbursements	.....	3 70	
Currie, D. H., Services	.....	4 00	
McGregor, S. C., Services	.....	4 00	
McDonald, J. H., Services	8 00		
Disbursements	5 10		
		13 10	
Kelley, J., Livery	.....	4 50	
Floyd, W., Rent of tables	.....	5 00	
Town of Fort Frances, Rent of Hall	.....	5 00	
			50 65
SURVEYS	.....	.....	83,357 33
BOARD OF SURVEYORS	.....	.....	200 00
Carried forward			437,106 58

Appendix No. 6.—Concluded.

Service.	$ c.	$ c.	$ c.
Brought forward			437,106 58
CONTINGENCIES			
Departmental.			
Printing and Binding	2,368 84		
Stationery	4,632 67		
		7,001 51	
Postage	2,148 00		
Express	252 02		
		2,400 02	
Telegraphing	452 06		
Telephone Messages	37 20		
Telephone Rent	54 80		
Car fare	70 00		
		614 06	
Subscriptions	199 90		
Advertising	4,600 65		
		4,800 55	
Typewriter, rent and repairs	394 00		
Johnston, H. E., Travelling expenses	18 68		
Kirkpatrick, G. B., Travelling expenses	6 85		
Rorke, L. V., Travelling expenses	21 90		
White, Aubrey, Travelling expenses	18 00		
Whitson, J. F., Travelling expenses	124 80		
		584 23	
Extra Clerks		3,321 64	
Sundries		105 88	
			18,827 89
BUREAU OF MINES.			
Printing and Binding	1,811 18		
Stationery and paper	1,957 28		
		3,768 46	
Postage	472 67		
Telegraphing	260 63		
Express and Cartage	82 82		
Advertising	4,869 44		
Subscriptions	147 84		
Maps	668 82		
		6,502 22	
Baker, M. B., Travelling expenses	17 35		
Gibson, T. W., Travelling expenses	18 96		
Johnston, H. E., Travelling expenses	370 77		
Whitson, J. F., Travelling expenses	12 60		
		419 68	
Typewriter repairs, etc.	21 50		
Bell Telephone Co.	7 80		
		29 30	
Extra Clerks		1,480 33	
Nicholas, F. J., Preparing index	401 00		
Sundries	189 31		
		581 31	
			12,781 30
PROVINCIAL MINES			13,777 72
COMMISSIONS RE SUNDRY INVESTIGATIONS			792 70
REFUNDS			14,064 53
			$497,350 72

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Deputy Minister Lands and Forests.

Appendix No. 7.

Statement of Expenses on account of various services under the direction of the Department of Lands, Forests and Mines, for ten months ending Oct. 31st, 1909.

Service.	$ c.	$ c.	$ c.
Diamond Drill.			
MacVicar, J. A.	1,200 00		
Disbursements	819 03		
		2,019 03	
Labor	1,446 24		
Freight, Express, Etc	204 16		
		1,650 40	
Supplies	366 87		
Carbons	825 94		
Drill furnishings	702 45		
		1,895 26	
			5,564 69
ALGONQUIN PARK			9,332 29
RONDEAU PARK			2,515 53
VETERANS' COMMUTATION			8,050 00
			$25,462 51

D. GEO. ROSS,
Accountant.

AUBREY WHITE,
Deputy Minister Lands and Forests.

Appendix No. 8.

WOODS AND FORESTS.

Statement of revenue collected during the 10 months ending October 31st, 1909.

	$ c.
Amount of Western collections at Department	791,127 03
do do do Quebec	30,666 78
do Belleville collections	7,545 96
do Ottawa collections	56,552 67
	885,892 44

J. A. G. CROZIER,
Chief Clerk in Charge.

AUBREY WHITE,
Deputy Minister.

Appendix No. 9.

PATENTS BRANCH.

Statement of Patents, etc., issued by the Patents Branch from 1st January to 31st October, 1909.

Crown Lands	760
School do	26
Mining do	282
Public do (late Clergy Reserves)	6
Free Grant Lands (A. A.)	108
do (Under Act of 1880)	403
Rainy River Lands (Mining and Crown)	247
Mining Leases	42
Licenses of Occupation	18
Crown Leases	23
Crown Lands (University)	8
Mining do do	1
Free Grant, Act of 1901 (Veterans)	646
Temagami Islands	2
Total	2,572

CHARLES S. JONES,
Chief Clerk.

AUBREY WHITE,
Deputy Minister.

Appendix

WOODS AND

Statement of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber license.	Saw logs.				Boom and Dimen	
		Pine.		Other.		Pine.	
	Square miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.	Feet B.M.
Western Timber District	11,649¾	7,490,545	320,979,340	1,180,815	43,753,119	183,775	26,013,634
Belleville Timber District	919¼	136,424	9,913,602	50,712	1,443,542	943	274,878
Ottawa Timber District	5,955¼	1,613,175	100,677,638	372,704	12,028,069	47,962	5,885,686
	18,524¼	9,240,144	431,570,580	1,604,231	57,224,730	232,680	32,174,198

General Statement

Agencies.	Cordwood.		Tan Bark.	Railway ties.	Posts.	Telegraph poles.	Stave bolts.	Pulpwood.
	Hard.	Soft.						
	Cords.	Cords.	Cords.	Pieces.	Cords.	Pieces.	Cords.	Cords.
Western Timber District	7,988	11,722	7,689	1,363,542	157	1,852	4,128	59,591
Belleville Timber District	.....	.....	311	337	51	25	4	9
Ottawa Timber District	2,182	9,325	50	9,474	56	199	.....	12,238
	10,170	21,047	8,050	1,373,353	264	2,076	4,132	71,838

J. A. G. CROZIER,
Chief Clerk in Charge.

No. 10.

FORESTS.

Rent and Bonus during the 10 months ending 31st October, 1909.

DESCRIPTION OF TIMBER.

sion timber.		Square timber.				Piles.	Pile timber.	
Other.		Ash, birch, oak and hemlock.		Pine.				
Pieces.	Feet B.M.	Pieces.	Cubic feet.	Pieces.	Cubic feet.	Lineal feet.	Pieces.	Feet B. M.
43,854	5,995,045	A 61 B 41 O 1	1,452 1,213 30	5,949	314,068	3,580	5,961	630,707
498	77,599	A 1	55	47	2,158	.....	.....	.....
9,567	1,174,573	H ..	2,338	.....	.....	2,136	.....	.....
53,919	7,247,217	A 62 B 41 O 1 H .	1,507 1,213 30 2,338	5,996	316,226	5,716	5,961	630,707

of Timber.—Concluded.

Amounts accrued.

Transfer bonus.	Interest.	Trespass.	Timber dues.	Bonus.	Deposits timber sale of 1909.	Ground rent.	Total.
$ c	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1,653 00	9,492 43	42,587 39	784,486 59	63,179 59	273,525 00	45,418 00	1,220,342 00
112 00	480 52	298 72	11,281 42	191 97	.....	3,966 00	16,330 63
605 00	52 70	510 76	129,577 47	325 73	.....	19,001 00	150,072 66
2,370 00	10,025 65	43,396 87	925,345 48	63,697 29	273,525 00	68,385 00	1,386,745 29

AUBREY WHITE,
Deputy Minister.

Appendix No. 11.

Statement of the work done in the Military Branch of the Department of Lands, Forests and Mines, during the ten months ending the 31st October, 1909.

Letters received	7,000
Letters written	6,100
Maps supplied to Veterans	2,600
Location Certificates issued	250
Locations made	350
Surrenders	161
References for Patents issued	646
Letters to Military Settlers and Assignees of Veterans	434

R. H. BROWNE,
Chief Clerk in Charge.

AUBREY WHITE,
Deputy Minister.

Appendix No. 12.

Statement of the number of Letters received and mailed by the Department in 1907, 1908, and 1909 (10 months).

Year,	Letters received.					Names indexed.	Orders-in-Council.	Returned letters.	Letters, circulars and reports mailed from Department.
	Sales and Free Grants.	Surveys.	Woods and Forests.	Mines.	Totals.				
1907....	24,871	13,463	9,218	10,060	57,612	63,120	284	92	66,000
1908....	22,478	11,263	9,386	9,183	52,310	58,900	243	84	70,000
1909 (10 months)	19,500	16,016	9,086	8,398	53,000	59,400	178	72	62,800

FRANK YEIGH,
Registrar,

AUBREY WHITE,
Deputy Minister.

Appendix No. 13.

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties and of patents issued under "The Free Grants and Homesteads Act" during the ten months ending 31st October, 1909.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Baxter	Muskoka	J. B. Brown, Bracebridge	8	1,193	3	17	6	7
Brunel	"	" "	4	376	...	.....	4	1
Cardwell	"	" "	5	668	...	.....	5	4
Chaffey	"	" "	1	100	...	.....	1	2
Draper	"	" "	....	.....	...	.....	....	....
Franklin	"	" "	1	196	...	.....	....	2
Macaulay	"	" "	1	149	...	.....	1	....
Medora	"	" "	6	977	2	1½	6	5
Monck	"	" "	....	.....	...	.....	....	....
Morrison	"	" "	3	476	5	24½	3	4
Muskoka	"	" "	2	195	...	.....	1	....
McLean	"	" "	4	505	...	.....	4	5
Oakley	"	" "	8	713	1	22	7	6
Ridout	"	" "	1	145	...	.....	1	1
Ryde	"	" "	1	99	...	.....	1	....
Sinclair	"	" "	5	1,023	1	54	6	1
Stephenson	"	" "	1	91	...	.....	....	3
Stisted	"	" "	1	96	...	.....	2	4
Watt	"	" "	2	177	...	.....	2	1
Wood	"	" "	6	917	2	¼	4	6
Carling	Parry Sound	F. R. Powell, Parry Sound	8	1,400	4	48¼	4	27
Christie	"	" "	13	1,834	3	144	6	2
Conger	"	" "	11	1,325	9	30	2	15
Cowper	"	" "	....	.....	7	37	....	....
Ferguson	"	" "	....	.....	1	76	1	....
Foley	"	" "	2	258	6	21	1	7
Hagerman	"	" "	2	305	...	.....	2	2
Harrison	"	" "	....	.....	7	502	....	....
Humphrey	"	" "	1	170	3	15	1	5
McConkey	"	" "	2	200	...	.....	....	....
McDougall	"	" "	3	300	2	161	3	3
McKellar	"	" "	6	624	...	.....	2	4
McKenzie	"	" "	5	709	...	.....	4	4
Monteith	"	" "	6	1,012	1	1	2	5
Shawanaga	"	" "	1	200	2	22	....	6
Wilson	"	" "	....	.....	1	5	....	2
Chapman	"	Dr. J. S. Freeborn, Magnetawan.	8	122½	4	279	8	7
Croft	"	" "	12	1,706	...	.....	8	4
Ferrie	"	" "	2	294	...	.....	1	1
Gurd	"	" "	8	1,111	...	.....	4	7
Lount	"	" "	4	174	...	.....	1	....
Machar	"	" "	4	497	...	.....	7	....
Mills	"	" "	....	.....	1	100	....	1
Pringle	"	" "	1	201	2	2	2	2
Ryerson	"	" "	3	274	...	.....	4	6
Spence	"	" "	14	1,941	4	287	12	7
Strong	"	" "	5	692	...	.....	3	2

Appendix No. 13.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Armour	Parry Sound	W. Jenkin, Emsdale	1	100	...	.....	2	1
Bethune	"	" "	6	1,034	4	42	3	4
Joly	"	" "	2	304	2	4	2	3
McMurrich	"	" "	....	.....	...	.....	...	2
Perry	"	" "	3	465	...	.....	3	4
Proudfoot	"	" "	1	100	...	.....	1	5
Hardy	"	H. J. Ellis, Powassan	4	598	1	2½	1	2
Himsworth	"	" "	11	1,709	1	100	9	11
Laurier	"	" "	8	994	2	13½	6	6
Nipissing	"	" "	4	700	11	46½	6	5
Patterson	"	" "	5	964	1	30	1	4
Bonfield	Nipissing	W. J. Parsons, North Bay	7	777	...	.....	1	5
Boulter	"	" "	....	.....	..	.....	...	....
Chisholm	"	" "	8	1,209	...	.....	4	2
Ferris	"	" "	23	2,106	2	128	13	6
Anson	Haliburton	R. H. Baker, Minden	3	401	1	1	1	....
Glamorgan	"	" "	8	755	...	.....	3	1
Hindon	"	" "	....	.....	...	.....	...	....
Lutterworth	"	" "	1	51	1	86	1	3
Minden	"	" "	4	502	...	.....	4	1
Snowdon	"	" "	3	299	1	2	2	....
Stanhope	"	" "	7	753	1	2	4	....
Sherborne	"	" "	5	389	4	51½	....	3
Anstruther	Peterboro'	T. G. Eastland, Apsley	3	414	1	31	2	1
Burleigh, N.D.	"	" "	1	83	...	.....	1	....
" S.D.	"	" "	....	....	..	.....	...	....
Chandos	"	" "	1	91	...	.....	1	....
Methuen	"	" "	3	300	...	.....	1	2
Cavendish	Peterboro'	James Wilson, Kinmount	2	306	...	.....	1	1
Cardiff	"	" "	9	1,220	...	.....	8	2
Galway	"	" "	6	622	2	7	2	4
Monmouth	"	" "	7	822	2	40	2	3
Bangor	Hastings	J. R. Tait, L'Amable	3	290½	1	24	1	2
Carlow	"	" "	3	267	...	.....	...	....
Cashel	"	" "	3	300	1	5	1	1
Dungannon	"	" "	4	441½	1	88	5	1
Faraday	"	" "	7	882½	2	120½	5	3
Herschel	"	" "	8	920	1	3	5	4
Limerick	"	" "	....	.....	1	21	....	2
Mayo	"	" "	8	104⅔	...	.....	6	4
Monteagle	"	" "	3	330½	...	.....	....	9
McClure	"	" "	....	.....	...	.....	...	....
Wicklow	"	" "	5	765½	...	.....	1	....
Wollaston	"	" "	3	385	...	.....	1	....
Algona, S.	Renfrew	Adam Prince, Wilno	....	.....	...	.....	...	....
Brougham	"	" "	2	316	1	16	....	...
Brudenell	"	" "	8	1,271	...	.....	4	....
Burns	"	" "	8	970	...	.....	...	...
Grattan	"	" "	2	200½	1	20	2	4
Griffith	"	" "	....	.....	...	.....	....	1
Hagarty	"	" "	6	675	...	.....	6	6

Appendix No. 13.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Jones	Renfrew	Adam Prince, Wilno	4	516	...	...	1	...
Lyell	Nipissing	" "	5	722	2	42	3	2
Lyndoch	Renfrew	" "	4	410	...	...	2	2
Matawatchan	"	" "	1	104	...	...	...	...
Radcliffe	"	" "	5	897	3	141	3	1
Raglan	"	" "	6	610	2	64	2	10
Richards	"	" "	4	428	...	...	...	...
Sebastopol	"	" "	2	250	...	...	2	2
Sherwood	"	" "	17	1,584	2	17	6	7
Algona, N.	Renfrew	D. B. Warren, Pembroke	1	97	...	...	...	...
Alice	"	" "	6	672	...	...	...	1
Buchanan (pt)	"	" "	...	...	...	...	...	1
Fraser	"	" "	3	355½	...	...	2	...
Head	"	" "	...	...	...	...	...	...
Maria	"	" "	...	...	...	...	...	...
McKay (pt)	"	" "	...	...	...	...	...	...
Petawawa	"	" "	4	404	1	3½	...	2
Rolph	"	" "	1	100	...	...	...	3
Wilberforce	"	" "	1	100	...	...	1	...
Wylie (pt)	"	" "	...	...	...	...	...	1
Calvin	Nipissing	James Jenks, Mattawa	2	200	...	...	1	2
Cameron (pt)	"	" "	2	200	...	...	...	...
Lauder	"	" "	...	...	...	...	...	...
Mattawan	"	" "	...	...	...	...	...	1
Papineau	"	" "	9	850	1	11	4	3
Korah	Algoma	B. J. Rothwell, Sault Ste.	1	160	...	...	...	2
Parke	"	" " Marie	...	...	...	...	...	...
Prince	"	" "	3	488	2	200	2	3
Aberdeen	"	Thos. Buchanan, Thessalon	...	...	...	...	...	4
" add.	"	" "	1	141	...	...	...	...
Galbraith	"	" "	18	2,734	1	6½	3	9
Lefroy	"	" "	1	160	...	...	...	1
Plummer	"	" "	...	...	1	94	...	2
" add.	"	" "	...	...	...	...	...	...
St. Joseph Is'd	"	W. E. Whybourne, Marksville	3	283	1	9	3	6
Merritt	"	R. J. Byers, Massey	35	4,604½	1	79½	1	...
Blake	Thunder Bay.	H. A. Keefer, Port Arthur	2	320	...	...	2	3
Conmee	"	" "	23	3,814	2	168½	25	6
Crooks	"	" "	...	...	...	...	...	3
Dawson Road	"	" "	17	1,511	...	...	9	1
Dorion	"	" "	14	2,109	3	160	9	10
Gillies	"	" "	7	1,047½	3	162½	6	6
Gorham	"	" "	27	4,578⅔	1	20	17	1
Lybster	"	" "	8	1,226	2	168	8	6
Marks	"	" "	14	2,219½	2	166½	8	7
McIntyre	"	" "	7	985	...	...	6	...
McGregor	"	" "	14	2,247	5	4½	8	7
O'Connor	"	" "	15	2,400½	2	301	13	7
Oliver	"	" "	13	2,080	2	5	11	1
Paipoonge, N R	"	" "	1	89	1	100	2	2
" S R	"	" "	2	200	3	202	2	2

Appendix No. 13.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Pardee	Thunder Bay	H. A. Keefer, Port Arthur						
Pearson	"	" "	3	480⅓	7	977½	8	4
Scoble	"	" "	9	1428½	1	3	5	2
Strange	"	" "	7	962	3	377½	6	6
Atwood	Rainy River	William Campbell, Stratton						
Blue	"	" "	7	968	4	88	8	10
Curran	"	" "	2	324	1	1	3	1
Dewart	"	" "	3	480			5	
Dilke	"	" "	1	80	2	5	1	4
Morley	"	" "	4	484	5	196	4	4
Morson	"	" "	57	8,599¾	4	205½		
McCrosson	"	" "	14	1,911	7	396	11	5
Nelles	"	" "	9	1,232	7	213	8	10
Pattullo	"	" "	7	957	2	36	7	6
Pratt	"	" "	11	1,759¼			9	2
Roseberry	"	" "						
Shenston	"	" "	6	923	7	178	5	6
Spohn	"	" "	30	4,605	3	121¾	9	3
Sutherland	"	" "	11	1,853½	2	80	7	5
Sifton	"	" "	18	2,841½	6	296	10	4
Tait	"	" "	5	729	2	121	8	4
Tovell	"	" "	17	2,408¼	5	360½	14	6
Worthington	"	" "			2	82		3
Aylsworth	Rainy River	Alex. McFayden, Emo			2	68		2
Barwick	"	" "						
Burriss	"	" "	10	1,651	4	171½	10	8
Carpenter	"	" "	4	647½			4	2
Crozier	"	" "	9	1,146¾	4	76¼	8	7
Dance	"	" "	18	2,783			12	4
Devlin	"	" "	1	41	1	42		6
Dobie	"	" "	6	995½	4	149¾	10	7
Fleming	"	" "	1	154				
Kingsford	"	" "	12	1,896	1	40⅓	10	4
Lash	"	" "	6	891	5	445	4	5
Mather	"	" "	6	988½	6	318	6	12
Miscampbell	"	" "	15	2,434	3	167⅜	10	3
Potts	"	" "	24	3,826½	1	1½	3	2
Richardson	"	" "	7	1,038½	1	79¾	1	3
Roddick	"	" "	2	236	2	38		2
Woodyatt	"	" "			1	4		3
Aubrey	Rainy River	R. H. Pronger, Dryden	10	1,428½	1	12	6	2
Eton	"	" "	4	479½			2	4
Langton	"	" "						
Mutrie	"	" "	6	912½	2	172	4	5
Rugby	"	" "	1	160				4
Sanford	"	" "	8	1,222	3	83½	6	6
Temple	"	" "	5	810				
Vanhorne	"	" "	4	596	2	280	3	3
Wainwright	"	" "	6	823¼	2	199½	2	2
Zealand	"	" "	13	1,310½	1	11¼	11	6
Melick	"	W. L. Spry, Kenora	36	4,962½	7	417½	22	3
Pellatt	"	" "	26	3,814½	2	95½	11	5
Blezard	Sudbury	J. A. Lemieux, Sudbury	4	439¾			2	3
Capreol	"	" "	36	4,559	6	90	1	31

Appendix No. 13.—Concluded.

Township.	District or County.	Agent.	No. of persons located.	No of acres located.	No. of purchasers.	No. of acres sold.	No. of lots resumed.	No. of patents issued.
Hanmer	Sudbury	J. K. MacLennan, Sudbury	28	3,841¼	3	11	4	13
Balfour	"	" "	8	941½	1	77¾	....	7
Broder	"	" "	14	1,953½	...	.....	3	5
Chapleau	Algoma	" "	7	981	2	89	....	....
Dill	Sudbury	" "	1	166	...	.....	....	1
Garson	"	" "	5	711¼	4	19¾	....	6
Neelon	"	" "	16	2,281½	7	280	2	7
Rayside	"	" "	5	603¼	...	.....	....	6
Appleby	Sudbury	E. A. Wright, Warren	16	2,621	2	64	....	9
Casimir	"	" "	5	842½	1	8	....	2
Dunuet	"	" "	8	1,148½	6	29	....	11
Hagar	"	" "	13	2,089½	1	50½	....	8
Jennings	"	" "	7	920¾	...	.....	....	7
Kirkpatrick	Nipissing	" "	7	1,052	2	9	....	7
Ratter	Sudbury	" "	4	640½	...	.....	2	3
Caldwell	Nipissing	J. A. Philion, Sturgeon Falls.	3	400	1	2½	....	13
Cosby	Sudbury	" "	11	1,761½	4	5	....	9
Grant	Nipissing	" "	7	810½	...	.....	....	...
Macpherson	"	" "	18	2,776	...	.....	....	11
Martland	Sudbury	" "	5	805	1	1½	...	7
Springer	Nipissing	" "	6	659	...	.....	1	12
Abinger	Lennox and Addington	Charles Both, Denbigh	2	400	...	.....	1	2
Clarendon	Frontenac	" "	....	.....	...	.....	....	2
Denbigh	Lennox and Addington	" "	2	200	1	1	....	3
Canonto, S.	Frontenac	" "	....	.....	...	.....	....	....
" N.	"	" "	....	.....	...	.....	....	....
Miller (pt.)	"	" "	1	100	...	.....	....	....
Palmerston (pt)	"	" "	....	.....	..	.....	....	....
Airy	Nipissing	Unattached	8	1,119	1	2	....	4
Finlayson	"	"	....	.....	...	.....	....	1
Murchison	"	"	1	155	...	.....	....	....
Sabine	"	"	6	882	...	.....	....	3
			1418	196,602¾	329	12,211½	705	804

W. C. CAIN,
Clerk in Charge.

AUBREY WHITE,
Deputy Minister.

Appendix No. 14.

Statement of Municipal Surveys for which instructions issued during the 10 months, ending October 31st, 1909.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	Alex. Niven.....	672	June 12, 1909....	To survey the lines of the streets in the town of Niagara and to mark the same by suitable monuments in such a manner as the proper lines thereof may at any time be laid down upon the ground.
2	H. T. Routly....	673	July 14, 1909....	To survey part of the town of Haileybury, in the District of Nipissing, as shown on plan M. 13, of the town of Haileybury, and to plant permanent monuments marking the lines of the streets in the town of Haileybury as shown on said Plan M. 13.
3	Thomas H. Dunn.	674	Aug. 6, 1909	To survey the concession line and road between the 10th and 11th concessions of the township of Winchester across lots Nos. 12, 13, 14, 15, 16 and the west half of Lot No. 17, in the 10th concession of the township of Winchester, or as far as may be necessary to find original or undisputed monuments on each side and to plant permanent monuments to mark the said road on each side.
4	Alex Niven	675	Oct. 5, 1909	To survey the southern boundary of the town of Niagara and to define the same by durable monuments.

GEORGE B. KIRKPATRICK.
Director of Surveys.

AUBREY WHITE,
Deputy Minister of Lands and Forests

Appendix No. 15.

Statement of Municipal Surveys confirmed during the 10 months ending October 31st, 1909.

No	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under R.S.O., 1897, Chap. 181, secs. 10–15 inclusive.
1.	Herbert J. Bowman .	660	Aug. 7th, 1907...	To survey the original road allowance between the third and fourth concessions of the township of Garafraxa situate between the east, otherwise called the northeast halves of lots 11, 12 and 13, in the 3rd con., and the west, otherwise called the southwest halves of lots 11, 12 and 13, in the 4th con., of the said township, and to have the said road allowance marked by permanent stone or iron boundaries; and if the original monuments cannot be found at the corners of these lots to make the survey between the nearest undisputed points on said road allowance.	June 22, 1909.
2.	Lewis Bolton... ...	671	March 4th, 1909.	To survey the boundary road allowance between the townships of McKillop and Grey, from the northeast corner of Lot No. 1, con. 14 of the township of McKillop westerly to the northwest angle of lot No. 10, con. 14 of the said township of McKillop, and that iron or other durable monuments be planted at the northerly and southerly angles of each original lot along this boundary in each of the townships of McKillop and Grey.	Sept. 3, 1909.

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Deputy Minister of Lands and Forests.

Appendix No. 16.

Statement of Crown Surveys in progress during the ten months ending October 31st, 1909.

No.	Date of Instructions.	Name of Surveyor.	Description of survey.	Amount paid.
				$ c.
1	May 17, 1909..	C. H. Fullerton..	Survey of Lots 5 and 6, Township of James, District of Nipissing.....	300 00
2	May 18, 1909 .	Speight & Van Nostrand.....	Survey of Base and Meridian Lines, District of Sudbury and Algoma.....	13,500 00
3	July 29, 1909..	G. S. Abrey.....	Survey of Township of Wabigoon, District of Kenora.....	1,600 00
4	May 20, 1909..	F. W. Paulin.....	Survey of timber berths, District of Thunder Bay	3,400 00
5	May 27, 1909..	H. J. Beatty.....	Survey of outlines of townships, Temagami Forest Reserve.....	5,500 00
6	May 31, 1909..	W. & D. Beatty..	Survey of Township of Blount, District of Nipissing	3,500 00
7	May 31, 1909..	J. Hutcheon.....	Survey of Township outlines, Districts of Nipissing and Sudbury.....	4,500 00
8	June 1, 1909..	J. S. Dobie.....	Survey of Township outlines, Mississaga Forest Reserve.....	5,500 00
9	May 25, 1909..	Cavana & Watson.	Survey of Township outlines, Mississaga Forest Reserve.....	4,500 00
10	May 25, 1908..	T. J. Patten.....	Survey of Township outlines, Mississaga Forest Reserve.....	3,500 00
11	July 21, 1909..	C. H. Fullerton..	Survey of Township outlines, District of Nipissing	3,000 00
12	July 21, 1909 .	J. W. Fitzgerald.	Survey of Township outlines, District of Sudbury	2,500 00
13	Oct. 4, 1909..	J. H. Burd.....	Survey of timber berths E., F., I. and J., District of Algoma.....	300 00
14	May 20, 1909..	G. S. Abrey.....	Survey of timber berths, District of Rainy River	1,640 00
15	Dec. 31, 1908..	L. V. Rorke.....	Survey of outlines of Townships, Temagami Forest Reserve.....	1,500 00
				54,740 00

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Deputy Minister of Lands and Forests

Appendix No. 17.

Statement of Crown Lands surveyed, completed and closed during the ten months ending October 31st, 1909.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.	No. of acres.
1	May 28, 1908....	T. D. Green.....	Survey of Township of Umbach, District of Rainy River.....	1,284 65	29,965
2	May 27, 1908....	T. Byrne.....	Survey of Township of Skead, District of Nipissing.....	720 80	23,208
3	Oct. 31. 1908	DeMorest, Stull & Low.....	Survey of burnt territory east of Mozhabong Lake, District of Sudbury	191 91	
4	May 29, 1908 ..	J. Hutcheon.....	Survey of Township of Sankey, District of Algoma.....	166 00	51,660
5	May 29, 1908 ...	J. Hutcheon.....	Survey of Township of Fleck, District of Algoma.....	73 50	51,735
6	Feb. 1, 1908. ...	Speight & Van Nostrand.....	Survey of Abitibi Lakes and Islands, District of Nipissing....	3,204 52	
7	June 2, 1909.....	Edmund Seager..	Survey of outlines of Townships, District of Rainy River.....	800 07	
8	Jan. 10, 1909....	L. V. Rorke.....	Survey of town plot of Gowganda. District of Nipissing.....	2,234 75	
9	Feb. 17, 1909....	A. Lougheed.....	Survey of timber berths A. L. 1 and A. L. 2. District of Thunder Bay	162 90	
10	May 20, 1909....	E. D. Bolton.....	Survey of timber berths, District of Rainy River.....	1,569 76	
11	May 28, 1809....	J. H. Burd.....	Survey of timber berths, District of Thunder Bay	1,695 46	
12	May 26, 1909....	D. J. Gillon.....	Survey of timber berths, District of Rainy River.....	1,606 09	
13	May 28, 1909....	J. J. Lang.....	Survey of timber berths, District of Rainy River.....	1,025 14	
14	May 31, 1909....	Sutcliffe & Neelands.....	Survey of Willow River berths, H.S. 1000, 1002, in the District of Thunder Bay.....	1,695 45	
15	June 2, 1909.....	D. Williams.....	Survey of timber berths, District of Thunder Bay.....	1,028 32	
16	June 8, 1909.....	L. V. Rorke.....	Survey of town plot, Winnipeg River	212 45	
17	March 3, 1909...	L. V. Rorke.....	Survey of Block B, Gowganda.	366 16	
18	Sept. 1, 1909	L. V. Rorke.....	Survey of Frederick House town plot	225 08	
19	April 28, 1908. .	W. Murdoch.....	Survey of the Township of Morson, District of Rainy River..	554 98	
			D. Davidson with O.L.S. W. Murdoch.	100 67	
			E. G. Davis with O.L.S. W. Murdoch.	115 00	
			A. J. Bennett with O.L.S. W. Murdoch.	100 00	
			Benjamin Martin with O.L.S. W. Murdoch.	214 65	
			W. O. Souch with O.L.S. W. Murdoch	85 00	
			H. W. Renwick with O.L.S. W. Murdoch.	118 55	
			Leopold Allin, with O.L.S. W. Murdoch	112 90	
20	Aug. 18, 1909 ...	R. W. Demorest..	Survey of timber berths W.D. 7 and W.D. 8.	196 93	

Appendix No. 17.—Continued.

Statement of Crown Lands surveyed, completed and closed during the ten months.—Continued.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.	No. of acres.
21	May 19, 1909....	L. O. Clarke.....	Survey of part of Lot 13, Con. 3, Widdifield	13 00	
			E. H. Harcourt, printing maps..	7,254 75	
			C. Tarling & Co., mounting maps.	602 00	
			The Map Publishing Co., maps..	7 50	
			The Map Specialty Co., maps....	80 70	
			J. W. Stone, for canoes for use Surveyors	325 00	
			J. A. Oliver, snow shoes, timber berths A.L. 1 and A.L. 2.....	8 00	
			The Copp Clark Co., Ltd., maps, Morson	25 00	
			Rice Lewis & Son, iron posts...	42 44	
			John Foreman, travelling expenses with E. D. Bolton.	32 90	
			Rice Lewis & Son, iron posts....	154 35	
			G. M. Hendrie Co., maps.....	30 00	
				28,617 33	156,568

GEORGE B. KIRKPATRICK,
Director of Surveys.

AUBREY WHITE,
Deputy Minister of Lands and Forests.

Appendix No. 18.

Township Outlines in the Temagami Forest Reserve, District of Nipissing.

Toronto, Ontario, September 31st, 1909.

Sir,—I have the honour to submit the following report upon the survey of certain township outlines in the Gowganda Mining Division, in the Temagami Forest Reserve, and also the traverse of Gowganda and Obuskong Lakes made by me under instructions from your department, dated the thirty-first of December, nineteen hundred and eight. This survey was commenced in January of the present year, and carried on as rapidly as circumstances would permit, with the result that the traverse work and some thirty-six miles of outlines was completed before the break up in the months of April and May, when work was discontinued, and the remainder of the line finished in July and August.

The base line forming the southern boundary of the townships of Nicol and Milner was run due west astronomically from the iron post planted by me last year six miles due south from the north-east angle of said township of Nicol. Meridian lines were run north from the sixth mile point on this base line forming the western boundary of the townships of Nicol, Haultain and Morel, and from the twelfth mile point forming the western boundary of the townships of Milner and Van Hise. Base lines were also run due west astronomically to intersect the meridian lines as follows:—

From the iron post planted by me last year at the east side of Burk Lake, thus completing the northern boundary of the township of Nicol, and forming the northern boundary of the township of Milner.

From an iron post planted by me last year at the north-west angle of the township of Chown, thus forming the northern boundary of the townships of Haultain and Van Hise.

From an iron post planted by me last year at the east side of Sisseney Lake, on the east branch of the Montreal River, thus completing the northern boundary of the township of Morel.

Good substantial squared wooden posts were planted at every mile throughout the survey, excepting where such point came within a lake or river, in such cases the witness post was planted at the shore with the proper chainage enscribed thereon. The mile posts were all properly marked with the mileage, numbered from east and south, from 1 M. to 6 M. for each township boundary.

Physical Features.

In general the surface of the country traversed was rough and rocky.

The water shed between the east and west branch of the Montreal River is only from three to four miles wide.

During the course of the survey great activity prevailed in prospecting for mineral, and several discoveries of silver have been made. The geological features have been investigated closely by the Department of Mines.

Timber.

The timber consisted chiefly of spruce, birch, poplar, and jack pine from three to ten inches in diameter.

A considerable area of this country, especially along the water routes, has been burnt over during the years nineteen hundred and eight and nineteen hundred and nine. There are some scattered areas of red and white pine which are generally found around the lakes. The only particular good area of white pine lies along the southern boundary of the township of Nicol, extending from the 4th mile post easterly and northerly to Petipher Lake, also southerly into the township of Charters.

Waters.

There are several rapids and falls on the east branch of the Montreal River within these townships which might be developed into water power plants of one hundred and fifty horse power or more if occasion should arise. These are located as follows:—

1. On the east branch of the Montreal River, in the township of Nicol, south of Inlet Bay on Gowganda Lake, there is a fall of thirty-eight feet in the two rapids. The banks are good and substantial for retaining water. The estimated horse-power, two hundred and fifty in low water.

2. On the east branch of the Montreal River, in Gowganda town site reserve, township of Nicol, there is a fall of twenty-seven feet in a rapid which extends from Gowganda to Burk Lake, estimated horse-power, three hundred in low water.

3. On the east branch of the Montreal River, at the outlet of Burk Lake, township of Haultain, there is a fall of four feet, and at the outlet of Edith Lake, in the township of Van Hise, there is a fall of eleven feet. These two might be developed as one power, estimated at one hundred and fifty horse-power in low water.

4. On the east branch of the Montreal River, at the outlet of Crotch Lake, in the township of Morel, there is a fall of fifteen feet, and length of rapid about ten chains; estimated horse-power, one hundred and fifty.

5. On the east branch of the Montreal River, about a mile below number four, in the township of Morel, there is a fall of about fifteen feet; length of rapids, fifteen chains; estimated horse-power, one hundred and fifty.

6. On the east branch of the Montreal River, about two miles below number five, at the south end of Tommy Lake, there is a fall of twenty-four feet; length of rapid, six chains; estimated horse-power, three hundred.

7. On the east branch of the Montreal River, about a mile below number five, at the north end of Tommy Lake, there is a fall of thirty feet; estimated horse-power, four hundred.

These are the only water powers within the country traversed which I estimate would run over one hundred and fifty horse-power in low water.

Accompanying this report, I submit a plan and field notes, also accounts in triplicate with vouchers.

I have the honour to be,
Sir,
Your obedient servant,
(Signed) L. V. Rorke,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 19.

TOWNSHIP OF SKEAD, DISTRICT OF NIPISSING

SAULT STE. MARIE, ONTARIO, March 18th, 1909.

SIR,—I have the honour to submit the following report on the survey of the township of Skead, in the district of Nipissing, performed under instructions from your department, dated May twenty-seventh, nineteen hundred and eight.

As instructed, I commenced the survey at the south-west angle of the township, where I found a one and seven-eighth inch iron post alongside of a wooden post marked on the north-west "Catharine"; west "1"; on the north "Con. 1"; north-east "Skead"; on the east "1"; on the south-east "Bayly"; on the south "Con. VI."; on the south-west "Marter"; on the west "1." From this point I chained north along the west boundary to the line between the third and fourth concessions finding the intermediate posts of wood properly marked. At this point I planted a one and one-quarter inch iron post alongside of the wooden post marked on the north "IV."; on the east "I"; on the south "III"; on the west "12."

I then moved to lot four, in concession one, where I took an observation of polaris and ran side line four and five due north six miles, giving the concessions a uniform width of eighty chains and the lots forty chains each. At the north-west angle an iron post alongside of a wooden post marked on the north-east side "Hearst"; on the east "1"; on the south-east "Skead"; on the south "VI."; on the south-west "Catharine"; on the west "1"; on the north-west "McElroy."

At the intersection of the south boundary with side line six and seven a one and one-quarter inch iron post alongside a wooden post is planted, marked on the north side "Con. 1, Skead"; on the west side "VI."; on the south "Bayly VI."; on the east side "VII."

At the south-east angle of the township a one and seven-eighth inch iron post alongside of a wooden post is planted, marked on the north side "1"; on the north-east "Rattray"; on the south-east "Mulligan"; on the south "VI."; on the south-west "Bayly"; on the north-west "Skead."

At the intersection of concession lines three and four with the east boundary a one and one-quarter inch iron post is planted alongside a wooden post, marked on the north "IV."; on the east "Rattray"; on the south "III."; on the west "XII."

At the northeast corner of the township a one and seven-eighth inch iron post is planted alongside of a wooden post marked on northeast side "McFadden;" on the southeast side "Rattray;" on the south side "VI.;" on the southwest side "Skead;" on the west "XII.;" on the northwest "Hearst."

At the intersection of side line six and seven with the north boundary a one and one-quarter inch iron post is planted alongside of a wooden post marked on the north "Hearst;" on the west "VI.;" on the south "Skead VI.;" on the east "VI."

A one and one-quarter inch iron post alongside a wooden post was also planted at the intersection of side line six and seven with concession line three and four, marked on the west "VI.;" on the south "III.;" on the east "VII.;" on the north "IV."

Frequent observations for azimuths were taken, some of which are noted in the field notes, the variation of the magnetic needle being constant at eight and one half degrees west of the true meridian.

The township is well watered by several small lakes and small streams, the principal being Windigo with its lake expansions. The township is fairly level, soil being mostly clay, with the exception of a small tract of sand at the north-west corner of the township, through which the road to Larder Lake runs.

A rocky ridge runs along the south boundary, also along the east boundary and the eastern part of the north boundary. The shores of all the lakes are rocky but fully sixty per cent. of the area is fit for agricultural purposes.

The timber is poplar, white birch, spruce, balsam and a few cedar, with jack pine near the lakes ranging from three to ten inches diameter.

Moose were in great numbers but scarcely any small game. Pike and pickerel are the only fish we found. I found no settlers. General formation Huronic.

As to mining claims, there are a great number of location lines. I only looked after the Nigger Mine as shown on the plan.

I have the honour to be,
Sir,
Your obedient servant,
(Signed) THOMAS BYRNE,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 20.

BASE AND MERIDIAN LINES, DISTRICT OF ALGOMA.

THESSALON, ONT., February 12th, 1909.

SIR,—I have the honour to submit the following report on the survey of base and meridian lines in and adjacent to the Mississaga Forest Reserve, in the district of Algoma, made by me during the past season, under instructions from your department dated twenty seventh of May, nineteen hundred and eight.

I left Thessalon on June eleventh and proceeded to Bisco, by way of Sudbury, where most of my supplies and outfit had previously been shipped. I completed my outfit here and had everything shipped to Wakami Siding, about forty miles west of Bisco, on the Canadian Pacific Railway. From this point a very good canoe route leads to the head waters of the Wenebegon River, a tributary of the Mississaga River. This route was used in proceeding to the starting point of the survey, as it is much easier than the usual route from Bisco, the portages being short and less numerous. I arrived safely at the mouth of the Aubinadong River with my outfit and four months' supplies and proceeded up this river about ten miles. At this point the supplies were cached and I then proceeded with a light outfit to the starting point, at the seventy-eighth mile post on the base line run

by Ontario Land Surveyor Niven in nineteen hundred and two, arriving there on the evening of Saturday, June twenty-seventh.

I commenced the survey of the first meridian line at the seventy-eighth mile post on the base line run by Ontario Land Surveyor Niven in nineteen hundred and two and ran due north astronomically a distance of thirty miles, planting a wooden post at the end of every mile marked on the south side with the number of miles distant from the starting point. Iron posts were planted beside the wooden posts at the end of the sixth, twelfth, eighteenth, twenty-fourth and thirtieth miles. These posts were marked the same as the wooden posts, the number of the mile being cut in Roman numerals with a cold chisel.

From the thirtieth mile on the first meridian I ran due east on the second base line a distance of twelve miles, planting wooden posts at every mile, and marking them on the west side. Iron posts were planted at the sixth and twelfth miles and marked similarly to the wooden ones.

I then returned to the thirtieth mile on the first meridian and ran due west astronomically a distance of twenty-three miles, seventy-five chains, seventy-six links, at which point I intersected the meridian line run by Ontario Land Surveyor Speight in eighteen ninety-eight. A wooden post marked on the east side was planted at the end of each mile and at the intersection with Ontario Land Surveyor Speight's meridian. Iron posts were planted at the end of the sixth, twelfth and eighteenth mile and at Ontario Land Surveyor Speight's meridian, the marking being the same as on the wooden posts beside which they were planted. The wooden post at the west end of this line is marked "XXIV M—4.24 ch" on the east side. The iron post, however, is marked "XXIV M," as I had unfortunately lost the cold chisel used for marking the iron posts, the marking was done with a file, and I found it impossible to mark the broken chainage on the iron post. I then marked it with the even mile and noted the fact in the field notes.

On completing this line I returned to the twelfth mile and commenced the survey of the second meridian by running due south astronomically from the twelfth mile post on the second base line. I ran this line due south a distance of twenty-four miles, thirty-four chains, forty-three links, at which point I intersected the production of the north limit of township twenty-two, range ten, which line had been run by Ontario Land Surveyor Cozens in nineteen hundred and seven. I produced this line due east astronomically a distance of seven chains thirty-one links to intersect my second meridian line. Wooden posts marked on the south side were planted at the end of each mile on this line. Iron posts were planted at the end of the sixth, twelfth, eighteenth and twenty-fourth miles and marked on the north side. At the intersection with the easterly production of the north limit of township twenty, range ten, a cedar post was planted marked "XXIV M+34.93 chs." on the north side.

From this point I returned to the eighteenth mile post on the second meridian line and from this point ran due east astronomically on the first base line. I had intended running the western twelve miles of the first base line before running east, but on arriving at the starting point I found that it would be impossible to do this on account of the great difficulty in getting supplies to the line. I, therefore, decided to leave this twelve miles until later, and ran east towards my base of supplies on the Aubinadong River. I ran the portion of the first base line which lies between the first and second meridians from west to east instead of from east to west as instructed. I marked the posts, however, with the distance in miles from the first meridian line on the east side of each post. An iron post

was planted at the end of the sixth mile marked "VI M" on the east side. I intersected the first meridian at a point four chains fifty-nine links south of the twelfth mile post. No iron post was planted here, but a wooden post was planted marked "XII M—4.59 ch." on the south side.

From the first meridian I ran due east astronomically from the twelve mile post a distance of twelve miles, three chains, fifteen links, at which point I intersected the meridian line run by Ontario Land Surveyor Niven in nineteen hundred and two, at a point four chains eighty-one links south of his twelve mile post. Wooden posts marked on the west side were planted at the end of each mile on this line. No post was planted at the end of the twelfth mile but at Ontario Land Surveyor Niven's meridian a post was planted, marked "XII M—3.15 ch." on the west side. Iron posts were planted at the end of the sixth mile and at Ontario Land Surveyor Niven's meridian marked the same as the wooden posts, except that the iron post at Ontario Land Surveyor Niven's meridian is marked "XII M" on account of it being impossible to mark the extra chainage with a file.

On completing this line I decided to return home and went down the Aubinadong and Mississaga Rivers, arriving in Thessalon on the night of October twelfth.

Immediately after New Year's I proceeded to Searchmont on the Algoma Central Railway, where I procured a team and transported my outfit to a lumber camp in township twenty-two, range eleven. From here I proceeded by toboggan to a point near the eighteen mile post on the second meridian line, from which point I ran due west on the first base line a distance of twelve miles, seven chains, thirty-five links to the meridian run by Ontario Land Surveyor Speight in eighteen ninety-eight. I planted a wooden post marked on the east side at the end of each mile with the exception of the twenty-fourth mile. A post was planted, however, at the intersection of Ontario Land Surveyor Speight's meridian which came at twenty-four miles plus seven chains thirty-five links. Iron posts were planted at the eighteenth mile and at the intersection with Ontario Land Surveyor Speight's meridian and marked similarly to the wooden posts at these points.

On all of the above lines where the end of a mile came in a lake a post was planted on the nearest shore and marked and the distance marked on the post plus or minus as the case might be.

Throughout the survey care was taken to have the lines well cut out and blazed and to have good durable posts well made and firmly planted. Stone mounds were made around the posts whenever possible. Bearing trees were marked B T and the bearing and distance from the posts marked in the field notes.

Observations on Polaris were taken whenever possible, and these are noted in their proper places in the field notes. Great difficulty was experienced during the latter part of the survey in getting observations on account of the unusual amount of smoke in the atmosphere.

Timber.

There is a very large amount of valuable timber within the limits of the survey. There are some large burnt areas resulting from fires which apparently swept the country about twelve or fifteen years ago, but taken as a whole the country is largely a virgin forest. On the timber plan which accompanies this report I have shown approximately where these burnt areas are, but on account of the distance between the lines run it is not possible to make any estimate as to their exact extent.

The first meridian for the first four miles runs through a brulé, about forty years old, the timber consisting mostly of poplar and birch up to eight inches

diameter. From the fourth to the ninth mile the lines run through a forest of spruce, birch, balsam, etc., with white pine scattered throughout. Near the sixth mile the pine is quite thick. From the ninth to the tenth mile there is a brulé with no timber of any value. From the tenth to the sixteenth mile the timber is of good quality, spruce, balsam, and jack pine predominating, although there is a large amount of white pine throughout. There is also considerable birch and maple. From the sixteenth to the twenty-fourth mile the line runs through a brulé of very large extent. This brulé extends as far as can be seen from the hill tops and runs at least five miles to the east, and a considerable distance west, and an immense amount of timber has been destroyed. From the twenty-fourth to the thirtieth mile the timber is mostly green with a couple of smaller areas of brulé, spruce, balsam, birch, etc., being plentiful, with a considerable amount of white pine scattered throughout.

The first base line, east of the first meridian line, this line runs through continuous green timber, spruce, balsam, birch, etc., are the prevailing varieties, and the white pine is of enormous value. On this line white pine of good quality is nearly always to be seen and appears to extend for a long distance both north and south of the line. This is the best timber area encountered during the season. West of the first meridian the line runs through a forest of spruce, birch, balsam, cedar, etc., with considerable white pine throughout as far as the eleventh mile. Here a small area of brulé is crossed and then green timber continues as far as the end of the line. From the eleventh mile west there is not so much pine visible from the line, but more hardwood is seen than on any of the other lines. There is some very good pine between the seventeenth and the twenty-first miles, but from the twenty-first to the twenty-fourth mile the line runs through a series of hardwood ridges. The timber on these ridges is maple and yellow birch, but the quality is poor.

The second base line. East of the first meridian the line runs through a green area with spruce, balsam and jack pine predominating. There is considerable white pine scattered throughout, but the white pine is not so plentiful as on the lines further south. The best white pine occurs between the tenth and twelfth miles. Two areas of brulé are crossed on this line, one starts one and a half miles east of the first meridian and runs east to the third mile. The other commences near the eighth mile post and extends east a mile and a half. There is no timber of value on these areas. West of the first meridian the line runs through spruce, balsam, birch and jack pine, with some scattered white pine as far as a large lake at the second mile. West of this lake an area of brulé is entered, which extends to the seventh mile. From this point as far west as Ontario Land Surveyor Speight's meridian the line runs in green spruce, birch, balsam and jack pine with white pine scattered throughout, with the exception of an area of brulé which is crossed near the nineteenth mile. The white pine is most noticeable west of a small lake at the fifteenth mile and again near the twenty-third mile. Taken as a whole this line runs through more spruce and jack pine and less white pine than the first base line.

Second meridian line. This line runs through green timber throughout its entire length, except for a small area of brulé near the nineteenth mile. From the first to the sixth mile the line runs through spruce, birch and jack pine, with an occasional white pine. From the sixth to the eighteenth miles the white pine increases, in some places being quite plentiful. From the eighteenth mile to the end of the line there are more hardwood ridges with spruce and balsam in the valleys, but not much white pine.

As to the sections of the country lying in between the lines I am unable to say much, but I am convinced that what I saw from the lines is a very fair average of the whole. My packers were continually travelling across country away from the line and what they say confirms me in this belief. They report a very considerable area of white pine between the first and second meridian about opposite the twenty-third mile on the first meridian. They also report splendid pine along the Aubinadong Rivers north of the first base line.

Geological and Physical.

The country as a whole is very rough and in some places mountainous, the rocks being mostly granite and gneiss of the Laurentian age. The southern part of the country is the roughest, as the hills and rock ridges are higher, but along the second base line the ground is very much broken, although the hills are not so high. In the northern part of the country there are more gravel and boulder ridges than in the southern part. The Aubinadong River occupies a deep valley with rough rocky cliffs visible in every direction.

There is no agricultural land worth considering. Where the country is not broken with rock or boulder ridges the land is either sandy or stony, and in most of the valleys are the muskegs typical of this part of the country.

There are numerous small lakes, but few of any size. The largest is crossed by the second base line at the second and third mile. This lake extends about five miles to the north and forms the headwaters of the west branch of the Aubinadong river. There are also two or three lakes of two or three miles long on the Goulais River and its branches.

The territory included within the limits of the survey is drained by the waters of the Aubinadong River or west branch of the Mississaga River and its tributaries and by the Goulais River. A comparatively small area in the southern portion is drained by the Garden River, while a small area in the northwest corner goes to Lake Superior by way of the Batchewaung River. These streams, while of considerable size, are all very rough and very difficult to travel on account of the long portages and many rapids. The lakes are mostly small and isolated and there are very few canoe routes that can be used, and the question of transportation is one of very great difficulty. The larger lakes at the head waters of the rivers will be useful for reservoir purposes when the question of driving timber down these streams is considered. I may say, however, that all the streams within the limits of the survey will require very extensive improvements before it will be possible to use them for driving timber. There is one considerable fall on the west branch of the Aubinadong River, near mile nineteen on the first meridian line which would be useful for water power purposes. There are no large water powers, however, on any of these streams, as there is not the volume of water in any of them to make a large power, and the falls, while numerous, are more of the nature of continuous rapids, which would require a large expenditure of money in order to utilize the fall.

The magnetic variation was fairly constant at an average of three degrees forty minutes west.

Fish and Game.

Moose and red deer are in great abundance. Wolves are also very numerous and could be heard howling almost every night. Very few signs of beaver were

seen, and other furbearing animals are not plentiful. Partridge and rabbit have almost disappeared as very few were seen.

In the streams and lakes at the head waters of the Goulais and the west branch of the Aubinadong Rivers are to be found an abundance of speckled trout of very good size. Gray trout are also found in some of these lakes. The Aubinadong River itself contains pike.

Accompanying this report are field notes and plans of the survey, also my account in triplicate.

I have the honour to be,
Sir,
Your obedient servant,
(Signed) JAMES S. DOBIE,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 21.

TOWNSHIP OF SANKEY, DISTRICT OF ALGOMA.

GUELPH, ONT., January 26th, 1909.

SIR,—I have the honour to submit the following report on the survey of the township of Sankey, in the district of Algoma, made in accordance with instructions from your department dated May twenty-ninth, nineteen hundred and eight.

This township lies north of the township of Eilber surveyed by me in nineteen hundred and seven and is traversed from south to north by the Missanabie River which enters it between lots twenty-six and twenty-seven, concession one, and leaves it by two branches separated by Skunk Island between lots eighteen and twenty, concession twelve.

The river has an average width of about ten chains, but as a rule is not of great depth and in many places the channel is strewn with boulders. It is also broken by a number of rapids, the principal ones being "Black Feather Rapids," in lot twenty-six, concession three, and "Kettle Rapids," in lots twenty and twenty-one, concessions seven and eight, the former having a length of twelve hundred feet and a descent of about twelve feet, in the latter the fall is also about twelve feet. Between these two rapids there are several small rapids which makes canoeing in this part of the river somewhat difficult.

The south and west boundaries of the township were run by Ontario Land Surveyor Speight in nineteen hundred and six and the north boundary by him in nineteen hundred and seven. The east boundary was run by me at the time of making the subdivision.

The township is nine miles square and was surveyed under the new system approved by Order in Council, April twenty-fourth, nineteen hundred and six.

As required under this system a road allowance fifty links wide has been left on each side of the outlines and a road allowance one chain wide between alternate

concessions and a side road allowance of the same width between lots six and seven, twelve and thirteen, eighteen and nineteen and twenty-four and twenty-five across the township. The concession lines were run due east and west and the side lines due north and south.

The survey lines were run in the centres of the road allowances. The lots are marked on the ground by wooden posts planted at the front angles along the concession lines, the frontage width of the lots being twenty-five chains and twenty-five links and the depth of the lots fifty-nine chains and fifty links or as near those dimensions as possible.

At each lot line three posts were planted, one being planted on the survey line, one on the south side of the road allowance and one on the north side. The centre post was marked with the numbers of the lots on the east and west sides and with the letter "R" on the north and south sides. The posts on the sides of the road allowance were marked with the lot numbers on the east and west sides and with the number of the concession on the south or north side, according to the position of the post, and with the letter "R" on the side facing the road allowance.

At side roads a post marked "R" on four sides was planted at the intersection of the survey lines and a post on each of the four lot corners and marked with the number of the lot and concession.

On the township boundaries posts were planted on the centre line and on the side of the road allowance within the township.

An iron post one and one-quarter inches in diameter was placed beside the wooden post in the centre of the road allowance at each of the following points:— On the south boundary between lots twelve and thirteen, on the line between concessions six and seven at the east boundary and at the line between lots twelve and thirteen and at the west boundary, and on the north boundary at the line between lots twelve and thirteen. These posts were marked "R" on four sides and with the numbers of the adjacent lots on the east and west sides and the concession numbers on the north and south sides. The one and seven-eighth inch iron posts at the corners of the township are marked "Sankey" on the side facing the township.

The surface of this township is undulating and is well drained by the Missanabie River and the creeks flowing into it.

The soil is mostly clay or clay loam, but to the east of the river there are a few sandy hills. In the swamps the clay is overlaid with from one to two feet of black muck covered with a thick growth of moss.

About one-third of the township had been burnt over a number of years ago. This burnt land is chiefly in the northeast corner of the township. On the low land the dead trees are still standing, but where the land is dry much of the timber has fallen and in a few places the land has been burnt almost clean. A young growth of spruce and poplar is springing up.

In the remainder of the township the timber is chiefly spruce, mixed in places with poplar, balsam, tamarac and white birch. The diameter of the trees in some localities runs up to about eighteen inches, but much of the timber is of young growth and is about six or eight inches in diameter.

A few rock exposures and some pieces of stony ground were seen, but these were not of large area, and as a whole this will be a fairly good agricultural township with only a small percentage of waste land.

Accompanying this report are the field notes of the survey, a map of the township and a timber plan.

I have the honour to be,

Sir,

Your obedient servant,

(Signed) JAMES HUTCHEON.

Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 22.

TOWNSHIP OF FLECK, DISTRICT OF ALGOMA.

GUELPH, ONT., December 30th, 1908.

SIR,—I have the honour to submit the following report on the survey of the township of Fleck in the District of Algoma, made in accordance with instructions from your Department dated the 29th day of May, 1908.

This township lies east of the township of Sankey and north of McCowan, and is reached by way of the Missanabie River canoe route from Missanabie Station on the Canadian Pacific Railway and portaging eastward through the township of Sankey.

This township is nine miles square and is sub-divided under the system approved by Order in Council dated April 26th, 1906.

The south boundary of the township was run by Ontario Land Surveyor Speight in 1906. The east, west and north boundaries were run by me this year. The west boundary was run due north from the post planted by Ontario Land Surveyor Speight on his base line to mark the intersection of the boundary between the townships of Eilber and McCowan, to intersect the base line run by Ontario Land Surveyor Speight in 1907 as the north boundary of the township of Sankey, which it intersected at a distance of three chains and ten links west of his nine mile post.

The north boundary was run eastward as the chord of a parallel of latitude from this point of intersection and the east boundary was run due north from Ontario Land Surveyor Speight's post at the northeast corner of the township of McCowan to intersect this north boundary.

As required under this system of survey a road allowance of fifty links has been left on each side of the outlines and a road allowance of one chain in width between concessions two and three, four and five, six and seven, eight and nine, ten and eleven, and also a road allowance of the same width between lots six and seven, twelve and thirteen, eighteen and nineteen and twenty-four and twenty-five across the township.

The side lines were run due north and south and the concession lines due east and west, the line of survey in each case being in the centre of the road allowance.

On the concession lines posts of the most durable wood obtainable were planted to mark the corners of the lots, a post being planted in each case on the line of survey and marked with the lot numbers on the east and west sides, and with the letter "R" on the north and south sides.

The posts at the lot corners were planted fifty links north and south of these posts and were marked with the numbers of the lots on the east and west sides, and with the numbers of the concession to which they refer on the north and south side, and with the letter "R" on the side next to the road allowance.

At the side roads a post was planted at the intersection of the survey lines marked "R" on each of its four sides and a post was also planted on each of the lot corners and was marked with the number of the lot on the east or west side and the number of the concession on the north or south side, according to the corner on which it was placed, and with the letter "R" on the two remaining sides.

The iron posts planted at the southeast and southwest corners of the township were marked " Fleck " on the side facing the township. An iron post one and three-quarters inches in diameter was planted beside the wooden post at the northwest corner of the township and marked " Fleck " on the southeast side and " Sankey " on the southwest side.

An iron post one and three-quarter inches in diameter was also planted beside the wooden post at the northeast corner of the township and marked "Fleck" on the southwest side. Iron posts one and one-quarter inches in diameter were planted beside the wooden posts at the following points:—On the centre line of the south boundary at the intersection with the centre of the side road between lots twelve and thirteen; on the centre line of the road between concessions six and seven at its intersection with the line on the east boundary, and at its intersection with the centre line of the side road between lots twelve and thirteen, and at its intersection with the centre line of the west boundary. Also at the intersection of the centre line between lots twelve and thirteen with the centre line on the north boundary. These posts were marked "R" on four sides, with the number of the concession on the north or south sides, and the lot numbers on the east and west.

The surface of this township is comparatively level excepting in the southeast and northeast corners, where the land is rolling and broken by a few rocky hills.

An area of about ten thousand acres in the northwestern part of the township had been burnt over some years ago, and in the northeast corner some six thousand acres had also been burnt.

Where the land is low the timber in these burnt areas is still standing, but on the dry land it is mostly fallen and a young growth of poplar and spruce is springing up.

The central and southern portions of the township are timbered with spruce and poplar with some white birch, tamarac and balsam.

There is scattered throughout the township a considerable amount of good timber of fair size, the best being in the southeast corner, but in many places the trees are of young growth.

The soil is chiefly clay and in the swamps the clay is overlaid with a foot or more of black muck and a thick growth of moss.

In the northeast corner there is some light sandy land.

The principal stream in the township is a creek which enters at lot twenty on the south boundary and flowing north leaves the township at lot nineteen. This

stream is upwards of a chain in width but for the greater part of the distance flows with a very slow current.

There is not much game in the township, a few moose were seen but no red deer. Traces of beaver were found in the remote parts.

Accompanying this report are the field notes of the survey, a map of the township and a timber plan, all of which I trust will be found satisfactory.

I have the honour to be,
Sir,
Your obedient servant,
(Signed) James Hutcheon,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 23.

Township of Morson, District of Rainy River.

Bowmanville, Ont., February 9th, 1909.

Sir,—I have the honour to submit my report on the township of Morson survey.

In many parts are tracts of good farming land, particularly in the south and northwest portions, with stretches of sandy beach bordering the shore, suitable for summer resorts which the township plan will more particularly indicate.

To develop this township a good waggon road should be constructed from Bergland post office through the township of McCrosson and Tovell to a point near the mouth of the Big Grassy River in Morson and about the entrance to Lake Eleanor.

At this point Mr. Niverson, representing sixty families from Minnesota and John Everett, an explorer from Rainy River, visited my camp and informed me that they had selected the land they wished to settle on near Lake Eleanor.

December twentieth, nineteen hundred and eight, a carload of provisions, implements and three span of horses came to Rainy River, and shortly afterward the same settlers returned to Red River for three carloads more, preparing to occupy lands indicated. John Everett confidently predicts that every foot of farming land in the township will be taken up within a year. These intending settlers are Norwegians, Danes, and Swedes, and they are most anxious to ascertain when they can file at the Land Office for their homesteads.

The Scandinavian Publishing Company of Winnipeg, wrote me inquiring when the township of Morson would be surveyed, as their people desire to take up land there, and I replied on receipt of letter.

The settlers or squatters now in the township who have made improvements are Danes, Norwegians, French and one Englishman (Oscar Langlais) on lot seventeen in the first concession. He has twenty acres cleared with a comfortable home, outhouses and garden, and has continuously occupied this location for the

past eight years and is a splendid producer. My men and myself observed in the garden and ate as fine potatoes, onions, tomatoes, corn and carrots as could be grown anywhere, musk and watermelons, and smoked tobacco cultivated on his location.

All cleared lands not under the plough are covered with wild strawberry vines, wild vetches, and in places wild plum trees. The natural growth of the forest is prodigious in poplar, spruce, tamarac, jack pine, Norway pine and cedar, and in a few places some good white pine, all of which timber is being rapidly taken off the ground by the lumbermen. The soil consists of a white clay loam covered with vegetable mould and producing the thickest growth underbrush, hazel, etc., possible to exist outside of the tropics.

Wishing to inform the Department that Mr. Oscar Langlais said a lumberman had taken the iron post previously planted at the southwest corner of Morson and the iron post planted by me has also been taken, the first being used for a sleigh stake, and it is more than likely that the last one has been removed by the same teamster.

On my way home from Bergland over the Colonization Road, may say, it is almost valueless as a summer road, although cut out and corduroyed in the centre, it requires side ditching and the material taken out and placed on the corduroy sufficiently high to raise it above the low land which it is built through, as in many places it is only fit for pedestrians, and even they are compelled to wade knee deep in low wet swamp and it is impassable for horses or waggons in summer.

My conclusions are that the land suitable for farming in this township situated on the Lake of the Woods is most congenial to the habits of the settlers now there and those coming, they are an industrious and plodding people with money, stock and farm implements, who will make good subjects and understand thoroughly mixed farming, thereby making a valuable class for the advancement and development of this section of the country.

Good peat bogs exist in the southeast portion and the general formation is Laurentian rock carrying in places iron pyrites but valueless.

The most important question for consideration is the height of water in the Lake of the Woods, which evolved friction between Canada and the United States in eighteen hundred and eighty-nine, owing to an overflow of said water in Minnesota, and stopping Ross, Hall & Brown's mill in Kenora. This matter was called to the attention of the Dominion Government, who instructed me to locate a suitable point on the Winnipeg River for the erection of a dam to regulate the height of water in the Lake of the Woods to its normal condition and remove all obstructions to that end, etc.

The high water has transformed the Big Grassy River into a navigable stream for steamers, thereby increasing it to three-quarters of a mile in places, making islands which were formerly part of the main land during normal level and submerging land suitable for farming, grazing and hay crops.

A sunken dam existed and now exists which is the main cause for such conditions. When the Keewatin Power Company and lumbermen became aware of the intentions of the Dominion Government they purchased the site chosen for the dam and obtained copies of the plans prepared by me and erected the dam, ostensibly for power purposes and to regulate the waters in the Lake of the Woods. The high water continues, although commissioners from the United States Government have visited the new power dam and returned evidently satisfied that no obstruction existed, thus the water is kept at an abnormal level and in the spring is two feet and a half higher, causing the submergence of the hay meadows border-

ing on the Lake of the Woods, and low lands in Morson and at the mouth of the Rainy River, causing continual changes in the vessel channel between Kenora and Rainy River by causing Sable Island (commonly known as the Sand Banks) to be washed away by new currents and filling up the main channel at its mouth. This can be overcome only by building from properly designed plans, cribwork where the channel requires dredging, lowering the waters in the Lake of the Woods four feet, removing the sunken dam and compelling the Keewatin Power Company to keep it at its normal level.

The iron posts in the township of Morson, district of Rainy River, have placed them according to instructions, dated the twenty-eighth day of April, nineteen hundred and eight, as follows:—

At the south-west angle of the township of Morson, at the interesection of the forty-ninth parallel of latitude, with the shore of the Lake of the Woods, I have marked with a cold chisel "Morson" on the north-east side, "Con. 1" on the north side, and "number 17" on the east side.

On the post on the south-east angle of the township of Morson, I have marked with a cold chisel "Morson" on the north-west side, "Con. 1" on the north side and "1" on the west side.

Alongside of the wooden post on the east boundary, where it intersects the shore of Lake of the Woods, I have planted an iron tube, and marked this with a cold chisel "Con. IX." on the south side, "Lot 1" on the west side and "Morson."

I have the honour to be,
Sir,
Your obedient servant,
(Signed) WILLIAM MURDOCH,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 24.

TOWNSHIP OF UMBACH, DISTRICT OF RAINY RIVER.

PRESCOTT, ONTARIO, April 20th, 1909.

SIR,—I have the honour to submit the following report on the survey of the township of Umbach, situated some fifteen miles north-west of Kenora. My instructions were dated the twenty-eighth of May, nineteen hundred and eight, and I received them a few days later, and on the following twenty-fifth of June, I visited the neighbourhood and found the country so wet that I decided to postpone the said survey until later in the season. I returned to Kenora the latter part of October, and I had all my provisions transported by water and cached before the river and lakes were frozen. Active operations were begun at the south-west corner of the township on Monday, the second of November last, and an observation having been previously taken on the eastern elongation of polaris, the meridian line

was started north and one mile run. This meridian line forming the west boundary of the township was first run and the concession lines were turned therefrom and run eastward.

On account of all the concession lines having been run eastward it was thought advisable and proper to make the even numbered lots the exact forty chains, and any deficiency or surplus thrown into the odd numbered lots.

The concession line between concessions one and two was used as the base line from which to turn the angles for the sides lines running north and south.

All the traverse work was done on the ice and no triangulations made excepting the first few days at the beginning of the work.

Iron Posts.

An iron tube post, one and seven-eighth inches in diameter, was planted by me at the north-west angle of the township and marked "lot XVI." on the east side, "Umbach" on the south-east side and "Con. VI." on the south side, and also at the north-east angle of township, or more particularly where the north boundary of the township intersects the waters of Winnipeg River immediately west of Indian Reserve No. 38 C., and was marked lot "1" on the west side, "Umbach" on the south-west side and "Con. VI." on the south side. Also the one found at the south-west corner of the township was marked by me "Con. I" on the north side, "Umbach on the north-east side and "lot XVI." on the east side.

Smaller iron posts one and one-quarter inches in diameter were planted:—

1. At the south boundary of the township on the line between lots six and seven and marked "lot VI." on the east side, "Lot VII." on the west side, and "Con. 1" on the north side.

2. At the intersection of the lines between lots six and seven and concessions three and four and marked "lot III." on the east side, "lot IV." on the west side, "Con. III." on the south side and "Con. IV."" on the north side.

3. At the north boundary of the township between lots six and seven, and marked "lot III." on the east side, "lot IV." on the west side, and "Con. VI." on the south side.

At the west boundary of the township between concessions three and four, and marked "lot XVI." on the east side, "Con. III." on the south side, and "Con. IV." on the north side.

5. At the eastern extremity of said line between concessions three and four and marked "lot 1" on the west side, "Con. III." on the east side, and "Con. IV." on the north side.

Thus for the permanency of the survey five small and two large iron tube posts were planted in addition to the one found and marked, at the south-west corner of township, which post also marks the north-west corner of the township of Pellatt.

This township is very rocky, broken and hilly, with numerous lakes and small streams of good water.

There are a few sections of good agricultural land along the south and west boundaries, and already there are a number of lots taken.

Islands.

The islands are all rough and rocky, covered with spruce and balsam, and are useless for anything excepting the timber that is on them, and even that has been all cut off south and east of "the narrows" in lot three, concession four.

Camp Island is the only island that has considerable good soil on it, moreover, the timber is still good and is mostly flat. No mineral bearing rocks were observed.

Magnetic Variation.

At the south-west corner of the township the magnetic declination was eight degrees fifty minutes east, and near the north-east corner it was eight degrees twenty minutes east.

Thus the mean is eight degrees thirty-five minutes east.

Timber.

As regards the timber on this township, I may say that it consists principally of jack pine four inches to ten inches, and spruce three inches to eight inches, together with balsam and poplar four inches to twelve inches. Owing to the proximity of this township to the mills of Kenora and Keewatin, and the convenience of water transportation, most of the merchantable timber has been cut, but there are still some small sections remaining, but are somewhat difficult of access and separated by distances. Fire has destroyed nearly all the timber in the north-western portion of the township, and only in small clumps is any to be found. On the north and west boundaries solid hubs with tacks were used and left to mark the lines.

I have the honour to be,
Sir,
Your obedient servant,
(Signed) T. D. Green,
Ontario Land Surveyor.

The Honourable, the Minister of Lands, Forests and Mines,
Toronto.

Appendix No. 25.

Report of the Survey of Upper and Lower Abitibi Lakes, in the District of Nipissing.

Toronto, 15th June, 1909.

Sir,—We have the honour to submit the following report on the survey of the shore lines of Upper and Lower Abitibi Lakes, and the islands therein, within the Province of Ontario, in accordance with instructions from your Department, dated 1st February, 1908:

The work was divided into two parts, the surveys in Lower Abitibi Lake being made in the early part of 1908 and those in the Upper Lake in the early part of 1909.

Preparations for the work were made upon the receipt of the instructions and we proceeded on 17th February, by rail to McDougall's Chute—since called Matheson—and thence by freight teams over a fair winter road about 25 miles in length, to the south-west part of Lower Abitibi Lake.

The survey of the Lower Lake was commenced at Long Point Portage and continued around the lower end of the lake, closing eventually at the same point, the traverse of those parts of the shore forming the boundaries of townships already laid out, being omitted according to instructions. By this time—3rd April, 1908—indications of an early breaking up of the winter were apparent and in order to avoid the increased expenditure which broken weather would entail, the work was discontinued until the following winter.

On 14th January, 1909, we again set out for Lake Abitibi and resumed the work by connecting with the previous survey at the Narrows. The Upper Lake and its islands were traversed in a similar manner, the north shore being followed eastward to the inter-provincial boundary, and the south shore from that boundary westward to the west end of the Upper Lake and thence northward to the Narrows, which was reached on 23rd March. All previously established survey points and lines which could be found were connected with our traverse survey, as were also such mining claims and discoveries—both on mainland and islands—as could be seen. In many instances the writing on discovery posts and trees was obliterated or illegible and therefore could not be noted.

When traversing the shores of the lakes, trees were marked at prominent points along the shores at intervals of one mile or thereabouts, the description and position of these trees being indicated upon the accompanying plans and field notes. Trees for such purposes were selected for their durability and prominence. Along the south shore of the Upper Lake the intervals between the trees marked were shortened to one-half mile or thereabouts, in order to facilitate future connections there within that rugged and broken tract. All trees so marked are numbered 1A, 2A, etc. Iron posts (tubes) 1⅞ inches in diameter were planted at points 12A and 39A. The last named point was previously established by O.L.S. T. B. Speight's micrometer survey in 1900. A large wooden post surrounded by a substantial cairn, was planted at 124A on the north-west part of Lightning Point, in the Upper Lake survey, for lack of the iron post which had been abstracted from our cache sometime during the interim between surveys. The survey was also connected with the flag pole at the Hudson's Bay Company's Post, on the Quebec part of the Lake, the iron post planted on the micrometer survey of 1900 not being found.

All islands were located and those of sufficient size to require it were traversed. Such islands as had already been surveyed and their records filed as mining claims, were given their recorded designations and all others were numbered consecutively from No. 1 with the affix "SV" in accordance with instructions. The islands previously surveyed were confined to the Lower Lake as no surveyed islands were found in the Upper Lake. Where possible the designations of islands were marked on trees thereon, and in the cases of the larger islands a number of trees were marked at prominent points. These trees were selected also for their durability and prominence, the description and position of each being shown on the plans and field notes.

Owing to the extremely low water in these lakes during the winter season as compared with the summer, it is probable that a number of the smaller islands of the Lower Lake will not be visible at ordinary or high water, but it was thought advisable to locate them so that in the event of the discovery of valuable mineral a further survey would be unnecessary. A further reason is that the location of hidden rocks and reefs is of service for navigation. The noting and numbering of these rocks and reefs applies more particularly to the Lower Lake, as in the survey of the Upper Lake only such islands as were of sufficient elevation to admit of

vegetation were given numbers, and those which at ordinary high water level are water-washed, are shewn as "rock" or "reef" and were not given numbers.

Detailed descriptions and areas of all numbered islands are given in the field notes. The depth of snow prevented our gaining any considerable amount of information regarding the soil and geological features.

About 250 islands were found and classed as such in the Lower Lake, and these varied in size from a few square yards up to 943 acres in extent, the largest being that at the outlet of the "Narrows," the survey of which involved about 13 miles of traverse line. Of these islands only 229 were given new numbers, the remainder being included by recorded mining claims.

In the Upper Lake 488 islands were noted and numbered, besides which a considerable number of rocks and reefs were noted, but not numbered. This number is, of course, exclusive of the islands lying to the east of the interprovincial boundary.

General Features.

The country in the vicinity of the Lower Lake is mainly the clay soil of that region with, in places, outcroppings of rock and occasional tracts of sandy soil, noticeably at Long Point.

On the Upper Lake the conditions are similar, except along the south shore which is rugged and rocky, due to a range of mountains inshore running in a general east and west direction. A considerable amount of rock was noticed on the islands, which present an appearance similar to those of the Muskoka Lakes, but are less rugged.

Timber.

The timber is, as a rule, not large, and embraces spruce, poplar, white birch, Balm of Gilead, red pine, tamarac, Banksian pine, cedar and ash, in about the above order as regards predominance. On Long Point there is a considerable quantity of merchantable red pine, and on the south shore of the Lower Lake and near its outlet there is a fair quantity of spruce, poplar and red pine. A well-equipped saw-mill was in operation near the mouth of the Abitibi River, and its output was in demand for the construction of steamboats and barges for local navigation, as well as the requirements of railway contractors, settlers and residents in the vicinity.

Water.

From our previous knowledge of these lakes we are able to report that their general shallowness will always render navigation somewhat precarious, and thus tend to reduce their desirability as a summer resort. In summer the general clay character of the surrounding country imparts a very muddy appearance, but this is not so noticeable in winter. The small lake on the "Long Point" portage, being in a sandy tract, has deliciously clear cold water at all times.

Low Bush River, with its tributary Circle River, Dokis River, Forks River and Aylen River, are the only streams of note emptying into the Lower Lake. Flowing into the Upper Lake are Ghost, Lightning and Mattawasagi Rivers from the south, and Swampy, Rabbit, Gooseberry, Okikodasik and Saugeen from the north.

Minerals.

A considerable amount of prospecting for gold has been done on the mainland and islands of the Lower Lake and development work has been done at, at least, two points Moshier's Island and South Bay, each having a well-equipped mining camp.

In the Upper Lake we saw many discoveries marked on the islands, and development work had been done at one point on the south shore, about 1 mile east of the Lightning Point portage, with what results we were unable to learn.

Settlement.

Apart from the abandoned Hudson's Bay Company's post at the "Narrows," "Biedermans," an Indian home on McDougall's point, and another at Ghost River, the saw-mill at Abitibi River, and a few scattered huts erected by Indians and hunters, there cannot be said to be any actual attempt at settlement in the Ontario part of Abitibi. Settlers have, however, located for a considerable distance along the road from Matheson.

Accessibility.

The old time route from Mattawa, via the Upper Ottawa waters, is now mainly superceded in winter by the Temiskaming and Northern Ontario Railway to Matheson, and thence by team road to the outlet of the Lower Lake, and in summer by navigation via the Black and Abitibi Rivers for Matheson, the two main breaks—at Twin Falls and Couchiching Falls, respectively—having been tramwayed by the railway contractors. When the National Transcontinental Railway has been completed, access to the Lower Lake will be had, with only short connecting roads, both at North-west Bay and North-east Bay, and the Upper Lake will be similarly served via Okikodasik Bay in Ontario, and Whitefish Bay in Quebec. The Lake itself is, however, unfavourable for navigation in summer, owing to its great expanse and unusual shallowness, instances of travellers being windbound for days being numerous. Winter travel on the ice with horses is rendered extremely difficult by the ever present "slush." Efforts have been made to overcome this by using snow ploughs, but with indifferent success. The ploughed tracts fill with the constantly drifting snow, in a short time elevating the roadway so that the sleighs cannot be kept upon it.

General Remarks.

The advent of the Temiskaming and Northern Ontario and, in the near future, the National Transcontinental Railway, will do much to promote the development of the agricultural and mineral resources of the Abitibi country, and it will, in our opinion, soon be a large item in the assets of the Province.

Accompanying this report are:

Lower Lake:

(*a*) A plan on mounted paper in 12 sections, scale 20 chains to an inch.

(*b*) An index plan on mounted paper, scale 80 chains.

(*c*) A tracing of the first named—in two sheets—shewing the traverse lines, with bearings and distances, also reference trees, etc.

(*d*) Field notes with full details of all islands and shore line surveyed.

Upper Lake:

(*e*) A plan on mounted paper in 8 sections, scale 20 chains to an inch.

(*f*) An index plan on mounted paper, scale 60 chains to an inch.

(*g*) Field notes with full details of all islands and shore line surveyed.

We have the honour to be,

Sir,

Your obedient servants,

(Sgd.) Speight & VanNostrand,

Ontario Land Surveyors.

Algonquin Park.

Appendix No. 26.

Algonquin Park P.O., December 31st, 1909.

To the Honourable, The Minister of Lands, Forests and Mines.

Honourable Sir,—I beg to hand you my tenth annual report on the Algonquin National Park of Ontario, being for the year 1909.

The Park staff during the past year has been composed of fifteen rangers and the superintendent. Their work has largely been patrolling the park to see that no illegal trapping was going on. This, during the open season, is largely done by canoe, during the winter months on snowshoes. My men travel two together, and each two men have a certain section allotted to them. In addition to patrolling this section, they keep the numerous portages between the lakes cut out and improved, as they also do as far as possible the streams. The size or area of the sections is determined by the ease with which they can be travelled, hence those with long stretches of good canoeing and free portages are larger than those that have less water and require more travelling on foot. My men also make several bark canoes, sleds, etc., for use on their sections, and put in ice and cut the necessary wood at headquarters, besides making required improvements there.

Each season some new shelter houses are built. For this purpose, four rangers work together. The shelter houses erected are good substantial buildings of sided or hewn logs. They have good roofs, windows, etc., and are fitted with a cooking stove, table and benches. Of these, five have been built during the past year. During the summer months the first and most important duty of my men is to prevent fire, and so well has this part of the work been performed, that I am glad to report, we had no bad fires, though several were started, mostly by locomotives on the line of railway. They were speedily gotten under control.

There has been a marked improvement at headquarters during the past year. The Grand Trunk Railway have built a very pretty station and erected a fine hotel. They have also erected a water tank, the largest on their system, and from this water is supplied to our headquarters. The Department having furnished us with hose, we have now good fire protection for the buildings.

Wild celery has been planted and sown in several of our lakes and streams with a view to encourage wild ducks to remain with us. Of these we have a great

many, but owing to the scarcity of feed not as many as we would have had we rice beds and wild celery.

Game of all kinds has increased very perceptibly, especially beaver and otter. Of the latter, last week the agent of one of our lumber firms reported seeing eighteen in one day's travel, while the beaver are to be found in large healthy colonies wherever there is even a drain or ditch; they have in fact become so numerous that in a year or two, should the Government so decide, the Park could easily be made self-supporting, as the annual increase of beaver now must be very large indeed. Of course, they do not confine themselves to the Park, but are to be found in large numbers in the adjoining townships, where a few years ago none were seen. Deer have also increased to a marked extent, and are very tame, so much so that they can be seen in numbers by visitors to the Park. They, too, spread out on all sides and keep the surrounding country well stocked.

Wolves, notwithstanding the fact that we kill a great number each year, continue to destroy the deer. Last season our men brought in thirty-five, a large percentage of which were females. No doubt many were also killed that were not found. Owing to the ease with which they can procure deer, we find it difficult to get them to take poison.

We have made some arrests during the past year, but I am glad to report that each year there is less trapping. This I attribute to three causes; first, the thorough work of our men; secondly, the increased co-operation of the limit holders; and, thirdly, the growing feeling in favour of the Algonquin National Park. People are beginning to see results, and trappers are finding that the game outside is being kept up by the supply from the Park.

We have had a great many visitors to the Park during the past year, and some very fine fish were taken, especially some large small-mouthed black bass. These were introduced some years ago and have certainly been a great success.

Several of the capercailzie introduced some years ago from Norway were seen during the past year, and one good photograph secured, showing beyond doubt that they are going to succeed. They are very shy birds and, therefore, are not seen frequently.

Partridge were more numerous this year than I have ever seen them before.

It was particularly gratifying to see so many representatives of the Government at the Park this year. It makes your staff feel that an interest is being taken in this great national Park, and acts as a stimulus to greater exertion on their part. The people of our own Province, too, have taken a much greater interest in us and our work. One thing has been very marked this year, the fact that fishing was not the only inducement, the rod often being forgotten in the delight of seeing the wild life, and the camera very often took the place of the rod and line.

I have the honour to be,

Sir,

Yours very respectfully,

G. W. Bartlett,

Superintendent.

Rondeau Park.

Appendix No. 27.

Morpeth P.O., January 6th, 1910.

To the Honourable, the Minister of Lands, Forests and Mines.

Sir,—I have the honour to submit this my report for the year 1909. Considerable work has been done towards improving the appearance of the Park this season; cutting the lower and dead limbs off the trees along both sides of the driveway leading into the Park, and in numerous places on the picnic ground; also cutting and pulling down the entangled masses of wild grape and other climbing vines, that have in the past covered over a good many trees with foliage so dense that they could not live. Although some of these clusters of vines were beautiful to look at, it was considered advisable to remove them and save the trees. Also grubbing and cutting out the hazel and other bushes that were growing over portions of the picnic grounds and along the driveways, and the willow bushes along the shore of the Eau Front. This work was done at a cost of $351.78.

The next work of importance was gravelling the Park Road in October from the town-line to the pavilion, a distance of about 1 3-8 miles, at a cost of about $318.43. The road is now in better shape for winter and the coming season than it has ever been since it was built. It is becoming a favourite run for automobiles. Most people visiting the Park in their autos take a trip up the south road along the shore of Lake Erie to the second fishery, a distance of about six miles, and are usually delighted with the scenery in the forest; the deer and black squirrels, etc., along with the variety of timber and shrubbery make the trip most attractive. We are quite safe in saying that there are 150 deer running at large in the Park forest. In the enclosure at the picnic grounds, where the public can view them at any time, are some deer, black squirrels, wild geese and six different kinds of pheasants all in good condition.

There are about 30 summer cottages at the Park, and more campers than usual came to occupy them when the season opened (which was later than usual), and they continued to come, thus keeping the cottages full throughout the season. Mr. Arthur Orendorf deserves credit for the manner in which he conducted the refectory. Besides keeping a good stock of refreshments on hand at all times, he kept a fair stock of groceries, stationery and other useful articles. There were no complaints from the people.

The boat livery business is enlarging each year, chiefly on account of there being a good class of boats of various sizes and kinds kept in readiness and in good condition. Mr. Fred. Weir, who has this privilege leased from the Department from year to year, builds all his own boats—rowboats, sailboats, launches, etc.—and he intends to build a large launch that will safely carry from 75 to 80 passengers for this coming season.

With a little extra help we repaired the washout at the end of the high dock, also along the low part, so that it will wear for some time, but it is difficult to say how long, on account of there being so much fine washed sand around it. The square timber, lumber, hardware, extra help for grading, etc., amounted to about $52.00. To make this dock fit for teaming loads over, it will be necessary to either lay plank on the sand approach, or cover it with clay and gravel.

I have good reason to believe that an electric railway will reach the Park within two years. The C. W. & L. E. Co. intend to extend their line to Blenheim this year, and when they continue the line farther east, I understand that it is their intention to run a spur down to the Park. Then I think it would be advisable for the Government to offer the railway company every reasonable facility to build a good large public house, that will be a credit to the Park. The necessity of a public house here is becoming more apparent every year, and this seems to me to be the most feasible way of getting one built.

I have the honour to be,

Sir,

Your obedient servant,

ISAAC GARDINER,

Caretaker and Ranger.

Appendix No. 28.

List of Persons holding Cullers' Licenses, issued under the Ontario Cullers' Act, up to 31st October, 1909.

Name.	P. O. Address.	Name.	P. O. Address.
Anderson, M. M.	Almonte.	Brandin, Martin W.	Peterborough.
Allan, James D.	Bracebridge.	Bell, John C.	Peterborough.
Appleton, Erwin B.	Bracebridge.	Bartlett, George W.	Warren.
Albert, Andrew	Ottawa.	Brown, Silas.	Klock's Mills.
Adams, J. Q.	Longford Mills.	Boland, W. G.	Eganville.
Anderson, Patrick J.	Campbellford.	Baulke, George R.	Aylmer, Que.
Anderson, J. C.	Gravenhurst.	Bouchey, Arthur	Massey.
Allan, Alfred	Ottawa.	Buchanan, Mark	Trout Mills.
Allen, R. A.	Bannockburn.	Barrett, W. J.	Thessalon.
Aikens, Geo. M.	French River.	Bromley, Thomas	Pembroke.
Appleby, Ridley	Katrine.	Bremner, John L.	Admaston.
Adams, James M.	Sault Ste. Marie.	Breen, Bernard	Garden River.
Aylward, James	Peterborough.	Buie, Dougal	Providence Bay.
Archibald, John L.	Keewatin.	Baker, Thomas	Blind River.
Austin, Wm. G.	Renfrew.	Blais, Felix	Hull, Que.
Anderson, Charles	Little Current.	Balsdon, George	Keewatin.
Anderson, John	Cartier.	Bromley, W. H.	Pembroke.
Adair, Thomas Albert	Gananoque.	Bowers, Isaac	Little Current.
Anderson, J. G.	Alpena, Mich.	Brown, Thomas	Barrie.
Alexander, Samuel	Arden.	Bass, Walter R.	W. Huntingdon.
Adams, Wm.	Westmeath.	Bates, Robert	Kenora.
Arkle, George	Kenora.	Binnie, Thomas	Port Arthur.
Armstrong, Jas. Theodore	McKellar.	Blair, William	Keewatin.
Armstrong, Thomas J.	Arnprior.	Bick, Thomas	Bobcaygeon.
Acheson, Ira M.	Westmeath.	Burke, John Thomas	Midland.
Albert, Alfred E.	Ottawa.	Buchan, Sterling	L'Original.
Alma, John E.	Hawkesbury.	Brown, Joseph A.	Spanish.
Adams, George A.	Longford.	Baird, P. C.	Rainy River.
Ansley, John Albert	Thessalon.	Brill, J. W.	Mine Centre.
Ansley, John Jenkins	Thessalon.	Beattie, Arthur W.	Arnprior.
Ainsley, Alexander	Spanish.	Brock, H. S.	Ottawa.
Apleton, E. A.	Kenora.	Benson, John Bird	Midland.
Arnill, William	Iron Bridge.	Brennan, Rich'd Lawrence	Peterborough.
Adams, Fred	L'Original.	Brown, Hugh Riside	Huntsville.
Alexander, R. Harvey	Spragge.	Bryan, Frank	Keewatin.
Alexander, J. Albert	Spragge.	Bennett, Edward Clinton	Ahmic Harbor.
Ainslie, Donald McF.	Whitestone.	Blaine, Harvie Thomas	Orillia.
Ansley, William	Thessalon.	Barrett, Thomas	Barrie.
		Bickell, James Manuel	Sault Ste. Marie.
Brophy, Michael Patrick	Massey Station.	Buisson, William	Sudbury.
Boland, Abraham	Cartier.	Borrett, James A.	Sault Ste. Marie.
Brown, Singleton	Bracebridge.	Bliss, C. Lidden	Sudbury.
Barry, Thomas James	Hastings.	Bray, James	Kinmount.
Blanchet, Paul Fred'k.	Ottawa.	Bremner, George	Arnprior.
Bird, W. S.	Parry Sound.	Bromley Samuel	Pembroke.
Bayley, James T.	Gravenhurst.	Brown, A. C.	Fitzroy Harbor.
Bell, Henry	Ottawa.	Berlinquet, Julius	Opimicon, Que.
Beach, Herbert Mahlon	Ottawa.	Blastorah, Fred L.	Harwood.
Barry, Thomas	Millbridge.	Burns, Clifton H.	Little Current.
Beatty, W. R.	Parry Sound.	Beaumont, Ernest	Parry Sound.
Brooks, Frederick Wm.	Mackay's Station.	Beattie, Alex.	Whitney.
Brown, Robt. D.	Port Sidney.	Brennan, Reginald	Gravenhurst..
Breed, Arthur G.	Penetanguishene.	Boyd, George	Gravenhurst..
Barnes, Thomas Geo. Lee	Muskoka Mills.	Bissell, Geo. Thomas	Trenton.
Buchanan, Robert	Coldwater.	Baxter, Richard	Deseronto.
Beck, Jacob Frederick	Penetanguishene	Breeaugh, Edward	Deseronto.
Bird, Joseph Manly	Muskoka Mills.	Boyd, Geo. A.	Thessalon.
Boyd, John F.	Thessalon.	Buchan, Frederick	Arnprior.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Barrett, Patrick	Arnprior.	Cochrane, George	Peterboro.
Brundage, Alfred W.	Pembroke.	Coburn, John	Lindsay.
Brougham, Thomas	Eganville.	Crowe, Nathaniel	Bobcaygeon.
Blair, Robert I.	Arnprior.	Cameron, Alexander	Norman.
Benson, John W.	Sturgeon Bay.	Chrysler, Frank R. L.	Webbwood.
Beck, Chas. M., Jr.	Penetanguishene.	Callaghan, Thomas, Jr.	Campbellford.
Beatty, W. J.	Coldwater.	Carson, Hugh	Kenora.
Burns, C. W., Jr.	South River.	Calder, George	Woodville.
Bell, John Henry	Burk's Falls.	Callaghan, Dennis	Campbellford.
Berry, Harold	Labelle, Q.	Corrigan, Robt. T.	Emo.
Black, George	Barwick.	Cameron, John H.	Kenora.
Bettes, John Hiram	Muskoka Mills.	Carson, Melvin	Little Current.
Brady, John	Renfrew.	Cameron, John K.	Spanish River.
Brown, James	Buckingham, Q.	Cassidy, William	Little Current.
Brooks, W. J.	Blind River.	Coons, Geo. Washington	Peterboro.
Bertrand, Allan	Nairn Centre.	Chisholm, Geo. Leopold	Sault Ste. Marie.
Brinkman, Alex. B.	Sault Ste. Marie.	Clark, Wm. J.	Birkendale.
Black, Jacob	Barwick.	Carr, Herbert E.	North Bay.
Beattie, W. J.	Arnprior.	Cochrane, Alfred L.	Muldoon, Que.
Bromley, William	Westmeath.	Campbell, George	Fort Frances.
Bissell, Hartie	Trenton.	Chalmers, George James	Peterboro.
Brown, Robert	Starrat.	Caverly, David Charles	Parry Sound.
Beaton, Hugh	Waubaushene.	Campbell, Archibald J.	Little Current.
Bailey, Arthur	Parry Sound.	Close, John L.	Arnprior.
Burd, James Henry	Parry Sound.	Carmichael, Donald	Arnprior.
Bailey, Samuel James	Orillia.	Carty, John	Arnprior.
Burton, Tinswood	Renfrew.	Cleary, Patrick M.	Arnprior.
Boyes, James	Huntsville.	Caldwell, James M.	Callendar.
Brown, John	Rockdale.	Cushing, John J.	Davidson, Que.
Brennan, Edward Scott	Sundridge.	Crebo, William	Thessalon.
Bell, John Arguey	Klock's Mills.	Cullen, Michael J.	Massey Station.
Bromley Edw. H.	Pembroke.	Cuthbertson, William	Arnprior.
Bliss, Lawrence E.	Byng Inlet.	Carss, Percy	Thessalon.
Buee, Neil	Spanish Station.	Coghlan, Michael	Chapeau, Que.
Brazziel, Leonard	Spanish Station.	Cameron, Alexr. Gordon	Beauchene, Que.
Bowie, James	Bryson, Que.	Cassady, W. W.	Emo.
Barrie, Nicholas J.	Ottawa.	Carter, Robert E.	Fesserton.
Burke, J. D.	Kenora.	Coleman, Jos.	Baysville.
Bowen, Thomas	Deseronto.	Cardiff Geo. McDougall	Sudbury.
Brown, James F.	Baysville.	Cameron, W. D.	Kenora.
Blastorah, Bernard	Harwood.	Crandall, F.	Port Arthur.
Brannan, William H.	Pembroke.	Campbell, James R.	Eganville.
Bromley, Thomas	Webbwood.	Campbell, John A.	Galleta.
Barr, J. C.	Fort Frances.	Caillier, Hyacinth	Arnprior.
Bradley, J. M.	Mine Centre.	Chamberlain, Thomas	Bobcaygeon.
Burns, Dominick	Webbwood.	Cooper, David Allan	Millbrook.
		Cox, Henry	Ballerica, Que.
Campbell, Robert John	Flinton.	Currie, James	Ottawa.
Carpenter, John A.	Arnprior.	Clarkson, A. E.	Midland.
Campbell Alex J.	Trenton.	Clairmont, E.	Gravenhurst.
Carson, James	Bracebridge.	Cameron, W. F.	Sturgeon Bay.
Campbell, J. M.	Bracebridge.	Connolly, David	Gravenhurst.
Campbell, Robert	Bracebridge.	Campbell, P. C.	Sault Ste. Marie.
Clairmont, Joseph	Campbellford.	Cadenhead, Alexander	Midland.
Clarkson, Robert J.	Parry Sound.	Carpenter, R. J.	Arnprior.
Carruthers, Aaron	Hintonburg.	Christie, William Pringle	Severn Bridge.
Calder, Wm. J.	Burk Lake.	Campbell, C. V.	Sault Ste. Marie.
Chew, Joseph	Gravenhurst.	Clegg, Samuel	Peterboro.
Cole, James Colin	Ottawa.	Clairmont, William L.	Gravenhurst.
Cameron, Wm.	Collin's Inlet.	Cook, Sydney P. W.	Spanish Station.
Cain, Robert	Midland.	Corrigan, John	Baysville.
Crawford, Stephen W.	Thessalon.	Chalmers, Alexander M.	Peterboro'.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Charlton, George A.	Collingwood.	Davis, J. P.	Bobcaygeon.
Cahill, Thomas	Nosbonsing.	Dale, John Alexander	Birkendale.
Chew, Manley	Midland.	Dinsmore, Chas. L.	Huntsville.
Cooper, James Eddly	Saurin.	Drum, Patrick	Belleville.
Cook, Reinhardt	South River.	Durham, Edgar S.	Rosseau.
Crowe, Cecil	Bobcaygeon.	Duquette, Chas.	Webbwood.
Callaghan, Dennis	Trenton.	Davis, William Albert	Bobcaygeon.
Collins, James	Barryville.	Dickson, Robt. Alexander.	Keene.
Claffey, Edward D.	Fort William.	Dawkins, John	Gravenhurst.
Coyne, Phin	Chelmsford.	Doxsee, James E.	Gravenhurst.
Constantine, Eudore	Blind River.	Didier, L. P.	Aylmer, Que.
Cameron, Ewan	Gordon Lake.	Devine, Patrick J.	Sheenboro, Que.
Campbell, Daniel N.	Buckingh'm, Que.	Dinsmore, Richard	Huntsville.
Canniff, R. W.	Kenora.	Dunn, Percy E.	Longford Mills.
Cassidy, S. C.	Dunchurch.	Duval, Chas.	Halfway.
Charleston, John Baptiste.	Ottawa.	Donlevy, James	Calabogie.
Comer, Billa F.	Tweed.	Doris, Patrick	Peterborough.
Carter, George	Sundridge.	Doris, John	Peterborough.
Corrigan, Robt. J.	Emo.	Donahue, Michael	Erinsville.
Caswell, Grant	Coldwater.	Doran, W.	Belleville.
Caswell, Geo.	Coldwater.	Dickson, Robert R.	Kippewa, Que.
Chemir, David A.	Pembroke.	Donlevy, Wm. C.	Rockcliffe.
Clairmont, Philadelp L.	Gravenhurst.	Duff, Chas. A.	Stewartville.
Crowe, Edgerton	Bobcaygeon.	Dean, James C.	Kenora.
Castonguay, A. C.	Chelmsford.	Duff, Peter A.	Claybank.
Clark, Donald Allan	Port Arthur.	Duncan, Downey	Rainy River.
Charette, Herbert	Devlin.	Dougherty, J. M.	Fort Frances.
Christie, Uriah W.	Fort Frances.	Dunn, John F.	Spanish Mills.
Clark, Joseph C.	Fort Frances.	Dyke, Morris F.	Blind River.
Crowe, Leslie	Bobcaygeon.	Devitt, Frank	Dinorwic.
Campbell, Duncan W.	Stewartville.	Dickie, David	Port Arthur.
Callahan, Thomas N.	Arnprior.	Dupuis, Alfred	Keewatin.
Clements, Albert James	Bent River.		
Carney, Albert	Sault Ste. Marie.	Enlaw, Oliver	Campbellford.
Collins, Arthur	Massey Station.	Ebert, Andrew P.	Pembroke.
Carter, George	Lavelle, Que.	Ellis, Alexander	Arnprior.
Chitty, Alfred E.	Kenora.	Ellis, John	Westmeath.
Cardiff, Richard J.	Arnprior.	Errington, Joseph	Sundridge.
Conway Thomas	Barry's Bay.	Eddington, Henry John	Parry Sound.
Costello, Thomas M.	Antrim.	Enright, Daniel	Port Arthur.
		Eager, James	Parry Sound.
		Elliott, Porter P.	Mine Centre.
Didier, Hector	Mattawa.	Elliott, William	Cache Bay.
Doran, Frank	Barryvale.	Edgar, J. E.	Rat Portage.
Dunning, E. Percival	Parry Sound.	Elliott, George E.	Peterborough.
Duff, R. J.	Arnprior.	Edwards, Joseph K.	Gillies' Depot.
Durrill, John W.	Ottawa.	Eldridge, Robert	Fort Frances.
Dickson, John	Sundridge.		
Dickson, James L.	Michipic'ten H'r.	Fraser, John A.	Kenora.
Dobie, Harry	Sault Ste. Marie.	Ferguson, Wm. H.	Red Bay.
Deacon, Charles	Sault Ste. Marie.	Forbes, Chris. McKay	McLean's Depot.
Danter, R. W.	Parry Sound.	Fitzgerald, E. Clair	Parry Sound.
Doyle, T. J.	Eau Claire.	Farrell, W. H.	Ironside, Que.
Dobie, Alexander R.	Blind River.	French, Lewis William	Byng Inlet.
Darling, J. M.	Wisawasa.	Fraser, William A.	Mattawa.
Dillon, John	Calabogie.	Finerty, Patrick	Rochfort.
Durrell, Jos. Nelson	P'rt'ge du F'rt, Q.	Farnand, Frank	Diamond.
Durrell, John	Callander.	Fulton, Philip S.	Spanish Station.
Donally, Richard S.	Sudbury.	Fitzgerald, Ullyot C.	Parry Sound.
Devine William	Cook's Mills.	Fenn, George	Bracebridge.
Durrill, William	Nosbonsing.	Fortune, Owen	Trenton.
Draper, Patrick	Quyon, Que.	Fraser, David	Norman.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
France, John	Collin's Inlet.	Golden, Frank J	Trenton.
Ferguson, Ernest A	Baysville.	Garson, Robert	Thessalon.
Ferguson, Alpen	Mattawa.	Gropp, August	Penetanguishene.
Ford, John William B	P'r'tge du F'rt, Q.	Grozelle, Antoine D	Muskoka Mills.
Ford, Charles	Wahnapitae.	Goulais, James	Peterborough.
Findlay, J. H	Braeside.	Grayson, Charles	Keewatin.
Fraser, James	Renfrew.	Gladstone, Harry E	Cook's Mills.
Fairen, Francis	Peterborough.	Guertin, Oliver	Biscotasing.
Faulkner Jos	Fesserton.	Gelinas, Frank	Huil, Que.
Fraser, Alexander, Jr	Westmeath.	Gwynne, John	Hawkesbury.
Fairbairn, William	Calabogie.	Gray, Frederick M	Brule Lake.
Fraser, Wm. A	Pembroke.	Graham, Edward G	Wahnapitae.
Fraser, Foster	Pembroke.	Griffin, James	Spanish River.
Fraser, Wm	Little Current.	Gordon, Alexander B	Pembroke.
Fraser, Hugh Alexander	Pembroke.	Gareau, Noah J	Pembroke.
Flaherty, John	Lindsay.	Gillies, D. A	Carleton Place.
Fisher, Wm	Trenton.	Gilligan, Edward	Mattawa.
Fox, Thomas	Deseronto.	Gladman, Charles	Parry Sound.
Fallis, James W	Sturgeon Bay.	Garrow, John D	Ottawa.
Fairbairn, N. H	Webbwood.	German, William Burton	Wahnapitae.
Friel, John	Trenton.	Gordon, Robert W	Pembroke.
Fox, Charles	Trenton.	Guertin, Nelson	Petawawa.
Featherstonehaugh, W. H	Penetanguishene.	Gardner, John	Kenora.
Friar, Schuyler	Westmeath.	Gunter, Peter M	Gilmour.
Farren, Joel	Savanne.	Glennie, William	Millbridge.
Fraser, Duncan	Big Forks.	German, Maurice J	Fenelon Falls.
Freestone, Walter	Burk's Falls.	Gillies, John A	Braeside.
Fraser, John	Bancroft.	Goddin, Edward	Griffith.
Fitzgerald, D.C	Spanish Station.	Grant, Joseph	Eganville.
Foster, Wm. C	Searchmont.	Gilmour, James B	Braeside.
Frazer, Jas. C	Spanish Mills.	Gorman Joseph P	Sault Ste. Marie.
Fremlin, H. P	Richards' Land'g.	Gordon, Thomas A	Hall's Bridge.
Foster, Ed. G	Sault Ste. Marie.	Gray, Albert H	Biscotasing.
Farrel, Peter M	Whitefish.	Gadway, John	Parry Sound.
Fairhall, Edward	Whiteside.	Garrow, Edward	Webbwood.
Fraser, Levi	Bracebridge.	Golding, William	Dorset.
Fiddes, James	Rainy River.	Gillies, Harry	White Lake.
Frawley, Frank	Orillia.	Gordon, Herbert C	Nelson.
Fisher, George	Sault Ste. Marie.	Gillespie, M. H	Cook's Mills.
Filiatrault, J. A	Blind River.	Griffin, William	Huntsville.
Farrier, John William	Chapleau.	Ganton, David	Trout Creek.
Finney, Benjamin B	Fort Frances.	Graham, George L	Arnprior.
Follis, Frank C	Hawkesbury.	Graham, Frederick S	Arnprior.
Fortune, Percy H	Blind River.	Gill, Cuthbert	Orillia.
Fraser, Wm. Foster	Sault Ste. Marie.	Graham, James Robert	Kenora.
Fraser, Allan H	Thessalon.	Graham, Thomas Jordan	Byng Inlet.
Farquharson, James	Tomiko.	Gaudaur, Antoine Daniel	Orillia.
		Gorman, Patrick	Eganville.
Griffith, Geo. F	Pembroke.	Guy, Charles	Fort Frances.
Graham, John	Arnprior.	Graham, George H	Gillies Depot.
Golden, John	Gilmour.	Greer, George P	Port Arthur.
Gunter, Henry M	Trenton.	Gill; Charles	Fort Frances.
Goltz, Ernest	Bardsville.	Gamey, William H	Englehart.
Green, Forman A	Gilmour.	Gorman, Michael J	Diver.
Green, Samuel E	Parry Sound.	Grier, Roy B	Kenora.
Grant, John	Flinton.	Greer, Samuel H	Gore Bay.
Green, Arthur	Ottawa.	Gilbert, Sidney N	Rainy River.
Green, Norman McL	Bancroft.	Hale, Thomas	Pembroke.
Gillis, John J	Whitefish.	Hogan, Albert J	Sault Ste. Marie.
George, R. W	Parry Sound.	Hagen, Edmund G	Little Rapids.
Gardiner, John	Parry Sound.	Hagen, Wilson	Thessalon.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Hurd, Cyrus	Parry Sound.	Hawkins, William A	Pembroke.
Henderson, Albert E.	Burford.	Herring, Edward C	Sebright.
Hale, John B	Sault Ste. Marie.	Hatch, J. W	Dryden.
Hickerson, Melvin T	Fort Frances.	Hoard, Wm. Paris	Emo.
Howey, George H	Fort Frances.	Hartman, W. R	Blind River.
Hartt, James	Gilmour.	Hill, Ernest L	Hawkesbury.
Hayes, James	Enterprise.	Hall, Samuel S	Marmora.
Humphrey, T. W	Gravenhurst.	Hasleton, Constantine	Killaloe.
Huckson, A. H	French River.	Hamilton, A. J.	Spragge.
Handley, Robert	Douglas.	Heggart, E. C.	Trout Mills.
Howe, Alexander	Queensborough.	Hunt, Ronald E	Massey.
Hurd, Edwin	Hurdville.	Hurd, Asahel	Parry Sound.
Huff, J. S. Morris	Arnprior.		
Halliday, Robert J	Lindsay.	Irving, Thos. H	Parry Sound.
Hutton, John	Hutton House.	Irwin, Eli	Kenora.
Hutchinson, Wm. E	Huntsville.	Irving, Edward C	Kenora.
Hogarth, Joseph Rowan	Pembroke.		
Humphrey, John	Gravenhurst.	Johnston, Ralph E	Port Arthur.
Hill, Joshua	Midland.	Johns, Frank A	Toronto.
Hall, David	Lovering.	Jackson, Robert	Brechin.
Hartley, Charles	Peterborough.	Johnson, Finlay	Bracebridge.
Hawkins, Henry Chas	Blind River.	Jones, Albert	Victoria Harbor.
Hines, Philip Wallace	Huntsville.	Johnson, Thomas	Bobcaygeon.
Hudson, John Lewis	Combermere.	Johnston, Archibald M	Norman.
Hurdman, William H	Ottawa.	Julien, Charles	Trenton.
Hughes, John	North Bay.	Junkin, Henry	Marmora.
Howie, R. G	New Liskeard.	Johns, Frank	Nipissing Junct'n.
Helferty, Dennis	Eganville.	Jessup, Edward D	Cache Bay.
Hamilton, Robert	Kenora.	Johnson, Frank N.	Ottawa.
Hoppins, Abiram	Kingston.	Johnston, John	Peninsular Lake.
Hoppins, Densmore	Kingston.	Johnson, S. M	Arnprior.
Haystead, John	Parry Sound.	Jones, Frederick James	Flinton.
Henderson, John Irwin	Bobcaygeon.	Johnston, William A	Castleford.
Hartley, William	Millbridge.	Jervis, Henry	Wisawasa.
Higgins, John C	Peterborough.	Jones, William	Fenelon Falls.
Harrison, John, Jr.	Pembroke.	James, Martin	The Flats.
Hawkins, E	La Breton Flats.	Johnston, James	Fort Frances.
Henderson, Charles	Bracebridge.	Johns, Alexander	Callander.
Halliday, Frank	Parry Sound.	Jackson, John A	Barwick.
Hammond, W	Orillia.	Johnson, Thomas	Fort Frances.
Hall, Charles Asa	Penetanguishene.	Johnston, George N	North Bay.
Hearl, John	Callander.		
Howe, Isaac	Fort Frances.	Kintree Stuart	Little Rapids.
Halliday, James	Springtown.	Kerby, John	Belleville.
Hurdman, J. A.	Ottawa.	Kennedy, Robert	Marmora.
Hawkins, Stonewall J.	Meldrum Bay.	Kirby, Louis Russell	Ottawa.
Hinchcliffe, William	Gunter.	Kennedy, Timothy	Enterprise.
Henderson, Arthur	Baysville.	Kirk, Henry	Trenton.
Hillis, James M	Sutton West.	Knox, Milton	Ottawa.
Harris Wm., Jr.	Day Mills.	Kinsella, Michael Pierce	Trenton.
Hogg, W. J.	North Bay.	Kitchen, D	French River.
Hoxie, E. P.	Katrine.	Kelly, Jeremiah	Sudbury.
Hawkins, Walter	Pembroke.	Kelly, Ferdinand	Mattawa.
Howard, James	Eganville.	Kennedy, T. J	Arnprior.
Howard, William	Baysville.	Kenning, Henry	Pembroke.
Hogan, Enos W	Savanne.	Kirby, D. F	Belleville.
Horne, John T	Fort William.	Kirkpatrick, David	Lindsay.
Hamilton, Chas. E	Kenora.	Kean, John F	Orillia.
Henderson, Leonard	Baysville.	Kellett, Fred	Keewatin.
Hunter, Thos	Callendar.	Kelly, Michael J	Baysville.
Hamilton, Robert J	Ottawa.	Kirk, William James	Webbwood.
		Kerr, E. G	Thessalon.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.
King, Napoleon	Mattawa.
Kean, B. F.	Orillia.
Kemp, Orval Wesley	Trenton.
Kirk, Charles Barron	Queensborough.
Kingsland, W. P.	Ottawa.
Kerr, John B.	Arnprior.
Kennedy, Walter	Arnprior.
Kennedy, John	Pembroke.
Knox, Wm. M.	Fesserton.
Kingston, Robert	Wisawasa.
Kearnan, Edward	Blind River.
Kearney, Michael John	Buckingham, Qu.
Kendrick, John	Burk's Falls.
Kendrick, John L.	Burk's Falls.
Kennedy, John W.	Ottawa.
Kelly, James F.	Trout Creek.
Kauffman, Julias	Blind River.
Kennedy, Sylvester	Brule Lake.
Kernahan, George A.	Barwick.
Kehoe, Martin	Huntsville.
Kennedy, Daniel J.	Spanish.
Leannoth, Francis	Arnprior.
Lee, James	Warren.
Lloyd, Alfred	Severn Bridge.
Lawrie, Frank A.	Parry Sound.
Latimer, Jas.	Frank's Bay.
Lemyre, Middey	Campbellford.
Lutz, Jacob	Parry Sound.
Luby, John E.	Ottawa.
Law, Wm. J.	Markstay.
Lummis, Daniel	Glanmire.
Lowe, W. C.	Port Arthur.
Londry, S. C.	Sault Ste. Marie.
Lochnan, James	Ottawa.
Link, Henry W.	Ottawa.
Ladarotte, John	Arnprior.
Lochnan, John	Aylmer, Que.
Lozo, John	Trenton.
Loughrin, Lawrence	Pembroke.
Linton, J. H.	Parry Sound.
Ludgate, James	Peterborough.
Lee, Robert	Huntsville.
Langford, Mark	Baysville.
Letherby, Edwin	Midland.
Leahy, Francis M.	Chapeau, Que.
Langford, Henry	Baysville.
Lessard, Philip	Kenora.
Lovering, William James.	Coldwater.
Lane, Maurice	Bobcaygeon.
Lenton, George	Peterborough.
Lowe, Thomas A.	Renfrew.
Livingston, Robert M.	Huntsville.
Londry, William E.	Sault Ste. Marie.
Labelle, James	Waltham, Que.
Labelle, Eli	Waltham, Que.
Ladurante, J. D.	Ottawa.
Ludgate, Theodore	Peterborough.
Lucas, Frank	Sault Ste. Marie.
Lunam, Duncan	Collfield, Que.
Lott, George	Trenton.
Lawrie, John D.	Parry Sound.
Lovering, George Francis.	Coldwater.
Lucas, R. G.	Christina.
LeBlanc, Edmund C.	Chapleau.
Lavigne, John	Aylmer, Que.
Landell, Charles S.	Huntsville.
Long, Henry Elisha	Mattawa.
Lynch, W. H.	Collingwood.
Laplante, Francis	Byng Inlet.
Lindsay, James	Arnprior.
Labelle, Michael	Arnprior.
Legree, John	Dacre.
Legree, James L.	Calabogie.
Leigh, John Chas	Gravenhurst.
Lloyd, Edward B.	King.
Lemyre, Bruno	Gravenhurst.
Lavelle, Charles H.	Canoe Lake.
Lyons, James	Waltham Sta., Q.
Ledwood, Charles	Ottawa.
Levelle, Emrey	Waltham Sta., Q.
Little, Theo	Kenora.
Lehman, Joseph	Stratton Station.
Lafare, Mark	Cache Bay.
Leach, George	Vermilion Bay.
Lott, Angus M.	Spanish Mills.
La Belle, Ambrose	Kenora.
La Breen, Douglas	Kenora.
Lavelle, Michael J.	Blind River.
Lyleton, J. E.	Parry Sound.
Lalor, William J.	Aspdin.
Lalonde, Joseph Maxine	Link.
Malloy, Mark	Baysville.
Martin, Hugh	Sault Ste. Marie.
Miller, R. O.	Gravenhurst.
Morrison, James	Toronto.
Murray, Frederick	Huntsville.
Menzies, Archibald	Burk's Falls.
Manning, James	Trenton.
Martin, Philip	Stoco.
Malone, Wm. Patrick	Ottawa.
Marsh, Esli Terrill	Trenton.
Miller, John W.	Huntsville.
Muchinbacker, Asa	Rosseau Falls.
Morris, Geo. F.	French Bay.
Murray, George, Jr.	Waubaushene.
Maughan, Joseph	Fort William.
Margach, Wm. J.	Port Arthur.
Murray, George, Sr.	Waubaushene.
Manice, Wm	Peterborough.
Murray, Wm.	Kenora.
Morgan, Richard J.	Kenora.
Magee, Thomas Arthur	Kenora.
Murdoch, James	Cook's Mills.
Mulvahill, Wm.	Arnprior.
Murphy, Arthur	Ottawa.
Mayhew, Jacob	Northcote.
Molyneaux, George	Parry Sound.
Milway, Joseph	Fort William.
Mackie, Nathan	Port Arthur.
Milne, Archie	Arnprior.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Murray, James	Peterborough.	Mackey, Levi Ralph	Keewatin.
Moore, James A. E.	Lakefield.	Morley, Frank W.	Kenora.
Merkley, William A.	Ottawa.	Madden. F. M.	Haileybury.
Murphy, Hugh R.	Ottawa East.	McCaw, Joseph E.	Tweed.
Murphy, W. J.	Arnprior.	McLaren, Peter	Kenora.
Murray, William	Markstay.	McGregor, Colin F.	Kenora.
McFarlane, Robert L.	Warren.	McKenzie, Robert	Kenora.
Martin, Edgerton	Markstay.	McFadyen, A. J.	Bracebridge.
Mathieson, Archie	Fort Frances.	McCaulay, Thos. J.	Goulais Bay.
Moore, Henry R.	Lakefield.	McDonald, John C.	Spanish Mills.
Mickle, Chas S.	Gravenhurst.	McKenzie, Alex E.	Ansonia.
Mullen, James	Webbwood.	McIntyre, John	Arnprior.
Morley, A. W.	Winnipeg.	McDermott, Thos	Orillia.
Macdonald, James M.	North Bay.	McDermott, Jas. E.	North Bay.
Money, Harry	Haileybury.	McCrindle, Jas.	Sudbury.
Mather, Allen	Keewatin.	McGhie, Chas. S.	Whitestone.
Menzies, Alexander	Sault Ste. Marie.	McGenigal, John H.	Whitby.
Munro, Peter P.	Commanda.	McCart, Patrick	Arnprior.
Mason, Benjamin	Westmeath.	McGrath, Thos. B.	Peterborough.
Monaghan, John B.	Arnprior.	McCormick, James J.	Trenton.
Monaghan, M. J.	Arnprior.	McCarthy, Wm.	Fenelon Falls.
Mulvihill, John	Arnprior.	McAvoy, Owen	Campbellford.
Moran, Andrew	Rockingham, Qu.	McConnell, Lewis	Fesserton.
Mulvihill, Michael	Arnprior.	McMullen, George	Spragge.
Mann, John	Manitowaning.	McNab, Angus	Burnstown.
Marrigan, Richard	Deseronto.	McColgan, C. H.	Quyon, Que.
Monaghan, John Dorland.	Deseronto.	McCallum, Webster	Arnprior.
Matheson, Wm.	Chelmsford.	McCagherty, Robert E.	Westmeath.
Munro, Alex. G.	Braeside.	McNab, Archie	Calabogie.
Murphy, Oliver A.	Marksville.	McDonald, Malcolm	Spragge.
Mellor, Charles	Port Arthur.	McIvor, J. A.	Fort Frances.
Millions, Harry	Gillies' Depot.	McCulloch, M.	Kenora.
MacDonell, R. D.	Biscotasing.	McDonagh, Rod	Callander.
Milne, Fred	Trout Mills.	McManus, James	Arnprior.
Milne, William H., Jr.	North Bay.	McKinley, J. H.	Curran.
Murphy, Dennis	Thessalon.	McPherson, Jas. S.	Rama.
Mackie, Thomas	North Lake.	McKinley, Edward C.	Toronto.
Miller, P. H.	Blind River.	McCleiland, John	Parry Sound.
Munro, Philip	Braeside.	McFarlane, J. W.	Cache Bay.
Mangan, Patrick	Arnprior.	McDonald, Roderick	Pembroke.
Marcil, Peter	Ottawa.	McCormack, Wm	Pembroke.
Main, Samuel	Spanish Station.	McCreary, William	Arnprior..
Morley, Charles	Huntsville.	McCuaig, James C.	Bryson.
Moore, David Henry	Peterborough.	McColman, Peter	North Bay.
Murphy, John	Arnprior.	McLeod, James D.	Gravenhurst.
Mathieson Daniel	Chelmsford.	McCrimmon, N. K.	Blind River.
Milne, Wm..	Ethel.	McCreary, James, Jr.	Arnprior..
Mangan, Charles	Burk's Falls.	McPhee, Hugh	Byng Inlet.
Mooney, Lincoln	Orillia.	McCudden, James	Arnprior..
Mangan, John	Arnprior.	McLachlin, J. A.	Arnprior..
Mooney, Thomas	Kingston.	Macpherson, John	Ottawa.
Mason, Robt. T.	Rochesterville.	McEachren, John A.	Gravenhurst W.
Moore, Wm. John	Gravenhurst.	McLeod, Dugald	Gravenhurst.
Morrison, Donald	Reay.	McClelland, R. H.	Parry Sound.
Moore, Wm.	Bobcaygeon.	McEvoy, Frank	Campbellford.
Mutchenbacker, Herman..	Rosseau Falls.	McDermottt Peter	Orillia.
Moore, Norman	Arnprior.	McIlroy, John	Madoc.
Morley, John R.	Kenora.	McNab, Robert J.	Parry Sound.
Mackay, J. A.	Big Forks.	McFadden, James	Ottawa.
Miller, Robt.	Montreal.	McIntosh, James G.	Carleton Place.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
McInnis, Hector D.	Bracebridge.	McLachlin, Alexander	Arnprior.
McKinnon, Malcolm	Bracebridge.	Mackey, Edward	Arnprior.
McLean, Daniel	Bracebridge.	McEwan, Henry	Trenton.
McKinnon, Archie J.	Bracebridge.	McDonald, Alfred	Peterborough.
McKay, D. C.	Baysville.	McGeary, John J.	Sundridge.
McDonald, James	Parry Sound.	McDonald, Archibald W.	Gilmour.
McPherson, Allan	Longford.	McGaw, John Gillen	Queensborough.
McDonald, James P.	French River.	McCauley, Barney	Trenton.
McFarlane, Jos. C.	Port Severn.	McDougall, James T.	Klock's Mills.
McNabb, Alexander	Thessalon.	McInenly, Thomas	Quebec, Que.
McGillivray, Archibald	Port Arthur.	McBride, Archibald	Arnprior.
McGrane, Edward	Lindsay.	McFarlane, Robert L.	Arnprior.
McLeod, Donald, Jr.	Keewatin.	McGowan, Wm.	Parry Sound.
McDonald, Hector R.	Thessalon.	McLachlin, Norman	Arnprior.
McDougall, Duncan	Bracebridge.	McDonald, Laughlin	Pendleton.
McNabb, Alexander D.	Warren.	McIvor, William J.	Collins' Inlet.
McCormack, John C.	Sudbury.	McKee, John P.	Sturgeon Falls.
McNamara, John	Byng Inlet.	McGowan, Thomas	Parry Sound.
McGillivray, Duncan D.	Algoma Mills.	McDermot, Patrick	South River.
McIntyre, Daniel A.	Klock's Mills.	McKay, Angus	South River.
McNamara, Lewis	Klock's Mills.	McDonald, A. J.	Longford.
McDonald, Sydney C.	Mattawa.	McInnis, Angus D.	Gravenhurst.
McGurn, John J.	Buckingham, Qu.	McKendry, Alexander	Waubaushene.
McKeown, Jno. Joseph.	Port Arthur.	McGuire, Timothy	North Bay.
McNeel, David	Sault Ste. Marie.	McGrath, John	Peterborough.
McEwan, Andrew	Thessalon.	McWilliams, Jno. Bannon.	Peterborough.
McCool, Christopher L.	Cartier.	McCagherty, Patrick	Westmeath.
McCollom, Donald	Arnprior.	McKendry, Daniel	Arnprior.
McDowell, Wm.	Cache Bay.	MacDonald, D. F.	Parry Sound.
McConnachie, Roy Stewart	Huntsville.	McManus, Thomas J.	Renfrew.
McDonnell, J. K.	Rat Portage.	Macfarlane, David R.	Ottawa.
McDonald, Alex. J.	Vermilion Bay.	McColgan, Edward	Quyon, Que.
McKay, D. A.	Rainy River.	McKay, John	Emo.
McMillan, James	Kenora.	McKinnon, William	Kenora.
McPhee, Ronald	Bracebridge.	McKittrick, Frank R. F.	Kenora.
McKay, George Donner	Dorset.	McMichael, Charles	North Seguin.
McWilliams, Maxwell Theodore	Peterborough.	McIlroy, Thomas Davis	Madoc.
McLeod, John	Keewatin.	McDonald, Wm. Henry	Trenton.
McPherson, George	Keewatin.	McGaw, Wm. Thomas	Callander.
McDougall, John D.	Kenora.	McMillan, L.	Callander.
McGregor, Duncan	Burnstown.	McDermott, John L.	Orillia.
McLean, Peter W.	Sand Point.	McDonald, Chas. M.	Pembroke.
McNichol, John	Sudbury.	McPhee, Benjamin	Pembroke.
McInnis, D. E.	Cache Bay.	McGee, John Edward	Parry Sound.
McLaughlin, Samuel	Waubaushene.	Macfarlane, Mack	Arnprior.
McCollam, John	North Bay.	MacCallum, Alexander	Braeside.
McManus, John C.	Arnprior.	McRae, Farquhar	Kenora.
McLean, John	Blind River.	MacCallum, Albert	Arnprior.
McLeod, Norman	Garden River.	McGonigal, John	Arnprior.
McLean, James	Blind River.	McConachie, John	Huntsville.
McNally, J. A.	Desbarats.	McKay, D. G.	Kenora.
McNab, Alexander	Arnprior.	McDonald, James	Peterborough.
McFarlane, Alexander	Renfrew.	McCulloch, John L.	Lonsdale.
McFarlane, J. D.	Stewartsville.	McConnell, James	Mine Centre.
McFarlane, Duncan	Renfrew.	McIntyre, William John	Fort Arthur.
McKendry, Wm. B.	Arnprior.	McDonald, Allen	Big Forks.
McPhee Hugh	Renfrew.	McLay, Albert	Devlin.
McPhee, John	Arnprior.	McQuarrie, Daniel	Fort Frances.
McLachlin, Peter	Arnprior.	McNaughton, Daniel	Bracebridge.
		McCagherty, William E.	Westmeath.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.
McDonald, John D.	Mattawa.
McCagherty, Joseph T.	Westmeath.
McAdam, Arch H.	Quyon, Que.
McMurphy, Dugald, Jr.	Kenora.
McCall, Alfred	Kenora.
McRitchie, William	Kenora.
McRitchie, Malcolm	Kenora.
McDonald, John Harold	Rydal Bank.
McAuley, William Davis	Sault Ste. Marie.
McCallum, Thomas	Fort William.
McWhinney, Fred	Kenora.
McNairney, Hugh H.	Sudbury.
McKelvie, William	Otter Lake Sta.
McGovern, Frank	Sault Ste. Marie.
McCallum, Gordon	Fort Frances.
McCallum, Henry	Fort Frances.
McLaughlin, Russell	Spanish Mills.
McAdam, Miner S.	Quio, Que.
McDougall, David A.	Nesterville.
McLeod, William A.	Manitowaning.
Nescott, George	Kenora.
Newton, Frank	Gravenhurst.
Newburn, Wm.	Parry Sound.
Niblett, James	Arnprior.
Niblett, Robert	Osceola.
Nevison, Herbert	Kenora.
Nicholson, John	Owen Sound.
Newall, John H.	Parry Harbor.
Nolan, John	Gravenhurst.
Newton, Charles W.	Victoria Harbor.
Nent, Charles	Vermilion Bay.
Needham, John G.	Pakenham.
Oullette, Joseph P.	Cutler.
O'Neil, Thomas	Bancroft.
O'Neill, Daniel H. H.	Arnprior.
O'Leary, Patrick J.	Orillia.
Oliver, Charles R	Fesserton.
Overend, George J.	Longford Mills.
O'Brien, Andrew	Ottawa.
O'Brien, Frank G.	Arnprior.
Oliver, J. A.	Fort William.
Owen, W. J.	Wabigoon.
O'Connor, John	Hintonburg.
Oliver, Darcy	Wahnapitae.
O'Connor, Wm.	Nosbonsing.
O'Neil, James W.	North Bay.
O'Donnell, Wm.	Penetanguishene.
Owens, Richard	Basin Depot.
O'Reilly, Patrick	Cartier.
O'Neill, Mark	Renfrew.
Orrill, John	Trenton.
O'Neill, Patrick	Bancroft.
Orde, Francis W.	Kenora.
O'Driscoll, Joseph	Sault Ste. Marie.
O'Gorman, Peter	Blind River.
Pigott, John	Fitzroy Harbor.
Paul, Charles A.	Sault Ste. Marie.
Patinson, Thos	Bracebridge.
Price, A. E.	Arnprior.
Presley, J. F.	Ashton.
Power, James	Bobcaygeon.
Patzel, Adolph	Arnprior.
Plaunt, William B.	Eganville.
Plaunt, Joseph	Eganville.
Porter, Charles C.	Longford.
Preston, R. E.	Kenora.
Petrie, Geo. A.	Fergus.
Pomeroy, Peter	Trenton.
Perry, Pringle K.	Byng Inlet, N'th.
Purcall, W. G.	Ottawa.
Purvis, John	Parry Sound.
Porter, James	Uphill.
Pearson, John James	Lindsay.
Penney, Chas G.	Cache Bay.
Pennock, James P.	Hardwood Lake.
Purdy, John A.	Uxbridge.
Playfair, R. J.	Blind River.
Paterson John	Wahnapitae.
Paterson, Alexander	Orillia.
Parke, James	Gravenhurst.
Parquette, Oliver	Webbwood.
Palmateer, Sherman	Gravenhurst.
Paget, George	Huntsville.
Pounder, Joseph	Westmeath.
Pell, Richard D.	Arnprior.
Perry, Frederick	Port Arthur.
Paget, Charles Edward	Novar.
Porter, Thos. Robt. Mark	Dorset.
Pountney, E. J.	Arnprior.
Pyburn, David J.	Dorset.
Purdy, Geo.	Hintonburg.
Playfair, Andrew Wm.	Sault Ste Marie.
Pipe, Taylor	Haileybury.
Pipher, George E.	Mowat.
Pendee, David	Parry Sound.
Piper, A. J.	Blind River.
Paget, Alfred H.	Ahmic Harbor.
Powers, John J.	Trout Mills.
Pigott, William D.	Fitzroy Harbor.
Potts, Cyril	North Lake.
Pilkey, William	La Vallee.
Quinn, William	Peterborough.
Quigley, Hugh	Penetang.
Quirk, Thomas J.	Petawawa.
Robertson, D.	Kenora.
Richardson, Fred'k George	Trenton.
Richards, Richard	Tamworth.
Riddell, Geo. Alexander	Rochesterville.
Robertson, Lewis McLean	Dunchurch.
Robinson, Wm. F.	Bobcaygeon.
Reamsbottom, Wm.	Mattawa.
Richey, Evan	Brentwood.
Randall, Lewis G.	French River.
Richardson, Chas. Marvyn	Trenton.
Rochester, Daniel Baillie	Ottawa.
Riddell, James	Ottawa.
Rice, Asa S.	Hull, Que.
Roberts, T. A.	Huntsville.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Ross, Andrew	Longford Mills.	Simpson, Alfred E.	Wakefield.
Rose, Donald M.	Kenora.	Souliere, John B.	Ottawa.
Rawson, Charles Edward.	Coldwater.	Shields, James A.	Carleton Place.
Ross, George	Waubaushene.	Spargo, George	Ottawa.
Roberts, Percy T.	Keewatin.	Smyth, W. H.	Baysville.
Ritchie, Wm. D.	Little Current.	Salmon, R. H.	Byng Inlet North
Ramsay, Robert	Arnprior.	Salmon, Alexander C.	Baysville.
Ritchie, J. F.	Arnprior.	Stremer, A.	Ottawa.
Ritter, Samuel G.	Ahmic Harbor.	Shields, Frank A.	Parry Sound.
Rothera, Charles F.	Sturgeon Falls.	Stapleton, John J.	Ogidakie.
Ryan, Alfred	Byng Inlet.	Sloan, William H.	Fort Frances.
Rogers, Fred	Sault Ste. Marie.	Smyth, Job E.	Cache Bay.
Reid, George William	Fort Frances.	Sage, Nelson	Muskoka Mills.
Robertson, John A.	Kenora.	Seymour, Edward	Whitefish.
Robinson, Wm.	Bobcaygeon.	Shaw, Thomas B.	Waubaushene.
Reid, Joseph B.	Lindsay.	Swanston, James	Peterborough.
Ross, Walter M.	Ottawa.	Simpson, William	Hall's Bridge.
Ruttle, H. A.	Carleton Place.	Sadler, Thomas	Lindsay.
Richards, Benedict	Ottawa.	Smith, Patrick Albert	Norman.
Regan, John	Orillia.	Snaith, William J.	Mattawa.
Russel, Wm.	Pembroke.	Sinn, William F.	Arnprior.
Ramsay, Charles	Sudbury.	Sheppard, Wm. Joseph	Waubaushene.
Russell, Corsan L.	Pembroke.	Spears, Milton B.	Barry's Bay.
Richards, Henry	Dacre.	Stevenson, Arthur	Peterborough.
Ryan, Wm.	Killaloe.	Stein, Paul	Sault Ste. Marie.
Reid, John P.	Spanish Mills.	Shaw, Alfred	Thessalon.
Ridley, Robert	New Liskeard.	Sequin, Napoleon	Spanish Station.
Riley, Charles W.	Hutton House.	Scrim, Robert	Arnprior.
Raymond, Morris T.	Spanish Mills.	Sharp, James A.	Sudbury.
Rooney, Wm. H.	Campbellford.	Shaneay, Harry S.	Cook's Mills.
Revell, J. O.	Dryden.	Smith, Wm.	Ottawa.
Rankin, Anthony	Cache Bay.	Stewart, Daniel	Braeside.
Ross, Angus	Orrville.	Sheehan, Michael H.	Waubaushene.
Robinson, Albert E.	Washago.	Smith, Sydney H.	Bracebridge.
Robinson, Edward	Washago.	Stewart, James A.	Pembroke.
Robinson, Thomas G.	Washago.	Sproule, Newton H.	Schomberg.
Raycroft, William T.	Sarnia.	Simmons, Alex.	Port Arthur.
Roberts, Ivor M.	Garden River.	Scott, Thomas	Parry Sound.
Revell, Lionel Oliver	W. Gravenhurst.	Smith, Lawrence	W. Saginaw, Mich.
Regan, Judd Patrick	Orillia.	Shea, Stewart	Campbellford.
Robins, Etna Rosedale	Orillia.	Sullivan, John	Sault. Ste. Marie.
Regan, John, Jr.	Orillia.	Sinclair, Finlay	Sudbury.
Ryan, James	Savanne.	Shiels, Henry F.	Cartier.
Rusk, Oscar W.	Cache Bay.	Smith, Gideon Ousley	Burk's Falls.
Robinson, Thos. Geo.	Bracebridge.	Smith, John Wallis	Thedford.
Rooksby, Wm.	Campbellford.	Smith, Henry G.	Arnprior.
Ramesbottom, Robt.	Byng Inlet.	Story, John A.	Ottawa.
Roy, Lewis	Arnprior.	Sweezy, Benjamin	Massey.
Riddell, Horace A.	Galetta.	Sheppard, Charles H.	Coldwater.
Rowan, A. L.	Sault Ste. Marie.	Sinclair, Armon D.	Arnprior.
Ritchie, James A.	Spragge.	Smith, Sidney E.	Ottawa.
Ross, George Joseph	Schrieber.	Sleeman, Wm.	Rapid River.
Rowe, Frank E.	Hymers.	Sheehan, Peter F.	Loring (canc'l'd).
		Sleeman, Geo.	Rapid River.
		Sims, Wm. K.	Sault Ste. Marie.
Smith, M. D.	Fort William.	Skahill, Wm.	Blind River.
Scanlan, William	Enterprise.	Shaw, George	Thessalon.
Sutherland, D. H.	Gravenhurst.	Sarsfield, George Francis.	Sault. Ste. Marie.
Spanner, John	Huntsville.	Standish, Wm. H.	Batchawaning
Shier, James D.	Bracebridge.	Simpson, Wm. A.	Lakefield. (Bay
Spooner, W. R.	Katrine.	Scollard, Wm.	Young's Point.

List of Persons holding Cullers' Licenses.—*Continued.*

Name.	P. O. Address.	Name.	P. O. Address.
Shuttleworth, Alma	Trout Creek.	Thrasher, Henry G.	Pembroke.
Shanacy, Wm. J.	Spragge.	Tooke, Frank	Bala.
Seely, George	Arnprior.	Thorburn, Donald James	Thessalon.
Stewart, Alex. W.	Lanark.	Tetreault, Philias	Tomiko.
Soreny, Wm.	Braeside.		
Schneder, Frederick	Cache Bay.	Udy, Dean	French River.
Smith, James D.	Rat Portage.	Urquhart, Elias	Gravenhurst.
Sullivan, James	Aylmer.	Urquhart, Andrew	Barrie.
Scully, Cornelius	Whitney.		
Savoy, Eutrope	North Bay.	Vigrass, Percy J.	Dufferin Bridge.
Smith, Walter J.	Campbellford.	Vincent, Joseph	Warren.
Seymour, John J.	Whitefish.	Vollin, Samuel	Nosbonsing.
Smith, Alex. R. C.	Burk's Falls.	Vannier, Nelson Joseph	Bobcaygeon.
Stewart, Richard M.	Chelsea, Que.	Vincent, James	Fesserton.
Souliere, John H.	Canoe Lake.	Vincent, Henry T.	Port Sidney.
Smith, Abraim G.	Quyon, Que.	Vanderburg, Norman	Wisawasa.
Swallow, C. H.	Day Mills.	Valois, Armand	Mattawa.
Strave, A. M.	Mine Centre.	Villiers, Claude	Parry Sound.
Stewart, John	Fort Frances.	Vanier, John	Sault Ste. Marie.
Sullivan, George L.	Rainy River.		
Short, James	Kenora.	White, Thomas S.	Bracebridge.
Shaw, Fred. Jason	Thessalon.	White, A. Thomson	Pembroke.
Short, Chas. J.	Kenora.	Watt, R. A.	Spanish.
Smith, David H.	Sudbury.	Wilkins, Hughes	Blind River.
St. Hillaire, George	Arnprior.	Wallace, T. William	Blind River.
Souliere, Joseph C.	Cutler.	White, Joseph W.	Bracebridge.
Scott, J. C.	Fort Frances.	Watson, William	Huntsville.
Stewart, Frank E.	Crozier.	Webb, George W.	Parry Sound.
Sanders, Edward	Barwick.	Wilcox, Thomas	Parry Sound.
Taylor, Fred. L.	Parry Sound.	Wheeler, J. A. McL.	Tamworth.
Thomas, Griff J.	Thessalon.	Widdifield, C. H.	Pine Orchard.
Thomson, R. D.	Biscotasing.	Whitmore, Edgar	Rosseau Falls.
Tait, Thomas B.	Burk's Falls.	Wright, L. B.	Sault Ste. Marie.
Taylor, C. M.	Gravenhurst.	Ward, Joseph W.	Ottawa.
Thornton, W. D.	Longford Mills.	Wilkinson, W.	French River.
Trussler, Gilbert	Trout Creek.	Waldie, John E.	Victoria Harbor.
Thompson, Geo. S.	Lindsay.	Wigg, Thomas G.	Thessalon.
Thompson, Fred. A. H.	Callander.	Wall, Patrick B.	Cheboygan, Mich.
Thompson, Francis Hy.	Nosbosing.	Wells, John R.	Little Current.
Train, A. C.	Rowan Mills.	Whiteside, John	Huntsville.
Turgeon, Geo.	Cook's Mills.	Watt, William	Peterborough.
Thayer, Wm.	Sault Ste. Marie.	Wilson, George	Lindsay.
Thompson, Alexander W.	Arnprior.	White, Thomas	Parry Sound.
Taylor, Thos. G.	Gravenhurst.	Wood, William D.	Sault Ste. Marie.
Trowse, A.	Arnprior.	Watts, John J.	Fort Frances.
Tucker, Louis A.	Fort Frances.	Webster, George F.	Fort Frances.
Thompson, Daniel	P'rt'ge du F'rt, Q.	Wright, Percy	Fort Frances.
Thompson, Richard	Kenora.	Watts, William B.	Fort Frances.
Thompson, Joseph H.	Bracebridge.	Watson, William	North Bay.
Taylor, Edward A.	Westmeath.	Wagner, Fred	Kenora.
Tait, Ralph	Arnprior.	Wainwright, Edward C.	Huntsville.
Train, William	Burk's Falls.	Wilson, Wm. James	Deseronto.
Turner, Garvin F.	North Bay.	Weston, Frank R.	Midland.
Tilson, Joseph	Burk's Falls.	White, James B.	Manitowaning.
Tuffy, John	Cartier.	Warren, Robert M.	Cache Bay.
Thorpe, Thomas	Pembroke.	Wilson, George A.	Balsam Hill.
Taylor, Charles E.	Gravenhurst.	Welch, Harold	Milberta.
Tench, Arthur	Hekkla.	Wilson, James A., Jr.	Webbwood.
Tulloch, William A.	Sault Ste. Marie.	Woods, John R.	Antrim.
Taylor, Alex. M.	Burnstown.	Wardell, Ernest C. S.	Victoria Harbor.
Toner, J. A.	P'rt'ge du F'rt. Q.	Woods, Joseph F.	Roach's Point.

List of Persons holding Cullers' Licenses.—*Concluded.*

Name.	P. O. Address.	Name.	P. O. Address.
Whaley, Thomas	Huntsville.	Whelan, Peter M.	Renfrew.
Webster, Wm. Alfred	Bracebridge.	Wilson, David	Kearney.
Wornsdorf, Fred. Gutlep .	Pembroke.	Weston, Cecil	Dorset.
Warrell, Wm.	Trout Creek.	Wilkins, George E.	Dorset
Wims, Peter	Blessington.	Woodcock, Edward	Brownhill.
Wickware, Philip Almont.	Cloyne.	Wilson, Fred.	Callander.
Wilson, Edward	Deseronto.	Wilson, Alexander R.	Thessalon.
Whelan, P. J.	McDougall.	Webster, Henry R.	North Lake.
Whyte, John Thos. Goth..	Ottawa.		
Watterworth, J. A.	Sault Ste. Marie.	Younge, Harvey D.	Fort Frances.
White, Wm. James	Muskoka Falls.	Young, R. H.	Fort Frances.
Warrell, George	Powassan.	Yuill, John Albert	Braeside.
Wells, George W.	Little Current.	Young, William	Severn Bridge.
Wilson, Frederick Gould..	Kenora.	Young, A. J.	Cache Bay.
Wallace, John Thomas ..	Thessalon.	Young, Samuel	Coldwater.
Wilkins, George N.	Baysville.	Young, Patrick P.	Young's Point.
Wylie, Byron M.	Webbwood.	Young, Francis G.	Young's Point.
White, Allan	Pembroke.	Yuill, Thomas	Arnprior.
Warner, Franklin H.	Fort Frances.	Yuill, A. D.	Braeside.
Watts, George	Fort Frances.	Young, C. T.	Harvey.
Wood, Thomas	Parry Sound.	Yuill, John Alex.	Arnprior.
White, William	Peterborough.	Yuill, Archibald	Bracebridge.
Woods, A. L.	Kenora.	Yuill, William	Braeside.
White, John B.	Kippewa, Que.	Total, 1,369.	

AUBREY WHITE,
Deputy Minister.

EIGHTEENTH ANNUAL REPORT

OF THE

BUREAU OF MINES, 1909

VOL. XVIII, PART I.

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MAPS

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Map of the Onaman Iron Range, to accompany report on Iron Ranges, east of Lake Nipigon, by E. S. Moore; geologically colored. Scale 2 inches—1 mile.
Map of the Lake Abitibi Area, District of Nipissing, to accompany report of M. B. Baker; geologically colored. Scale, 2 miles—1 inch.

LETTER OF TRANSMISSION

To His Honour John Morison Gibson, Etc., Etc., Etc.,
Lieutenant-Governor of the Province of Ontario:

Sir,—I have the honour to transmit herewith for presentation to the Legislative Assembly of the Province of Ontario, the Eighteenth Annual Report of the Bureau of Mines.

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

F. Cochrane,
Minister of Lands, Forests and Mines.

Department of Lands, Forests and Mines,
Toronto, 25th March, 1909.

la M.

INTRODUCTORY LETTER

To The Honourable Frank Cochrane,
Minister of Lands, Forests and Mines:

Sir,—I beg to hand you herewith for presentation to His Honour the Lieutenant-Governor in Council the Eighteenth Annual Report of the Bureau of Mines, consisting of two Parts.

Part I. presents the usual summary review of the mining industry of the Province, with statistical tables showing the quantity and value of the output of minerals and mineral products, and other information bearing upon the progress and development of the industry. It deals also with the work performed at the Provincial Assay Office, Belleville, the operation of the Government Diamond Drills, mining accidents, the administration of the mining law and the disposal of the mining lands of the Crown, Mining Recorders and Mining Divisions, the collection of mining revenue, etc.

For a number of years the Bureau has been endeavoring to work out the known Iron Ranges of northern and northwestern Ontario, and has presented annually the results obtained by its geologists and explorers. This series of reports is continued in Part I. of the present volume under the following titles:—Iron Ranges of Nipigon District, and Black Sturgeon Iron Region, by Dr. A. P. Coleman; Iron Range North of Round Lake, and Bog Iron on English River, by E. S. Moore; and Iron Formation of Woman River Area, by R. C. Allen, instructor in geology in the University of Michigan, to whom the thanks of the Bureau are due for permission to publish the results of his work carried on for other parties. There is also a study in detail of the geology of the Onaman Iron Range Area, by Mr. Moore.

Mr. M. B. Baker headed an exploration party into the region adjacent to Lake Abitibi, and gives an account of his observations under the heading "The Abitibi Area."

Lastly, Dr. A. P. Coleman, who has long made a specialty of the glacial phenomena of Ontario, gives a description of Lake Ojibway, the Last of the Great Glacial Lakes, and presents his views on the Classification and Nomenclature of the Drift of Ontario.

Part II., published separately, contains the reports of A. G. Burrows on the Silver Regions of South Lorrain and Lake Gowganda, accompanying which are geologically coloured maps of the former and a portion of the latter area.

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

Thos. W. Gibson,
Deputy Minister of Mines.

Office of the Bureau of Mines,
Toronto, 25th March, 1909.

REPORT OF THE BUREAU OF MINES 1909

VOL. XVIII PART I

STATISTICAL REVIEW

By Thos. W. Gibson, Deputy Minister of Mines

The mines and mineral works of Ontario in 1908 again surpassed in aggregate value of production the record of any previous year. The output was valued in the returns to Bureau at $25,637,617, as against $25,019,373 in 1907, hitherto the highest figure reached. One of the most important products, silver, maintained a low price throughout the year, and the depressing influence of this fact was felt not only in the lessened value but also in the restricted amount of the yield. The metallic products, the principal of which were silver, pig iron, nickel and copper, furnished 65 per cent. of the total value, and the non-metallic substances 35 per cent. Of the latter the most important were Portland cement, bricks, natural gas, petroleum, stone, salt and lime, in the order named. For the first time the value of the natural gas produced was greater than that of petroleum, the former being nearly one million dollars, while the latter was but little over seven hundred thousand dollars. The production of the former is steadily increasing, and of the latter declining.

The following table presents a summary of the mineral production for the year, with columns giving the number of employees and the amount of wages paid in connection with the several products:—

Table I.—Mineral Production of Ontario 1908

Product.	Quantity.	Value.	Employees.	Wages.
Metallic:		$		$
Gold ..... ounces	3,465	60,337	358	80,197
Silver ..... "	19,444,400	9,136,830	2,414	2,159,055
Cobalt ..... tons	1,224	111,118		
Nickel ..... "	10 175	1,866,059	1,722	1,306,665
Copper ..... "	7,561	1,071,140		
Iron ore ..... "	216,177	574,839	366	222,234
Pig iron ..... "	271,656	4,390 839	1,807(a)	1,001,893(a)
.....	.....	17,211,162	6,834	4,770,044
Less value Ontario iron ore (170,215 tons) smelted into pig iron	.....	456,176	.....	.....
Net metallic production	.....	16,754,986	6,834	4,770,044
Non-metallic:				
Arsenic, refined ..... tons	702	40,373	(b)	(b)
" crude. ..... "	2,970	.....		
Brick, common ..... No.	222,361,000	1,575,875	3,084	845,606
Tile, drain ..... "	24,800,000	338,658		
Brick, pressed, etc ..... "	56,166,554	485,819	529	254,712
" paving ..... "	3,894,820	61,554		
Building and crushed stone	.....	530,041	1,022	358,514
Calcium carbide ..... tons	2,364	147,150	64	40,944
Cement, Portland ..... bbl	2,022,877	2,417,769	1,642	645,953
Corundum ..... tons	106	11,437	170	19,250
Feldspar ..... "	7,875	20,300	35	15,631
Graphite, refined ..... "	10	1,600	16	2,850
Gypsum ..... "	10,389	20,778	51	15,168
Iron pyrites ..... "	20,970	69,980	132	95,740

(a) Includes steel making. (b) Included in Silver and Cobalt.

Table I.—Continued

Product.	Quantity.	Value.	Employees.	Wages.
Non-metallic :		$		$
Lime.....bush.	2,442,331	448,593	387	149,704
Mica.....tons	368	73,586	108	40,466
Natural gas.....	.....	988,616	152	106,786
Peat fuel.....tons	200	900	4	850
Phosphate of lime..... "	881	7,048	10	2,860
Petroleum.....Imp. gals.	18,479,547	703,773 (c)	430(d)	247,829(d)
Pottery.....	.....	50,310	43	15,702
Quartz.....tons	44,741	52,830	69	32,594
Salt..... "	79,112	488,330	195	93,700
Sewer pipe.....	.....	344,260	202	101,840
Talc.....tons	1,016	3,048	10	1,524
Non-metallic production.....	.....	8,882,631	8,355	3,088,223
Add net metallic production.....	.....	16,754,986	6,834	4,770,044
Total.....	.....	25,637,617	15,189	7,858,267
Total for 1907.....	.....	25,019,373	13,613	7,747,195

(c) Value crude petroleum, exclusive of Dominion Government bounty. (d) Petroleum refining works only.

A comparison between the output of 1908 and that for 1907 shows the following changes in production:—

Table II.—Comparative Value Mineral Production 1907 and 1908

Product.	1907.	1908.	Change. (I) Increase. (D) Decrease.	
Metallic :	$	$		$
Gold.....	66,399	60,337	D	6,062
Silver.....	6,157,871	9,136,830	I	2,978,959
Cobalt.....	92,751	111,118	I	18,367
Nickel.....	2,271,616	1,866,059	D	405,557
Copper.....	1,045,511	1,071,140	I	25,629
Iron ore.....	482,532	574,839	I	92,307
Pig iron.....	4,716,857	4,390,839	D	326,018
Non-metallic :				
Arsenic.....	40,104	40,373	I	269
Brick, common.....	2,109,978	1,575,875	D	534,103
" pressed.....	648,683	485,819	D	162,864
" paving.....	73,270	61,554	D	11,716
Building and crushed stone.....	675,000	530,041	D	144,959
Calcium carbide.....	173,763	147,150	D	26,613
Cement, Portland.....	2,777,478	2,417,769	D	359,709
" natural rock.....	5,097	.....	D	5,097
Corundum.....	242,668	11,437	D	231,171
Feldspar.....	30,375	20,300	D	10,075
Graphite.....	20,000	1,600	D	18,400
Gypsum.....	19,652	20,778	I	1,126
Iron pyrites.....	51,842	69,980	I	18,138
Lime.....	418,700	448,596	I	29,896
Mica.....	82,929	73,586	D	9,343
Natural gas.....	746,499	988,616	I	242,117
Peat fuel.....	1,040	900	D	140
Phosphate of lime.....	.....	7,048	I	7,048
Petroleum.....	1,049,631	703,773	D	345,858
Pottery.....	54,585	50,310	D	4,275
Quartz.....	124,148	52,830	D	71,318
Salt.....	432,936	488,330	I	55,394
Sewer pipe.....	435,088	344,260	D	90,828
Talc.....	5,010	3,048	D	1,962
Tile, drain.....	250,122	338,658	I	88,536

The principal increases and decreases in production shown by the foregoing figures will be dealt with at greater length when treating of the individual items in a later stage of this Report.

Basis of Statistical Values

The methods employed in valuing mineral products for statistical purposes by the mining departments of the Dominion Government and the several Provinces are diverse, and comparisons founded upon statistics drawn from official sources should take into account the plan upon which they are compiled. For example, one of the leading metallic products of Ontario, and indeed of Canada, is nickel. The Geological Survey of Canada[1] gives the production as 19,143,111 lbs., or 9,572 tons. In Table I. of this Report the quantity is given as 10,175 tons. Canadian nickel comes wholly from the mines of Ontario. As shown below, the silver-cobalt deposits yielded 612 tons of nickel. This quantity is not taken into account by the Geological Survey, so that the production of the Sudbury deposits as given by the Survey and the Bureau of Mines is practically the same, being 9,572 tons and 9,563 tons respectively. Yet the value assigned to the nickel output of 1908 by the Survey is $8,231,538, while the Bureau's valuation is only $1,866,059.

Why this great discrepancy? Simply because the basis of valuation in one case is entirely different from that in the other. The Survey values the nickel contents of the mattes produced by the Sudbury furnaces at the average price of refined nickel in New York, while the Bureau's figures represent the value of the nickel in the form of matte and at the point of production, as given by the producers. To reckon the charges for transportation to the United States or England, the cost of separating the nickel from the matte and probably also the profit arising from the whole series of processes to which the ore is subjected from mine to finished product, as part of the value of the nickel when it leaves Canada in the matte, certainly helps to swell the aggregate value of the mineral production, but the propriety of the method is not free from doubt.

On the other hand, in the matter of pig iron, the Survey credits Canada only with the product of Canadian ore, excluding all pig iron made from imported ores, while the Bureau includes the value of all the pig iron made at the blast furnaces of the Province regardless of the source of the ore, deducting from the aggregate the value of Ontario ore smelted into pig iron, so as to avoid reckoning the value of this item twice, once as iron ore and again as pig iron. It is evident that statistics compiled on plans so different bear little real relation to each other, and it could be wished that some common system might be devised and adopted by the various authorities engaged in collecting and publishing official statistics of the mining industry of the several Provinces and of the Dominion as a whole.

The net result so far as Ontario is concerned is to conceal her relative importance as a producer of minerals. Since the Geological Survey gives the figures for Canada only, and not for the individual Provinces, it is natural for any one wishing to ascertain the standing of a given Province to compare the production as given by the Provincial authority with the aggregate for the Dominion as given by the Geological Survey. A conclusion thus arrived at in the case of Ontario would almost certainly be a mistaken one, so far at any rate as regards most of the metalliferous products, the Survey valuing non-metallic products at the mine or point of shipment.

In order to enable the production of Ontario to be fairly compared with that of the rest of Canada as given by the Geological Survey, Table I. has been re-compiled

[1] Preliminary Report on the Mineral Production of Canada in 1908.

upon the system adopted by the latter, both as to quantities and prices. The result is seen below:—

Table III.—Value Mineral Production 1908, "Geological Survey" Basis

Product.	Quantity.	Price.	Value.
			$
Gold ..... oz.	3,465	$17.41 per oz	60,337
Silver ..... "	19,444,400	52.864 cents per oz	10,543,410
Cobalt ..... tons	1,224	$90.78 per ton	111,118
Nickel ..... "	9,563 (a)	43 cents per lb.....	8,224,180
Copper ..... "	7,561	13.208 cents per lb.....	1,997,314
Pig iron ..... "	86,244 (b)	$16.16 per ton	1,393,703
			22,330,062
Value non-metallic production per Table I			8,882,631
Gross value production			$31,212,693

(a) Contents Sudbury mattes only. (b) Proportion pig iron from Ontario ores.

The value of the total production of Canada for 1908, as given by the Geological Survey, being $87,323,849, it will be seen that on this basis Ontario produced about 36 per cent. of the whole, and this after allowing for cobalt the value of the crude only, not that of the finished product, cobalt oxide; such being the Survey's method of dealing with this particular item. It will be noted too that exports of iron ore are excluded, and that in pig iron, only the product of Ontario ore is taken into account.

If coal be excluded, this Province contributed more than one-half of the total production of Canadian minerals, metallic and non-metallic, in 1908. In the metals Ontario claims first place among the Provinces. The aggregate value of the metallic output of Canada last year, according to the Geological Survey, was $41,655,936, of which, as will be seen by the preceding table, $22,330,062 is to be credited to the mines of Ontario, or about 54 per cent. The value of the silver taken from the mines of Cobalt was almost three times that of the gold obtained from the placers of the Yukon.

In the following table is shown the mineral production of the Province for the last five years, the story being one of steady, and in the metallic list, of rapid and uninterrupted advance.

Table IV.—Mineral Production 1904 to 1908

Product.	1904	1905	1906	1907	1908
Metallic:	$	$	$	$	$
Gold	40,000	99,885	66,193	66,399	60,337
Silver	111,887	1,372,877	3,689,286	6,157,871	9,136,830
Platinum	10,452	28,116	5,652	.....	.....
Palladium	18,564				
Cobalt	36,620	100,000	80,704	92,751	111,118
Copper	297,126	688,993	960,813	1,045,511	1,071,140
Nickel	1,516,747	3,354,934	3,839,419	2,271,616	1,866,059
Iron ore	108,068	227,909	301,032	482,532	574,839
Pig iron	1,811,664	3,909,527	4,554,247	4,716,857	4,390 839
Steel	1,188,349	3,321,884	(a)	(a)	(a)
Lead ore	11,000	.....	.....	.....	.....
Pig lead	2,500	9,000	93,500	.....	.....
Zinc ore	9,700	.....	6,000	.....	.....
	5,156,677	13,113,125	13,596,846	14,833,537	17,211,162
Less value Ontario iron ore smelted into pig iron, and pig iron converted into steel..	250,000	2,912,115	(b) 243,766	(b) 282,702	(b) 456,176
Net metallic production	4,906,667	10,201,010	13,353,080	14,550,835	16,754,986

(a) Steel production not included. (b) Iron ore only.

Table IV.—Continued

Product.	1904	1905	1906	1907	1908
Non-metallic:	$	$	$	$	$
Actinolite	102				
Arsenic	903	2,693	15,858	40,104	40,373
Brick, common	1,430,000	1,937,500	2,157,000	2,109,978	1,575,875
" paving	55,450	54,000	45,000	73,270	61,554
" pressed	226,750	234,000	337,795	648,683	485,819
Building and crushed stone	700,000	700,000	660,000	675,000	530,041
Carbide of calcium	152,295	156,755	162,780	173,763	147,150
Cement, natural rock	65,250	10,402	6,000	5,097	
" Portland	1,239,971	1,783,451	2,381,014	2,777,478	2,417,769
Corundum	150,645	152,464	262,448	242,608	11,437
Feldspar	21,966	29,968	43,849	30,375	20,300
Graphite	4,700	9,825	15,000	20,000	1,600
Gypsum	10,674	4,118	6,605	19,652	20,778
Iron pyrites	43,716	21,885	40,583	51,842	69,980
Lime	406,800	424,700	496,785	418,700	448,596
Mica	37,847	50,446	69,041	82,929	73,586
Natural gas	253,524	316,476	533,446	746,499	988,616
Peat fuel	2,400	1,200	900	1,040	900
Petroleum (crude)	904,437	898,545	761,546	1,049,631	703,773
Phosphate of lime					7,048
Pottery	100,000	60,000	65,000	54,585	50,310
Quartz			65,765	124,148	52,830
Salt	362,621	356,783	367,738	432,936	488,330
Sewer pipe	283,000	225,835	279,620	435,088	344,260
Sodalite			6,000		
Talc	2,919	2,240	3,030	5,010	3,048
Tile, drain	210,000	220,000	252,500	250,122	338,658
Total non-metallic production	6,665,970	7,653,286	9,035,303	10,468,538	8,882,631
Add metallic production	4,906,677	10,201,010	13,353,080	14,550,835	16,754,986
Total production	11,572,647	17,854,296	22,388,383	25,019,373	25,637,617

Gold

The number of companies producing gold last year was seven. These were Imperial Gold Mines (Laurentian mine), Lepage Gold Mining Company, (Grace mine, Michipicoten), Grace Mining Company (Eagle lake), Cleveland Gold Mining Company, Empire Mining and Milling Company, Crystal Gold Mining and Milling Company, and the Golden Reed Mining Company. Most of these carried on operations intermittently and on a small scale, the principal producers being the Imperial, Lepage and Cleveland companies. The total production of bullion was 3,465 ounces valued at $60,337.

Interest in the gold districts of Sturgeon Lake and Lower Seine river was stimulated by promising finds in both places, the discoveries in the latter being at Glenorchy, about 40 miles east of Fort Frances, near many gold properties which were actively worked ten or twelve years ago, but have since been abandoned. All the eastern Ontario mines were idle, and of the Larder Lake companies none are yet steadily milling ore.

Silver

Though Cobalt is not the only, it is the chief, source of silver in Ontario at the present time, the mines of that region producing an overwhelming proportion of the total yield. Other contributions were from the Port Arthur district, where one or two silver mines were operated during the year, and from the bullion produced at some of the gold mines. The total yield was 19,444,400 ounces, of which the mines of Cobalt produced 19,437,875 ounces, being an increase over the output in 1907 of 94 per cent Ontario is now third in rank among the silver producing communities of the world, Mexico heading the list, and the United States coming second. The world's production in 1908 is placed at 183,800,000 ounces, so that Ontario's share of the output was about 11 per cent.

The course of prices for silver during the year was unsatisfactory. In New York the average in January per fine ounce was 55.678 cents; it rose in February to 56 cents, then fell steadily until August when the average was 51.683 cents. September saw a slight rally to 51.720 cents, but a further decline set in, and the year closed with an average for December of 48.769 cents, the average for the twelve months being 52.864 cents per ounce. The effect of the low level of prices on the production of the Cobalt mines, though comparatively unimportant, tended towards a restriction of the output; at any rate, there is little doubt that had the market been such as to tempt the mines to make a larger production, this could easily have been achieved. Notwithstanding the fall in price, the margin of profit is still large, some of the Cobalt mines who have published their cost sheets alleging their ability to produce silver at 7½ to 20.7 cents per ounce.

The Producing Mines

There were thirty producing mines at Cobalt in 1908, the following list giving their names in the order of production:—Nipissing, O'Brien, LaRose, Crown Reserve, Kerr Lake, Coniagas, Temiscaming and Hudson Bay, Temiscamingue, Buffalo, Drummond, Trethewey, McKinley-Darragh-Savage, Cobalt Silver Queen, City of Cobalt, Standard Cobalt, Right-of-Way, Silver Leaf, King Edward, Cobalt Townsite, Nova Scotia. Other shippers were Foster Cobalt, Silver Cliff, Chambers-Ferland, Cobalt Lake, Peterson Lake, Nancy Helen, Provincial, Keeley, Colonial, Casey Cobalt. The most notable addition to the productive mines during the year was the Crown Reserve. This mine was opened up on that part of the bed of Kerr lake sold by tender by the Government of the Province in January, 1907, the price paid being $178,500 together with a royalty of 10 per cent. on the value of the output at the pit's mouth. A large vein, rich even for Cobalt, was struck during development work, and the Crown Reserve was a heavy shipper of high-grade ore during the year.

The quantity of ore and concentrates shipped out of the Cobalt camp in 1908 was 25,624 tons. Of this 24,487 tons was ore and 1,137 tons concentrates. The ore averaged 736 ounces per ton, and the concentrates 1,244 ounces. Only the poorer classes of ore, such as will not pay to ship, are subjected to concentration. This is evident from the fact that in order to obtain 1,185 tons of concentrates—the total production—50,997 tons of ore and rock were put through the concentrating plants, being in the proportion of 43 tons of ore to one ton of concentrates. The silver recovered was about 28 ounces per ton of material treated, but the loss in the tailings would raise the average contents of the rock a little above this point.

As in former years, the bulk of the ore, so far as tonnage is concerned, was exported to the United States, where there is a demand, particularly from the smelters of Denver, Colorado, for the silicious low-grade ores of Cobalt for mixture with the sulphide concentrates resulting from the mill treatment of the gold and silver ores of Cripple Creek and Creede. Some shipments to the United States were of high grade, but the gross value of the ores treated in Canadian smelters was almost three times the value of those exported. The value per ton of the shipments to the United States was about $120, while that of the ores refined at home was about $825. The distribution of the output of the Cobalt mines for 1908 is given by the T. & N. O. Railway Commission as follows:—

	Tons.	Per cent.
Canada	7,401.14	29.18
Great Britain	222.08	.88
Germany	229.46	1.18
United States	17,439.42	68.76

The output of silver from the beginning of mining operations in the Cobalt camp is shown in the following table:—

Table V.—Silver Production, Cobalt Mines, 1904 to 1908

Year.	Producing Mines.	Shipments.		Silver Contents.		Average Silver Contents per Ton.		Value of Shipments.		Total Value.
		Ore.	Concentrates.	Ore.	Concentrates.	Ore.	Concentrates	Ore.	Concentrates.	
	No.	Tons.	Tons.	oz.	oz.	oz.	oz.	$	$	$
1904....	4	158	.....	206,875	....	1.309	.....	111,887	.....	111,887
1905....	16	2,144	.....	2,451,356	.....	1,143	.....	1,360,503	.....	1,360,503
1906....	17	5,335	.....	5,401,766	.....	1.013	.....	3,667,551	.....	3,667,551
1907....	28	14,788	.....	10,023,311	.....	677	.....	6,155,391	.....	6,155,391
1908....	30	24,487	1,137	18,022,480	1,415,395	736	1,244	8,468,293	665,085	9,133,378
Total.		46,912	1,137	36,105,788	1,415,395	769	1,244	19,763,625	665,085	20,428,710

Total Silver Production of Ontario

An attempt has been made to ascertain the entire yield of silver in Ontario up to the present time. The statistics of production while the Silver Islet mine, and later the mines on the mainland in the Port Arthur region, were being worked, were not officially collected, and it is difficult now to reconstruct them with exactness, as the figures of the output of individual properties given or referred to in the reports of the Geological Survey of Canada and the Bureau of Mines are incomplete, and in some instances contradictory.

The greater part of the silver so far obtained in the Lake Superior region has come from the Silver Islet mine. This deposit was discovered in 1868, and operations were begun in September, 1870, finally ceasing in 1884. The output is valued by different authorities, at sums varying from $3,000,000 up to $4,500,000. Mr. W. A. Preston, M.P.P., estimates it at $3,000,000. Mr. T. A. Keefer, of Port Arthur, puts the production at "upwards of $3,000,000."[2] Mr. A. J. Cattanach, of Toronto, who had been "connected with the mine almost from the beginning," gives it as $3,089,157.[3] Mr. E. D. Ingall tabulates the production year by year, showing it to have had a total value of $3,047,532.04, but adopts the statement of Mr. Richard Trethewey, superintendent of the mine when it closed, that the total value of silver produced from the commencement to the close of operations, was $3,250,000.[4] Mr. A. Blue, late Director of the Bureau of Mines, says the mine "yielded in all from first to last $3,500,000."[5] Mr. F. S. Wiley, Port Arthur, agrees with this. Mr. S. J. Dawson, of Port Arthur, somewhat loosely estimates the exports from the mine at $3,500,000 to $4,500,000.[6]

Mr. Ingall's data appear to be collected from authentic sources. He gives the number of ounces of silver produced at Silver Islet yearly, from 1872 to 1878 inclusive, amounting to 1,878,443 ounces. From 1868 to 1871 the value of the production is placed at $763,400.59, and in 1882 at $30,000, but for neither period are the figures of quantity given. At $1.32 per ounce, the New York price of silver from 1868 to 1871, the yield for these years would be 578,333 ounces, and at $1.13, the price in 1882, it would for the latter year be 26,548 ounces. These items aggregate 2,483,324 ounces worth $3,047,532.04. This comes short of Mr. Trethewey's total by $202,467.96, which, according to Mr. Ingall, probably represents the results obtained from the poorer mill rock after the rich ores were worked out. The silver equivalent of this amount at $1.13 per ounce is 179,175 ounces, making up a grand total of 2,662,509 ounces, valued at $3,250,000.

[2] Rep. Com. Min. Res. Ont., 1890, p. 63. [3] *Ibid*, p. 195. [4] Mines and Mining on Lake Superior, Rep. Geo. Sur Can., 1887-88, p. 37 H. [5] 6th Rep. Bur. Min., p. 158. [6] Rep. Com. Min. Res. Ont., p. 197.

From several gentlemen, interested in mining, whose experience and recollection cover the productive periods of the Lake Superior silver region, and who had good opportunities of learning the facts, figures of production from the mines on the mainland have been obtained, differing as to individual properties, but agreeing closely in the total. Statement No. 1 is furnished by Mr. W. A. Preston, M.P.P.; statement No. 2 by Mr. F. S. Wiley.

Statement No. 1

Beaver mine	$550,000
Silver Mountain, East and West End	500,000
Badger and Porcupine	300,000
Rabbit Mountain	50,000
Thunder Bay mine	20,000
Shuniah mine	50,000
3 A and Beck mine	10,000
Jarvis Mining Company	40,000
Total	$1,520,000

Statement No. 2

Beaver mine	$700,000
Silver Mountain, East End	30,000
do West End	300,000
Badger and Porcupine	500,000
Other properties	50,000
Total	$1,580,000

The price of silver from 1882 to 1890, when the bulk of the production from these mines was made, fell from $1.136 per ounce in the former year to $0.935 in 1889 and to $1.046 in 1890. The average during the period would be about $1.035 per ounce. Applying this price to the smaller of the above estimates, and we have 1,468,599 ounces as the quantity obtained up to the closing of the mines in 1893. One or two of the Lake Superior mines, notably Silver Mountain West End, have been worked in a more or less desultory way since that time, beginning in 1898, the output from 1898 to 1903, according to returns made to the Bureau of Mines, being 617,433 ounces valued at $365,681.

We can now sum up, as follows:

	Oz. silver.	Value.
Silver Islet mine	2,662,509	$3,250,000
Mainland group, to 1893	1,468,599	1,520,000
do 1894 to 1903 inc.	617,433	365,681
Production previous to opening of Cobalt mines	4,748,541	$ 5,135,681
do subsequent do do	37,586,970	20,468,751
Total production to 31st December, 1908	42,335,511	$25,604,432

Refining Plants and Concentrators

There were three reduction plants in Ontario treating ore from the mines of Cobalt last year, namely, those of the Canadian Copper Company at Copper Cliff, the Deloro Mining and Reduction Company at Deloro, and the Coniagas Reduction Company at Thorold. Through these works there were passed an aggregate of 6,958 tons of ore containing 11,658,008 ounces of silver, of which 8,972,958 fine ounces were recovered, the remainder, 2,685,050 ounces being contained in the speiss product reserved or exported for further treatment. This does not include the operations of the Nipissing Reduction Company or the Muggley Concentrators, Limited, at Cobalt, which carried on a concentrating business only, shipping the product to smelters for refining. The number of workmen employed at these various plants was 247, and the wages paid $172,675.

The following companies have installed concentrating mills which were in operation during the year:—Buffalo Mines Company, Coniagas Mines, Standard Cobalt Mines, King Edward Cobalt Mines; and in addition to these there were custom plants owned and operated by the Northern Customs Concentrators, (formerly Muggley Concentrators),

and the Nipissing Reduction Company. There were also under construction concentrating mills at the Colonial, McKinley-Darragh-Savage, Nova Scotia and O'Brien mines. Undoubtedly concentration of the low-grade ores, carrying say up to 100 ounces silver per ton, will henceforward form an important feature in the practice of the Cobalt camp.

Ore Purchasers

Ore purchasers were somewhat more numerous in 1908 than in 1907. The American Smelting and Refining Company, New York, bought numerous consignments both for its Perth Amboy, N.J., and Denver, Col., works; the Pennsylvania Smelting Company of Pittsburg, Penn., whose plant is at Carnegie, Penn., also bought considerable ore, while the Balbach Smelting and Refining Company of Newark, N.J., and the United States Metal and Refining Company of Chrome, N.J., were occasionally in the market for high grade material. The Canadian Copper Company, Copper Cliff, Ontario, bought a large part of the high grade output of the camp. The Deloro Mining and Reduction Company, of Deloro, Ontario, while running mainly on the more valuable ores of the O'Brien mine, also bought and treated high class ores from other properties. The Coniagas Reduction Company at Thorold, Ontario, confined itself to the ores and concentrates of the Coniagas mine. The Consolidated Mining and Smelting Company of Trail, B.C., took a few carloads. Beer, Sondheimer Company of Hamburg, Germany, purchased several lots of rich ore, and the Anglo-French Nickel Company of Swansea, Wales, a few consignments of silver-free cobalt ore.

The purchasing schedules of these several concerns are subject to frequent changes, induced by the rise and fall of the price of silver and other causes, but on the whole it can be said that the mines of Cobalt experienced a fair measure of competition for their output throughout the year.

Arsenic, Nickel, Cobalt

The elements other than silver in the ores of the Cobalt camp are at present of comparative little value, at any rate to the miners of the ore. Arsenic is no longer paid for by ore-buyers, and nickel is regarded as an impurity warranting the imposition of a penalty if in excess of the cobalt contents.

Cobalt itself is also much less valuable since the mines of this district were opened. The world's demand for cobalt oxide is in the neighbourhood of 275 or 300 (short) tons per annum, while the product of the Cobalt mines, if all converted into oxide, would amount to upwards of 1,500 tons per annum. Where a sudden increase in the supply of a useful commodity is accompanied by a fall in price, there is a tendency to employ the commodity more freely than before and also to find new uses for it. So far, however, there has been little increase in the demand for cobalt oxide, and no fresh methods of utilizing the element or its compounds have given any considerable impetus to its employment. The inevitable result has been a severe fall in the price of cobalt oxide, notwithstanding the efforts of those engaged in and hitherto controlling its manufacture to maintain the old level. In 1907 the ruling rate was $2.50 per pound, but successive reductions have brought the price down to about a dollar per pound, with prospect of a still lower level. In such circumstances it was but natural that the value of cobalt in the ore should also fall, and as a matter of fact for the greater part of the cobalt contained in the ore shipments of 1908, the mine-owners received nothing at all. Even for silver-free cobalt ore the price has been reduced, and now ranges from 25 cents to 45 cents per pound, according to the proportion of the cobalt contents upwards from eight per cent.

Labour Employed

The number of men employed in the silver mines of Cobalt, including also those engaged in the works for the reduction of the ores at Copper Cliff, Deloro and Thorold was 2,414, and the amount paid out in wages $2,159,055. Of these 1,089 were under-

ground workers and 1,325 above ground. The development of the Cobalt mines in the employment of labour is indicated by the following figures:

Year.	Number of men employed.		Wages paid.
	Above ground.	Under ground	
			$
1904.....	29	28	12,300
1905.....	289	186	191,582
1906.....	471	586	581,253
1907.....	1,201	826	1 525,019
1908.....	1,325	1,089	2,159,055

There were no labour strikes or troubles in Cobalt during 1908.

Location stakes in the forest.

Gowganda, February, 1909.

The following table shows the entire production of silver, cobalt, nickel and arsenic from the mines of the Cobalt district beginning with their opening in 1904.

Table VI.—Total Production Cobalt Mines 1904 to 1908

Year.	Ore shipments.	Nickel.		Cobalt.		Arsenic.		Silver.		Total Value.
	Tons.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Ounces.	Value.	
			$		$		$		$	$
1904	158	14	3,467	16	19,960	72	903	206,875	111,887	136,217
1905	2,144	75	10,000	118	100,000	549	2,693	2,451,356	1,360,503	1,473,196
1906	5,335	160	.....	321	80,704	1,440	15,858	5,401,766	3,667,551	3,764,113
1907	14,788	370	1,174	739	104,426	2,958	40,104	10,023,311	6,155,391	6,301,095
1908	25,624	612	.....	1,224	111,118	3,672	40,373	19,437,875	9,133,378	9,284,869
Total	48,049	1,231	14,641	2,418	416,208	8,691	99,931	37,521,183	20,428,710	20,959,490

Tonnage of Ore Produced

The following table shows the number of tons of ore shipped by the various producing mines of Cobalt during the year 1908, and from the beginning of the camp to the end of that year. The figures are taken from the report of Mr. Arthur A. Cole, the Temiskaming and Northern Railway Commission's mining engineer for 1908. There is a slight discrepancy between Mr. Cole's figures and those returned to the Bureau by the mine-owners, but the difference is not important.

Table VII.—Tonnage of Ore Produced by Shipping Mines of Cobalt

—	Mine.	Shipments in 1908.	Total shipments from 1904 to 1908.
		Tons.	Tons.
1	Bailey	88.00	118.00
2	Buffalo	536.90	2,972.04
3	Casey Cobalt	10.00	10.00
4	Chambers-Ferland	223.89	223.89
5	City of Cobalt	761.04	811.65
6	Cobalt Central	187.99	265.32
7	Cobalt Lake	225.97	225.97
8	Cobalt Townsite	177.71	320.93
9	Colonial	.....	55.38
10	Coniagas	610.25	3,510.24
11	Crown Reserve	657.35	657.35
12	Drummond	1,161.38	1,572.86
13	Foster	191.20	704.18
14	Green Meehan	.....	135.42
15	Imperial Cobalt	.....	14.61
16	Kerr Lake	660.24	1,193.30
17	King Edward (Watts)	388.19	388.31
18	La Rose	4,843.17	9,181.14
19	Lawson	.....	75.73
20	McKinley-Darragh	1,808.39	3,098.35
21	Nancy Helen	201.32	231.42
22	Nipissing	3,571.96	8,778.32
23	Nova Scotia	237.95	554.11
24	O'Brien	3,459.51	5,091.62
25	Peterson Lake (Little Nip)	40.67	40.67
26	Princess	.....	3.93
27	Red Rock	.....	45.71
28	Right of Way	750.04	925.66
29	Silver Bar	.58	.58
30	Silver Cliff	160.44	160.44
31	Silver Leaf	197.03	252.39
32	Silver Queen	885.70	1,539.94
33	Temiskaming	795.20	999.52
34	Temiskaming Cobalt	.....	88.45
35	Temiskaming & Hudson Bay	1,094.23	1,243.76
36	Trethewey	1,408.69	2,680.33
37	University	.....	231.51
38	Victoria	.47	.47
39	Violet	.....	36.00
40	White Silver Mining Co.	.....	28.45
	Totals	25,362.10	48,544.59

Dividend-Paying Mines

Cobalt has given rise to a vast number of mushroom mining companies, so-called, whose operations were for the most part carried on in the advertising columns of city newspapers rather than among the rocks of the mining field itself; yet the amount paid out as dividends or profits to the shareholders of the producing companies has not only been very large in itself, but as compared with the value of the output has represented an unusual degree of profit. The table given on page 17 shows that fifteen companies have paid out as dividends $8,313,461.54, and the list does not include the O'Brien and Drummond mines, the former of which is a partnership concern, and the latter a close corporation. Reckoning these two among the dividend payers, it will be found that the total returns or profits divided have been very little if at all short of $10,000,000. The aggregate value of the production of the Cobalt camp from the beginning has been $20,962,942. Of this, as the table shows, almost fifty per cent. has been paid out as dividends.

New Silver Fields

The search for other Cobalts has led to the discovery of silver in South Lorrain and in several districts in the valley of the Montreal river and its branches. The broad geological features of the Cobalt area are repeated in these various regions, though there are somewhat marked differences in the relationships of the silver-bearing veins to the rock formations in the new fields as compared with the original one. In South Lorrain several promising properties are under development, and in the Elk Lake, Miller Lake and Gowganda districts the discoveries have been such as to warrant the hope that the deposits will prove remunerative.

In no case, however, has development proceeded sufficiently far to enable a positive statement to be made. In Gowganda the finds of native silver on the surface of the veins have been of remarkable quality, but on the whole the silver occurrences seem to be more irregular and of smaller proportions than those which have given Cobalt its pre-eminence among the silver camps of the world.

It is to be remembered, however, that the Cobalt deposits, though a natural, hardly constitute a fair standard of comparison. The fact is, that had Cobalt remained undiscovered, the new finds at Elk lake, Miller lake and Gowganda would have been regarded as phenomenal. The minerals found are those of Cobalt—silver, smaltite and niccolite. The discoveries in the last named region were made in the summer of 1908, and, as was to be expected, led to a widespread staking of claims, many of them taken up during the winter when snow effectually hid the surface from view. "Discoveries" made under such circumstances are for the most part of doubtful worth, yet so hopeful are those interested in the new fields that the winter months saw a very large quantity of supplies and machinery taken in over the snow roads in the face of much hardship and difficulty; and the coming season of 1909 will no doubt see the possibilities of these latest camps pretty thoroughly investigated.

Town sites have been laid out by the Government at Smyth (Elk Lake P. O.) and Gowganda, and the lots sold for building purposes. At Elk Lake a thriving town has sprung into existence, which bids fair to become a place of considerable importance. A similar process is going on at Gowganda, where there are already a post office, several stores, hotels, banks, a saw-mill and the other necessary rudiments of a frontier community.

Means of Communication

Means of communication, which are all important to the development of a mining camp or other settlement, are found in winter roads from Charlton and Earlton stations on the Temiskaming and Northern Ontario railway to Elk Lake, and from Elk Lake to Gowganda. There is also a winter route from Sellwood on the Canadian Northern railway north of Sudbury, via Burwash and Welcome lakes to Gowganda. These

Table VIII.—Statement of Dividends Paid by Silver-Cobalt Mining Companies

Name of Company.	Date of Incorporation.	Amount of Capital Stock authorized.	Amount of Capital Stock issued.	Par value of share.	Total Dividend and Bonuses declared up to Dec. 31st, 1907.	Total Dividend and Bonuses declared in 1908.	When last Dividend or Bonus declared.	Rate of last Dividend	Rate of last Bonus.
		$	$	$	$	$		per cent.	per cent.
Foster Cobalt Mining Company, Limited	February 14, 1906..	1,000,000	915,588	1.00	45,799	.....	January, 1907 ...	5	....
McKinley-Darragh-Savage Mines of Cobalt, Limited.....	April 17, 1906	2,500,000	2,246,937	1.00	44,146.96	314,697.06	December 3, 1908	5	.....
La Rose Mines, Limited.....	February 21, 1907..	6,000,000	6,000,000	1.00	.....	420,000	December, 1908	3	1
Temiskaming Mining Company, Limited.....	November 16, 1906	2,500,000	2,500,000	1.00	... .	352,156.25	December, 1908 .	6	.....
Cobalt Central Mines Company, Limited	December 13, 1906.	5,000,000	5,000,000	1.00	.....	95,230	December 17, '08	2	.....
The Buffalo Mines, Limited.....	April 27, 1906.....	1,000,000	1,000,000	1.00	162,000	135,000	December 2, 1908	5 regular 1 extra	.....
Cobalt Silver Queen, Limited.....	April 8, 1906... ...	1,500,000	1,500,000	1.00	120,000	195,000	December 1, 1908	3	2
Trethewey Silver Cobalt Mines, Limited.....	May 30, 1906.....	1,000,000	945,450	1.00	75,636	141,817.50	November 13, '08	10	.....
The Coniagas Mines, Limited	November 24, 1906	4,000,000	4,000,000	5.00	360,000	440,000	January 14, 1909.	3	1
The Nipissing Mining Company, Limited.....	December 16, 1904.	250,000	250,000	1.00	1,710,000	860,000	December 20, '08	.....	.....
The Temiscaming and Hudson Bay Mining Company, Limited	July 29, 1903.....	25,000	7,761	1.00	735,700	271,200	December 31, '08	300	.....
Right of Way Mining Company, Limited.....	July 13, 1906.....	500,000	499,518	1.00	69,889.75	69,932.52	September 15, '08	7	.....
Crown Reserve Mining Company, Limited	January 16, 1907...	2,000,000	1,999,957	1.00	.....	353,762.80	November 30, '08	24	4 for ½ yr
Kerr Lake Mining Company, Limited.....	August 15, 1905....	40,000	40,000	1.00	810,000	450,000	December 15, '08	225	75
City of Cobalt Mining Company, Limited.....	October 5, 1906....	500,000	500,000	1.00	....	44,493.70	October 15, 1908.	3	2
Totals.....	.....	27,815,000	27,405,211	.....	4,163,171.71	4,150,289.83	.....	.....	.....

winter roads utilize the ice of the numerous lakes as part of the route, and consequently become unfit for use so soon as the ice and snow begin to melt in the spring. The waterways are then brought into requisition, and the Montreal river forms an admirable water route from Latchford on the T. & N. O. railway into the new silver fields. Steamers of considerable size ply on its waters, and the journey as far as Elk Lake can be made in summer time with little discomfort. Tramways are provided to facilitate the transport of freight over the portages.

Stopping-place 10 miles east of Gowganda, early in 1909.

Insley's stopping place, road to Gowganda. Winter 1908-09.

The trial from Charlton to Elk Lake is little used in the summer months, but an appropriation of $50,000 was made by the Legislature at the session of 1909 to provide an all-year road between the former point and Gowganda.

If the new camp proves a permanent one, it will require railway facilities, and the most natural means of supplying these would be by an extension of the T. & N. O. railway, probably from Charlton. Meantime, the Dominion Government proposes to erect a dam at Latchford for the purpose of drowning out the rapids at the head of Bay lake, and of improving the navigation of the Montreal river generally.

Mining in a Forest Reserve

It is probably well to call attention here to the fact that the silver regions of the Montreal river are, with the exception of that part of the Elk Lake field which lies east of the river, wholly within the boundaries of the Temagami Forest Reserve, which fact introduces several features of the mining law peculiar to such a situation.

The territory having been set apart for the preservation and protection of the timber, the public interest requires that regard should be had to the timber as well as the minerals. To enable the Department to exercise some control over those who enter the Reserve for the purpose of searching for minerals, and to assist in meeting the expenses of a staff of fire-rangers necessary to prevent and extinguish fires, prospectors are required to procure a permit authorizing them to go into the Reserve, for which a fee of ten dollars is charged. This is valid for twelve months, and can be obtained only at the Department.

A prospector must also be the holder of a miner's license, which under the mining law of Ontario is the foundation for acquiring any of the mining lands of the Crown.

Having staked out and recorded a claim, it is necessary for the holder to apply at once to the Department for authority to work it. Outside of a Forest Reserve, the obligation to develop accrues immediately upon recording a claim, but within a Reserve a claim cannot legally be worked without the express authority of the Department. The reason for this is to give the Department an opportunity of protecting the forest by refusing to allow mining operations, involving as they necessarily do, the use of fire, in a district heavily covered say with red or white pine. If permission to work is given, the claim becomes subject to the ordinary requirements of the Mining Act respecting development work; if refused, work is not obligatory, and the claim is not liable to forfeiture for its non-performance. In any event, the time elapsing between the date of the claim-holder asking for permission to perform the work and the date of granting the same, does not run against the claim.

When the requirements of the Mining Act as to work have been fulfilled, the claim holder is entitled to obtain from the Department a lease, not a patent.

The charge for a lease is one dollar per acre for the first year, and twenty-five cents per acre per annum for the next nine years, the term of the lease being ten years. Leases are renewable for ten-year periods.

As all timber belongs to the Crown and is under special protection, none can be cut without the authority of the Department, all such cutting to be done under the supervision of the superintendent of the Reserve.

Observance of these regulations will spare prospectors and others interested or proposing to become interested in mining lands within a Forest Reserve, unnecessary trouble.

In Part II. of this Report Mr. A. G. Burrows gives the results of his examination of the South Lorrain and Gowganda silver areas, and exhibits the geology of the respective regions on coloured maps, one entitled Map of Part of Lorrain Township, District of Nipissing, Ontario, and the other Map of the Gowganda, Miller and Elk Lake areas, (Montreal River, Temagami Forest Reserve) District of Nipissing. Both are on a scale of one mile to the inch.

Nickel

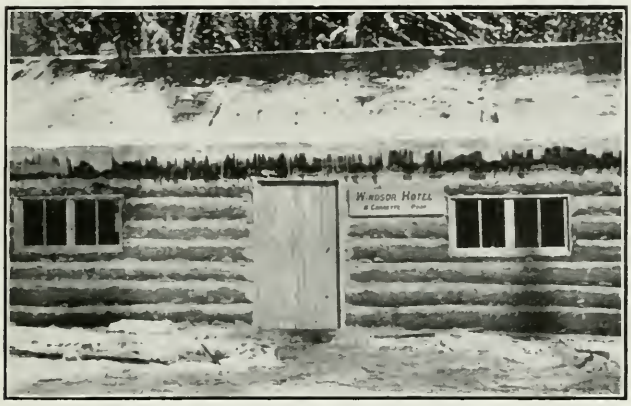
The mattes produced from the nickel-copper ores of the Sudbury region in 1908 contained 9,563 tons of nickel, while in the ores raised in the cobalt-silver mines, it is estimated there were 612 tons of nickel. The total quantity of nickel raised in the Province last year was therefore 10,175 tons, though a money value is given only to the Sudbury product, that from Cobalt being a negligible quantity in this respect, and for a large part probably never entering into consumption in the arts. The aggregate yield of nickel was 797 tons less, and the output of the Sudbury deposits 1,039 tons, less

Indian prospectors, winter.

Burwash, on Seliwood-Gowganda winter road.

than in 1907. The smaller production was due to the slackening of operations in the Sudbury field, the general depression in business leading to a falling-off in the demand. The value placed upon the nickel contents of the Sudbury mattes by the producers was $1,866,059.

The Canadian Copper Company carries on mining and smelting on an extensive scale, and makes the larger part of the matte product. Last year it extracted from the Creighton mine 222,497 tons of ore, and from the Crean Hill 118,066 tons. The



Wind-or Hotel, Gowganda, February, 1909

Hotel, Gowganda, February, 1909.

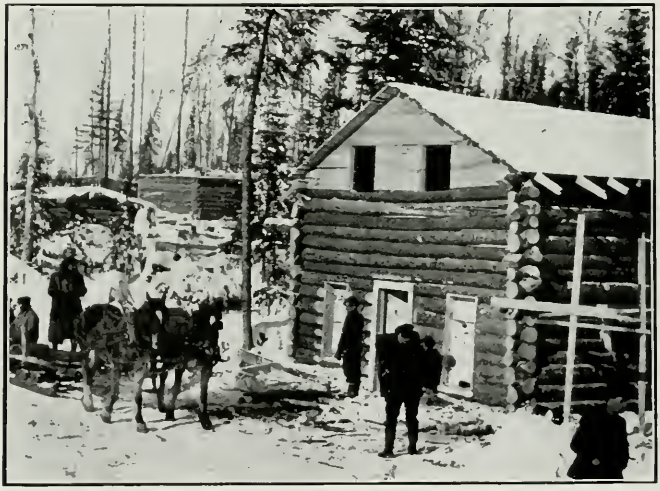
deposits at Copper Cliff, Stobie and other mines were not drawn upon. This company has a modern and very efficient plant, its smelters being situated at Copper Cliff.

Monel Metal

The Canadian Copper Company has placed on the market a new combination of nickel and copper called "Monel metal," composed approximately of 68 per cent. nickel 30.5 per cent. copper and 1.5 per cent. iron. In smelting and refining the matte from

which "Monel metal" is made, the nickel and copper are not extracted or refined, and therefore appear in the finished product in the same relative proportions. As the treatment consists merely in eliminating the impurities, except a small percentage of reduced iron, the cost of production is much less than that of pure nickel, which is difficult and expensive of isolation. It is claimed for "Monel metal" that it is tough, strong, as little corrosive as pure nickel, equal to the latter in appearance, taking a

Saw-mill, Gowganda, February, 1909.



Main street, Gowganda, February, 1909.

high and attractive polish, and that its cost is such as to permit favourable competition with bronzes, German silver, etc. "Monel metal" can be cast for propeller wheels, rudders, valves, plumbing fixtures, jig plates, automobile parts and such other objects as are subjected to severe strain and shock, or where non-corrodibility is desirable; in hot rolled sheets it can be made into ship plates, sheathing, roofing, gutters, mine screens, etc.; in cold rolled sheets, into cooking utensils, milk cans, hospital equipment, watch cases, etc., and in bars, rods and wire, into shafts, piston rods, bolts and nuts, resistance wire, screws, rivets and articles of like kind. Its tensile strength is great and its elastic limit high. The melting point is given as 1,360 degrees centigrade, and its weight per cubic inch (rolled) .323 lbs.

The Mond Nickel Company's mines are situated in Denison and Garson townships, and its works at Victoria Mines, in the former. Like the Canadian Copper Company, it produces Bessemer matte of say 80 per cent. metallic contents, which is exported to Clydach, Wales, for refining by the Mond nickel carbonyl process. In 1908 the Mond Company raised 39,189 tons of ore from Victoria No. 1 mine; and 29,799 tons from the Garson mine.

The Dominion Nickel Copper Company, formed to exploit some large nickel ore deposits in the northern range, has not yet begun operations in the field.

The following table exhibits the course of the nickel-copper mining and smelting industry of Ontario for the past five years:

Table IX.—Nickel-Copper Mining 1904 to 1908

Schedule.		1904	1905	1906	1907	1908
Ore raised	tons	203,388	284,090	343,814	351,916	409,551
Ore smelted	"	102,844	257,745	340,059	359,076	360,180
Ordinary matte produced	"	19,123	.....	.....	.....	.....
High grade matte produced	"	6,926	(a) 17,388	(a) 20,364	(a) 22,041	(a) 21,197
Nickel contents	"	4,743	9,503	10,776	10,602	9,563
Copper contents	"	2,163	4,525	5,260	7,003	7,501
Value of Nickel	$	1,516,747	3,354,934	3,839,419	2,270,442	1,866,059
Value of Copper	"	297,126	688,993	806,413	1,020,913	1,062,680
Wages paid	"	570,901	833,822	1,117,420	1,278,694	1,286,265
Men employed	No.	1,063	1,176	1,117	1,660	1,680

(a) Bessemer matte.

A New Nickel Area

An interesting and possibly important discovery was made during the year 1908, being of a deposit of pyrrhotite carrying nickel in apparently workable, even high proportions, outside of the recognized nickel-bearing areas of the Province. Hitherto all known nickel bodies of economic consequence have been confined to the Sudbury field, and while occurrences of nickeliferous pyrrhotite have been noted in other parts of Ontario, they have invariably proven to be too low in nickel to be classed as ore. In the township of Dundonald, near the boundary of Clergue, on lot 1, concession three, a prospector named Alexander Kelso staked out several claims on a body of pyrrhotite which assays showed contained nickel in varying proportions, some samples, it is stated, carrying as high as 11.46 per cent. The deposit is thus described by Dr. A. P. Coleman, who examined it during the spring of 1909:

The latest find of nickel ore in Ontario took place last summer in Dundonald township about four miles west of mileage 222 on the Temiskaming and Northern Ontario Railway. The Alexo mine, as it has been called, has been somewhat developed by test pits and diamond drilling, so that the geological relationships are fairly clear. At present the diamond drilling is being carried on by the Canadian Copper Company, and the following account of the deposit is due to the courtesy of that company:

The region in which the deposit occurs belongs to the so-called "clay belt" of Northern Ontario, where most of the surface is covered with stratified clay or sand when not so low-lying as to be muskeg. The four miles between the railway and the mine are over muskeg followed by gentle sandy or bouldery swells of morainic origin, so that no bed rock is seen till the mine itself is reached. Here a sharp hill of rock rises about a hundred feet above the low ground, and the ore deposit occurs at the foot of the steep northward slope where a swamp extends to the north.

The whole outcrop of rock is less than half a square mile in extent and no rock is known to rise above the surrounding swamps and low sandy ridges for several miles, so that definite knowledge of the geological relationship is at present confined to the immediate surroundings of the deposit.

The hill consists mainly of a hard, fine-grained, fairly silicious rock, locally called quartzite, having the look of certain greatly modified eruptions of the Keewatin. A small amount of granular quartzite has been found in diamond drilling, but the hill itself shows only the sheared and much silicified eruption referred to, apparently an ancient rhyolite or felsite. This varies somewhat in composition, from a bluish

green chert to a fine-grained green or gray rock, containing very little free silica and a good deal of talc or chlorite. Without microscopic study this rock cannot be characterized more definitely. Part of the surface shows "pillow structure," suggesting an ancient lava.

On the western side of the hill a broad dike or irregular projection of dark green basic rock penetrates the more acid rock. As it is softer and more easily weathered it is not so well exposed, and occupies the lower ground.

This rock was originally a peridotite, but is now transformed to serpentine, including sometimes very narrow seams of chrysotile (asbestos) like that of the Eastern Townships in Quebec. In places the dark green or black serpentine is spotted with whitish calcite (or dolomite) and forms the rock ophicalcite. No ore nor gossan is found round the margin of this mass of basic eruptive rock, but the ore to the north of the hill is associated with very similar rock, and the two areas are probably connected.

The steep slope of the felsitic rock of the hill on its north side seems to correspond to an original plane of contact with the basic eruption, now completely removed by weathering, since the ore and the associated serpentine lie against its foot in the same attitude below the swamp, as shown by the test pits and diamond drilling.

The materials on the dumps from the two pits include, beside ore itself, serpentine rock thickly spotted with tiny blebs of ore very much like the mixed ore and norite of the Sudbury nickel region. The serpentine of the dumps is often broken into small blocks with slickensided surfaces and thin seams of fibrous serpentine. There are also blocks of ophicalcite like the material found on the hill.

At the most important pit, unfortunately full of water, there are about six feet of pyrrhotite resting against the so-called quartzite, followed to the north by about four feet of mixed ore and rock, beyond which to the north no rock is disclosed. The other pit, a short distance to the west, shows little solid ore, but a greater thickness of the mixed ore and rock. The ore body seems to be lenticular with a well defined foot wall to the south, but no distinct boundary against the serpentine to the north, resembling in this respect the marginal nickel deposits of the Sudbury region.

The ore consists mainly of pyrrhotite, but there is a good deal of copper pyrites in places, especially against the country rock, and also a considerable amount of white iron pyrites. The copper pyrites and iron pyrites appear to have been deposited later than the pyrrhotite.

Much of the ore is very much like that of Sudbury, and an assay of a sample of the pure pyrrhotite, made for the Bureau of Mines, showed 5.79 per cent. of nickel with no copper. Other assays show varying amounts of nickel and copper, the iron pyrites standing lowest. The mixed ore and rock shows by assay an amount of nickel proportionate to its contents of pyrrhotite.

A considerable amount of ore was obtained from the eastern pit, as seen in the ore dump, and the general quality looks very attractive; but the size of the ore body, so far as disclosed in the test pits, is not sufficient to make a profitable mine under present conditions.

How extensive the nickel-bearing serpentine may turn out to be one cannot at present even guess; but much larger areas of the parent rock may exist than have yet been disclosed, and correspondingly large ore bodies may possibly be found at some other point now buried under the widespread mantle of drift which covers the region.

The association of nickeliferous pyrrhotite with serpentine in northern Ontario is of very considerable scientific interest, whether it turns out to be of practical value or not. Thus far our nickel ores have been found with a rather acid variety of norite; but in the Alexo mine they are associated with one of the most basic of known eruptive rocks, serpentine, originally an olivine rock. It is worth while to recall that the nickel ores of our most important rival, New Caledonia, are derived from serpentine, though not by magmatic segregation, as seems to have been the case in the Alexo mine.

The segregated nickel ores of the Scandinavian deposits occur in norite of a more basic kind than that of Sudbury, but far less basic than the serpentine of Dundonald township.

Since the above report was written, the Canadian Copper Company, it is understood, have declined to exercise their option on the property.

There has been again a reduction in the valuation placed upon the nickel contents of the Bessemer matte produced by the mining companies. In 1906 the value was estimated at an average of 17.8 cents per pound, in 1907 10.7 cents per pound, and last year it fell to 9.75 cents per pound. The quotations for refined nickel in 1908 in New York averaged about 43 cents per pound, as against 45 cents per pound in 1907.

In the smelting of the ore into matte the consumption of coke at the nickel works was 64,868 tons valued at $485,219, and the quantity of wood required for roasting the ore was 29,467 cords worth $89,121. For the most part the machinery in the mines and smelting plants is now operated by electrical energy, generated by the Canadian Copper Company at High Falls, Spanish river, and by the Mond Nickel Company at Wabageshik falls on the Vermilion. There is undoubtedly some loss of the metals in roasting and smelting the ores, but without making allowance for such losses, the ore put through the furnaces last year contained 2.65 per cent. of nickel and 2.08 per cent. of copper, as compared with 2.95 per cent. nickel and 1.95 per cent. copper in 1907.

Copper

The nickel-copper ores of Sudbury constitute the main source of the copper obtained in Ontario, and these deposits being worked primarily for their nickel contents, the production of copper from year to year depends more upon the demand for nickel than for copper itself. Consequently, the low level of copper prices during the past year—the average in the New York market being 13.208 cents per pound, as compared with 20.604 cents per pound in 1907,—had little effect upon the output of the metal in this Province. In fact, the production of 1908 was greater than that of 1907. This was in part due to the higher average copper contents of the ores smelted in the Sudbury furnaces, as compared with the previous year; but the increase in the copper output would have been still greater had prices ruled high, for the non-nickeliferous copper deposits of the north shore of lake Huron and elsewhere were for the most part allowed to remain unworked during 1908. Practically, only one of these mines, the Hermina, raised any ore at all last year. The total production of copper was 7,561 tons, worth $1,071,140, of which all but 60 tons was taken from the nickel-copper ores of the Sudbury field.

Iron Ore

There were four iron mines from which ore was raised and shipped last year, namely, the Helen mine, Moose Mountain, Mineral Range and Wilbur. The first two are in northern, the last two in eastern Ontario. The total output was 216,177 tons valued at $574,839, as compared with 205,295 tons worth $482,532 in 1907, an increase of 10,882 tons in weight and $92,307 in value. Of the shipments, 166,231 tons was hematite and 49,946 tons magnetite.

Mr. George C. Mackenzie, whose report in the Bureau's seventeenth annual volume gave a comprehensive account of the Iron and Steel industry and iron ore mines of the Province, is continuing his investigations into the applicability of magnetic concentration processes to the low-grade and impure magnetites of Ontario. It was expected that Mr. Mackenzie's conclusions would be published in the present volume, but his experiments have not yet been completed, and the data obtained which, it is hoped, will be of interest and assistance to the iron workers of the Province, will be presented to the public at a later date.

In this Report will be found the concluding reports of Dr. A. P. Coleman and Mr. E. S. Moore on the Iron Ranges of the Nipigon region, also a description by the latter of the bog ore deposits on the English river, together with a brief treatise on the Iron Formations of the Woman River, by Mr. R. C. Allen, of the University of Michigan.

Pig Iron and Steel

Of the seven blast furnaces in the Province, five were in full campaign during 1908, namely, two belonging to the Algoma Steel Company, Sault Ste. Marie, two to the Hamilton Steel and Iron Company at Hamilton, and one to the Canada Iron Furnace Company at Midland; one, that of the Deseronto Iron Company at Deseronto, was in

operation for a brief space only, while one, the property of the Atikokan Iron Company at Port Arthur, was idle throughout the year. The total production of pig iron was 271,656 tons valued at $4,390,839, a falling off of 14,560 tons in weight and $326,018 in value as compared with 1907. Steel rails to the extent of 126,775 tons, worth $3,353,078, were made by the Algoma Steel Company, and basic open hearth steel by the Hamilton Steel and Iron Company and the Ontario Iron and Steel Company, Welland, amounting to 45,333 tons and valued at $1,044,004.

Hotel in process of construction, Gowganda, February, 1909.

Indian family, Indian Chute, Montreal river.

The Electro-Metals Company, Welland, is operating a plant for the manufacture of ferro-silicon and other ferro compounds.

Mr. J. W. Evans, M.E., of Belleville, who has for some time been experimenting in the production of steel from iron ore by the electric process, writes that in September, 1905, he obtained the first steel made directly from Canadian ores in the electric furnace. This was in the form of steel buttons made in a crucible. Since that time he

had produced mild steel of good quality from Coe Hill ore, containing 68.01 per cent. of iron and 1.01 per cent. of sulphur, and from Bowen mine ore carrying 45.17 per cent. of iron and 7.44 per cent. of titanium. At the date of his letter, 7th June, 1909, Mr. Evans was using ore from the Orton mine, which assayed 52 per cent. of iron, 8 per cent. of titanium and a small amount of nickel, and in one and a half hours from the time the ore was placed in the furnace he obtained steel bars weighing over two pounds. The steel from Coe Hill ore contained from a trace to .04 per cent. of silicon, .08 to .17 per cent. of sulphur, and .05 to .07 per cent. of carbon; from Bowen mine ore, silicon .05 to 2.31 per cent., titanium none to 1.02 per cent. and carbon .51 to .87 per cent. Mr. Evans remarks that in order to retain the titanium in the steel he had to reduce the proportion of lime in the charge, which raised the amount of silicon. In his furnaces he employed a combination of the reflected arc and immersed electrodes as being more economical of electrical energy.

Following are details of the operations at the blast furnaces and steel works during 1908:

Ontario ore smelted	tons	170,215
Foreign " "	"	342,747
Scale and mill cinder	"	12,523
Limestone for flux	"	179,741
Coke for fuel	"	322,817
Value of do	$	1,479,083
Pig iron product	tons	271,656
Value of do	$	4,390,839
Steel product	tons	172,108
Value of do	$	4 397,082
Workmen employed	No.	1,807
Wages paid	$	1,001,893

The proportion of domestic ore charged into the blast furnaces rose from 23.6 per cent. in 1907 to 33.1 per cent. in 1908. Much the larger part of the ore raised from the mines of Ontario last year was shipped to furnaces in the Province, although it was not all smelted within the year.

The record of the pig iron and steel manufacturing industry of Ontario during the last five years is shown in the following table :

Table X.—Production Iron and Steel 1904 to 1908

Schedule.	1904.	1905.	1906.	1907.	1908.
Ontario ore smelted tons	50,423	61,960	101,569	120,156	170,215
Foreign ore smelted "	173,182	383,459	396,463	388,727	342,747
Limestone for flux "	61,566	121,052	153,702	171,037	179,741
Coke "	135,108	262,415	304,676	326,937	322,817
Charcoal bush.	1,821,270	3,387,869	811,926	1,849	.....
Pig iron tons	127,845	256,704	275,558	286,216	271,656
Value of pig iron $	1,811,664	3,909,527	4,554,247	4,716,857	4,390,839
Steel tons	51,002	138,387	167,026	237,855	172,108
Value of steel $	1,188,349	3,321,884	4,202,278	4,168,127	4,397,082

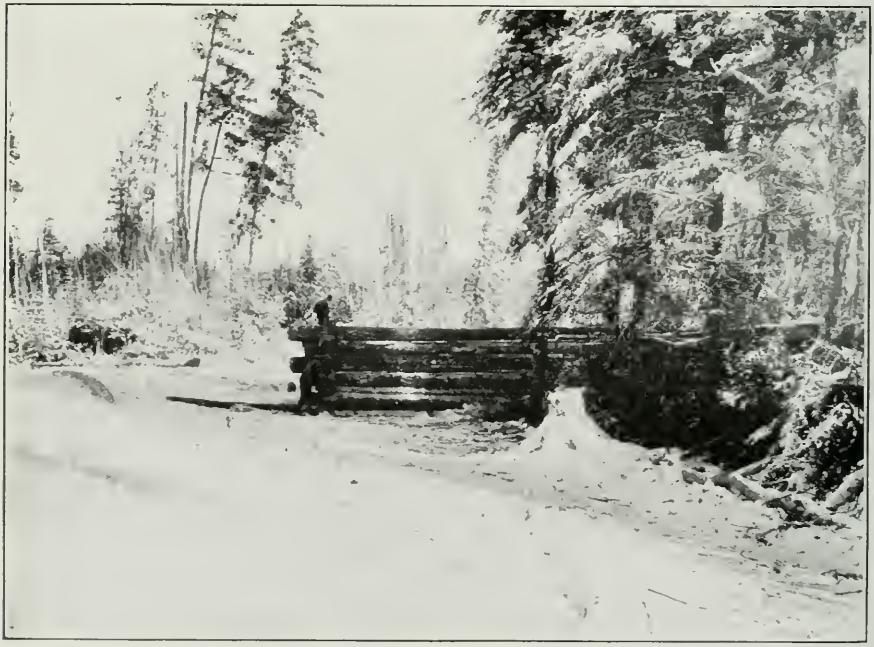
Materials of Construction

Under this heading are included brick, lime, stone and cement.

Brick

The production of brick was somewhat smaller in 1908 than in 1907, the total number of the common building variety being 222,361 thousand as compared with 273,882 thousand for the previous year. The average value per thousand also fell off considerably, being $7.09 in 1908, as against $7.70 in 1907. It is quite evident that the

Elkhorn, Gowganda district.



Building a house at Elkhorn.

activity in building operations which characterized very many of the cities and towns of Ontario in 1907 received a decided check last year, and brickmakers anticipating a continuance of this dulness have reduced their output and allowed their stocks to run down. That the price of bricks is still on a higher level than it was six years ago is apparent from the following table. It is indeed probable that the era of cheap bricks has gone, never to return.

Year.	Price per M.	Year.	Price per M.
1901	$5.73	1906	$7.19
1902	6.41	1907	7.70
1903	6.78	1908	7.09
1904	7.15		
1905	7.75	Average	6.97

The total value of all varieties of brick, including common, fancy, pressed and paving, made last year was $2,123,248. There were 3,084 workmen employed in the brick and tile yards of the Province earning wages aggregating $845,606. That the average period of employment was considerably short of a full year is clear from the fact that the average amount of wages per workman was only $274. In the majority of cases, especially of the smaller yards, bricks are made only during the open season, the larger city yards alone keeping up the production the year round.

Drain Tile and Sewer Pipe

Drain tile and sewer pipe, though not strictly materials of construction, are products of the clay industry and are annually made in considerable quantities. Last year the output of tile was valued at $338,658 and of sewer pipe $344,260, as against $250,122 and $435,088 respectively in 1907. There are four sewer pipe manufactories in the Province, as follows, Dominion Sewer Pipe Company, Swansea; Ontario Sewer Pipe Company, Mimico; Milton Pressed Brick and Sewer Pipe Company, Milton; and Hamilton and Toronto Sewer Pipe Company, Hamilton.

Lime and Stone

The lime kilns of the Province turned out 2,442,331 bushels of lime last year valued at $448,596, as compared with 2,650,000 bushels worth $418,700 in 1907. The average value per bushel last year was 18 3 cents.

Of building and crushed stone the output in 1908 was valued at $530,041, a decrease from 1907, when the production was worth $675,000

Portland Cement

The manufacture of Portland cement in Ontario continues to grow, the production last year being 2,022,877 barrels, an increase of 169,185 barrels over the output for the year previous. The increase in the output was, however, accompanied by a fall in price, the production for 1908 being returned as worth $2,417,769 while that for 1907 was given as $2,777,478. The average selling price per barrel at the factory was therefore $1.195 in 1908 as against $1.498 in 1907, a reduction of $0.303 per barrel.

Fourteen companies manufactured cement last year, the number of plants being fifteen. There were 1,642 men employed in the industry, earning wages to the extent of $645,953. The operating companies were the following:

Lehigh Portland Cement Company, Limited, near Belleville.
Belleville Portland Cement Company, Limited, Belleville.
The National Portland Cement Company, Limited, Durham.
The Superior Portland Cement Company, Limited, Orangeville.

The Hanover Portland Cement Company, Limited, Hanover.
The Ontario Portland Cement Company, Limited, Blue Lake.
Western Ontario Portland Cement Company, Limited, Atwood.
The Canadian Portland Cement Company, Limited, Marlbank and Port Colborne.
The Owen Sound Portland Cement Company, Limited, Shallow Lake.
The Sun Portland Cement Company, Limited, Owen Sound.
The Imperial Cement Company, Limited, Owen Sound.
The Grey and Bruce Portland Cement Company, Limited, Owen Sound.
The Colonial Portland Cement Company, Limited, Wiarton.
The Lakefield Portland Cement Company, Limited, Lakefield.

It was noted in the last Report of the Bureau that the business of making natural rock cement was nearly extinct in this Province, only 7,239 barrels having been made in 1907. Last year the industry went out of existence entirely, not a barrel of the product having been produced at Queenston, Thorold, Limehouse or Hamilton, at all of which places considerable quantities were turned out eight or nine years ago. The manufacture of natural rock cement increased steadily from 46,178 barrels in 1891 to 138,628 barrels in 1901. Since the latter year it has been in a declining condition, the production falling to 14,741 barrels in 1905, to 7,239 barrels in 1907, and finally coming to an end in 1908. The failure of this industry is to be attributed to the increasing severity of the competition from Portland cement, the latter article being now produced and sold at a moderate cost, and being also more uniform in composition and behavior.

In the following table are presented statistics showing the growth and development of the cement industry of Ontario:

Table XI.—Production of Cement, 1891 to 1908

Year.	Natural Rock.		Portland.		Total.	
	Bbl.	Value. $	Bbl.	Value. $	Bbl.	Value. $
1891	46,178	39,419	2,033	5,082	48,211	44,501
1892	54,155	38,580	20,247	47,417	74,402	85,997
1893	74,353	63,567	31,924	63,848	106,277	127,415
1894	55,323	48,774	30,580	61,060	85,903	109,834
1895	55,219	45,145	58,699	114,332	113,918	159,477
1896	60,705	44,100	77,760	138,230	138,465	182,330
1897	84,670	76,123	96,825	170,302	181,495	246,425
1898	91,528	74,222	153,348	302,096	244,876	376,318
1899	139,487	117,039	222,550	444,228	362,037	561,266
1900	125,428	99,994	306,726	598,021	432,151	698,015
1901	138,628	107,625	350,660	563,255	489,288	670,880
1902	77,300	50,795	522,899	916,221	609,199	967,016
1903	89,549	69,319	695,260	1,182,799	784,809	1,252,118
1904	85,000	65,250	880 871	1,239,971	965,871	1,305,221
1905	14,741	10,402	1,254,360	1,783,451	1,269,101	1,793,853
1906	8,453	6,000	1,598,815	2,381.014	1,607,268	2,387,014
1907	7,239	5,097	1,853,692	2,777,478	1,860,931	2,782,575
1908	.....	....	2,022,877	2,417,769	2,022,877	2,417,769
Totals	1,207,956	961,451	10,180,126	15,206,573	11,397,082	16,168,024

Prices of Portland Cement

As the manufacture of cement in Ontario has increased the price has fallen, and last year the average cost per barrel at the factory was less than half what it was seventeen years ago. The following figures of cost since 1891 are instructive, showing as they do that while there have been fluctuations from time to time the tendency to a

lower price level has been irresistible, and in 1908 carried the reduction considerably further than in any previous year:

Year	Price per bbl. at factory.	Year	Price per bbl. at factory.
	$		$
1891	2.499	1901	1.606
1892	2.341	1902	1.752
1893	2.000	1903	1.699
1894	2.000	1904	1.407
1895	1.947	1905	1.421
1896	1.779	1906	1.489
1897	1.758	1907	1.498
1898	1.970	1908	1.195
1899	1.996		
1900	1.949	Average	1.794

Pottery

The manufacture of pottery from the native clays of Ontario is another branch of the mineral industry which is making little progress. None but the least expensive classes of goods are produced from these clays, such as flower pots, jardinieres, etc., all articles calling for better material and higher finish being either imported or made here from imported clay. The potteries of the Province last year turned out goods having a total value of $50,310. In 1907 the output was valued at $54,585.

Probably not until clays of better quality are discovered than the glacial deposits south of the height of land afford, or until the kaolinic beds of the Moose river and its tributaries are made accessible, will the opportunity be afforded to make the higher grades of crockery and chinaware from raw material found at home.

Arsenic

The arsenical deposits of Ontario are numerous and extensive. For the most part they consist of arsenopyrite, which as in the case of the ores of the county of Hastings, often carries values in gold. A pretty full account of the arsenic resources of the Province then known was given by Mr. J Walter Wells in the Eleventh Report of this Bureau (pp. 101-122), but since that time the discoveries of smaltite and niccolite at Cobalt and other places in northern Ontario, though primarily valuable for the silver which accompanies them, have considerably enlarged the sources of arsenic supply. As a matter of fact, the only arsenic at present being made in Ontario is refined from the ores of the Cobalt camp, and is therefore, like a large proportion of the arsenic made throughout the world, in reality a bye-product.

There were obtained at the reduction works at Copper Cliff, Deloro and Thorold from silver-cobalt ores last year, a total of 702 tons of refined white arsenic, having a value of $40,373, or say 2.87 cents per pound. In addition, it is estimated that there were 2,970 tons of arsenic contained in the ores which were exported for treatment. Doubtless a large proportion of this arsenic, if not the whole, is recovered in the various plants where the ores are refined, and eventually finds its way to market. The mine owners of Cobalt, however, get nothing for the arsenic contents of their ores, and no figures of value are set opposite these exports of crude arsenic in the tables of production given in this Report. In 1907 the quantity of white arsenic recovered was 348½ tons, and the value as returned to the Bureau was $40,104.

The uses of arsenic are many; it is employed in the manufacture of paints and insecticides, and also in the making of certain grades of glass, to which it imparts a high degree of brilliancy.

Iron Pyrites

The iron pyrites industry of Ontario is developing. In 1905 the product of the mines was 7,325 tons, in 1907 15,755 tons, and in 1908 20,970 tons valued at $69,980. The larger part of the output is shipped to the United States, but a considerable portion is utilized in the manufacture of sulphuric acid at Sulphide, Hastings county, where the Nichols Chemical Company have an extensive plant.

The producing companies in 1908 were the Northern Pyrites Company, the Nichols Chemical Company, the Northland Mining Company, and the Lake Superior Corporation. The first-named concern made a few trial shipments from their large pyrite bodies at lake Minnitakie, having been afforded an outlet for their product by the completion of the branch line of the Grand Trunk Pacific railway from Fort William. This company has made large preparations for business, and expects to ship extensively to the American market in 1909. The Nichols Chemical Company's mine is at Sulphide in proximity to their acid works; the Lake Superior Corporation exported a small quantity of the granular pyrite found in the Helen iron mine at Michipicoten, and the Northland Mining Company has for some time been working a deposit near Rib lake in the Temagami Forest Reserve.

The Lake Superior Corporation has large deposits of pyrite in the neighborhood of Goudreau lake, southwest of Missanabie on the Canadian Pacific railway, which have not yet been worked, except for testing purposes. A description of these properties will be found in the Sixteenth Report of the Bureau of Mines, pp. 177-180, and also in the Fifteenth Report, pp. 183-187. For a full account of Iron Pyrites in Ontario, reference should be had to the former Report, where the subject is dealt with at length by Mr. E. L. Fraleck.

The following table makes plain the progress which has been made in the mining of iron pyrites in Ontario during the last five years:

Table XII.—Production of Iron Pyrites 1904 to 1908

Schedule.	1904.	1905.	1906.	1907.	1908.
Pyrites shipped ..... tons	13,451	7,325	11,090	15,755	20,970
Value of do..... $	43,716	21,885	40,583	51,842	69,980
Workmen employed.. ..... No.	60	68	128	137	132
Wages paid..... $	22,875	27,690	57,589	75,365	95,740

Mica

From the mica mines of the Province there were raised and shipped last year 368 tons of rough-cobbed amber mica, the value of which was returned to the Bureau as $73,586. This is a decrease from 1907, when the output was 456 tons, worth $82,929.

The principal producers were the Loughborough Mining Company, whose output is utilized by the General Electric Company, and the Dominion Improvement and Development Company. The mines of the former are in the counties of Frontenac and Perth, and of the latter in the county of Perth. Besides these, Kent Bros., of Kingston, (Otty Lake mine), W. L. McLaren, Perth, (N. Burgess), Kent Bros. and J. M. Stoness (Taggart mine), and J. P. Tett and Bros., Bedford Mills, contributed to the total.

By far the most important use to which mica is put is in the manufacture of electrical apparatus, where its property of imperviousness to the electric current gives it great value for insulating purposes. The amber mica (phlogopite) of Ontario and Quebec is unexcelled for electrical work. Much of the small material which in former

years was consigned to the dump or was sold as "scrap," is now worked up into micanite, in which pieces of mica of a variety of sizes are by pressure and the use of shellac consolidated into boards or sheets of suitable form and dimensions.

Salt

There is no rock salt mined in Ontario, the product being entirely the result of the evaporation of brine pumped up from the wells. These are situated on the shores of lakes Huron and St. Clair where immense deposits occur in the limestones of the Onondaga formation.

In 1908 the output of the wells was reported to the Bureau as 79,112 tons valued at $488,330, an increase over the product of 1907, when it was 62,806 tons, worth $432,936. The chief operators were the Canadian Salt Company, with works at Windsor and Sandwich, and the Empire Salt Company of Sarnia. Producers on a smaller scale were Carter and Kittermaster and the Western Salt Company, Mooretown; Ontario People's Salt and Soda Company, Kincardine; Elarton Salt Works Company, Warwick township; Parkhill Salt Company, Parkhill; Gray, Young and Sparling, Wingham; John Ransford, Brussels and Stapleton; Exeter Salt Works Company, Exeter; and Western Canada Flour Mills Company, Goderich. The salt industry gave employment to 195 men, who were paid wages amounting to $93,700.

Petroleum

The petroleum wells of southwestern Ontario yielded in 1908, 18,479,547 Imperial gallons of crude oil, valued at $703,773.

The falling-off as compared with the previous year was serious, being not less than 33 per cent. on the output of 1907. Part of the decrease may be explained by the gradual diminution in the yield of the wells of Lambton county field. The Petrolea and Oil Springs and Bothwell districts have been producing oil for upwards of forty years and the average production per well is now extremely small, being not over eight or nine gallons per day. It is only the large number of wells, and the economy in management which long experience has taught the operators, that enables Lambton county to be reckoned among the oil-producing regions to-day.

Scrutiny of the figures, showing the production of oil from the various districts, reveals the fact that the decline in yield of the more recent of the oil fields, namely, those in the county of Kent, has been proportionately greater than in the older sections. Whether this comparative rapidity of diminution will continue to characterize the production from Tilbury East and Romney, or whether the fluctuation is of a temporary character and will be compensated by the opening up of fresh pools from time to time, must remain for the future to show.

A statement of the production by districts, kindly furnished by Mr. W. J. Harvey, supervisor of the bounty paid by the Dominion Government on crude petroleum produced in Canada, and covering the last three years, shows the rapid increase and decrease of yield in the new fields, and also the decrease in the older ones:

Field	Production 1906	Production 1907	Production 1908
	bbl.	bbl.	bbl.
Lambton	377,286	304,212	265,368
Tilbury and Romney	106,992	411,588	201,283
Bothwell	44'827	42,727	39,228
Leamington	39,652	6,133	9,334
Dutton	19,376	14,977	13,743
Thamesville	175	237	.....
Comber	651	.....	.....
Total	588,962	779,876	528,959

The first strike of oil in the Tilbury field was made in December, 1905, the second producing well was drilled in March, 1906, and the third in the following month. In Romney oil was struck about the close of 1906, and by the beginning of March, 1907, there were seven producing wells, several of which came in with a yield of over 1,000 barrels each per day.[3] In July, 1907, the Tilbury and Romney wells were in full flow, making about 35,000 barrels of oil, while in November, 1908, seventeen months later, the production had fallen to about 12,000 barrels As will be seen by the figures given above, the yield in the new field rose from 106,992 barrels in 1906 to 411,588 barrels in 1907, falling to less than half the latter quantity in 1908. Of the total decrease from 1907 to 1908, 250,917 barrels, Tilbury and Romney were responsible for 210,305 barrels and Lambton for 38,844. In other words, while the falling-off in Lambton in 1907 compared with 1906 was 19 per cent., and in 1908 compared with 1907, 12 per cent., the drop in Tilbury and Romney from 1907 to 1908 was 51 per cent.

Theoretical explanations of these facts are not very satisfactory. It is asserted by some that the Corniferous limestone which forms the oil reservoir in Lambton county is much more porous than the Onondaga or Guelph limestone which is the oil-holding rock in Tilbury—the Romney pool, which is comparatively small, being also in the Corniferous—and therefore not only holds a larger quantity of oil but parts with it more slowly; further, that the oil in the Tilbury field is really contained in crevices or veins, not in the body of the rock itself, and hence is quickly exhausted. Another view is that new oil fields always vary much more in their production than old fields, for two reasons, (1) the rock pressure of the gas being very strong at first tends to drain the oil rapidly at the outset, (2) in the excitement of a new field there is a good deal of random drilling before the really productive areas are located, hence there is much "temporary production" from the poorer parts of the field, while the good portions will afterwards maintain a fairly steady flow for a considerable time. Moreover, in Lambton the wells being shallow, wells of smaller production can be made to yield a profit, and many hundreds of wells that are still being pumped there and yielding in the aggregate a good deal of oil, would have been abandoned long ago had they been in the Tilbury field, where the oil is at a greater depth and wells are more costly to sink and pump. It is conceded that the pay streaks of the Corniferous limestone in Lambton are more porous than the pay streaks of the Onondaga or Guelph in the Tilbury field, but it is held that all the producing territory in the latter has not yet been found, and it is quite possible that future years may show a larger production there than has yet been made.

A somewhat different classification of the sources of production is made by the Imperial Oil Company of Sarnia, which kindly furnishes the following figures. Comparison is also made between 1907 and 1908:

Year.	Production 1907.	Production 1908.
	Imp. Bbl.	Imp. Bbl.
Dutton	14,698	12,267
Leamington (Staples, Comber and Blytheswood)	16,210	18,117
Bothwell	40,556	39,820
Richardson (Chatham)	941	2,882
Thamesville	1,139	852
Moore township	32,720	25,666
Oil Springs	55,813	61,251
East Tilbury and Raleigh	344,358	170,588
Romney	49,783	11,164
Petrolea (including all districts not enumerated above)	206,285	171,019
Total	762,563	513,632

The net result is pretty much the same, though the estimate of production for both years is somewhat smaller than Mr. Harvey's.

[3] Eugene Coste, in Journal Canadian Mining Institute, March meeting, 1907.

Petroleum Prices and Products

The price of crude petroleum in the oil fields of Ontario is regulated by the price paid by the Imperial Oil Company at its various receiving stations. It may cost the producer five to twenty cents a barrel to deliver it, so that the price is not a net one to him. There were practically no fluctuations during the year. The price delivered to the Imperial Company for nearly the first three months was $1.34 per barrel, and for the remainder of the year $1.44 per barrel; the average price therefore for the Petrolea district was $1.41½ per barrel. At producers' tanks in the Tilbury field the price was $1.17 per barrel from 1st January to 15th March, and from 15th March to 31st December $1.27 per barrel. These prices of course do not include the Dominion Government bounty of 51½ cents per barrel. A barrel contains 35 Imperial gallons.

There are two petroleum refineries in the Province, owned and operated respectively by the Imperial Oil Company, Sarnia, and the Canadian Oil Refining Company, Petrolea. Together, these companies distilled 44,675,120 gallons of crude in 1908, so that the domestic product was equal to only 53 per cent. of the total quantity distilled. The remainder was of course imported from the United States.

The following table shows the operations of the petroleum refineries for the last five years:

Table XIII.—Petroleum and Petroleum Products, 1904 to 1908

Schedule.		1904.	1905.	1906.	1907.	1908.
Crude produced	Imp. gal.	17,237,220	22,131,658	19,928,322	27,621,851	18,479,547
Crude distilled	"	22,805,109	33,821,998	36,134,349	34,961,706	34,675,120
Value crude produced	$	904,437	898,545	761,546	1,049,631	703,773
Value distilled products	"	1,670,805	2,196,678	2,506,177	2,568,464	2,347,680
Illuminating oil	Imp. gal.	11,461,435	16,433,588	16,125,450	18,319,233	17,604,920
Lubricating oil	"	2,683,281	3,402,977	4,351,818	3,931,767	3,384,940
Benzine and naphtha	"	1,488,503	2,827,971	3,497,954	4,132,239	3,667,997
Gas and fuel oils and tar	"	1,962,752	5,788,351	5,961,834	5,632,608	4,461,186
Paraffin wax and candles	lb.	2,272,511	4,077,610	5,011,467	5,132,394	5,400,003
Workmen employed	No.	406	469	496	435	430
Wages paid	$	229,955	280,701	308,986	265,316	247,829

Natural Gas

While the production of petroleum declined, the yield of the allied combustible, natural gas, underwent a decided expansion, and for the first time in the statistical history of the mineral industry of the Province, the value of the natural gas product was greater than that of petroleum, the figures for 1908 being petroleum $703,773, natural gas $988,616. The increase in 1908 over 1907 was $242,117, or 32.4 per cent.

There are three fields in which natural gas is produced in quantity, (1) Welland county, (2) Haldimand county, to which must now be added Norfolk, (3) Essex and Kent. The Welland field produced gas to the value of $343,560 or 34.8 per cent. of the whole, the Haldimand field $535,182 or 54 per cent., and Essex and Kent $109,874 or 11.2 per cent. In 1907 the proportions respectively were 46, 44 and 10 per cent. Haldimand has now taken the lead, and the prospects are for a still further increase in the production of this district.

The chief producers are; in the Welland district, Provincial Natural Gas and Fuel Company, Buffalo, N.Y.; the Mutual Natural Gas Company, Port Colborne; the United Gas Company, St. Catharines; the Port Colborne-Welland Natural Gas and Oil Company, Port Colborne; Sterling Gas Company, Port Colborne; Welland County Lime works, Port Colborne; Ontario Steel and Iron Company, Welland; Bertie Natural Gas

Company, Ridgeway, and Empire Limestone Company, Buffalo, N.Y.; in the Haldimand field, Dominion Natural Gas Company, Pittsburg, Penn.; Producers' Natural Gas Company, Hamilton; Selkirk Gas and Oil Company, Selkirk; Norfolk Gas Company, Port Dover; and in the Essex and Kent district, Voleanie Oil and Gas Company, Niagara Falls; Leamington Oil Company, Detroit, Mich.; Beaver Oil and Gas Company, Leamington, and Maple City Oil and Gas Company, Chatham.

The following table gives statistics of the natural gas business for the five years beginning with 1904:

Table XIV.—Natural Gas Production 1904 to 1908

Schedule.		1904.	1905.	1906.	1907.	1908.
Value gas produced	$	253,324	316,476	533,446	746 499	988,616
Producing wells	No.	176	273	332	582	656
Producing wells sunk	"	36	58	77	161	82
Non-producing wells sunk	"	13	5	14	35	21
Delivery pipe	miles	231	461	550	810	850
Workmen employed	No.	98	130	108	181	152
Wa es paid	$	53,674	88,865	64,968	110,832	106,786

Use and Advantages of Natural Gas

A certain proportion of the gas product is used for industrial and manufacturing purposes, but the larger part is employed for domestic heating and lighting. The latter employment is one for which natural gas is so well fitted, that to use it in brick and lime burning, glass, iron and sugar works, or the generation of steam, seems a perversion of the bounty of nature, especially when, as is usually the case, gas is sold for such purposes at about half the price charged to private users. The drafts that are thus made upon what is after all a limited store simply mean that the people at large will the sooner be deprived of this cleanly, convenient, cheap and efficient fuel.

The advantages which the enjoyment of natural gas for domestic purposes confers upon a community are not readily realized by those who live in less favored places, or even by those who dwell in cities and towns where artificial gas is supplied at ordinary rates. For instance, in the town of Wallaceburg natural gas costs the citizens 25 cents net per thousand feet when used for general heating, or 35 cents net when used for cooking purposes only. Consumers of large quantities for industrial purposes pay only 12 cents per thousand feet. In the town of Leamington the gas is purchased by the town and distributed to the people at a flat rate of two dollars per month for cook stoves, three dollars for house heaters, five dollars for house furnaces, and from three to six dollars per month for stoves or furnaces in stores, etc., the town's receipts from this source being about $20,000 per annum. The cost of natural gas in Chatham is twenty-five cents per thousand feet for domestic consumers, and twelve cents for manufacturers. Similar prices prevail in other places within the reach of the gas fields, tending of course to increase with the distance from the source of supply, on account of the expense and loss of gas in transmission. Outside of the natural gas belt or belts, the people of Toronto have perhaps the cheapest supply of artificial gas in Ontario, and the price they pay is 75 cents net per thousand feet, or three times as much as the people of Wallaceburg, Chatham, and other towns in the gas districts of southwestern Ontario. In other cities and towns, the cost of artificial gas is much higher than in Toronto, rising to at least twice the cost.

Plugging Abandoned Gas and Oil Wells

Under the Act to Prevent the Wasting of Natural Gas and to Provide for the Plugging of all Abandoned Wells (7 Edward VII., chapter 47), two inspectors have been appointed whose duty is to enforce the plugging of abandoned wells, the object

being to prevent either fresh or salt water entering the gas or oil bearing rock. According to the provisions of the Act anyone interested in any gas or oil lease may report cases of neglect on the part of any operator to the inspector, who is required to investigate and notify the operator to set matters right, if necessary.

One inspector has supervision of the oil fields in Lambton county, the oil and gas territory in Kent and the gas field in Essex; the other has charge of the purely gas fields of Welland and Haldimand-Norfolk. Both of these inspectors are in constant communication with the Department

Mr. John Scott, who is gas and oil inspector for Lambton, Kent and Essex counties, and is stationed at Petrolea, reports that the Act has been well observed with regard to the plugging of abandoned wells. It was not necessary in any case to employ a drilling rig as provided for in the Act, the operators themselves being always willing to put the wells in proper condition.

Petrolea district, with its large number of wells, naturally required the greatest attention. Many of these wells were drilled 25 or 30 years ago, and it was necessary to go over them and to test the casing and to plug leaks.

In some cases, where wells had been put down some years before, it was difficult to find the persons who should attend to the wells not in good order.

Lack of water owing to the dry season curtailed drilling operations considerably. The summer of 1909 will undoubtedly be a busy one in the Kent field.

Mr. John Toyne, Inspector for Welland, Haldimand, Norfolk, and Brant counties, and stationed at the town of Welland, reports that during the year there were 25 new wells drilled in Welland county, 36 in Haldimand and 16 in Norfolk, or 77 in all.

In a very few cases abandoned wells had not been plugged, but this was always remedied after notification.

As there is no oil at all in this field all operators are interested in the gas, and there has been no trouble with regard to waste. Mr. Toyne inspected in all about 800 wells during the year.

As to the wasting of natural gas, the provisions of the Supplementary Revenue Act, 1907, provide a more efficient and readily applied remedy, and the operations of this Act has resulted in an almost entire stoppage of the waste of gas, which in former times characterized the gas fields of Ontario, in common with many other fields on the continent of America. The imposition of a tax of two cents per thousand feet on gas wasted, as well as on that exported, makes it a matter of self-interest on the part of operators to prevent its escape, for the wasting of gas at even two cents per thousand feet is too costly a pastime to be long indulged in.

Minor Products

Among the lesser items on the list of mineral products of Ontario, apatite or phosphate of lime figures in 1908 for the first time in many years, some 881 tons having been raised of a value of $7,048. The greater part of the output was shipped to Buckingham, Quebec, for the manufacture of phosphorus for the English market, but part was manufactured into fertilizer at Smiths Falls, Ontario. Prices are higher in England than in Canada, and next season producers intend to export to that country. The competition of the cheaper and lower grade phosphates of the southern States has for a long time shut out the richer but more expensive product of Ontario and Quebec.

Corundum, owing to the stoppage of production on the part of the Canada Corundum Company, which has hitherto been the largest producer, shows a considerable falling-off as compared with recent years. This company's business in 1908 consisted mainly in marketing the stock of grain corundum on hand, little fresh rock being raised from the mines.

A plant for the grinding of talc has been erected in Madoc, Hastings county, by Messrs. Geo. H. Gillespie and Company, and began operations in September, 1908. It has a capacity of 400 tons per annum, the product being ground talc of three grades, namely, No. A1 (200 mesh), No. 1 (180-mesh), and No. 2, 3 per cent. retention on 180-mesh. Grade A1 is used by the makers of talcum powder and similar articles, No. 1 by soap makers, tanners and leather manufacturers, and No. 2 by the paper trade and in foundry facings. The product sells at the works at $20 to $25 per ton for No. A1, and $15 to $18 per ton for No. 1, including price of barrels, or $7 per ton for No. 2, including sacks. The bulk of the product grades No. 2.

The remaining items, consisting of calcium carbide, feldspar, graphite, gypsum, and quartz, were produced in about the usual quantities, and do not call for special comment. There was a small production of peat fuel in North Dorchester township, Middlesex county, where J. McWilliam, M.D., of London, has erected a plant.

Revenue for the Year

The total receipts on account of mining revenue for 1908 were $549,178.94, apparently a heavy decrease as compared with those for 1907, when the amount was $1,731,720.72. It must be borne in mind, however, that the income for 1907 was swelled by two items of an unusual character, paid in on account of the purchase of the beds of Cobalt and Kerr lakes, and amounting together to $1,155,000. Excluding this sum, the revenue for 1908 was only $27,541.78 less than that for 1907. The items are as follows:

1. Sales of mining land	$23,445 30
2. Leases do	20,611 81
3. Licenses, Permits and Recording fees	137,730 20
4. Mining Royalties	218,071 96
5. Supplementary Revenue Act	125,078 06
6. Provincial Mine	12,592 90
7. Diamond Drills	11,286 11
8. Assay Office, Belleville	362 60
Total	$549,178 94

Mining Lands

Taking the several items in order, the details of (1) and (2), so far as they apply to transactions originating within the year, are shown in the following statement:

Table XV.—Mining Lands Sold and Leased in 1908

District	Sales			Leases			Total		
	No.	Acres	Amount	No.	Acres	Amount	No.	Acres	Amount
			$ c.			$ c.			$ c.
Nipissing	208	6,218.8	16,300 72	12	863.88	863 88	220	7,082.68	17,164 60
Thunder Bay	3	56.0	123 25	1	316.47	316 47	4	372.47	439 72
Sudbury	7	374.8	909 50	18	2,869.37	2,829 12	25	3,244.17	3,738 62
Algoma	10	859.4	1,359 43	4	424.10	424 10	14	1,283.50	1,783 53
Parry Sound	.....	.....	.....	6	444.00	444 00	6	444.00	444 00
Renfrew	1	50.0	150 00	.....	.....	.....	1	50.00	150 00
Totals	229	7,559	18,842 90	41	4,917.82	4,877 57	270	12,476.82	23,720 47

The above does not include rentals received under mining leases issued in previous years, nor sums paid in as purchase money of lands not actually sold and patented within the twelve months. Together, these amounted to $21,336.64.

It will be observed that mining leases are still being issued, notwithstanding that this form of tenure of mining lands was abolished by the changes made in the mining law in 1906, except as regards lands in Forest Reserves. The explanation of this is found in the fact that there are yet a number of applications for mining leases on the files of the Department which for various reasons, principally because of the existence of valuable timber on the lands, have never been completed. Under the provisions of the Mining Act of Ontario, these applications are being dealt with and leases granted as rapidly as the objections disappear.

There is a uniform charge for the sale of mining lands, namely, $2.50 per acre in unsurveyed territory, where the applicant must furnish a plan of survey by an Ontario Land surveyor, and $3.00 per acre in surveyed townships.

Licenses, Permits and Recording Fees

As to item (3)—licenses, permits and recording fees—the revenue from these sources is little over one-half the amount for 1907. This is largely accounted for by the reduction in the charge for a miner's license. By an amendment to the Mining Act in 1907 the fee was lowered from $10 to $5, the reduced rate, however, owing to the date at which the amendment became law, having little or no effect until the season of 1908.

A large number of permits to search for minerals in the Temagami Forest Reserve was issued during the year, the charge for such permits being $10 each.

The rise or fall in the revenue from fees imposed by the Mining Act is some index of the activity displayed in prospecting for minerals and taking up mining claims. The excitement created by the discovery of the extraordinarily rich ores of Cobalt in 1903 lasted during 1904, 1905 and 1906, and was augmented in the last-mentioned year by the finds of gold reported from Larder Lake. There was a great deal of prospecting and claim-staking in the Larder Lake region in 1907, and also considerable activity in Cobalt, but in 1908 the former district attracted comparatively little attention, as the ores were found to be on the whole low grade and the precious metal sparsely disseminated, and in Cobalt the productive area was felt to have been pretty well defined. However, the finds of silver made in South Lorrain in 1907, on the banks of the Montreal river in 1906, farther west in the latter region in 1907 and again still farther west in 1908 have served to prolong the interest, and indeed it may be said that at the close of 1908 the excitement caused by the rich specimens of native silver found in the neighborhood of lake Gowganda have not only raised the hopes of prospectors and mining men generally, but have re-inflamed the public mind and paved the way for a recurrence of the Cobalt boom of 1906.

Mining Royalties

The details of item 4, mining royalties $218,071.96, are as follows:

O'Brien Mine	$109,915 31
Crown Reserve Mine	29,257 85
Temiscaming and Hudson Bay Mine	78,898 80
Total	$218,071 96

The O'Brien mine pays to the Crown twenty-five per cent. of the value of the shipments of ore, the consignments being valued at the pit's mouth. The agreement between the owners of the mine and the Crown exempts the latter from any part of the cost of underground work, or of hoisting the ore, etc., but in calculating the royalty the surface expenses, such as sorting the ore, haulage and freight, etc., are to be deducted. The difficulty of proportioning exactly these expenses between the parties has led to a modification of the agreement, by which practically the same rate of royalty is payable, while the deductions are more easily and certainly arrived at. A

method of computing the royalty on concentrates is also provided. Up to the end of 1908, the O'Brien mine had contributed in all royalties amounting to $332,860.37.

The arrangement with the Temiscaming and Hudson Bay Mining Company is somewhat different. It provides for the payment to the Crown of a net royalty of fifteen per cent. on the receipts from sales of ore. The amount paid in by this company last year included royalty on past shipments as well as those made in 1908.

In the case of the Crown Reserve mine, the royalty, which is at the rate of ten per cent. on the value of the ore at the pit's mouth, is really part of the purchase price of the property. The history of the sale of this parcel of land by the Crown is interesting. Part of the bed of Kerr lake, in the township of Coleman, which had not been staked out or claimed, as no vein was known to exist upon it, was offered for sale by tender in December, 1906. The highest bid was $52,000, which was not considered sufficient. Tenders were again asked for, and the condition was added that a royalty of ten per cent. should be paid on the value of the ore. The highest offer received in response to the second advertisement was $178,500, which was accepted. A rich vein was struck in developing the mine, and the Crown will probably receive at least as much by way of royalty as the original price.

There are several other properties charged with payment of royalty direct to the Department of Lands, Forests and Mines, exclusive of those which contribute royalties to the Temiskaming and Northern Ontario Railway Commission. They include the Hargrave locations, 25 per cent., Chambers-Ferland properties, 25 per cent., and Scully claims, 10 per cent. None of these paid anything in 1908, but the Chambers-Ferland Company will be a contributor in 1909.

The total receipts from mining royalties up to the end of 1908 were as follows:

O'Brien mine	$332,860 37
Crown Reserve mine	29,257 85
Temiscaming and Hudson Bay mine	78,898 80
Total	$441,017 02

Item 5 includes all revenues arising under the Supplementary Revenue Act, 1907. They are of three kinds, the several amounts being as follows:

Profit tax	$100,538 57
Gas tax	15,037 02
Acreage tax	9,502 47
Total	$125,078 06

Mr G. R. Mickle, M.E., Mine Assessor under the Supplementary Revenue Act, furnishes the following information respecting the operation of that Act during 1908:

Under this Act three different kinds of taxes are levied, viz: (1) A tax of three per cent. on the profits of mines operated in Ontario in excess of $10,000, certain deductions being allowed for taxes paid the municipality in which the mine is situated, the method by which the profit is to be computed being laid down in the Act: (2) A tax of two cents per thousand cubic feet of natural gas produced, 90 per cent. of which is rebated if the gas is used in Canada: and (3) An acreage tax of two cents per acre on land patented or leased as mining land and situated in territory having no municipal organization. These taxes became due for the year 1907 on the 1st December, 1907, consequently a considerable portion of the tax for that year was not received till early in 1908, and was credited in the Provincial Treasurer's statement to the year 1908. After 1907 all taxes become due on 1st October each year, and practically all the profit and gas tax for 1908 was paid in before the end of the calendar year. As the financial year for the Province now ends with the 31st October, there will undoubtedly always be some small amount of the taxes due in each year which will not be paid until the next financial year, and therefore there will always be some discrepancy

between the Treasurer's statement, which takes account only of payments made within the financial year, and the one where the tax is credited to the year where it properly belongs.

On this latter basis the total amount received for the year 1908 was $90,717.76, an increase of about six thousand dollars over 1907.

The distribution is as follows:

(1) Profit tax	$65,922 48
(2) Gas tax	13,454 51
(3) Acreage tax, (paid from 15th April, 1908, to 15th April, 1909)	11,340 77
Total	$90,717 76

The increase is almost entirely in the acreage tax, due to the fact that many holders of land were not aware of the tax till notified in 1908.

The amount collected under the profit tax is from fifteen different companies, eleven of which operate silver mines in the Cobalt district. Those mines in this district which, under special agreements pay royalties to the Crown, are freed from this tax. Also, those properties leased from the Temiskaming and Northern Ontario Railway Commission have not been required to pay the tax. This eliminates a number of good properties from the list of tax-payers. The deduction allowed for tax on income paid the municipalities also reduces the profit tax seriously.

The outlying districts in the Temiskaming division may be expected to furnish some revenue from this source in the future.

Next in importance as a revenue producer to the silver mines come the copper-nickel mines of Sudbury district. In addition to these, one company mining and exporting a portion of its iron ore and one operating mica mines paid a tax. Several companies which mine gold ore, and also several operating or preparing to operate pyrite ore, appear to have a chance to become contributors to the profit tax in the future.

Thirty-six different companies or individuals owning natural gas wells paid the amount mentioned above as derived from gas. Of this sum, $6,249.28, or about 46 per cent. of the total received was the amount levied on gas exported or wasted. There is also over $300.00 in taxes on gas wasted, which is being collected through the courts. The waste of gas during the year 1908 was trifling compared to 1907, no very serious waste having lasted any length of time.

The results obtained by drilling operations for gas in the County of Kent particularly, have been very encouraging. The developments in the western end of the older Welland-Haldimand-Norfolk field have also been satisfactory.

As exportation of gas is now shut off entirely and wasting is too expensive, the revenue from natural gas must drop in spite of increased production.

In order to appreciate the acreage tax and the distribution of the areas under taxation, it is necessary to understand the regulations under which mining lands have been granted from time to time in the Province. Two different and conflicting principles appear to have been followed in disposing of the mining lands belonging to the Crown, namely: the plan of selling outright large areas called "mining locations" to the first applicant without stringent conditions of any kind, and, later, the principle of setting aside certain areas or "divisions," as they were called, in which a licensee might acquire exclusive rights to a small area called a "mining claim" by performing a certain amount of work.

For over fifty years the former plan was in force, the area which might be acquired by direct purchase being reduced from time to time, while the size of the mining claim was constantly increased. Thus at first the minimum area which might be granted was 10 square miles, or 6,400 acres, the first patent of land as mining land which was issued in 1852 being for about 6,400 acres. In 1853 the regulations were changed so that a smaller location of 400 acres might be taken. The large locations of 6,400 acres were still retained till 1869. During this period 132,685 acres were alienated in locations of 6,400 acres, more or less, which still appear on the tax roll, and about 35,000 acres in the 400-acre blocks.

In 1864 the mining division, in which claims of small area might be acquired and held by work without purchase, first appears. These claims had an area of less than one acre, the idea being evidently taken from the practice in other countries governing alluvial gold deposits.

Passing through successive changes to the Act of 1897, the "location" was reduced to a minimum size of 40 acres, and a maximum of 320 acres, and the "claim" increased to a maximum of 40 acres. By the Act of 1906 the whole Province is divided into mining divisions, and consequently there can be no more "locations," but only "claims," which have a maximum area of 40 acres, except in "special" mining divisions.

Most of the land now taxable under the Supplementary Revenue Act was granted in large blocks as "locations." Only a very small number of the "claims" staked under the Act of 1906 have been patented, as the land can be held three years and six months without purchasing, provided the working conditions are fulfilled.

In preparing the acreage tax roll, giving a list of all the lands taxable under the Supplementary Revenue Act, the judicial districts have been followed in dividing up the Province, as these would be less liable to change than the mining divisions.

The taxable areas in the respective districts are as given below:

	Acres.
Rainy River District	190,545
Thunder Bay District	413,770
Algoma District	121,031
Sudbury District	80,868
Nipissing District	14,284
Parry Sound and Muskoka Districts	13,314
Total	833,812

Many of the locations granted in large blocks in times of excitement in the various districts will no doubt pass back to the Crown when the time for forfeiture arrives. This will be the 30th June or 31st December, 1910. The owners have in many instances disappeared or lost all interest in the property.

Receipts from Provincial Mine

Item 6, $12,592.90, with the exception of $275.57, is the amount realized from sales of ore from the Provincial mine, situated on the Gillies timber limit. The deposit upon which the opening was made while containing silver has not so far been productive of any large quantity of rich ore. One carload of silver ore and two carloads of cobalt ore were sold, the former to the Deloro Mining and Reduction Company, Deloro, and the latter, one to the Anglo-French Nickel Company of Swansea, Wales, and the other to the Coniagas Reduction Company, Thorold, Ontario. Following are the details:

April 10, car C. P. 29970, sold Coniagas Reduction Company, Thorold, 42,028 lbs. cobalt ore, 8.045 per cent. Co. at 35c. per lb., Net	$1,188 18
May 28, sold Anglo-French Nickel Company, Swansea, 50,075 lbs. cobalt ore, 10.62 per cent. cobalt, at 40c. per lb., Net	2,101 74
July 9, car 5827, sold Deloro Mining & Reduction Company, Deloro, 48,625 lbs. ore, assaying 783.17 oz. silver, 8.18 per cent. cobalt per ton, and 31.46 per cent. arsenic; Silver 52¼c. per ounce, for 75 per cent., and 53¼c. for 25 per cent., cobalt $10 per ton of ore, and arsenic 1c. per lb., Net	9,027 41
Total	$12,317 33

Item 7, $11,286.11, represents the sums paid by persons who obtained the services of the Government diamond drills, 65 per cent. of the expense of working being borne by the person getting the drill and 35 per cent. by the Department.

Item 8, $362.60, comprises the fees remitted by the Assay Office, Belleville, for assays, analyses, etc., made for prospectors and others during the year. Owing to a considerable portion of the collections reaching the Department after the books for the year had been closed, the amount appears much smaller than it really was.

Mining Companies Incorporated in 1908.

The number of mining companies incorporated under the laws of Ontario in 1908 was 184, with an aggregate authorized capital of $123,526,500, as compared with 321 companies having a nominal capital of $319,876,000 in 1907. There were 8 companies of foreign incorporation licensed to do business in Ontario, their combined capital amounting to $1,890,000; besides 11 companies incorporated under the laws of Canada.

Following is a list of the incorporations:

Name of Company.	Head Office.	Date of Incorporation.	Capital.
			$
Aaba Cobalt Mines, Limited	Haileybury	April 16	1,000,000
Agannico Mines Development Company, Limited	Toronto	June 15	40,000
Algoma Development Company, Limited	Toronto	September 4	150,000
American Drummer Cobalt Silver Mining Company, Lim'd.	Toronto	February 3	500,000
Argentum Mines, Limited	Toronto	December 2	1,000,000
Aureole Mining Company, Limited	Ottawa	February 29	40,000
Badger Mines Company, Limited	Toronto	October 27	2,500,000
Bell's Lake Portland Cement Company, Limited	Toronto	June 15	450,000
Black Donald Graphite Company, Limited	Calabogie	March 20	40,000
Cable Silver Cobalt Mines, Limited	Toronto	December 22	2,000,000
Canada Imperial Mines Limited	Toronto	December 29	40,000
Canadian Oil Companies, Limited	Toronto	December 4	2,005,000
Central Canada Mining Company, Limited	Ottawa	July 13	1,200,000
Chambers-Ferland Mining Company, Limited	Toronto	June 12	2,550,000
Chown Lake Cobalt Mines, Limited	Toronto	November 4	75,000
Cobalt Leasers, Limited	New Liskeard	October 23	1,000,000
Cobalt Silver Hill Mines, Limited	Cobalt	February 3	500,000
Cobalt Station Grounds Mining Company, Limited	Ottawa	October 23	1,000,000
Cobalt Treasure Mining Company, Limited	Toronto	November 24	750,000
Colonial Cobalt Development Company, Limited	Toronto	December 30	1,000,000
Consolidated Exploration Company, Limited	Toronto	May 28	1,250,000
Corona Cobalt Silver Mining Company, Limited	Toronto	November 10	1,100,000
Darby Mines, Limited	Toronto	November 5	50,000
Darby Mountain Mining Company, Limited	Haileybury	June 19	40,000
Dominion Development and Mining Company, Limited	Toronto	November 21	500,000
Dumond Gold Mines Company, Limited	Dunnville	February 14	1,000,000
Eastbourne Cobalt Mines, Limited	Toronto	October 9	40,000
Elklake-Cobalt Mines of Ontario, Limited	Toronto	November 12	150,000
Excelsior Mica Mines, Limited	Toronto	July 17	40,000
Exploration Syndicate of Ontario, Limited	Toronto	December 21	150,000
Gifford Cobalt Mines, Limited	Toronto	October 23	350,000
Gifford Extension Mines, Limited	Toronto	November 16	500,000
Gold Leases, Limited	Toronto	April 27	500,000
Gow Ganda King Silver Mines, Limited	New Liskeard	October 23	1,000,000
Gowganda Lake Mining Company, Limited	Toronto	November 2	1,000,000
Gow Ganda Mines, Limited	Toronto	November 3	1,500,000
Gow Ganda Queen Mines, Limited	Toronto	December 21	10,000
Granite Crushed and Dimension, Limited	Toronto	April 3	40,000
Halton Oil and Gas Company, Limited	Milton	August 19	500,000
Hyland Silver Mining Company, Limited	Ottawa	July 8	1,000,000
Imperial Copper-Nickel Co., Limited	Toronto	July 8	1,000,000
Imperial-Crown Mines, Limited	Toronto	November 10	4,000,000
Imperial Gold Mines, Limited	Toronto	January 6	100,000
Irene Mines, Limited	Toronto	September 24	200,000
Iroquois Silver Mining Company, Limited	Toronto	December 17	2,500,000
Keeley Mine, Limited	Toronto	December 2	1,000,000
Lady of the Lake Mining Company, Limited	Windsor	September 28	50,000
Larder Lake Incline Mines, Limited	Toronto	May 11	250,000
Lemieux Silver Mines, Limited	Toronto	October 27	000,000
Lucky Godfrey Cobalt Mines Company, Limited	Ottawa	September 28	1,250,000
McCrimmon Montreal River Mines, Limited	Alexandria	December 10	300,000
McKay Mining Company, Limited	Sault Ste. Marie	October 27	750,000
McKenzie Mining and Exploration Company, Limited	Toronto	November 12	400,000
Magnet Mines Company, Limited	Pembroke	April 16	1,150,000
Maidens Silver Mining Company, Limited	Haileybury	April 16	500,000
Manufacturers Corundum Company, Limited	Toronto	December 7	100,000
Maple Leaf Mines, Limited	Toronto	November 7	150,000
Marcell Mines, Limited	Haileybury	November 5	500,000
Marvel Silver Mines, Limited	Toronto	July 27	200,000
Midfield Natural Gas Company, Limited	Hamilton	December 17	40,000
Miller Lake and Everett Mines, Limited	Toronto	October 13	100,000
Mines and Exploration, Limited	Cobalt	November 12	40,000
Montreal River Cobalt Silver Mines, Limited	Latchford	October 28	200,000
Montreal River Consolidated, Limited	Toronto	December 11	500,000
Mount Royal Consolidated Mines, Limited	Toronto	November 30	3,000,000
Munro Mines, Limited	Guelph	December 11	750,000
New Ontario Finance Syndicate, Limited	Ottawa	October 9	75,000
Nipissing Diamond Drilling Company, Limited	Cobalt	December 4	50,000
Nipissing Reduction Company, Limited	Toronto	April 1	250,000
Northern Discovery Company, Limited	Bracebridge	April 10, 1907	40,000

Mining Companies Incorporated in 1908—Continued

Name of Company.	Head Office.	Date of Incorporation.	Capital.
			$
Northern Star Mining & Development Company, Limited..	Ottawa	May 15	100,000
Ontario Development and Mining Company, Limited.....	Cobalt	October 26	500,000
Ontario Development Company, Limited	Toronto	June 6, 1907	25,000
Ontario Limestone and Clay Company, Limited	Belleville	February 17	50,000
Ophir Cobalt Mines Limited	Cobalt	November 16	500,000
Otisse-Currie Consolidated Silver Mines, Limited	Toronto	October 5	1,500,000
Otisse Mining Company, Limited	Toronto	September 24	2,000,000
Otto Lake Mining Company, Limited	London	March 20	500,000
Oxford Oil and Gas Company, Limited	Brantford	August 12	250,000
Peerless Brick and Tile Company, Limited	Ottawa	April 10	150,000
Pennsylvania Lumber and Mineral Company, Limited	Toronto	March 9	100,000
Point Anne Quarries, Limited	Toronto	November 23	500,000
Prudential Mines, Limited	Toronto	December 29	2,000,000
Quaker City-Cobalt Mines, Limited	Haileybury	March 18	1,000,000
Red Jacket Silver Mines, Limited	Toronto	November 12	1,250,000
Roswell Silver Mining Company, Limited	Toronto	May 1	1,000,000
Sharpe Lake Mines, Limited	Haileybury	March 2	120,000
Silver Alliance Mines, Limited	Toronto	December 2	1,000,000
Silver Crescent Mining Company, Limited	Windsor	December 2	100,000
Silver Elk Mines, Limited	Toronto	June 6	100,000
Silver Lake Mining Company, Limited	Toronto	October 22	1,000,000
Silver Lode Mines, Limited	Windsor	September 16	1,000,000
Silvers, Limited	Toronto	November 21	2,000,000
Sonora Mining Company, Limited	Owen Sound	December 18, 1907	2,500,000
Strathcona Nickel Mines, Limited	Sault Ste. Marie	March 16	250,000
Temagami-Cobalt Mines of Ontario, Limited	Toronto	November 4	40,000
Temagami Gold Reefs Company, Limited	Toronto	May 8	500,000
The Aedus Mineral Company, Limited	Ottawa	January 17	500,000
The Alpine Mining Company, Limited	Ardoch	April 13	300,000
The Americana Cobalt Silver Mining Company, Limited...	Cobalt	September 30	1,000,000
The Bay Lake and Montreal River Mining and Development Company, Limited	Sault Ste. Marie	January 6	500,000
The Big Fissure Mining Company, Limited	Toronto	March 30	2,000,000
The Big Moose Silver Cobalt Mining Company, Limited....	Toronto	April 1	750,000
The Boundary Coal Mining Syndicate, Limited	Toronto	December 2	125,000
The Brant Portland Cement Company, Limited	Brantford	March 20	500,000
The Breeches Lake Mining Company, Limited	Ottawa	March 23	500,000
The Bruce Mines, Limited	St. Catharines	October 27	500,000
The Canadian Lead Mining & Smelting Company, Limited	Kingston	July 13	400,000
The Cobalt-Rosario Mining Company, Limited	Toronto	November 26	1,000,000
The Cobalt Silver Producer Company, Limited	Toronto	December 24	400,000
The Consolidated Gold and Silver Mines of Elk and Larder Lake, Limited	Toronto	May 8, 1907	3,000,000
The Crysler Niles Mining Company, Limited	Toronto	October 9	1,500,000
The Crystal Gold Mining and Milling Company of Wahwapitae, Limited	Toronto	June 6	500,000
The Devlin Mining Company, Limited	Ottawa	December 17	500,000
The Elkhart Proprietary Silver Mines, Limited	Haileybury	March 2	100,000
The Elkhorn Mining Company, Limited	Galt	September 24	100,000
The Elk Lake Discovery Mines, Limited	Toronto	October 27	600,000
The Excelsior Cobalt Larder Lake Mining Company, Limited	Niagara Falls	February 3	1,000,000
The Farah Mining Company, Limited	Toronto	November 10	2,000,000
The Forneri Mining Company, Limited	Toronto	October 30	1,000,000
The Gavin Hamilton Mining Company, Limited	Toronto	December 17	1,500,000
The Gilt Edge Silver Mining Company, Limited	Ottawa	December 22	1,000,000
The Gow Ganda United Cobalt Mines Company, Limited...	New Liskeard	December 29	1,000,000
The Great West Coal Company, Limited	Port Arthur	January 21	250,000
The Hamilton Brick Company, Limited	Toronto	June 26	40,000
The Hargrave Silver Mines, Limited	Toronto	November 3	2,500,000
The Holmes Cobalt Silver Mining Company, Limited	Windsor	April 15	500,000
The Holmes Gas Company, Limited	Selkirk	September 16	40,000
The Imperial Otto Mining Company, Limited	Hamilton	February 3	250,000
The Keeley Jowsey Wood Mine, Limited	Toronto	May 28	1,000,000
The King George Mining Company, Limited	Ottawa	March 11	750,000
The Lambton Pressed Brick Company, Limited	London	June 29	50,000
The Last Chance Mining Company, Limited	Toronto	August 5	40,000
The Loughborough Mica Company, Limited	Toronto	February 7	40,000
The Lyon Mining Company, Limited	Toronto	November 16	40,000
The Marble Lake Mining and Milling Company, Limited..	Niagara Falls	September 18	500,000
The Miller Lake Mining Company, Limited	Sydenham	October 5	100,000
The Mines Finance Company of Canada, Limited	Toronto	December 2	250,000
The Mississagua Development Company, Limited	Thessalon	November 26	9,000
The Montreal River Development Company, Limited	North Bay	August 18	40,000
The Mother-Lode Mining Company, Limited	Windsor	April 13	1,000,000
The Mount Royal Cobalt Silver Mining Company, Limited.	Cobalt	November 19	2,000,000
The Norfolk Gas Company, Limited	Port Dover	February 28	60,000
The North-Lanark Marble and Granite Quarries, Limited..	St. Catharines	September 2	150,000
The Oliphant Oil and Gas Company, Limited	Listowel	December 2	22,500
The Oneida Lime Company, Limited	Hamilton	February 7	20,000
The Ontario Gas and Oil Fields, Limited	Ottawa	January 25	1,000,000

Mining Companies Incorporated in 1908.—Continued

Name of Company.	Head Office.	Date of Incorporation.	Capital.
			$
The Ontario Marble Quarries, Limited	Bancroft	May 18	500,000
The Ontario Silica Company, Limited	Windsor	August 14	100,000
The Ott Brick and Tile Manufacturing Company, Limited	Berlin	December 2	40,000
The Pan Silver Mining Company, Limited	Haileybury	October 9	3,000,000
The Phœnix Oil and Gas Company, Limited	Milverton	August 21	100,000
The Pioneer Exploration Company, Limited	Englehart	September 18	10,000
The Pontiac Silver Mining Company, Limited	Toronto	December 11	1,000,000
The Rawhide Mines, Limited	Toronto	December 21	1,000,000
The Regal Mining Company, Limited	Windsor	September 11	1,000,000
The Rose Gold and Silver Mining Company, Limited	Ottawa	October 23	1,500,000
The Ross-Ballard Mining Company, Limited	Ottawa	September 11	100,000
The St. Catharines Brick and Tile Company, Limited	St. Catharines	March 11	60,000
The St. Clair Oil Company, Limited	Toronto	August 5	100,000
The Silver Maple Mines, Limited	Toronto	December 21	100,000
The Smith's Falls Pressed Brick Company, Limited	Smith's Falls	August 25	75,000
The Soo Copper Company, Limited	Windsor	February 7	1,000,000
The South-Lorrain Development Company, Limited	Haileybury	December 2	500,000
The Swastika Mining Company, Limited	Toronto	January 6	750,000
The Titan Montreal River Mines, Limited	Toronto	November 17	2,000,000
The Toronto and Niagara Carbide Company, Limited	Toronto	May 18	100,000
The Toronto-Brazilian Diamond and Gold Dredging Company, Limited	Toronto	July 17	1,000,000
The Transcontinental Silver Mines, Limited	Cobalt	December 4	200,000
The Trinity-Cobalt Mining Corporation, Limited	Haileybury	May 22	100,000
The United Oil Fields, Limited	Toronto	June 19	100,000
The Unum Cobalt Mining Company, Limited	Windsor	June 12	400,000
The Verner Silver Mining and Development Company, Limited	Haileybury	October 23	100,000
The Vipond Mining Company, Limited	Haileybury	March 25	1,000,000
Toledo Silver Mines, Limited	Toronto	December 9	1,000,000
Toronto Indestructible Brick Company, Limited	Toronto	February 19	100,000
Twin City Coal Company, Limited	Toronto	May 28	600,000
Ulrica Mines Company, Limited	Toronto	March 18	1,000,000
Vulcan Gold Mines, Limited	Ottawa	September 28	300,000
Wabishonia Cobalt Mining Company, Limited	Toronto	December 2	100,000
Watash Cobalt Mines, Limited	Toronto	December 2	1,500,000
West Coleman Silver Mines, Limited	Haileybury	March 2	750,000
Wettlaufer Lorrain Silver Mines, Limited	Toronto	November 30	1,500,000
White's Bonanza Lode Mining Company, Limited	Toronto	June 19	50,000
Total			123,526,000

Mining Companies Licensed in 1908

Name of Company.	Provincial Head Office.	Date of License.	Capital.
			$
Adrian-Wolverine Oil Company	Leamington	April 23	15,000
Boston International Oil & Mining Company	Chatham	January 17	40,000
Canada Mineral Waters, Limited	Ottawa	March 6	
Canadian Exploration Company, Limited	Toronto	November 19	
Canadian Gypsum Company, Limited	Toronto	April 23	
H. J. Mining Company	Sault Ste. Marie	November 19	5,000
Lake Superior Gold and Copper Company, Limited	Toronto	September 9	
Mineral Development Company, Limited	Toronto	April 29	
Nova Scotia Cement and Plaster Company, Limited	Toronto	March 30	
Ontario Copper and Smelting Company	Toronto	October 28, 1907	250,000
St. John's Temagami Gold & Silver Mining Company, Limited	Toronto	March 11	
The Alberta Portland Cement Company, Limited	Toronto	December 21	
The Alexandra Mining Company	Haileybury	November 21, 1906	1,000,000
The Coniagas Reduction Company, Limited	St. Catharines	November 5	
The Dominion Nickel Copper Company, Limited	Ottawa	January 17	
The Raven Lake Mining & Development Company, Limited	Ottawa	May 17, 1907	
The Syracuse Mining and Development Company	Haileybury	December 4	40,000
The Union Sulphur Company	Toronto	December 23, 1907	40,000
Waltham-Ontario Oil Producing Co	Chatham	September 9	500,000

The Mining Divisions

The mineral lands of the Province are administered by the Department of Lands, Forests and Mines through the Recorders of the several Mining Divisions into which the Province is divided.

This system, which the amendments to the mining law in 1906 extended to the whole of the Province, is proving itself flexible and convenient. It is not without its disadvantages, for it cannot be expected that business involving great detail and much vigilance will always be transacted without mistake or omission, especially in the midst of such excitement as always follows upon a discovery of rich ground, and in new and remote districts, in all probability not only unsurveyed but entirely unmapped, and with which communication by telegraph is impossible and by mail slow and uncertain. The lack of accurate maps is the source of considerable difficulty when a new and unexplored region is found to contain valuable mineral.

Prospectors' measurements and directions are seldom exact, and the Recorder finds it difficult to lay down on his map mining claims situated in unsurveyed territory in such a way as to show their relation to one another, or to the nearest base or meridian line, or even to an adjacent lake or river. But presently the claim holders, having completed their "assessment" work, begin to apply for their titles. This necessitates an instrumental survey, and the land surveyor establishes the corners and fixes the boundaries of a few claims here and there, "tying" them to some previously surveyed point or line, and thus enabling perhaps a large group of claims to be located with some precision by the Recorder on his map.

Other difficulties beset the Recorder in a new mining district, but the conveniences which the system of local administration affords to prospectors and the mining community generally are such as to outweigh all its disadvantages; and indeed, it is not easy to see how the hundreds and thousands of applications for mining lands in Temiskaming at the height of the Cobalt "boom," or at the present time in the wilds of Gowganda, could be satisfactorily dealt with, without some one on the spot clothed with authority to settle disputes and determine difficulties generally.

The Improved Mining Law

Sufficient time has now elapsed to enable some judgment to be passed upon the working of the radical amendments made to the Mining Act in 1906. On the whole, they have proven satisfactory. Requiring the development work to be done before patent is issued, and not afterwards, as was formerly the case; limiting the area of a mining claim to 40 acres, where 320 acres was previously the maximum; de-centralizing the administration of mining lands; and the appointment of a Mining Commissioner with power to settle disputes on appeal from the Recorders, are all features that have proved their worth, and none of them in a greater degree than the one last named.

Under any conceivable system of mining law, disputes are bound to arise, and the richer the discoveries the keener are the disputes and the greater the number. The establishment of a special tribunal for the hearing and settlement of such disputes, with frequent sittings held at places most convenient for the parties, has made it possible to decide the great majority of disputes within a short time of their occurrence. In some classes of cases the Commissioner's ruling is final, but in important matters where valuable interests are involved, appeal may be taken to the Court of Appeal. The right of such appeal has not so far been largely availed of, and where exercised, the final decision has usually sustained the Commissioner's judgment.

Following is a table of the Mining Divisions of the Province, with the name and address of the Recorders, and the receipts of the several offices for the year 1908:

Table XVI.—List of Mining Divisions

Mining Division.	Name and P.O. Address of Recorder.	Receipts.			Total receipts.
		Purchase money.	Miner's licenses.	Recording fees, etc.	
		$	$	$	$
Kenora	C. W. Belyea, Kenora	399 00	592 00	773 35	1,764 35
Port Arthur	J. W. Morgan, Port Arthur	2,416 00	2,416 00	4,543 00	9,375 00
Sault Ste. Marie	S. T. Bowker, S. S. Marie	2,731 88	2,278 00	1,065 00	6,074 88
Sudbury	F. F. Lemieux, Sudbury	376 75	2,505 00	2,545 00	5,426 75
Montreal River	Albert Skill (*b*), Elk Lake	108 00	6,938 00	18,131 25	25,177 25
Gowganda (*a*)	H. E. Sheppard, Gowganda				
Temiskaming	George T. Smith, Haileybury	7,125 00	19,324 00	21,976 86	48,425 56
Coleman	T. A. McArthur, Cobalt	5,679 22	9,077 10	4,718 00	19,474 32
Larder Lake	J. A. Hough, Larder Lake	1,097 75	1,942 75	7,059 50	10,100 00
Parry Sound	H. F. McQuire, Parry Sound		495 00	780 00	1,275 00
		19,933 60	45,567 85	61,591 66	127,093 11

(*a*) Established 10 February, 1909.
(*b*) Succeeded T. H. Torrance, 1 April, 1909.

Territory Added to Montreal River Division

From the Temagami Forest Reserve Mining Division certain territory was deducted by Order in Council of 21st September, 1908, and added to the Montreal River Mining Division, as follows:

Commencing at the south end of Smooth Water lake, at the source of the east branch of the Montreal river, thence due west astronomically 17 miles, more or less, to the 45th mile post on the boundary between the districts of Nipissing and Sudbury, as surveyed by Ontario Land Surveyor Alexander Niven in 1896, thence due north astronomically along said district boundary 51 miles to the 96th mile post thereon, thence due east astronomically 15 miles, more or less to the end of the portage at the extreme northerly end of the Great Northern Bend on the main branch of the Montreal river leading to Trout lake, thence southeasterly along the west bank of said river with the stream to its junction with the east branch of said river, thence southerly along the east bank of said east branch of said river and along the western limit of the Montreal River Mining Division to the place of beginning.

Gowganda Mining Division

The Temagami Forest Reserve was further drawn upon in February, 1909, for the formation of the Gowganda Mining Division, it being deemed expedient to establish the usual local facilities for the recording of the numerous mining claims staked out in the fall and winter of 1908 as a result of the discovery of rich silver ore on the banks of lake Gowganda and elsewhere in that region. The boundaries of the new Division are as follows:

Commencing at a point on the boundary line between the Districts of Nipissing and Sudbury, where the same is intersected by P. L. S. Duncan Sinclair's exploration line run in 1867 near the eighty-sixth mile post on said District boundary; thence south astronomically along said district boundary forty-five miles more or less to a point due west astronomically from the southwest angle of the township of Gamble; thence due east astronomically 19 miles more or less to the southwest angle of the said township of Gamble; thence continuing due east astronomically along the south boundary of said township 6 miles to the southeast angle thereof; thence north astronomically along the east boundary of the townships of Gamble, Brewster, Corkill, Lawson and Chown 30 miles more or less to the northeast angle of the latter; thence west astronomically 6 miles to the southeast angle of the township of Morel; thence north astronomically 6 miles to the northeast angle of the said township; thence west astronomically 9 miles more or less to the centre of the main branch of the Montreal river; thence northeasterly along the middle thread of the said river 10 miles more or less to said P. L. S. Duncan Sinclair's exploration line; thence westerly along said exploration line 16 miles more or less to the place of beginning.

This Division, as will be seen, takes in part of the territory which was formerly included in that of Montreal River. Several of the townships and parts of townships east of the Montreal river belonging to the Temiskaming Division were at the same time transferred to the Montreal River Division, namely, Truax, Smyth, James, Tudhope, Barber, Cane and Auld.

For a time the head office of the Gowganda Division was fixed at Elk Lake, but as soon as the necessary records could be transcribed the office was transferred to Gowganda.

Those portions of the Temagami Forest Reserve not attached to any of the above Mining Divisions constitute a Division, mining claims in which are dealt with by the Department at Toronto. The same course is followed with regard to the Fort Frances Mining Division and in Eastern Ontario, in neither of which districts is there at present sufficient business to warrant the opening of a local office. The receipts for miner's licenses, recording fees and purchase money taken in by the Department direct from applicants do not appear in the above table.

The head office of the Montreal River Division was by Order in Council of 8th July, 1908, removed from Latchford to the town plot of Smyth (Elk Lake P. O.)

This Division was by Order in Council of 19th June, 1908, withdrawn from the operation of section 90 of the Mining Act of Ontario, the effect being that it ceased to be a "Complete Inspection area" under the said Act. Consequently, mining claims taken up therein are no longer as a matter of course required to undergo official inspection for discovery of mineral.

On 18th November, 1908, under authority of subsection 1 of section 39 of the Mining Act of Ontario an Order in Council was passed withdrawing the land under the water of all the lakes in the townships of Haultain and Nicol and in the two townships to the west thereof from the operation of the Mining Act, together with a strip of land one chain in perpendicular width around the shores of the said lakes. The lake beds so withdrawn include those of Gowganda, Miller, and Leroy. Along with the beds of the other lakes in the townships mentioned they are thus placed in the same position as were those portions of the beds of Cobalt and Kerr lakes which realized so considerable an amount for the Provincial treasury.

On 23rd December, 1908, an Order in Council was passed withdrawing a block of about 1,000 acres in the township of Nicol north of lake Gowganda from prospecting, staking out and lease under the Mining Act. The town site of Gowganda was subsequently located in this block, surveyed into lots and offered for sale by the Department in March and April, 1909.

Brief reports covering the business of their offices for the year and indicating the course of prospecting, etc., have been received from the several Recorders, which are summarized, as follows:

Kenora

C. W. Belyea, Recorder, Kenora. Miner's licenses issued 60; renewal of ditto 78; claims recorded 73.

Interest in gold mining and prospecting on the increase. Finds of iron ore taken up lately said to be valuable.

Port Arthur

J. W. Morgan, Recorder, Port Arthur. Miner's licenses issued 340; renewal of ditto 156; certificates of performance of work issued 107; certificates of record 31; claims recorded 370.

More than 100 claims for bog iron ore have been taken up near the C.P.Ry. in the western part of Thunder Bay district, but owing to the marshy nature of the country and the slight demand for the ore, little development work has been done.

Extensive explorations for copper were made in Black Bay peninsula, and 65 claims staked. The indications here are promising. In November it was reported that coal had been discovered near Rossport, on the north shore of Lake Superior, but whether the mineral found is real anthracite coal or not remains to be proved.

Sault Ste. Marie

S. T. Bowker, Recorder, Sault Ste. Marie. Miner's licenses issued, including renewals, 300; mining claims recorded, 100.

Sudbury

F. F. Lemieux, Recorder, Sudbury. Receipts for miner's licenses $2,505, for recording fees $2,545, for purchase of lands $376.75, total $5,426.75. In 1907 the total was $11,774. The falling off was in part due to the decrease of prospecting around Sturgeon Falls and vicinity.

In the autumn there was some stir caused by reported discoveries of silver near Lake Penage; these were found, however, to have no foundation beyond the occurrence of veins containing calcite and some cobalt bloom. Some gold properties in berth 69 have been turned over to a Montreal syndicate, and it is believed are likely to prove valuable.

Montreal River

Thomas H. Torrance was Recorder during the whole of 1908, and until 1st April, 1909, when he resigned and was succeeded by Albert Skill. The head office is at Elk Lake. Miner's licenses issued, 626; renewal ditto, 251; claims recorded, 1,321; total receipts, $25,177.25.

The past year was a very active one in this Division, more particularly the latter part, the greatest amount of activity being shown in the Gowganda and Miller lake districts. Many valuable discoveries were made in the vicinity of the lakes, among them being the Mann, McLaughlin-McIntosh, Boyd-Gordon, Dobie and Reeves, and Milne. The present indications are that this will prove a thriving mining camp in itself.

Considerable development work has been done in James township and at Silver Lake. Some of the companies have installed, or are preparing to instal, machinery; these include the Otisse, Ottise-Curry, Clinton claims, Gavin-Hamilton, Elk Lake Discovery, Mother Lode, Marcell, Devlin, Holden Silver Mines and Moose Horn.

The transferring of the Recorder's office from Latchford to Elk Lake was certainly in the interests of the prospectors and was appreciated by them. A thriving town is gradually growing up here. The service of the Upper Ontario Steamboat company, operating between Latchford and Elk Lake, has been as good as could be expected, taking into consideration the three portages necessary on the trip. The need of a railroad was demonstrated by the quantity of supplies the boats were required to handle and the number of teams (which was over 400) used in the hauling of freight from Charlton after the close of navigation.

Considerable attention has been turned towards the Maple Mountain district, where several new discoveries have been reported and a number of properties have changed hands.

Temiskaming

George T. Smith, Haileybury, Recorder. Miner's licenses issued, 944; renewal ditto, 1,654; claims applied for, 1,650; working permits applied for, 41; transfers of mining claims recorded, 926. Total receipts, $48,425.56.

While the receipts are smaller than in 1907, the season was a very active one. A large amount of development work was performed, and a considerable number of properties have changed hands at reasonable prices. Discoveries have been reported from points widely distant, and the indications are that "the end is not yet."

That silver exists in paying quantities in James, Tudhope and South Lorrain seems to have been established, and authenticated reports have come to hand of promising gold discoveries in the townships of Beatty, Cody, Guibord and Munro; and of nickel in Clergue and Dundonald.

Shipments of silver and cobalt ore have been made from South Lorrain, and a large quantity of ore is bagged up there pending better shipping facilities. Several up-to-date mining plants have been installed in this camp, including those on the Keeley, Montrose, Wettlaufer and Murray properties, with others to follow in the near future. An active season's operation is anticipated for 1909.

Coleman

T. A. McArthur, Assistant Recorder, Cobalt. Miner's licenses issued, 485; renewal ditto, 780; claims recorded, 270. Total receipts, $19,474.32.

Larder Lake

J. A. Hough, Recorder, Larder Lake. Miner's licenses issued, 165; renewal ditto 84; mining claims applied for, 540; certificates performance of work granted, 20; certificates of record, 68; mining receipts, $10,100.

Considerable work was performed throughout the Division, and many new "finds" reported. On the whole, the progress made was not very satisfactory. Larder Lake has undoubtedly received a serious set-back owing to the many impossible wild-cat schemes put on the market, and from the trouble and litigation which has ensued as a natural consequence. Little new capital was put into the camp, and as a result numerous claims with showings which warrant thorough exploration and development, were left idle. Dissatisfaction was also caused by some companies, and also individuals, hiring men and paying no wages when the work was completed.

It is worthy of note that the first gold coins minted in Canada were made of Larder Lake gold.

Parry Sound

H. F. McQuire, Recorder, Parry Sound. Receipts from miner's licenses, $495; from recording fees, $780; total, $1,275; claims recorded, 56.

In McConkey township 12 claims were taken up for mica; in McDougall, 2 for feldspar; in Conger, 1 for feldspar; in Laurier, 8 for mica, graphite and copper; in Mowat, 17 for iron; on the Pickerel branch of French river, 3 for gold; in Shawanaga, 1 for mica; in Christie, 1 for gold and silver; in Lount, 2 for copper, gold and silver; in Armour, 4 for mica; in Proudfoot, 3 for mica and feldspar.

The Parry Sound Copper Company discovered on their property in Foley some rich samples of bornite and gray copper, and they have a small force of men working in one of the old shafts at a depth of 100 feet to determine the values. A great want is a conveniently situated smelter to treat the low grade copper ores of the district.

The Government Diamond Drills

Drill "S" was in charge of Mr. E. K. Roche during the year, and was operated on five different properties. At the Rothschild claim near Cobalt, drilling was begun in the latter part of 1907 and continued until February, when the drill was moved to the Shamrock property. Here it was operated during March, April and May. At the Little Nipissing mine the drill was busy during June, July and August, after which it was removed to Peterson lake, where it remained until the latter part of October. In November it was shipped from the Cobalt district to the outskirts of the town of Madoc, Hastings county, where, however, it was made use of for a few days only.

On the Rothschild claim six holes were drilled, 304, 90, 60, 86, 94 and 88 feet respectively. Judging from the description of the cores given by Mr. Roche, in charge of the drill, Keewatin was encountered at 104 feet in hole No. 1. The cores of the remaining holes are all described as diabase. Drilling was begun November 2nd, 1907, and completed February 29th, 1908. The gross cost of the operations was $3,938.10 or $5.45 per foot of drilling. Deducting 35 per cent., which is borne by the Department, the net cost to the company was $2,559.76 or $3.54 per foot.

On the Shamrock property drilling was started on March 28th and ended on May 26th. One hole was put down to a depth of 245 feet. Mr. Roche notes that Keewatin rocks were encountered at about 122 feet. The gross cost of operations was $2,481.98 or $10.13 per foot of drilling. The net cost to the company was $1,613.29 or $6.58 per foot.

At the Little Nipissing mine one hole was drilled a total depth of 499 feet. From the descriptions given by Mr. Roche it would appear that the first 160 feet of core were Lower Huronian, the remainder Keewatin. The gross cost was $1,474.78 or at the rate of $2.95 per foot. Of this amount the Government pays 35 per cent., making the cost to the company $958.60 or at the rate of $1.92 per foot. The drill began operations June 16th and ended August 10th.

A hole 373 feet was drilled in Peterson lake. Drilling operations were carried on between August 19th and October 20th. The first 48 feet consisted of sand, gravel, boulders, etc. According to Mr. Roche, the remaining 325 feet consisted of diabase, in which occasional calcite stringers were noted. The gross cost was $1,992.08 or $5.34 per foot. Deducting 35 per cent. which is borne by the Department, the net cost to the company was $1,294.58 or $3.47 per foot.

On lot one in the fourth concession of the township of Madoc, Hastings county, a hole 32 feet was drilled. The first 29 feet of core showed limestone, while the last 3 feet consisted of a hard "trap." Fluorspar was being prospected for. The drilling operations were carried on between November 18th and 21st inclusive. The gross cost was $484.92, including cost of transportation from Cobalt, which ran the price per foot up on so small a job.

Drill "C" was in charge of J. A. MacVicar. It was in operation on three properties during the year. In April and May it was drilling in Conmee township, Thunder Bay district, from which it was transported to Shedden township, Algoma district, where it was in use during part of August. In October and November the drill was operated not far from Atikokan for the purpose of prospecting certain iron ore bodies.

In Conmee township, Thunder Bay district, two holes were drilled between April 10th and May 13th. No. 1, on location T.B. 196, reached a depth of 250.5 feet. Mr. MacVicar reports the drill core to be greenstone and greenstone schist. No. 2, on location T.B. 3, reached a depth of 20.7 feet. The core was magnetite and greenstone. The gross cost of the operations was $3,930.37 or $14.49 per foot. Deducting the 35 per cent. borne by the Department the net cost was $2,554.77 or $9.42 per foot.

In the township of Shedden, Algoma district, two holes were drilled. Their location is about seven miles from Cutler station on the C. P. Railway. Hole No. 1, was drilled to a depth of 83 feet, and according to Mr. MacVicar's report, the core showed quartz and granite. No. 2 was 36 feet, and the core was reported to consist of quartz with some chalcopyrite. Drilling was begun August 3rd and finished on August 15th. Considerable difficulty was experienced in transporting the drilling outfit from the railway station to the property. The gross cost was $2,319.91 or $19.49 per foot. The net cost was $1,507.95 or $12.66 per foot.

Two holes were drilled on claim known as G. 716 which is located about 5¾ miles from Atikokan. Drilling began on October 13th and ended November 30th. The first hole was abandoned on reaching a depth of 18 feet owing to its caving in. The second hole was drilled 168 feet at an angle of 72 degrees. Mr. MacVicar reports the core to consist of banded chert, hematite and schistose material. A body of hematite and quartz was drilled through between 92 and 109 feet. The gross cost was $2,319.91 or $11.64 per foot. The net cost was $1,408.45 or $7.57 per foot.

Provincial Assay Office

Mr. N. L. Turner, Provincial Assayer, makes the following report:—

The Provincial Assay Office was established in July 1898 by the Ontario Government, as an aid to the mineral development of the Province. The Office has rendered many services to the public, as is shown by the large number of assays and analyses made. The rates are sufficiently low to allow prospectors and others to have their finds examined at very moderate cost. The office is well fitted with assay and analytical apparatus for the testing of the various ores and minerals which are distributed so widely throughout Ontario.

The greater part of the samples submitted for examination during the past year came from the northern part of the Province. Prospecting has not been so energetic this year as last, the tightness of money no doubt being felt in this as in other directions. Samples of cobalt-bearing ore were received from districts at a considerable distance from Cobalt, and there is no doubt that what has been done at Cobalt is only a beginning of the work. The new discovery at Gowganda during the latter part of the year will greatly stimulate the search for silver-bearing minerals. At present it would appear that nearly all prospectors are looking for silver, to the exclusion of the other minerals of the Province.

A very noticeable feature of the year was the dropping off in the number of copper samples received: this is probably due to the drop in price of copper.

A number of new discoveries were made in older districts, as for example the discovery of a new gold field in the Rainy River district, which gives promise of being very rich. There have also been some very good gold finds in the country north of the Cobalt area, such as in Munro and Guibord townships.

Iron ore samples of excellent grade were received from different parts of the Province. One very noticeable feature of the iron samples is that while the majority are very low in sulphur and phosphorus contents, they are also low in iron. Some process of concentration of these ores would make them valuable. Ontario appears to have a great supply of low grade ores and when the high grade deposits have been exhausted, as they will be before very long, these will be especially valuable on account of their purity.

The office has numerous times advised the search for non-metallic minerals, such as fluorite, fire-clay, etc. Numerous inquiries regarding these deposits have been received. As far as is known fire-clay has not been produced in Ontario, present imports being from the United States or England.

During the year 967 samples were assayed and analyzed in whole or part, giving the percentage of the constituents, and 100 samples (exclusive of those brought to the office, which are identified without charge) were reported on as to probable commercial value. Fees to the amount of $741.85 were remitted to the Bureau of Mines. The value of the work performed for the Bureau was $878.45, making a total of $1,620.30 for the year.

Work for Bureau of Mines

1. Checking the sampling of O'Brien ore.
2. Checking the sampling of Crown Reserve ore.
3. Checking the sampling of Provincial Mine ore.
4. Assaying of check samples and totalling silver values of cars of ore.
5. Analyses for report on Iron Ores of Ontario.
6. Analyses of rock samples from the Cobalt silver area and other districts.
7. Identification of miscellaneous samples.

Work for the Public

1. Issuing reports, consisting of assays, analyses, and identifications of samples submitted for test.

2. Supplying information to owners of mineral lands as to probable markets for their ores and also as to prospective buyers.

Assays and Analyses Made

The following list of determinations will show the laboratory work for the year:

	Assays for Bureau.	Assays for Public.	Total.
Gold	115	342	457
Silver	336	245	581
Copper	3	70	73
Nickel	11	17	28
Cobalt	76	3	79
Manganese	1	4	5
Zinc	....	4	4
Platinum	2	5	7
Lead	....	9	9
Arsenic	22	3	25
Antimony	....	1	1
Gold by Amalgamation	....	3	3
Mercury	1	....	1
Chromium	....	1	1
Total	567	707	1,274

	Analyses for Bureau.	Analyses for Public.	Total.
Metallic Iron	74	65	139
Alumina	6	60	66
Ferric oxide	6	10	16
Silica	41	10	51
Sulphur	47	35	82
Phosphorus	37	25	62
Titanium	21	15	36
Silicon	....	1	1
Lime	8	11	19
Magnesia	8	10	18
Insoluble	38	3	41
Alkalies	4	2	6
Loss on ignition	4	4	8
Magnesium Carbonate	1	....	1
Calcium Carbonate	1	....	1
Moisture	1	3	4
Sulphur trioxide	1	....	1
Chlorine	1	....	1
Carbon di oxide	....	2	2
Volatile Combustibles	....	1	1
Fixed Carbon	....	1	1
Ash	....	1	1
Total	299	259	558

Methods of Analysis

The following methods of analysis are in use:—

Gold,—The ordinary pot assay on low grade ores using ½ A.T. samples. The samples are ground very fine for gold so as to make the result accurate for small amounts.

Silver,—The ordinary pot assay is used on low-grade ores. On high-grade silver ores, such as those from Cobalt, a scorification method is in use. This work is done very carefully, so as to obtain the most accurate results. 1-10 A.T. is used as a sample for the fines and 1-20 A.T. for the scales. It is very likely that in the near future an electrolytic method will be substituted. Research along these lines is now being carried on at the office.

Nickel and cobalt,—At present the ordinary method with a nitrite separation is being used for these two metals. A new method is being worked out for this also, and will be substituted for the old one in the early part of 1909.

Copper,—The electrolytic method is used for copper. A very rapid method has been evolved using a rotating anode by means of which the copper in an ordinary sample can be plated out in five minutes.

Other metals are estimated by standard methods.

The office is now equipped with a first-class electroplating outfit, and in the future many of the metals will be estimated by an electrolytic method. The use of a rotating anode and special forms of cathodes makes these methods very accurate and also very rapid.

Notes

In sending in samples it is desirable to have them not more than three pounds in weight. All samples are sampled down when necessary and ground to 100-mesh. Wet samples are dried at 100 degrees C. and the analysis reported at that temperature. Circulars of rates, and mailing envelopes, are supplied to all those desiring to send in samples for examination. It is desirable that all fees should be forwarded with the samples, so that there may be no delay in issuing reports.

Samples brought to the office are examined free of charge, except where a quantitative examination is required.

During the year two assistants were employed, Mr. T. E. Rothwell looking after most of the outside work at Deloro and Copper Cliff, and Mr. H. C. Barlow the fire assaying.

Mining Accidents

Forty-seven men were killed by accident in and about the mines of Ontario in 1908, and fourteen seriously and twenty-six slightly injured—a distressing record. Of the fatalities eight took place above ground, and thirty-nine below ground.

The accidents of the year are analyzed as to their causes and fully dealt with below by Mr. E. T. Corkill, Inspector of Mines, and his thoughtful treatment of the subject should be taken to heart by mine owners, mine managers, and miners, each and all of whom in their respective spheres contribute to the causes leading up to so disastrous a waste of human life, and by whose co-operation only can such waste be reduced to a minimum. Perhaps it is too much to expect its entire elimination.

Details of the various casualties are given, and these are followed by Mr. Corkill's paper.

Canadian Copper Company

Near the Crean Hill mine January 25th at noon, R. Therien, a brakeman, fell from a train of empty ore cars. A leg and foot were badly crushed by the wheels and he died the following day.

The coroner's jury returned the following verdict: "That Rosario Therien, brakeman, fell from train by accident, while moving toward Crean Hill, breaking his leg, but death was due to loss of blood from artery in fractured leg, according to the doctor's evidence."

At Crean Hill on February 28th, at 4.45 a.m., Augusti Miettinen, drill-helper, (known on the pay roll of the Canadian Copper Company as Matt Hill) was instantly killed by riding on the skip. The deceased got on the skip at the third level, but seems to have hung over the side, because at the second level his body was practically cut in two. There is very little clearance at the different levels between the skip and the timbers.

The coroner's jury returned the following verdict:

"That the death of Augusti Miettinen was accidental and due to the deceased disobeying the order of the Canadian Copper Company, which forbids employees to ride on skips."

At Copper Cliff on March 23rd at 7 a.m., Jno Kangas (John Gandos) matte loader, was run over and instantly killed by a slag train. An engine was pushing two slag pots. According to the statement of the engineer, the bell was ringing from the time the train left the smelter until the deceased was struck. The engineer was signalled to stop, and Kangas was shouted at by a man who saw the danger the deceased was in. From the evidence it appears the latter was in an absent frame of mind. He was walking along the track on his way to work and the engineer does not appear to have seen him. The coroner's jury brought in the following verdict: "Our verdict is that John Kangas met his death by accident."

At the Creighton mine on April 10th in the afternoon John Heittala, machine-man, was struck in the chest by a piece of rock, causing him to fall about fifty feet. He died the following day at the Copper Cliff hospital. The deceased had been running a drill in the southwest corner of the open stope for five months. At the time of the accident he was working about 20 feet from the surface of the pit, and while loading holes a piece of ore from the surface started rolling and struck him in the chest. He was knocked backwards, falling 10 feet to the next bench, and then rolling a further distance of 40 feet to the bottom of the stope. Drill runners are always expected to scale the ground after blasting, and for this purpose they are allowed extra time.

The coroner's jury returned the following verdict:

"John Heittala, a miner at the Creighton mine, came to his death by injuries received from a piece of rock which became loosened from its place in the wall of the mine, striking his chest and causing him to fall a distance of about 10 feet and rolling a further distance of 40 feet down the mine at Creighton."

At the Crean Hill mine on May 29th August Sapola, trammer, was mucking at number four level, when an explosion occurred causing serious injuries to his eyes, nose and lips. It seems that the explosion was caused by his pick striking a piece of gelignite that had been lying in the muck for a long time.

At the Creighton mine, on May 30th, Commoso Davide, trammer, was mucking in the drift on the second level, when a piece of ore about the size of a brick fell four feet, striking him on the head, inflicting a small scalp wound and causing paralysis in one leg and arm.

At the Creighton mine June 19th Andruch Bijko, trammer, was knocked down by a large piece of rock, and his death ensued the following day. The wall had been scaled previous to the accident. The coroner's jury returned the following verdict: "We find that the death of the said Andruch Bijko was accidental, being caused by a mass of rock weighing about 800 pounds becoming detached from wall during course of operations, falling some 10 feet to muck pile, then rolling down 15 feet more and catching deceased on legs throwing him down on his back on the rocky floor of the mine with such force as to cause death from injury to head."

At the Creighton mine on June 18th Dimitru Lakatus received injuries about the head and shoulders from explosion of a small piece of dynamite in the muck. Some pieces of ore were being rolled down the stope, one of them striking the dynamite which was near the point where the injured man was standing. He lost the sight of one eye.

At the Creighton rock-house on July 16th Tom Dominico was crushed to death by being caught between a moving car and a supporting timber of the rock-house. The coroner's jury returned the following verdict: "We the jury find that Tom Dominico came to his death by being accidentally crushed between a car and a post. We also believe that death was caused by his own carelessness."

At the Crean Hill mine on August 10th, at 10 a.m., Megali Gordi was run over by an ore-car and instantly killed. In order to load the rock and ore into the cars that pass under the rock-house, the tracks are laid at a grade that will permit the cars to run by loosening the brakes. The deceased was on a 5-ton jimmy car, which had been loaded with rock. He was standing on the front of the car loosening the brake, so that the car would move. He had in his hand a stick or rod by which he was manipulating the brake, when his bar slipped and he fell to the ground in front of the car, and before he could get out of the way, it had run over him. The coroner's jury returned the following verdict: "That Megali Gordi came to his death by accidentally slipping under a car while tightening the brake, three wheels passing over his body."

At the Naughton quartz quarry on August 13th about 10 p.m., Oscar Lanthanon, machine man, was struck by a rock causing him to fall from his machine. He died as a result the next day. The walls of the pit immediately over the point where the deceased was working, are said by John Lawson, general superintendent, to be perfectly smooth, and that the piece of rock that fell was not loose ground that came away from the walls, as the walls themselves are in first-class condition, and a different character of rock from the piece that fell. The latter had apparently become lodged on a small shelf. The coroner's jury returned the following verdict: "That the deceased came to his death by falling from his machine in the quartz mine at Naughton, and causing a fracture of the base of the skull by striking on the rocks."

At the Crean Hill mine on September 8th at about 8.15 p.m., Mike Duisdank, mucker, was struck by a rock on the head and died as a result on September 12th, in the Copper Cliff hospital. Deceased was working on the first level of the mine near the centre of the face of the open cut engaged in loading a car along with several other men. One of them, working near the deceased, was struck on the shoulder with some small pieces of rock and ran back from the face. When the men returned they found Duisdank lying face downward at the place where he had been working. The stope on this level is about 90 feet in height and is being carried back as an open-cut. Some of the machine men were working on the face of the stope and the piece of rock which fell must either have been loosened by the machine men or had fallen from the face, not having been properly scaled. The coroner's jury returned the following verdict: "That the deceased came to his death by accident while at work in the Crean Hill mine."

At the Creighton mine September 23rd, in the morning, Jamb Cottock, machine-man, was killed while scaling. Deceased was working in a raise near No. 2 shaft, and after blasting he and his helper went down to scale about 30 feet from the surface. They had just commenced scaling when a loose piece of rock or ore fell from above, striking Cottock and knocking him off the bench. He fell to the bottom of the raise on a pile of muck, alighting on his head, and fracturing his skull. He died almost instantly.

The jury brought in the following verdict: "We the jury find that the deceased, Jamb Cottock, came to his death by falling from a bench on which he was scaling, the fall being caused by a rock falling from above him and hitting him on the head. We cannot see that any person was to blame, but find that death was purely accidental."

Helen Iron Mine

On April 17th at 5.15 a.m. Johan Maki fell 15 feet down a raise owing to the breaking of staging. His ankle was sprained.

On April 10th at 11.20 p.m. John Calligaro, blacksmith, had his right eye seriously injured by the breaking of a hammer in the blacksmith shop.

On May 1st at 11.45 a.m. Matti Kinnari, miner, was struck by a descending cage, resulting in disclocation of the shoulder joint and injury to the lids of both his eyes.

On June 25th at 3 p.m. Wasyl Suilga, trammer, had part of the middle finger of his left hand crushed while dumping ore.

On July 5th at 4 a.m. Iwan Prodaniuk, trammer, was struck by a large piece of ore; falling down the stope, he bruised his leg.

On July 14th at 9 p.m. Jan Straivinski had two fingers crushed by being caught between two cars.

On July 28th at 1.30 a.m. J. L. Svanson, chute tender, had his thigh crushed in the region of the hip joint. He was trying to stop an ore car and was caught between it and the one ahead.

On August 27th at 10 p.m. Wm. Nyholm was tightening a nut on machine when the wrench slipped and he fell 15 feet down the stope, spraining his left ankle and bruising his right knee.

On September 7th at 10 p.m. J. Kakka, miner, had the middle finger of his left hand crushed by a piece of falling ore.

On September 11th at 10 a.m. John De Diana, miner, had the muscles of the back strained by lifting a large piece of ore into the bucket.

On October 13th at 4 a.m. W. Fedake, trammer, had his right leg bruised by a piece of falling ore.

On October 13th at 4 a.m. John Kielec, trammer, had his head cut, shoulder bruised and left lung injured by a piece of falling ore.

On October 13th at 4 a.m. C. Agnese, trammer, had back of right hand cut by a piece of falling ore.

On October 17th at 4 a.m. John Jachec, trammer, had his right arm bruised by a piece of falling ore.

On October 31st at 4 p.m. P. Butorac, trammer, was bruised in the pelvic region by being caught between two cars.

On November 5th at 11 a.m. Pete Czkucz had the little finger of his left hand crushed by piece of falling ore.

On November 13th at 4 p.m. Victor Kumpu, miner, had his right ankle bruised, caused by the tripod slipping.

On November 19th at 2.30 p.m. Sali Kuja, trammer, had his right leg bruised by a piece of falling ore.

On December 11th at 11.30 a.m. Wm. Russell, trammer, had the middle finger of the right hand crushed when lifting a car on to the track

Mond Nickel Company

At Victoria Mines, on July 8th, at 10.30 a.m., Mike Kasmark, Makxym Tryjomak and Nicholas Belinski, muckers, were instantly crushed to death. The accident occurred at the entrance to the east stope, sixth level. Six men were mucking from this level on the day of the accident. Four men were shovelling at the time the rock fell and two had just come back from the shaft with an empty car and were waiting for this car to be loaded, thus standing back of the other men. Without warning of any kind, except a little dirt falling, a mass of rock on the south side of the wall of the stope fell over, crushing three of the men under it. The two muckers waiting for the car claimed to have seen some pieces falling and shouted to the others, but were too late to save them. The mass of rock which fell was about 10 feet wide, 10½ feet high and 2 feet thick at the top and 1½ feet at the bottom, and would weigh approximately 4 tons. The foreman, Wm. McKerrow, stated that he had been standing over this piece for half an hour the morning of the accident and had seen no indication of any crack in it. Work had been going on at times in the stope for three years. On account of the large size of the rock, it was hard to detect that it was loose by sounding. The stope had been scaled on the 5th, but nothing was done at this piece as it was not thought to be loose, no crack having been seen in it. The piece had remained standing for two to three years, but constant blasting in the stope must have gradually loosened it.

The coroner's jury returned the following verdict: "We the jury find that Mike Kasmark, Makxym Tryjomak and Nicholas Belinski came to their death in Victoria mine No. 1 on July 8th at about 11 a.m. by being crushed under falling ground. We believe that their death was purely accidental."

At Victoria Mines on December 18th at 5.40 p.m. Steve Kat was instantly killed while getting into a cage. A group of machine men on the seventh level, waiting for the cage at the end of the shift, stopped a cage already full and being hoisted from a lower level. The engineer stopped, but almost at once received the starting signal and accordingly hoisted. Three men apparently tried to rush into the cage rather than wait until it was returned in the regular way to their level. Kat, a machine runner, not being securely inside the bale, was struck on the hips by the station cap and killed instantly by dislocation of his neck, the jar throwing his head backward, over the bale. The coroner's jury returned the following verdict: "We find that the late Steve Kat came to his death by being caught between the cage and the timber above the seventh level. The cage started before he was properly on. We find the engineer got the proper signals to hoist, but we find it impossible to tell who gave the signal."

At Victoria Mines on November 20th at about 9.40 a.m. Alex. Durboyk, mucker, was struck by falling ore, causing a fracture of the skull. Death resulted on the 24th

of the same month. The deceased was working on the fifth level. The mine superintendent asserts that the place from which the ore fell had been scaled the day before the accident.

The coroner's jury returned the following verdict: "We the jury find that Alex. Durboyk came to his death as the result of being accidentally struck on the head by a piece of falling ground while at work in the fifth level of the Mond mine on November 20th."

Beaver Consolidated Mines

On November 16th at 1.05 p.m., Andrew Osman and John Aha fell from a bucket and were instantly killed. The two men got on the bucket at No. 1 shaft and signalled to the engineer to be lowered. It appears that the accident was caused by the cross-head sticking some place in the shaft. After the bucket had been lowered some distance below where the crosshead stuck it became loosened, falling to the bucket, and either struck the men knocking them out of the bucket, jarred them out, or upset the bucket. The falling of the cross-head also would cause the breaking of the two strands in the cable which were found broken after the accident. The accident, however, was not caused by there being a defective cable, as any cable would be liable to break under the shock of the crosshead falling. The cable, however, stood the strain, as three strands were intact. The hoistman was also free from blame in regard to the accident. The company had not provided a ladderway from the first to the second level, thereby practically compelling their employees to break the law by riding the bucket in going down to their work and in coming out. This neglect was not due to ignorance of the law on the part of the management. The coroner's jury returned the following verdict: "That the said Andrew Osman and John Aha came to their death November 16th in the shaft of the Beaver Consolidated mine, by injuries received from a fall from the bucket in the shaft of the aforesaid mine; and that the accident was caused by direct negligence on the part of the management, insomuch as they allowed the men to go up and down the shaft in the bucket instead of proper ladders, which should have been supplied and used. And that the attention of the superintendent was called to the fact of the cable being defective, and yet he allowed the said cable to be used. We wish to recommend that the attention of the Government be called to the fact that young men of seventeen years of age are being employed in running the hoist."

Mr. E. T. Corkill, Inspector of Mines, submits that these last two circumstances had nothing to do with the accident. A boy seventeen years old is allowed by the Act to run the hoist, provided men are not being hoisted or lowered, and in the case of this or any other mine men are by law forbidden to ride in the bucket.

The company and superintendent were prosecuted by the Department for violation of the Mining Act, and were fined the maximum amount provided by the Act.

The Buffalo Mine

On December 17th about 3 p.m. the No. 3 boiler blew up scalding Emil Lavergne so seriously that he died about 12 hours later. The boiler was inspected by Mr. Roger Fishleigh, boiler inspector for the Boiler Inspection and Insurance company, three weeks prior to the accident and was reported to be in first class condition and good for a working load of 135 lb. per square inch. Mr. Fishleigh inspected the boiler again after the accident, and at the coroner's inquest swore that there were not more than 24 inches of water on the crown shaft at the time of the explosion; he further stated that the explosion was caused by the water having been allowed to go down in the boiler at least two feet below its required level. The fireman in charge swore that the water in the glass was within two or three inches of the top. This might have been owing to the pipes being stopped by dirt. The fireman, however, should have tried the water cocks to show the level of the water. He was out of the boiler house at the time of the explosion, but he swore that he had not been away more than two minutes and that

the steam pressure when he left registered 90 lb. No one was in the boiler house at the time of the accident but the deceased. It seems reasonably certain that the explosion occurred through the negligence of the fireman in allowing the water to get so low in the boiler that the crown sheet was heated red hot, and the pressure of the steam against the red hot plate caused it to draw out until it reached the limit of its elongation, when it broke.

The coroner's jury returned the following verdict: "That Emil Lavergne, while in the boiler house of the Buffalo mine, received in and upon his head, face, mouth and throat and other exposed parts of his body, certain mortal burns and scalds due to the bursting and exploding of boiler No. 3, of which said mortal burns and scalds he died, and we consider that the cause of the explosion of the said boiler, from the evidence, does not appear, and so the jurors aforesaid, upon their oath aforesaid, do say that the said Emil Lavergne, in manner and by the means aforesaid, accidentally, casually and by misfortune came to his death and not otherwise."

An action was entered by the Department against the fireman, but as it was considered the evidence was not sufficiently strong to convict, it was allowed to drop.

City of Cobalt Mining Company

On June 5th at 11.50 p.m. R. R. Hipkens was using the pick in cleaning up muck. He struck a piece of dynamite that had missed fire, resulting in an explosion that caused serious injury to the head. He died from the effects on June 15th. The deceased was working on the 137-foot level, in the south drift 64 feet from the main shaft. Blasting had been done here on the 6th of May.

Columbus Cobalt Silver Company

On December 23rd at 2 a.m. Wm. Hamilton, Fred McNulty and Ed. Martin were killed by falling from a bucket. On the night of the accident these men and one Henry Gratin were at work in the shaft. A round of holes had been drilled and was fired at 1 a.m. The men had eaten their lunch and started to go down the shaft at 2 a.m. The deceased got on the bucket while H. Gratin remained on the surface giving them a light after they got down below the level of the collar of the shaft. When the men had got to a depth of about 65 feet the engineer felt a sudden jerk on the cable; this was followed by a flopping of the cable so violent that it was jarred off the sheave. Wm. Shovell, superintendent, was summoned and he with the other men went down and found that the deceased had fallen from the bucket to the bottom of the shaft a distance of about 180 feet.

Inspector Corkill's examination seemed to show that the accident resulted from the cross-head being hung up in some way on the guides, probably by ice, and then, suddenly becoming loosened, descended and knocked the men off the bucket. The coroner's jury returned the following verdict: "That F. McNulty, Wm. Hamilton and Ed. Martin came to their death at the Columbus mine by being thrown from the bucket between the surface and the 150-foot level, falling to the bottom of the shaft, and that their death was caused by the cross-head being held up and suddenly dropping and knocking the men off the bucket. We, the jury, strongly recommend that the Mining Act of Ontario be rigidly enforced in the matter of mining operations. We find from evidence given that the Mining Act is being seriously disregarded."

Inspector Corkill had inspected this mine on December 3rd and gave the following instructions:—(1) Have powder moved to old cross-cut. (2) Have the ladder put in good condition and the shaft and ladderway partitioned off to the bottom of the shaft. (3) Forbid riding on the bucket.

Crown Reserve Mining Company

On December 22nd, G. Paradis, carpenter, was injured by the explosion of a detonator which he picked into while engaged in tearing down an old ore-house.

Drummond Mines

At the Drummond mine on February 17th, H. Evans and W. E. Englehutt were dropped 45 feet while in a bucket in No. 4 shaft. There must have been sufficient friction between the brake band and the drum of the hoist to break the fall, or the men would have been killed. Only slight injuries were sustained.

French-Greensmith Prospect

This new claim is situated in the northwest corner of lot five, concession five, in the township of Barber. A shaft about 40 feet had been sunk. On July 31st, James H. McDonald, Edward Foley and Malcolm Gillies were working in this shaft and were suffocated by gas. The bodies were found by A. A. French. It is supposed that Gillies went down the shaft and was overcome by gas, and that McDonald and Foley went down to assist him, as they had put his legs partly into the bucket, when they were also overcome and lost their own lives. The coroner's jury returned the following verdict: "That the said James H. McDonald, Edward Foley and Malcolm Gillies came to their death on the thirty-first day of July in the year 1908 by being accidentally suffocated by gas in the shaft of a mine known as the French-Greensmith mine, and that no blame can be attached to anyone."

Mining Claim No. 223

On September 21st at 9.30 p.m. on claim No. 223, Hubert lake, township of Farr, A. Chabot, foreman, and Chas. Spute received serious injuries from an explosion of gelignite. The men were working in a shaft 69 feet deep. A hole had been missed the previous shift but had been pointed out to the injured men. The latter had almost completed mucking out the shaft when one of their picks accidentally struck the missed hole. Chas Spute has his right arm fractured, while A. Chabot lost the sight of both eyes and sustained a compound fracture of the right leg.

Grey's Siding Development Company

This copper prospect is situated about three miles from Grey's siding, T. & N. O. railway. On October 6th, R. Blair, carpenter, cut his foot with an axe.

Keeley Mine

On August 20th, early in the morning, F. Nelson was seriously and Matti Hytte fatally injured. During the temporary absence of the hoistman, two miners after ascending the shaft by means of the ladder, attempted to hoist Nelson and Hytte in the bucket. Through ignorance of the use of the lever the latter were dropped down the shaft to the 65-foot level. Matti Hytte died as a result of the injuries.

Kerr Lake Mining Company

On September 12th, at 1.30 a.m., F. A. Whalen, machine-man, was killed, and T. Rushworth, helper, was injured by an explosion of dynamite. The men were working in a cross-cut from No. 7 adit and the machine-man had completed loading a round of eight holes. After the first fuse was lighted a mucker who was working here, left the drift and went to the mouth of No. 7 adit, a distance of 250 feet, and waited there for the other men. He had been away from the heading two to three minutes when he heard a report. A little later the helper came out of the adit injured and reported the accident. It is thought that the machine-man and his helper had trouble in lighting some of the holes and remained too long, and the first hole lighted exploded

before they got away. Six-foot fuses are used by the company which would burn approximately 2 minutes and 50 seconds, an adequate length of time for the men to get to a safe place.

The coroner's jury returned the following verdict: "That the said F. A. Whalen came to his death on Saturday morning September 12th, in a tunnel at the first level of the Kerr Lake mine by accident from an explosion of dynamite, the cause of which is unknown."

La Rose Mine

On May 4th, between 11.30 a.m. and 12 o'clock noon, Napoleon Leonard and Stefan Saravana, helper and machine-man respectively, were killed by the premature discharge of a blast. The men were working in a drift at the 150-foot level. Fourteen holes had been drilled in the heading. It was the custom sometimes to fire the holes in two rounds and sometimes in one. In this case the former practice was followed, and in the first round eleven holes at least and probably more had been fired, as three of the holes left unbroken showed that they had been blasted and reloaded. All the holes left from the first round had been reloaded for firing in the second round. Napoleon Leonard was seen after he and his partner had fired the first round. The deceased stated that they had not had time to spit all the holes, one having been left unlighted. The length of fuse used was from six to seven feet, which would burn approximately three to three and a half minutes. Twenty-five feet from the heading where the accident occurred was a cross-cut where the men would have been safe from any material injury. The machine-man was about eight feet from the heading and the helper about eight feet behind him. The accident could not have happened while loading the holes, as the loading stick, etc., had been taken back to the cross-cut and put away. It seems likely that the fuse was ignited by a candle snuff falling from the candlestick probably hanging above it on the wall, and that the men were struck while walking into the drift, after having stored away their tools.

The coroner's jury returned the following verdict: "That Napoleon Leonard and Stefan Saravana came to their death on Monday May 4th in a drift at the 150-foot level of the La Rose mine, by premature discharge of a blast, the cause of said premature discharge unknown. We would recommend that all mining companies avoid having two men working together who do not understand the same language."

Nancy-Helen Mine

On May 7th, Robert Lavine, machine helper, fell from the 100-foot level a distance of 50 feet, causing a fracture of the skull and resulting in his death at 8 a.m. the following day. The deceased had left the drift with an empty pail and his candle for the purpose of getting water for the drill. A bucket of water had been placed south of the shaft opening for this purpose. No more was seen or heard of the deceased until he fell down the shaft. There was plenty of room to pass around the shaft opening. When there was no mucking going on in the shaft, the doors covering the shaft opening on the 100-foot level were kept closed. When the doors were open there was no guard rail around the opening as required by the Mines Act.

Inspector Corkill visited the mine in February but no work was then being done below the 100-foot level. Since that time the shaft had been sunk 50 feet below the level. In all other respects the 100-foot level was in accordance with the Mining Act.

The coroner's jury returned the following verdict: "That the said Robert Lavine came to his death through injuries received on May 7th at the Nancy-Helen mine at Cobalt, by falling down the shaft through negligence of the company in not having guard rails around the shaft, as required by the Mines Act."

Nipissing Mining Company

At the Nipissing mines on January 29th at 2 p.m E. Belanger was engaged in picking into some rocks for the purpose of making a place to set a foundation post. He struck what appears to have been a detonator which exploded, filling his face with pieces of rock.

On February 11th about 1.15 p.m. Thomas Roi (or King), machine-man, was working in the raise from the east drift on the Kendall vein. On the previous day six holes had been fired and six reports counted. One of the holes had been cut off and some gelignite still remained in it. The timberman drew the attention of King to this. The latter removed one of the sticks giving it to the timberman. In scaling the rock from the roof the remaining gelignite exploded, destroying King's right eye and inflicting other injuries.

On March 25th at 11.30 a.m. Panfilo Chiocchio, machine-man, was instantly killed by an explosion of dynamite. The deceased had drilled three holes in an open cut at vein No. 86, and loaded them with eleven sticks of dynamite. Bosati Sebastino was in the open cut below the holes that had been drilled, mucking while the holes were being loaded. After they were loaded, he came up out of the cut and stood at the top ready to help deceased pull up the short ladder. He saw deceased light the fuse and then heard an explosion. This might have been caused either by a quick burning fuse, or because of not having any tamping in the hole, the fuse thereby spitting into the hole and exploding the dynamite. The shift boss said he had never known deceased to load a hole without tamping it. It is impossible to arrive at a conclusion as to which was the real cause. The number of accidents from quick burning fuse is very small.

The coroner's jury returned the following verdict: "That the said Panfilo Chiocchio came to his death about 11.30 on Wednesday morning the twenty-fifth day of March, accidentally, in a cut at No. 86 shaft of the Nipissing mine by injuries caused by a premature explosion of dynamite in said mine. And we further find that proper precautions have not been used by the management of the Nipissing to examine the competency of men as shift bosses, or men handling dynamite, as the shift boss, Dominick Nascioli, had never worked in a mine prior to his employment at the Nipissing mine, which dates back a few months only."

Inspector Corkill while investigating the accident found that Dominick Nascioli had been employed at the Nipissing mine since June 1st, 1907, and had been shift boss since November, 1907. Prior to this time he had charge of men on excavation work in Nova Scotia. He had been shift boss for six years on work where explosives were used. It is quite true he had never worked in a mine prior to his being employed in the Nipissing, but, as stated above, he had had charge of work six years where explosives were being used.

On April 1st at about 11 a.m. P. J. Leanny, M. E. Dougherty and A. Dubreuil, ore sorters, were engaged in removing muck from a tramway. Leanny was handling a pick which struck some explosive in the muck, resulting in the loss of his left eye, and in other injuries. The two men with him were not seriously hurt.

On September 28th at about 7.30 p.m. Emil Mikkalo, miner, was suffocated by gas. Two other men, Angus Soari and Otto Ramner, who were with him, recovered. The accident happened in No. 1 west raise on the 140-foot level of the Kendall vein. The raise had been put up about 60 feet from the level. The day shift had fired a round of holes in the raise. The deceased on going on shift had connected the air hose with the air pipe and started up the raise, neglecting to turn on any air. He went up about 45 feet and then apparently was overcome by gas. In falling his legs got caught in the

ladder which held him, head downward. The two men, Angus Soari and Otto Ramner, noticed the deceased's hat falling down the raise and also that his light was out. They ascended the ladder about 30 feet to investigate, when they were overcome by gas and fell from the ladder to the bottom of the raise. The shift boss, Thomas Cosgrove, was then called and he went up the raise and brought down the deceased. The two men who fell down were easily brought to, but efforts to resuscitate the deceased were futile. The death was no doubt caused by the carelessness of the deceased in not turning on the air as soon as he went into the raise.

The coroner's jury brought in the following verdict: "That the said Emil Mikkalo came to his death September 28th in the raise of the Kendall shaft of the Nipissing mine by being accidentally overcome by gas."

On October 31st at 4.15 a.m., Joseph Girard, machine-man, was killed in a cage. The accident took place at the Kendall shaft. Deceased had fired a round of holes just before midnight and again at 2 a.m. The workmen in this part of the mine (east drift) then waited on the surface until 4 a.m. for the smoke and gas to clear. One cage load of four men went down, and when the cage returned to the surface Girard and his partner got on it and went down. The deceased when about 50 feet from the shaft in the east drift, turned back without saying anything to his partner, went to the shaft, rang one bell in place of three and got on the cage. When the engineer had hoisted about 80 feet he felt the cage stick and shut off steam. He tried to lower but could not. The hoistman informed the shift boss, who went down, but in the meantime men working on the first level had found Girard lying on the cage caught between the shaft timber and the floor of the cage, his head and one shoulder being off the cage. Not more than 3 to 5 minutes elapsed from the time the cage stuck until he was taken out, but he was quite dead. Death was due to fracture of the neck and pressure thereon. The deceased must have collapsed while on the cage, from some cause, and in falling his head and shoulders were caught by the timber. All requirements of the Mining Act had been fulfilled.

The coroner's jury returned the following verdict: "That the said Joseph Girard was found dead in the cage near the 100-foot level in the Kendall shaft about 4.30 a.m., October 31st, and that the said Joseph Girard came to his death by some unknown or accidental cause. We would strongly recommend that more precautions be taken that men working together be able to understand each other. We would also recommend that immediate action be taken to prevent men of different nationalities working together who do not understand each other."

At the Meyer shaft, November 25th, at 9 p.m., George Thomson, drill-helper, was instantly killed. The deceased with three other men was at the bottom of the shaft, which was 113 feet deep. The lander, Allaire, at the top of the shaft, placed six long steel in the bucket while it was hanging in the shaft. This was contrary to the rules. When the lander was in the act of tying the steel one of the men in the shaft, J. Quelne, rang two bells for the bucket to be lowered. The hoistman thereupon lowered the bucket before the lander had time to tie in the steel. The lander stopped the bucket when it had got down about 20 feet in the shaft and then, instead of going down in the shaft and either warning the men or tying the steel in the bucket he let it go down, thinking it would be all right. While the bucket was going down, however, one of the pieces of steel in some way fell out, striking the deceased on the back of the head and killing him instantly.

The lander, Allaire, disobeyed the rules and warnings of the company in loading steel in the bucket while it was hanging in the shaft. Quelne also acted contrary to the rules in ringing down the bucket as he was told by the machine-man, Cote, not to do so.

The coroner's jury returned the following verdict: "We find that George Thomson met his death in the Meyer shaft of the Nipissing mine on November 25th by a steel falling from the bucket on his head, being killed instantly, and that we consider that this shaft is not fit for men to work in as it is now, and that the company be held responsible for his death. We further find that the Mine Inspector should make more frequent calls at the different working shafts, as this shaft has been worked for over a year and there is no evidence of it ever being inspected until this man was killed."

Inspector Corkill inspected this shaft after the accident and reported it in very good condition.

Northland Mining Company

At Rib lake, T. & N. O. Railway, on May 11th at 4.10 p.m., J. Burke and A. Burke drilled into an old bottom in which the powder had not all exploded. The powder going off, the two men were injured, one slightly and one more seriously, but not dangerously. The men were sinking a shaft which at the time was down 170 feet. The men who quarried out the bottom state that the shaft was well quarried before the machines were let down.

On December 28th at 2 p.m., D. Foley machine man, was killed. Deceased and another man were working on the first level, north stope, engaged in cleaning off the benches. While doing this work Foley, who was on one side of the raise on the stope, was struck by a piece of rock falling from the roof, and fell off the bench on which he was working into the raise. This raise is about 60 feet in depth and vertical. Foley was found lying on the timbers at the bottom of the raise, was taken to the surface and died in a short time. The roof above the stope is about 25 feet in height, and had been scaled, according to the evidence of the superintendent, S. Shovell, during the week of the accident.

The coroner's jury returned the following verdict: "That we believe that the deceased D. Foley came to his death by falling down a chute at the Northland Mining Company's mine at Rib lake, and that such death was accidental."

Nova Scotia Mine

On July 13th in the afternoon, Allan James McMillan, machine man, fell down a winze and died as a result of the injury two days later. Deceased had gone down to the second level by the shaft. He walked along this level, carrying a light, until he came to the winze, his intention being to go down the ladder. Deceased must apparently have tripped over something causing him to fall down the winze, because after the accident the sole of his boot was seen to have been pulled off. No guard nail had been placed at the winze by the company as is required by the Mining Act.

The coroner's jury returned the following verdict: "That the said Allan James McMillan on July 13th received certain injuries by accidentally falling down a winze in the Nova Scotia mine, which said winze was not protected by guard rails through the incompetent management of said Nova Scotia Mining company, from which injuries aforesaid the said Allan James McMillan did on July 13th die in the hospital situate in the town of Cobalt."

O'Brien Mine

On December 12th at about 10.30 a.m. while the ore sorters at the rock-house of No. 1 shaft were at work, one of the men found a piece of dynamite about two inches long in the muck. He handed it to the rock-house foreman, Geo. Hinds. The latter asked Irwin Keene, shift boss, if the dynamite was dangerous when it was frozen. Keene told him it was and ordered him to take it to the thawing house. Hinds remarked he had a few pieces on a shelf in the corner of the rock-house. Keene ordered all of it to be taken to the thawing house. Hinds then proceeded to the corner

of the rock-house where these loose pieces were, and started to take them down from the shelf when an explosion occurred. Three or four men were standing close to the deceased at the time of the explosion, but were not hurt. Hinds was killed instantly. Both dynamite and gelignite were being used in the mine, so that it is not known which substance exploded. The cause of the explosion is unknown.

The coroner's jury returned the following verdict: "That the said George Hinds came to his death in the ore-house of No. 1 shaft of the O'Brien mine from injuries received by an accidental explosion of a piece of dynamite held in the hands of the deceased, and so the jurors aforesaid do say that George Hinds in manner and by the means aforesaid accidentally, casually and by misfortune came to his death, and not otherwise."

Paterson Mine

On June 1st at 10 a.m. Shirley Hayden, miner, was killed by a premature explosion. The deceased and his partner, Henley, had loaded six holes in the shaft, with 50 per cent. dynamite and 4½ foot Bennett's fuse. Hayden lighted the fuse and Henley started up the ladder, the deceased stepping into the bucket to go up in it. The bucket was just raised off the bottom when the blast went off. Henley was knocked off the ladder, but was able to climb to the surface. The deceased was probably killed instantly. The accident can be attributed to one of two causes:—First, that the fuse was defective and burned quickly, or secondly, that the holes were improperly tamped and the fuse spit into the holes, causing the dynamite to explode.

The coroner's jury returned the following verdict: "That the deceased, Shirley Hayden, came to his death on June 1st, 1908, on the property of the Paterson mine, from injuries received in a dynamite explosion from causes unknown."

Right of Way Mining Company

At the Right of Way mine, February 15th, at 4.15 a.m., Constant Constot, machine helper, was killed and his partner, E. Bernier, was slightly injured, by an explosion of gelignite. The two were drilling in a cross-cut which had not been worked since November, 1907. The accident resulted from drilling into a hole in which there was some gelignite which had failed to explode at the time, and whose presence was unknown to either the machine-man or the management. The hole had been drilled in about ten inches when the explosion occurred. It had not been started in the old bottom, but had apparently run into it, since the hole was at a much greater angle than the old one. The manager, Mr. J. Houston, stated positively that there had been no miss-fires in November when work was last done here. This is borne out by the fact that about 4½ feet had been made in the last round, which would not have been the case if there had been a little explosive left in the hole. The captain stated that he had been in the crosscut several times and had not seen any evidence of a cut-off or missed hole.

The coroner's jury returned the following verdict: "We find that Constant Constot came to his death in a drift in the Right of Way mine by an explosion due to the incompetency of Emil Bernier (machine runner) and gross negligence on the part of the management in not having examined the abandoned drift, and further in employing unskilled miners."

St. Lawrence-Cobalt Mining Company

On island 13 Sasaginaga lake, September 8th, about 10.30 a.m., M. Banville, foreman, was injured by an explosion of gelignite, causing his death on the 12th of the same month. Deceased was working in the shaft which was about 55 feet deep. A round of eight holes had been fired and all reports counted on the evening of September 5th, and mucking had been done on the 6th and 7th and up to the time of the accident. Deceased had been in the habit of going down in the shaft after all the muck was out to pick up any loose rock from the bottom. While in the shaft just prior to the accident deceased had sent up two buckets of muck and two of water, when an explosion was heard. He shouted to the man at the top to hoist him to the surface, which was done and medical aid procured. From the evidence it appears that deceased was a careful and competent foreman. He apparently met his death through the accidental picking into the bottom of an old hole in which was a small piece of unexploded gelignite.

The coroner's jury returned the following verdict: "That the deceased Marcell Banville came to his death from injuries received accidentally, and his death was not caused by any fault of the company or by his own incompetency."

Temagami Gold Reefs Company

This property is situated about four and a half miles from Temagami station, T. & N. O. Railway. On December 9th about 11.20 a.m. M. Dougherty, laborer, and A. Rioux, hammerman, were killed by an explosion of dualin, and W. Brennan, F. Lavally and E. Lalonde were injured. The men were working in a shaft 40 feet deep. On December 7th a round of holes was fired. On mucking out it was found that one hole which had been drilled about 4 feet deep had only broken about one foot off the top. The foreman had put a plug in this and another round was drilled. After all these holes in the round were drilled, the foreman, E. Lalonde, directed Dougherty and Rioux to clear out this old hole so that they could reload it, and, according to the evidence of H. Parker and W. Lavally, to drill it 8 or 10 inches deeper. The foreman then went to the surface to get the powder to load the holes. He was gone about ten minutes, and had got down in the shaft with the powder when he saw the men hammering a steel in this old hole. He had only got to the bottom when the explosion occurred. The explosive was dualin

The coroner's jury brought in the following verdict: "That the said Alphonse Rioux came to his death on the 9th day of December, 1908, from the accidental explosion of a partially exploded charge of dualin in a hole which the deceased was cleaning out, and that the said accident was due to the negligence of the Company in using dualin instead of dynamite, and that we consider that the men employed by the Company were insufficiently experienced miners."

Temagami Mining and Milling Company

On January 3rd at 4 p.m. Andrew Gowanlock, machine helper, was instantly killed by an explosion of gelignite. Four holes had been loaded and fired during the morning. The deceased considered that all the holes had gone off, while his partner thought that one had missed. Both returned and proceeded to muck and look for missed hole. Gowanlock hit the hole with his pick, resulting in an explosion which killed him instantly.

Trethewey Silver-Cobalt Mine

At the Trethewey Mine about 8 p.m. January 1st, George Keilty, machine helper, was killed instantly through a shaft bucket falling on him from the 50-foot level to where he was at work about forty feet lower sinking a shaft. The bucket had been taken off the cable at the 50-foot level shortly after the men went on shift, and had presumably been placed on top of a hose. The shift boss and helper were attempting to take this hose down the shaft, and in so doing the bucket must have been upset and rolled down.

The condition of the shaft at the time of Inspector Corkill's inspection was in accordance with the Mining Act, but it had apparently not been so at the time of the accident, as new guard rails had just been put in. If these guard rails had been in position at the time of the accident, they would have prevented the bucket rolling into the shaft.

The coroner's jury returned the following verdict: "That the cause of death of the said George Keilty was injuries received by the falling on him of the bucket from the 50-foot level of said shaft of said mine, that the falling of said bucket was caused by gross negligence and incompetence on the part of the shift-boss, Stephen Monk, and that there was gross negligence on the part of the company."

On June 10th at 10 p.m. James Harrington, hoistman, was accidentally killed. At that hour George Ferguson, shift-boss, signalled from the second level of the No. 2 shaft to the hoist house to hoist the bucket and stop it at the first level. The bucket was hoisted as usual, but it did not stop at the first level. A workman named Hart was sent to the hoist house, and found the deceased lying with his head under the drum and his feet between the levers and cylinders. The hoist was the usual pattern of

6 x 8-inch cylinder Jenckes manufacture, with levers in quadrant. After starting the hoist, which is operated by air, the deceased apparently stepped to the side of the hoist and took hold of the cable, which was probably not winding properly on the drum. In doing so his coat sleeve got caught between the cable and the drum, and the revolving of the drum threw deceased over it, his head striking on the metal casting of the base of the hoist. The hoist was as well guarded as was practicable. Inspector Corkill, who made an investigation, considers deceased was to blame in leaving the lever while the hoist was running, and also for touching the cable while the hoist was in operation. If the cable was not winding properly on the drum, the hoist should have been stopped and the difficulty remedied.

The coroner's jury returned the following verdict: "That the said James Harrington came to his death on Wednesday night June 10th in the year 1908, in the hoist-house, by accidentally getting caught in a piece of unprotected machinery, and that they recommend that a hood be put over the cog-wheel of the hoist in the above mentioned mine."

Victoria Silver-Cobalt Mine

On May 18th at 9 a.m. at the 150-foot level, shaft No. 2 north cross-cut, George Harris, foreman, had his eyes and other parts of the body seriously injured by an explosion of gelignite. A round of holes was blasted in the cross-cut on May 15th, and one report was short. The men who had done the shooting had visited the drift after the shot and before the accident, but could find no missed hole. No work had been done since the blast. On the morning of the accident, Mr. Harris went in to examine the cross-cut and pulled down a loose piece of rock from the drift. Immediately his hand touched the rock, the explosion occurred. Captain John Harris considers that the accident was caused by a piece of gelignite, which had not exploded, being in the bottom of the hole, and which was set off when Mr. Harris picked down the piece of loose rock.

Wilbur Iron Mine

On May 19th at about 10.20 p.m. John Warrington was killed by a piece of rock falling on him. Deceased was working in first level of the mine about 45 feet from the surface. A round of holes had been blasted in this stope during the day shift, and the man and his helper had been engaged from 10 a.m. to 4 p.m. in scaling the roof, which was, at the time when the man was killed, about 15 feet in height. The deceased had come to work on the night shift, and had been engaged in breaking up or blasting large pieces of ore for the trammers. At the time of the accident he was breaking up ore by means of a sledge when a piece of rock fell from the roof, striking him above and below the right eye and causing a fracture of the base of the skull. Death resulted six minutes after the blow. From the evidence it would appear that the roof had been reasonably scaled.

The coroner's jury returned the following verdict: "That John Warrington came to his death through the accidental falling of a rock in the mine, due to an oversight in scaling of which in any case there would have been a possibility, and we do strongly urge, that still greater precautions be taken in the future in the scaling of the different chambers of the mine, and in all other kinds of work in which there is thought to be any danger whatever."

Kingston Feldspar and Mining Company

On October 8th Tobias Legary, who was not an employee of this company, was standing on the tramway talking to his brother who operates the line. The car ran partly over his leg, inflicting a superficial flesh wound about 2 by 2¼ inches. It was not considered serious at the time, but later on tetanous developed and Legary died on October 14th.

Following is a summary table of the accidents described above:

Table XVII.—Mining Accidents in 1908.

Date.	Mine or Works.	Name of Injured Person	Slight.	Serious.	Fatal.	Above ground.	Below ground.	Nature of Injury.	Cause of Accident.
1908.									
Jan. 1....	Trethewey Silver-Cobalt Mine....	George Keilty.....	....	....	1	....	1	Killed instantly	Fall of bucket down shaft.
June 10....	do	James Harrington.....	....	....	1	1	...	Killed instantly	Caught in hoist.
Jan 25....	Canadian Copper Co., Crean Hill mine.....	Rosario Therien	....	....	1	1	....	Leg crushed, died following day from loss of blood	Fell from empty ore car.
Feb. 28....	do do	Augusti Miettinen.....	....	....	1	....	1	Killed instantly	Riding in skip.
Mch. 23....	do (Copper Cliff)	Jno. Kangas	....	....	1	1	....	Killed instantly	Run over by slag train.
April 10....	do (Creighton)	John Heittala	..	....	1	....	1	Died next day	Struck by piece of ore causing fall of 50 feet.
May 29....	do (Crean Hill)	August Sapola.....	....	1	....	....	1	Serious injuries to eyes, nose and lips..	Picking in muck causing explosion.
" 30....	do (Creighton)	Commoso Davide..	....	1	....	....	1	Scalp wound and partial paralysis of one leg and arm.....	Struck on head by piece of ore.
June 18....	do do	Andruch Bijko.....	....	....	1	....	1	Head injured.....	Struck by rolling stone.
" 19....	do do	Dimitru Lakatus	....	1	....	....	1	Loss of sight in one eye.....	Explosion of dynamite in muck.
July 16....	do do	Tom Dominico	...	....	1	1	....	Crushed to death.....	Caught between post and car.
Aug. 10....	do (Crean Hill)	Megali Gordi	....	....	1	1	....	Killed instantly	Run over by ore car.
" 13....	do (Naughton Quartz Quarry)	Oscar Lanthanon.....	....	....	1	....	1	Skull fractured	Struck by rock, causing fall from machine.
Sept. 8....	do (Crean Hill)	Mike Duisdank	....	....	1	....	1	Brain injured.....	Struck on head by falling stone.
" 23....	do (Creighton)	Jamb Cottock.....	....	1	....	....	1	Fracture of skull.....	Struck by piece of ore, causing fall.
Jan. 29....	Nipissing Mining Co.....	E. Belanger.....	1	....	....	1	....	Pieces of rock blown into face by detonator.....	Picking into rock.
Feb. 11....	do	Thomas Roi	....	1	....	....	1	Right eye destroyed.....	Explosion of gelignite in cut off hole
Mch. 25....	do	Panfilo Chiocchio	....	....	1	....	1	Killed instantly	Premature explosion.
April 1....	do	P. J. Leanny	....	1	....	1	....	Loss of left eye	Picking into muck containing explosive.
		M. E. Dongherty.....	1	....	....	1	....	Slight injuries.....	
		A. Dubreuil.....	1	....	....	1	...	Slight injuries.....	
Sept. 28....	do	Emil Mikkalo	....	....	1	....	1	Asphyxiated.....	Fumes of explosive.
Oct. 31....	do	Joseph Girard	....	....	1	....	1	Neck fractured	Caught in cage.
Nov. 25....	do	Geo. Thomson.....	....	....	1	....	1	Head struck by falling steel.....	Steel fell from bucket being lowered in shaft.
Feb. 15....	The Right of Way Mining Co	C. Constot	....	....	1	....	1	Killed....	Drilling into hole in which some gelignite had failed to explode.
" 17....	Drummond Mines	H. Evans	1	....	....	....	1	Slight injuries.....	Riding in bucket.
		W. E. Englehutt.....	1	....	....	....	1		
April 10....	Helen Iron Mine.....	John Calligaro.....	....	1	....	1	....	Injured right eye.....	Breaking of hammer.
" 17....	do	Johan Maki	1	....	....	....	1	Sprained ankle.....	Fell from staging.
May 1....	do	Matti Kinnari.....	1	....	....	....	1	Dislocation of shoulder-joint.....	Struck by descending cage.
June 25....	do	Wasyl Suilga	1	....	....	....	1	Finger crushed..	Dumping ore.
July 5....	do	Iwan Prodaniuk.....	1	....	....	....	1	Leg crushed	Struck by falling ore.
" 14....	do	Jan Straivinski.....	1	....	....	....	1	Two fingers	Caught between two cars.
" 28....	do	J. L. Svanson	1	....	....	....	1	Thigh crushed.....	Caught between two cars.
Aug. 27....	do	Wm. Nyholm.....	1	....	....	....	1	Ankle sprained and leg bruised	Slipped 15 feet down stope.
Sept. 7....	do	J. Kakka	1	....	....	....	1	Finger jammed.....	Struck by falling ore.
" 11....	do	J. De Diana.....	1	....	....	....	1	Muscle of back strained.....	Lifting ore into bucket.
Oct. 13....	do	W. Fedake.....	1	....	....	....	1	Bruised leg.....	Hit by piece of falling ore.
" 13....	do	John Kielec.....	....	1	....	....	1	Head and shoulder bruised.....	Hit by piece of falling ore.
" 13....	do	C. Agnese.....	1	....	....	....	1	Hand cut.....	Hit by piece of falling ore.
" 17....	do	John Jaehec.....	1	....	....	....	1	Arm bruised.....	Hit by piece of falling ore.
" 31....	do	P. Butorac.....	1	....	....	....	1	Pelvic region bruised.....	Caught between two cars.

Table XVII.—Mining Accidents in 1908.—*Concluded.*

Date.	Mine or Works.	Name of Injured Person.	Slight.	Serious.	Fatal.	Above ground.	Below Ground.	Nature of Injury.	Cause of Accident.
Nov. 5....	Helen Iron Mine	Peter Czkucz	1	....	....	....	1	Finger crushed	Struck by pieces of falling ore.
" 13....	do	Victor Kumpu	1	....	....	....	1	Right ankle bruised	Tripod slipped.
" 19....	do	Sali Kuja	1	..	....	....	1	Leg bruised	Struck by pieces of falling ore.
Dec. 11....	do	Wm Russell	1	....	....	....	1	Finger crushed	Crushed when lifting a car.
May 4....	La Rose Mines	Napoleon Leonard	....	....	1	....	1	Head injured	Premature explosion.
		Stefan Saravana	....	....	1	....	1	Top of skull blown off	
May 7....	Nancy-Helen Mine	Robert Lavine	....	....	1	...	1	Fractured skull	Fell down shaft.
" 11....	Northland Mining Co	A. Burke	....	1	....	....	1		Drilled into old bottom containing some explosive
		J. Burke	1	....	....	....	1		
Dec. 28....	do	D. Foley	....	....	1	....	1	Head injured	Struck by falling rock and fell down raise.
May 18....	Victoria Silver Cobalt Mine	George Harris	....	1	....	....	1	Eye and other parts of body injured	Explosion of gelignite.
" 19....	Wilbur Iron Mine	John Warrington	....	....	1	....	1	Fracture of base of skull	Hit by rock falling from roof of stope.
June 1....	Paterson Mine	Shirley Hayden	....	....	1	....	1	Killed instantly	Premature explosion of dynamite.
" 5....	City of Cobalt Mining Co	R. R. Hipkens	....	....	1	....	1	Head injured, resulting in death, June 15	Picking in muck causing explosion.
July 8....	Mond Nickel Co, Victoria Mines	Mike Kasmark	....	....	1	....	1	Body crushed	Crushed by falling rock.
		Makxym Tryjormak	....	....	1	....	1	"	
	do	Nicholas Belinski	....	....	1	....	1	"	
Nov. 20....	do	Alex. Durboyk	....	....	1	....	1	Fracture of skull	Struck by piece of falling ore.
Dec. 18....	do	Steve Kat	....	....	1	....	1	Dislocation of neck	Getting into cage.
July 13 ...	Nova Scotia Mine	Allan J. McMillan	....	....	1	....	1	Internal injuries	Fell down unprotected winze.
" 31....	French-Greensmith Mine	J. H. McDonald	....	....	1	....	1	Asphyxiated.	Exposure to gas.
		E. Foley	....	....	1	....	1		
		M. Gillies	....	..	1	....	1		
Sept. 8....	St. Lawrence Cobalt Mining Co	M. Banville	....	....	1	....	1	Injuries to head	Explosion of gelignite in old bottom.
" 12....	Kerr Lake Mining Co	F. A. Whalen	...	...	1	....	1	Killed instantly	Explosion of dynamite.
" 21....	Claim No. 223, Hubert Lake	A. Chabot	....	1	....	....	1	Loss of right arm and fracture of right leg	Explosion of gelignite.
		Chas. Spute	...	1	....	....	1	Right arm fractured.	
Oct. 6....	Grey's Siding Development Co	R. Blair	....	1	....	1	....	Foot injured	Cut with axe.
" 8....	Kingston Feldspar & Mining Co	Tobias Legary	....	....	1	1	....	Flesh wound on leg from which tetanus developed	Cut by wheel of car.
Nov. 16 ...	Beaver Mine	Andrew Osman	....	....	1	....	1	Killed instantly	Fell from bucket.
		John Aha	....	....	1	....	1		
Dec. 9....	Temagami Gold Reefs Co	M. Dougherty	....	....	1	....	1	Killed	Drilled in bottom of hole which had been blasted, but in which some explosive remained.
		A. Rioux	....	....	1	....	1	do	
		W. Brennan	....	1	....	....	1		
		F. Lavally	1	....	....	....	1		
		E. Lalonde	1	....	....	....	1		
Aug. 20....	The Keeley-Iowsey-Wood Mine	F. Nelson	....	1	....	....	1	Serious	Riding in bucket.
		M. Hytte	....	....	1	....	1	Died from injuries	
Jan. 3....	Temagami Mining & Milling Co	A. Gowanlock	....	....	1	....	1	Killed instantly	Picked into missed hole containing gelignite.
Dec 12....	O'Brien Mine	G. Hinds	..	....	1	1	...	Killed instantly	Explosion of dynamite or gelignite.
" 17...	Buffalo Mine	E. Lavergne	....	....	1	1	....	Scalded	Boiler explosion.
" 22....	Crown Reserve Mine	G. Paradis	1	....	....	1	....	Cheek cut by rock	Explosion of detonator.
" 23....	Columbus Cobalt Silver Co	W. Hamilton	....	....	1	....	1	Died from injuries	Fell from bucket.
		F. McNulty	....	....	1	....	1	Killed instantly	
		E. Martin	....	....	1	...	1	Killed instantly	
			26	11	47	15	72		

MINE ACCIDENTS

By E. T. Corkill, Inspector of Mines

The prevention of accidents in mines has been the subject of much discussion, both among mining men and by commissions appointed by the governments of various countries. Most of the commissions appointed have studied the subject chiefly in connection with coal mines, and have only touched incidentally on metalliferous mining. This has probably been due to the fact that more men are employed in coal mining, and that when an accident occurs in a coal mine from an explosion a large number of lives are involved. When this happens the press in every country calls attention to the accident, enlarges upon it, points out the great danger of the miner's occupation, and accordingly the government of the country in which the accident occurs is compelled to institute an investigation.

In metalliferous mining an accident seldom occurs in which a considerable number of men are killed, the fatalities usually being one or two at a time, though in the course of a year they may amount to a large total. Public opinion is, therefore, not aroused; the management of the mine is not so much impressed with the importance of careful supervision; the miners are awakened for a few days, and then forget, and the same conditions prevail as before. It is a common belief among most metal miners that the fatalities in coal mines far exceed those in metalliferous mines. This is a great mistake, and, while it is not proposed to argue that metal mining is as hazardous a calling as coal mining, still the writer desires to impress upon all metal miners that only care and close supervision of their work will lessen the number of accidents and place metalliferous mining on the list of the less hazardous occupations. In the United Kingdom the death rate per thousand men employed in 1907 in metalliferous mines was 1.08, while in the coal mines for the same year the death rate was 1.46 per thousand. The average death rate per annum for the ten years from 1898 to 1907 in the coal mines was 1.40 per thousand, and in the metalliferous mines for the same period 1.14 per thousand. This shows that only .26 more men per thousand per year were killed in the coal mines than in the metalliferous mines. In the German Empire the death rate in 1906 in coal mines was 1.70 per thousand men employed, and in metalliferous mines 1.29 per thousand. In the United States in 1906 the death rate in coal mines was 3.21 per thousand, while in the same year in metalliferous mines in the States of Colorado, Michigan, Missouri and Montana, the death rate of 3.22 per thousand. The percentage of accidents in metalliferous mines in these states is therefore slightly greater than in coal mines.

The necessity for action to prevent accidents in metalliferous mines in the United States was recognized by the American Mining Congress at its annual meeting in November, 1906, when a committee was appointed to prepare a law suitable to modern conditions governing quarrying and metalliferous mining, with the view of its adoption by the American Mining Congress and recommendation to the various states of the Union for its passage as a uniform law replacing existing laws, which in the best cases were more or less imperfect and out of date. The laws of the states of Colorado, Missouri, Montana and New York, were published by the Congress, to enable those concerned to criticize the existing laws and thereby assist the committee. No uniform set of laws has as yet been adopted by the Mining Congress. In Canada, the Provinces of Nova Scotia, Quebec, Ontario and British Columbia have regulations controlling the operation of metalliferous mines. In the Transvaal in 1905 a commission was appointed to inquire into and report upon "The use of winding ropes, safety catches and appliances in mining shafts." The report of this commission was published in 1907, giving in detail the result of the inquiry. Various commissions and boards of inquiry have been appointed in the United Kingdom since 1855, some of which have

investigated the causes of accidents in metalliferous mines, and laws have been enacted to prevent certain dangerous practices. As a result, the death rate in the United Kingdom in metalliferous mines is practically the lowest of any of the countries in which metalliferous mining is a considerable industry.

Causes of Accidents.

Accidents in mines may be classified under three headings, namely:—

1. Unavoidable accidents that are inherent in the nature of the work.
2. Accidents due to carelessness, negligence or incompetence on the part of the management.
3. Accidents due to carelessness, negligence or incompetence on the part of the workmen.

An interesting table is published by the German government, classifying the mine accidents in that country for the year 1906, and indicating the contributory causes as follows:

	Per cent.
Accidents owing to danger inherent to the work itself	69.31
Accidents due to defects in the mine workings	00.78
Accidents through fault of fellow workmen	3.24
Accidents through fault of injured person	26.67

This table shows a most satisfactory state of affairs in the case of the German mines, since .78 per cent. only of the accidents resulted from defects in the workings. It is a condition which might quite readily be attained in our mines in Ontario, but only through the active co-operation of all the mine managers in the Province.

In Ontario in 1908 the total number of accidents was 69, resulting in 47 fatalities, of which 39 occurred below ground and 8 above ground. Of this number, 23.4 per cent. of the fatalities resulted from falls of ground; 27.6 per cent. from shaft accidents, 23.4 per cent. from accidents caused by explosives; 8.5 per cent. from miscellaneous accidents underground, and 17.8 per cent. from accidents on the surface.

The following table shows the cause and place of the fatal accidents in Ontario in 1908:—

Falls of ground		11
Shaft accidents—		
Falling from bucket while riding contrary to Act	6	
Objects falling part way down shaft	1	
Falling into shaft from part way down	2	
Objects falling from surface down shaft	1	
Cage accidents	2	
Riding on skip	1	
		13
Accidents from explosives—		
Picking into old hole in which explosive had been left	1	
Drilling into bottom of old hole	4	
Picking into explosive in muck	1	
Premature explosion	5	
		11
Miscellaneous accidents underground—		
Suffocation from gases resulting from blasts		4
Accidents on surface—		
Machinery accident	1	
Struck or run down by train	3	
Boiler explosion	1	

Explosion in rock house	1	
Miscellaneous	2	
		8
Total for 1908		47

Of the total number of accidents, 32 occurred in the Cobalt area, resulting in 30 fatalities.

From a close analysis of the fatalities in Ontario in 1908 it is found that 44.7 per cent. resulted from danger inherent in the nature of the work, 31.9 per cent. through neglect or carelessness of the management, 8.5 per cent. through the fault of a fellow workman and 14.9 per cent. through the fault of the injured person.

In the gold mines of the Transvaal in 1906 there were 815 employees killed. The deaths resulted from the following causes:

Explosives	199
Overwinding	15
Travelling in cage or skip	47
Struck by cage, skip or hauling rope	47
Travelling by ladders	14
Falling in shaft and excavation	67
Falling of materials	59
Fall of ground	198
Inundation by water	55
Winding ropes and connections	37
Tracks and tramways	17
Boiler and steam pipes	9
Machinery	16
Electricity	6
Miscellaneous	29

This is a death rate of about 5 per thousand men employed.

In the metalliferous mines in Spain in the same year, the total number killed was 272, or a death rate per thousand men employed of 2.30 per cent. These fatalities were apportioned as follows:

Fall of ground	70
Explosion of fire damp	3
Blasting	29
Suffocation	7
Inundation of water	1
Falling down shaft	37
Breaking of machinery	61
Miscellaneous	64

In four of the chief mining states of the United States in 1908 the following table shows the numbers of fatalities:

	Persons employed.	Deaths.	Deaths per 1,000 employed.
Colorado	34,790	82	2.36
Michigan—			
Houghton County	16,506	44	2.67
Marquette	5,840	22	3.77
Missouri	13,233	51	3.85
Montana	15,000	52	3.47

A large proporition of accidents will be classified by mine operators as unavoidable. It is quite true that a number of accidents do come under this heading. Certain accidents from explosives are very difficult to guard against; but, even from explosives, ignorance and carelessness are responsible for the greater number of the accidents. Possibly one of the greatest dangers, not easily avoided, is the fall of large blocks of ground, blocks that the ordinary scaling test of sounding will not detect. While sounding is a safe test for small pieces of loose ground, the foreman should see that the walls and roof are watched very closely for any sign of cracks or fissures in the rock. Shaft accidents are in the majority of cases inexcusable.

Accidents from Fall of Ground

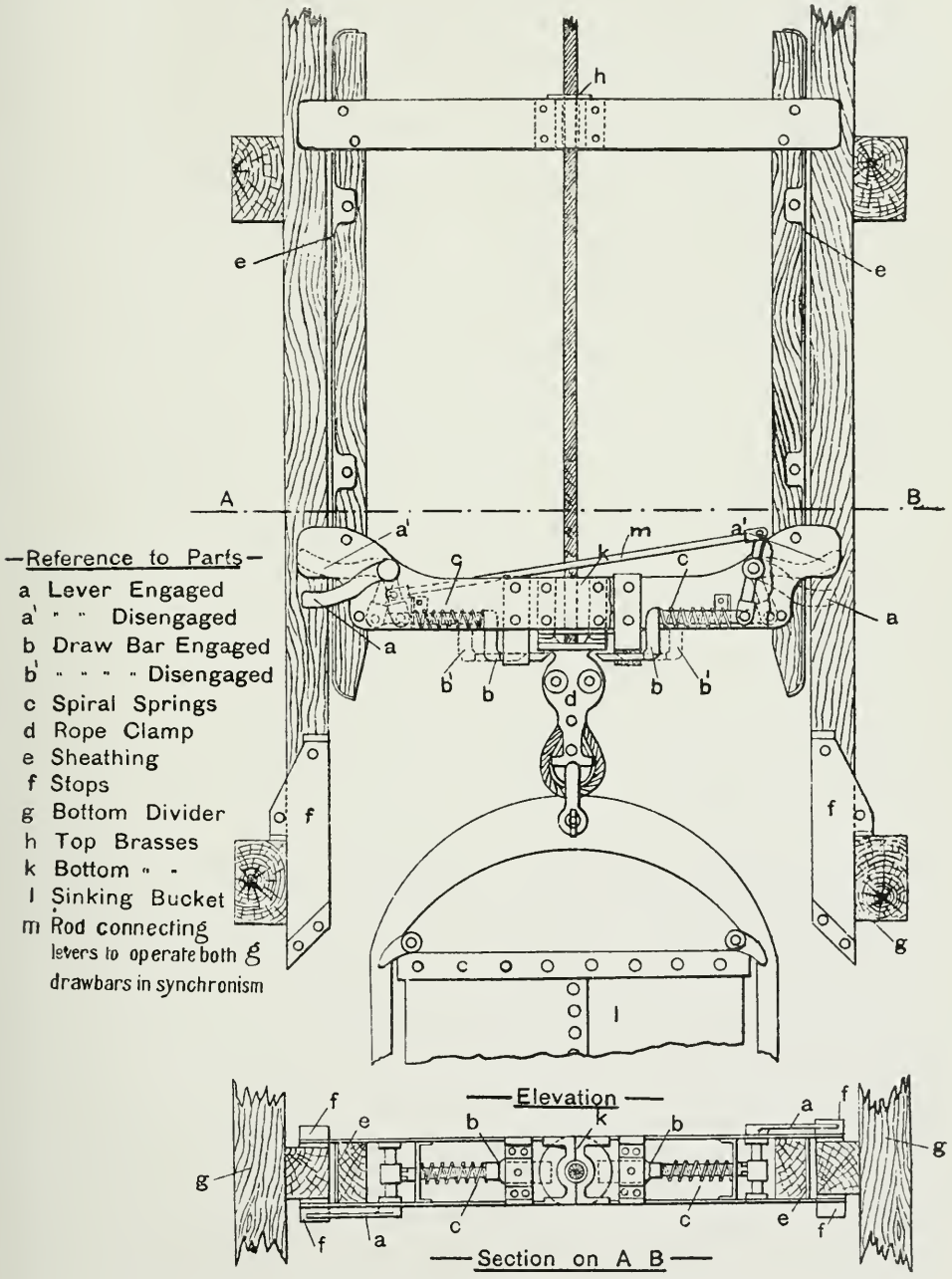
This is a class of accidents all too frequently classed as "unavoidable," but the responsibility for which rests both with the management and with the men. The management affirm that they always delegate their best men to do the scaling, and as they are usually the machine men and have to work under this ground, they will naturally wish to protect themselves. Superficially considered, this would appear to be a sound contention; but miners who have worked underground for years often come to regard the dangers of the occupation with contempt. Moreover, when the scaling should be done and in addition the drilling required of a shift, the men are not likely to waste any more time away from their machines than they can avoid. Hence the poor mucker is generally the victim, for the statistics show that this class of labor usually suffers the most from falling ground. In some mines it is found that the stopes are worked in such a way that it is almost impossible to keep the back properly scaled. This is due at times to the stinginess of the company in attempting to save money in carrying the levels too far apart for safe working, and at other times to the method of working, which makes the scaling of the roof practically impossible. In some mines supervision of the scaling of the stopes is so lax as to be absolutely useless. The manager relies on the superintendent, the superintendent on the foreman, and the foreman on the men. The foreman or shift boss cares more about making his hoist of ore large than he does about safeguarding the employees. It is often the practice of the superintendent to get the shift bosses "running" each other to produce the largest tonnage, and consequently they each try to throw the burden of scaling on the opposite shift, with the result that it is either not done at all, or else done very superficially.

In a low-grade mine tonnage is the big factor. The breaking down of floors on the level, leaving men working under a hanging of probably two, three or four hundred feet, which has not been scaled for years, and is, in fact, impossible to scale properly, is sacrificing human life to commercialism. The mucker is, as a rule, and at present in this country, a foreigner, usually lacking in sufficient intelligence to "size up" matters for himself. He has therefore to depend altogether on his fellow workmen in the mine to protect him, and this protection is not as a rule very great.

Shaft Accidents

In Ontario, during 1908, this class of accidents represented 27.6 per cent. of the total fatalities. These accidents occur chiefly from carelessness and violation of the recognized principles of safety in mines. The most prolific source of shaft accidents is bucket-riding. All of the accidents in Ontario from bucket-riding during the last five years have been caused by men riding in the bucket, not when sinking was going on between levels and the men were riding away from blasts, but when riding to and from work on the level. The mines in Ontario where buckets are used are for the most part shallow workings and the men, therefore, have no excuse for taking any unnecessary risk. The accidents are nearly all due to negligence on the part of the superintendent in enforcing the rules. Some superintendents attempt to excuse themselves by saying that it is impossible to prevent men riding in the bucket. Such excuses are inadmissible and are merely subterfuges to shirk responsibility. The practice of riding in the bucket while sinking shafts between levels is allowed by the laws of most countries, provided a chain ladder is always hanging in the shaft as an auxiliary means of escape. Very few accidents result from this compared with riding the bucket

from the levels. The use of crossheads in shafts has been condemned by a large number of mining men; but in several countries where inquiries have been made into their use, the consensus of opinion has been that the danger was lessened by the use of the crosshead, provided it was equipped with a safety appliance to prevent it hanging up in the shaft. The writer considers that where crossheads are used they should be either fastened so that they could not leave the bucket or else equipped with an approved safety appliance. In the Transvaal, the Berry safety catch, shown in the accompanying sketch, has given satisfaction.



The "Berry" Safety Catch, for Crosshead Guide of Sinking Bucket.

Accidents resulting from men falling into shafts both from the surface and from the levels are too common. Thé necessity of maintaining guard rails at shaft entrances at all levels of the mine cannot be too much emphasized. Not only should superintendents have all levels so guarded, but they should also see that the guard rails are always kept in position when the shaft is open. This need of guarding shafts is also applicable to winzes and stopes. When men will not or cannot protect themselves, it is the duty of the employer to protect them by all possible safety appliances. Another danger in shafts is from rocks or tools falling into the shaft either from the surface or from part way down. These accidents are practically all due to carelessness on the part of someone. Shafts in some instances are improperly protected by doors at the surface, so that material is liable to fall down the shaft when the bucket is dumped. Another danger is in leaving cars or trucks on the track near the shaft entrance at either the surface or level in such a position that a slight push or concussion from a blast causes them to move along the track into the shaft. Guard rails should always be of a sufficient height at the levels to stop any truck or car. Another danger is from loading material, such as steel or timber, into a bucket while the latter is hanging in the open shaft, or from carelessness in fastening it in the bucket. When a bucket is used, material should never be loaded into it unless it is resting on a door over the shaft or swung clear of the latter, for even a careful workman is likely to make a mistake on occasion and allow material to drop into the shaft. The men working in the shaft are at the mercy of the men on the surface, and any careless act should be most severely punished.

Cage accidents happen from a great many causes, the most dangerous being overwinding or the breaking of the cable. This has been a subject of much inquiry in those countries where mining is carried on at considerable depth. The chief dangers we have to contend with in Ontario are carelessness in giving signals and in getting on and off the cages. In shallow workings it is a question whether permitting the men to ride on the cage does not contribute to the dangers of the occupation. Workmen are careless, foremen are careless. Why should they be allowed to endanger their lives any more than is necessary? Another practice which is fruitful of accidents is allowing men to ride on the cages with cars loaded with steel, timber etc. These are liable to be jarred loose and catch in the timbers, causing a serious accident at any time.

Accidents from Explosives

The most prolific source of accidents from explosives is picking into them, either in old bottoms or when lying loose in the muck, or drilling into old bottoms. In shaft sinking there is a considerable danger from this source which is unavoidable, and this very fact should lead to increased caution. The driller firing a round of holes in a shaft should be very particular in counting the reports, and if there are any reports short, this should be reported in person to the next shift, who should also be notified just where the holes were drilled, so that in mucking out, due caution may be used in picking up the bottom. The old theory held by some miners, that if the exploder is taken out of the hole there is no danger, is a misconception, and miners should be so taught. Superintendents and foremen, who fail to instruct the men under them properly, or who neglect to see that the men exercise due care, are much to blame for accidents arising from this cause. Accidents occasioned by picking into a loose explosive which has got into the muck from a cut-off hole are difficult to guard against. A wise precaution when dynamite is used is either to take the wrapper off the dynamite cartridge or to slit it so that if the dynamite does get into the muck it disintegrates, and is so scattered that sufficient does not remain in one spot to do damage. Another safeguard is to keep the muckers from using the pick too strenuously. It is as effective when mucking in drifts to use the pick for pulling the muck down, as to sink it up to the eye, to the great danger of the workman. The latter practice is simply energy uselessly expended.

Another source of accident is the introduction of an explosive with which the men are not familiar. This is especially true in the cold weather when the explosive requires to be thawed. Dynamite is the explosive to which long use has accustomed all miners. When thawing it they judge its readiness for use by its pliability. Other explosives, such as gelignite, even if pliable may not be properly thawed, and in fact the latter is fairly soft when partly frozen In the condition near its freezing point, gelignite is most dangerous, as is also dynamite. Superintendents should see that all explosives are in the thawing house, exposed from 4 to 6 hours to a temperature of 85 to 90 degrees F. If warm water is used, the temperature of the water should not be above 125 degrees F. Care should also be taken that the explosive should not be removed from the thawing house in cold weather until the miner is ready to load his holes.

In Ontario last year five men were killed by accidents classified under the head of premature explosions. These can only be caused by the fuse running if the holes are properly loaded and tamped. Quick fuse is responsible for a very small percentage of the accidents attributed to premature explosions. The chief cause is not tamping the holes, thus allowing the fuse to spit into the hole. Other causes are carelessness with lighted candles, or smoking while the holes are being loaded. The writer has known instances where a snuff from a workman's candlestick has fallen into the drill hole when it was partly loaded. Such accidents are generally attributed to quick fuse, as the man very seldom survives to tell how it happened. It is, however, recommended that both high grade fuse and caps be used, and if found satisfactory that no change be made. The men get used to one brand of fuse, the length of time it takes to burn, and govern themselves accordingly The use of different brands which have different speeds of burning will confuse the workmen. It would be a step in the right direction if manufacturers were compelled to make a fuse that would have a burning rate between certain limits.

Some miners, and even foremen and superintendents, have the idea that if a hole has exploded it is perfectly safe to drill into it. The foreman who orders men to do so is taking criminal chances, and the men who act in this way of their own accord are tempting fate. Still, many accidents happen as a result of such foolhardiness. How can men be expected to avoid this risk when those in charge will permit it or order it done?

A serious accident from suffocation occurred in the summer of 1908 in a 50-foot shaft near the Montreal river. The accident took place at a time in the summer when the atmospheric conditions were such that the gas from the explosives used in blasting hung heavily in the shaft. At such time increased precaution should be taken by the workmen to get the gases out of the shaft before entering it, no matter how shallow the workings. A little care taken in running the bucket up and down the shaft will generally clear it of impure gases. Some authorities suggest a spray of iron sulphate solution as a means of getting rid of poisonous gases from explosives. This might be applied with success in drifts in mines, in which, by reason of their length, the gases hang heavily after an explosion.

Accidents on the surface are generally due to carelessness or from the lack of reasonable precautions. Boiler explosions, if the boilers have been kept properly cleaned and regularly inspected, are nearly always due to insufficient water.

Accidents to workmen caught in machinery in power houses, smelters or concentrators, are almost always attributable to the fault of either the workmen themselves, or to the neglect of the management in failing to properly guard the machinery.

Conclusion

A study of the detailed returns of mine accidents in Ontario, during 1908, will show that while some of the accidents were strictly unavoidable, others were attributable to such causes as improper mining methods, failure of appliances, lack of proper

supervision, and carelessless or ignorance of the miners. It has been suggested, and the writer believes such is the practice in some mining camps, that the mine managers should turn over for prosecution to the civil authorities any workman who is guilty of a dangerous act. This might be beneficial and under the present law could be done by laying information before the Inspector or Crown Attorney; but in a number of cases the foreman or superintendent would rather shield the guilty party, than lay information against him, if the offender happens to be one of his best workmen.

Lack of discipline in the mines, particularly in the Cobalt area, and lack of supervision are the two chief causes for a large number of accidents there. When we consider that 32.6 per cent. of the accidents which resulted in fatalities in 1908 in Ontario, were caused by neglect, carelessness or incompetence of mine managers, we are presented with a condition of affairs obviously requiring radical improvement. A lack of discipline and supervision, besides increasing the danger of the work, indicates a lack of mine efficiency and so influences detrimentally the cost of the output. This lack of supervision often results in some of the workmen being permitted to go underground while under the influence of liquor, in which condition they are a danger both to themselves and to those working with them. A fatal accident in the mine, apart from the fact that a life has been sacrificed, is very expensive for the mine itself. The whole mine force is disorganized for the time, the men are affected thereafter by the thought that another accident may happen, and this decreases the efficiency in their work while the cost of suits for damages brought by the relatives of deceased workmen, may often aggregate a considerable sum. The total loss to the company from a fatal accident would in most cases pay several times over for maintaining the mine in a proper manner, and for the adequate supervision of the mine workings. The manager of a mine should not depend altogether on those under him for the safety of the mine workings, for it is his duty to inspect those workings personally and to see that the mine is in a safe condition for his workmen. If he does not do this often, how is he to know that the superintendent and shift bosses are doing their duty? In a number of cases it is to be feared that shift bosses spend too much of their time inspecting a soft seat in the boiler house, or a warm spot alongside the pump, to properly supervise the work in the mine. It is not alleged that our mines do not have enough officials, as in some cases there are possibly too many and the work is shifted from one to the other until no one does it properly, but it is contended that the managers in a number of cases do not personally see that the mining work is properly looked after by their assistants.

There is no doubt that in a "boom camp" such as Cobalt has been during the last three years, there is a spirit of feverish speculation and unrest that tends to the disorganization, lack of discipline and loss in efficiency of both the men and those in charge. The excitement of stock speculation and the prospect of making money through the staking, and buying and selling of claims is too absorbing to admit of their entire time being devoted to their work at the mine. Careful foremen, conscientious superintendents and vigilant managers, who try to guard against all possible accidents and are always on the alert to prevent them, will, in time, instil into the minds of the men a like degree of care and regard for their own safety; while on the other hand if they are careless and reckless about the work of the mine, they can only expect their men to be the same, and they will have themselves to blame if the men do foolhardy things. It should be the first care of all mine managers to keep their mines in as safe a condition as possible. If this is done a higher degree of efficiency can be obtained, as the manager can gather around him the very best miners and keep them.

MINES OF ONTARIO

BY E T CORKILL, Inspector

I.—NORTHWESTERN ONTARIO

As in 1907, the greatest amount of actual mining work done in northwestern Ontario in 1908 was in the Upper Manitou Lake area.

Towards the latter part of the year a number of prospectors came out from Sturgeon lake with stories of rich gold strikes. A number of claims have been staked and recorded, and with the present facilities for getting to the lake, it is to be expected that considerable prospecting will be done during the present year. Sturgeon lake is by no means a new field. The Sixth Report of the Bureau of Mines contains a reference to the discoveries of gold there. In the Twelfth Report Dr. W. G. Miller describes the work done at the St. Anthony mine and the geology in the vicinity of the mine. Until the fall of 1908, when the Superior branch of the Grand Trunk Pacific railway was completed, the lake was difficult of access. A large deposit of iron pyrites has been opened up near the junction of the N. T. railway and the Superior branch of the G. T. P. railway. It is expected that shipping will be commenced with the opening of navigation in 1909.

The iron industry near Port Arthur has been dull during the year. Some of the silver mines on the Port Arthur and Duluth railway have been re-opened, but only small shipments have yet been made.

Upper Manitou Lake Area

There were several properties here doing work in 1908, but the greatest activity was at the Laurentian mine.

Laurentian Gold Mine

Work has been carried on continuously at this mine since the inspection in 1907. The shaft has been sunk to the 400-foot level and development on the several levels actively carried on. On the first level the south drive is 270 feet in length and the north drift 190 feet. At a point 220 feet from the shaft a raise has been put up 35 feet and ore stoped out for 30 feet in length. On the second level at a depth of 200 feet the north drift has been driven 150 feet, and at 100 feet north of the shaft on this level, cross-cuts have been driven east 10 feet and west 20 feet. A stope has been carried up on this level to a height of 45 feet by about 80 feet in length. On the third level at a depth of 300 feet, the north drift is 180 feet in length and south drift 20 feet. At a point in the drift 165 feet north of the shaft cross-cuts have been driven east 15 feet and west 10 feet. About 150 feet north of the shaft a stope has been carried up 50 feet by 40 feet in length.

On the fourth level a station has been cut west of the shaft and drifts have been run north and south on the vein 100 feet and 75 feet respectively.

Instructions were given regarding riding in the skip, guard rails around the shaft openings, and the quantity of explosive to be kept in the thawing house.

The 20-stamp mill on the property was kept in operation the greater part of the year on the mine output.

Mr. R. B. Nickerson is superintendent, employing 30 men.

Paymaster Gold Mine

The main shaft on the Paymaster mine, owned by the Northern Development Company, was at the time of my inspection of the mine 300 feet in depth. No additional work was done on the first level of the mine beyond that described in former

Laurentian gold mine.

Detola gold mine.

reports. On the second level a cross-cut has been driven west 15 feet to the vein. Drifts have been run north 145 feet, and south 35 feet on the vein. At a point 45 feet north of the shaft a cross-cut has been driven east 45 feet and at the end of the north drift another in the same direction 45 feet. On the third level cross-cuts have been run 85 feet and 20 feet east and west from the shaft respectively. The vein was found on this level to have dipped across the shaft and a drift has been run on it from a point 20 feet east of the shaft a distance of 65 feet.

The shaft has been timbered, guides put in and hoisting done by bucket, a cross-head being used.

Instructions were given regarding ladder way and riding the bucket and the location of the boiler house.

Mr. Geo. Thow, the superintendent, informed me that plans were being prepared and preparations made for the erection of a stamp mill.

This mine is situated about one half mile southeast of the Laurentian.

Detola Gold Mine

Development work has been carried on continuously during the year on mining location H.W. 411, which lies north of the Paymaster and east of the Laurentian, by the Detola Mining and Development Company. Mr. G. R. Earley is superintendent.

The main shaft has been sunk to a depth of 105 feet and a new head frame erected. At the time of my inspection a new power plant was being installed consisting of two 50-h.p. return tubular boilers, a 3-drill straight line compressor and a 10 x 12-inch reversible hoist. The shaft was being re-timbered and preparations made for sinking it to a greater depth.

Victory Gold Mine

The Victory mine was in operation part of 1907 but closed down about the first part of 1908. While in operation the shaft was retimbered and straightened and some cross-cutting and drifting done on the first level.

Mr. J. Beck was superintendent in charge.

Minnehaha Gold Mine

This property, owned by the Minnehaha Mining and Smelting Company, is situated on the north side of Minnehaha lake opposite Beaudro's landing. All work at the property ceased in May, 1908, after having been carried on for about five months. The main shaft was formerly 100 feet deep and from the bottom of this shaft a 25-foot cross-cut was run. Some trenching was done and a prospect pit sunk to a depth of 25 feet. Mr. C. Good was in charge of the work.

Lake of the Woods District

The mining industry in this district remains in the same condition as last year, there being no increased activity. No work of importance was done at any property except the Violet mine, owned by the Empire Gold Mining and Milling Company. This mine lies about 18 miles south of Wheeler station on the Canadian Pacific railway, from which place access is obtained to the mine by way of Lake of the Woods, Whitefish bay and several small rivers and lakes. A 2-stamp mill was erected during the winter of 1907.

Sturgeon Lake

There was considerable prospecting in the Sturgeon Lake area last year. Some quartz samples fairly rich in gold were brought out by the prospectors, causing an influx of men to stake claims. The older properties on which considerable work has been done were, however, lying idle most of the time.

The work done at the St. Anthony Gold mine was fully described in the Seventeenth Report of the Bureau of Mines. Work at this mine was continued until the early part of the summer of 1908, when all operations ceased.

At the time of my inspection in August, 1908, little work was being done other than assessment work at any of the properties on the lake. The Superior branch of the Grand Trunk Pacific railway is in operation, so that access to the lake is now by way of the railway from Fort William to Wako, and thence by boat to the various mines. During 1909 access to the different parts of the lake will be made easy by steamboat connections, a couple of fairly large boats being placed on the lake mainly for hauling supplies for the National Transcontinental railway which passes to the north of the lake.

Cut 72 feet deep, Grand Trunk Pacific railway, near Vermilion pyrite mine.

Most of the activity during the last six months of the year was in the vicinity of Belmore bay, where both the Douglas Mining Company and the Belmore Bay Gold Mining Company have been operating at intervals for a couple of years. The gold occurs in a quartz gangue, sometimes intimately associated with galena and zincblende. Some of the quartz veins in the vicinity of the lake are of considerable width but are then not so heavily mineralized. At the St. Anthony mine the vein was open cut at the surface for about 150 feet along the vein, and 25 feet in depth. At some places in this open cut the vein was 20 to 25 feet in width. This was nearly all milled, but I was unable to ascertain the value of gold extracted per ton of rock crushed.

The present accessibility of the lake will no doubt help greatly in the systematic development of some of the prospects. Prospectors who are familiar with the Keewatin rocks find a very similar occurrence on the eastern and southern sides of the lake. The west shore of the north arm of the lake is mostly Laurentian.

Vermilion Pyrite Mine

This mine has been described in former reports of the Bureau of Mines as the Northern pyrite mine, but the above name is that given by the present company.

On February 1st, 1908, development work at the mine received a set-back through the destruction by fire of the boiler house. A new boiler house was immediately erected and two 60-h.p. locomotive firing boilers were brought in and set up. The old hoist and compressor were found to be fit for use.

The shaft was, at the date of my inspection on August 3rd 1908, 154 feet deep with levels at 85 feet and 145 feet. On the first level a cross-cut has been driven south across the ore body 74 feet. A drift has been driven east on ore on the hanging wall side of the vein 50 feet and on the foot wall side east 110 feet and west 30 feet. These drifts are all in ore. On the second level a cross-cut has been driven across the ore

Vermilion mine, Northern Pyrites Company.

body 64 feet in length. As the shaft is vertical and sunk in the hanging wall it encountered the ore body near the first level. On the second level a cross-cut had to be driven north 16 feet from the shaft to reach the hanging wall. The vein is found to be dipping to the north at an angle of 61 degrees to the horizontal. The ore has been found by test pits 400 feet east of the shaft and 150 feet west, and again 350 feet west on the shore of the lake. A new shaft is being sunk in the foot wall of the deposit, having the same inclination as the vein. The vein is a hard, fine-grained pyrite, running from 45 to 48 per cent. sulphur. Parallel with the vein and about the centre of it, is a band or lens of quartz, shown to be about 12 feet in width where it has been cross-cut. The surface in the vicinity of the vein has a thick overburden. It has thus been impossible to see the relation of the quartz to the ore on the surface, or the walls of the vein. The rock appears to be a greenstone schist. About 400 feet south of the

vein is an outcrop of diabase about 30 feet in diameter. It is, however, impossible to detect its relation to the greenstone schists.

The shaft house is 55 feet in height with a shoot leading over a grizzly to a car where it is trammed to the stock piles.

An aerial tram to the Grand Trunk Pacific is to be built.

Instructions were given regarding riding the bucket.

Mr. J. Webb is superintendent in charge, employing a force of 30 men.

Atikokan Iron Company

No work has been done by this company either at the mine or the furnace since last inspection. The management has been changed, and it is hoped that operations will be resumed during the present year.

Port Arthur Silver Mines

Attempts were made during last year to re-open several of the old silver mines on the line of the Port Arthur and Duluth railway. No great success has as yet attended any of the efforts. A little work was done in one or two of the mines during the year. The West End Silver mine was kept pumped out for part of the year, but little or no mining work was done. The Porcupine, situated a couple of miles west of the Beaver mine, was pumped out and some exploratory work done. The most work accomplished in the district was at the Beaver mine, about 7 miles from Stanley Junction.

Beaver Mine

This mine has been re-opened by the Beaver Superior Silver Mines, Limited, of which Mr. Wm. Snider of Waterloo, Ontario, is president, and Mr. Henry C. Gibbs, New York, secretary-treasurer and manager.

No mining work was being done at the time of my inspection, the operations consisting of erecting a concentrating mill. This mill is being built by the Canada Pulverizers, Limited. The scheme of concentration is to feed the ore to coarse crushers, from which it is fed to four pulverizers, working in series. The pulp from these pulverizers passes to three concentrating tables.

The mining work done by this company consisted chiefly in following out some of the richer shoots in the stopes between the levels above the main adit level. Very little work has been done in the lower levels. The old dump, near No. 2 shaft, is to be treated in the mill first, the ore to be taken down through the No. 2 shaft and trammed out of the main adit level to the mill, which is built 100 feet distant from the mouth of the adit.

II.—SUDBURY AND THE NORTH SHORE

There has been very little change in the developments in the mines in this area during 1908. The nickel-copper mines near Sudbury, owned by the Canadian Copper Company and the Mond Nickel Company, have been operated continuously. Both these companies now use electric power at their mines and smelters. The Mond Nickel Company began using electric power at Victoria Mines in April 1909.

A few of the copper mines on the north shore were in operation; only small shipments, however, were made. The Bruce Mines have again changed hands, this time being bought by Mr. R. W. Leonard, of St. Catharines and associates. Work was resumed at the mine late in 1908, after about 1½ years' idleness.

The copper smelter erected at Thessalon has not yet started to smelt ore.

In the Michipicoten district the Helen iron mine continues to produce largely and to be the mainstay of this section. A few of the gold properties were re-opened, and the mill at the Grace mine was in operation the greater part of the year.

Gold

Havilah Mine

This mine was formerly known as the Ophir mine and is referred to in the reports of the Bureau of Mines for the years 1892, 1893 and 1902. It is situated on the north half of the south half and the south half of the north half of lot 12 in the third concession of the township of Galbraith, district of Algoma, about 18 miles north of Bruce Mines. The Havilah Gold Mines, Limited, secured possession of the property in February, 1909, and have been engaged since that time in cleaning out the old adit, getting in machinery and repairing the buildings and stamp mill. Mr. John Knight, of Bruce Mines, is president of the company and Mr. S. H. Bryant manager. The shaft and adits were inaccessible at the time of my inspection on June 8th, 1909, but from the surface it can be seen that at least three shafts have been sunk. The main adit was being cleaned out and timbered, the old timber in it having given way. The 20-stamp mill with engine and boilers is in fairly good repair. A compressor and hoist were brought in during the winter and will be set up as soon as the old workings are cleaned out.

Canadian Exploration Company

This company is opening up a gold property in township 69 about one mile south of Long Lake and nine miles south of Naughton. Mr. Geo. E. Drummond is managing director, and Mr. R. H. Hedley, superintendent. A shaft has been sunk on the ore to a depth of 100 feet and some testing done on surface. The ore consists of arsenopyrite and chalcopyrite in quartzite. The mineralized zone as shown by the gossan capping is about 90 feet in length and 70 feet in width outcropping on a quartzite ridge which is cut in places by diorite. To the south of this ridge granite is found. The property was originally owned by Major Leckie of Sudbury.

A power-plant consisting of a 200-h.p. water tube boiler and 10-drill compressor is being erected. A road from Naughton to the mine has been built by the Company.

Canadian Copper Company

Creighton Mine

During the summer of 1908 both No. 1 and No. 2 shafts at the Creighton nickel mine were worked and ore raised from the open cut. During the winter the work in the open cut was discontinued and all mining work confined to No. 2 shaft on the third and fourth levels.

No. 1 shaft is now at a depth of 320 feet with the third and fourth levels at 210 feet and 300 feet, while No. 2 shaft, which is sunk at a lower angle, is 390 feet with third level at 265 feet, and fourth level at 370 feet. The second level remains much the same as described in the last Report, except that the open cut has been widened and lengthened, now being 420 feet long on the level and 520 feet on the surface, with an average width of 160 feet on the level and 300 feet on the surface. On the third level No. 1 shaft the drift in line with the shaft has been run 170 feet north. This drift is connected with the cross-cut from No. 2 shaft by a drift 320 feet in length. On this drift at 70 feet from No. 2 shaft a section has been cut out on the ore body 260 feet by 75 feet. On the fourth level station has been cut at No. 1 shaft but no drifting done. At No. 2 shaft on this level a cross-cut has been driven 80 feet to the ore body, where a section has been cut 140 feet by 60 feet. On the third and fourth levels at No. 2 shaft the system of dry wall filling has been introduced, the filling and walls here being of ore, which will be recovered on the caving of the floor below. By this system the men are always within a short distance of the roof of the stope and the muckers are also protected in the tramways.

Mr. William Hambly is superintendent.

Quartz Mine

The quartz mine near Naughton was worked part of the year. A deposit of quartz is being opened up by the company about 8 miles east of Sudbury near the main line of the Canadian Pacific railway.

Cobalt Refining Plant

This plant, for the treatment of silver ores from the Cobalt camp, was in operation during 1908. No marked changes have been made in the process by which the silver is extracted.

Nickel-Copper Smelting Plant

The only changes made at the smelter during the year were the completion of the converter plant and relining department, the rebuilding of the old cupolas and the

Creighton nickel-copper mine, showing buildings and partial view of open cut.

construction of two new ones. The plant is now equipped with 5 large cupolas arranged in row down the centre of the building, with the converter building alongside and parallel to it.

The officers of the company are: Mr. A. P. Turner, president and general manager, Mr. John Lawson, general superintendent, and Mr. D. H. Browne, smelter superintendent.

Crean Hill Mine

An average production of about 300 tons of ore per day was maintained during the year. No sinking was done, the work consisting chiefly in operating the stopes on the first, second, fourth and fifth levels. A new system of mining is being introduced in the mine, namely, the dry wall and filling system. A certain percentage of the ground broken is rock, which was hoisted to the surface before this system was introduced. Now, the sorting is done in the stope and the rock used for filling and building the dry walls. Raises have been put through to the surface from the several levels and waste rock let down into the stope to be used to keep the filling up to within working distance of the roof of the stopes. The approximate area of the stopes on the different

levels as worked at present is as follows: first level open cut, 120 feet by 90 feet, at surface 190 feet by 140 feet; second level 240 feet by 80 feet; third level, floor broken through to fourth level; fourth level, 180 feet by 140 feet; fifth level, 150 feet by 80 feet. Raises have been put through between the different levels. Preparations are in progress for sinking the shaft to the sixth level.

The surface equipment remains the same as formerly described.

Mr. H. C. Meek is superintendent, employing about 400 men.

Crean Hill nickel-copper mine.

Mond Nickel Company

The Mond Nickel Company shipped from both the Garson and Victoria mines during 1908. The production from the Victoria mine was curtailed owing to inadequate power. In August part of the aerial tramway between the smelter and the roast yard and the mine was destroyed by fire, which caused the smelter to be run on green ore for a time and finally to be closed down until the tram was repaired.

The power plant at Wabageshik falls on the Vermilion river, Lorne township, is now completed and is furnishing power to both the smelter and the mine.

Victoria Mine

With the installation of electric power and a new hoist and compressor, the Mond Nickel Company is in a position to carry the mine workings to a greater depth. Work is at present being done on the sixth, seventh, eighth, ninth and tenth levels. On the sixth level men are engaged scaling, preparatory to breaking through the floor. On the seventh level the floor of the west ore body is being broken down. On the eighth level the ore from the seventh level floor is being trammed out. Stoping has also begun below the eighth level floor on the east ore body, the ore being stoped out by means of underhand stoping to a raise from the ninth level. On the ninth level a section is being cut on the east ore body and the ore stoped from the west ore body above the level is being trammed from chutes. On the tenth level the section is being cut on the west ore body. The ore bodies are dipping to the east and the shaft is vertical; the ore is thus farther away from the shaft on each successive level. The distance between the eighth and ninth and between the ninth and tenth levels is 150 feet each. The shaft is being sunk below the tenth level, a depth of 50 feet having now been reached.

The new power plant at the mine consists of a double drum hoist, 6-foot drums driven by a 250-h.p. motor, drums working singly or in balance, and an air compressor developing 1,700 cubic feet of free air per minute, belt driven by a 300-h.p. motor. The hoist has a capacity of about 3 tons to a depth of 2,000 feet, hoisting at a rate of 1,000 feet per minute. The pumps in the mine are all driven by compressed air.

Instructions were given regarding hoisting men and scaling the roofs.

The smelter of the Mond Nickel Company at Victoria Mines is being remodelled. During the first part of the year electric power was introduced to drive all the blowing engines and pumps. The two furnaces have been enlarged to 180 by 44 inches and two new converter-stands are being installed.

Garson Mine

But little stoping was done at this mine during the year, the shipments having come from the levels, where full sections, 10 feet high, of the ore bodies are being cut.

On the first level at a depth of 100 feet, stope 11 has been continued south to 270 feet south of main cross-cut. The ore body is of varying width. Stope 12 has been followed to 230 feet south of cross-cut parallel to and west of stope 11. Stope 15 has been continued to 240 feet north of the cross-cut, and is 20 to 30 feet wide. A drift 130 feet long has been run from stope 15 to stope 14, which is 50 feet by 25 feet in area.

On the second level at a depth of 200 feet a cross-cut has been driven west 40 feet, where a drift has been run south 120 feet to stope 21, which is 160 feet long by about 50 feet wide. Stope 22 north is a long, narrow ore body, widening in places, and extends 250 feet northeast of the shaft. A drift 90 feet in length has been run from stope 22 to stope 23, which is 140 feet long by 30 feet wide.

On the third level, depth 200 feet, the ore bodies are nearly in line with the shaft. A drift has been run 175 feet south to stope 31, which is 180 feet in length and of irregular shape. From the drift to stope 31, a drift has been extended 231 feet northeast through stope 33. From the shaft to stope 32 is 100 feet north, and the stope is 160 feet in length by about 20 feet in width.

On the fourth level, depth 400 feet, the ore bodies are east of the shaft. The cross-cut east is 20 feet in length; from this drifts have been run south 40 feet and north 30 feet to stopes 41 and 42, which come together 60 feet east of the shaft. A pillar is thus left between the ore body and the shaft 80 feet in length by 30 feet in width.

The shaft has been sunk to the 500-foot level where a station is being cut. Instructions were given regarding guard rails at the shaft openings.

Mr. A. Sharp is resident superintendent.

Worthington Nickel Mine

Work was carried on at this mine during part of 1908 but closed down in the fall of the year. No opportunity was thus afforded for an inspection since last Report, or for seeing what work had been done.

Whistle Nickel Property

No extensive work was done on this property during the year. Some diamond drilling was done and a shaft sunk 50 feet.

It is owned by the Dominion Nickel Copper Company, of which Mr. J. N. Glidden is manager.

Copper

Bruce Mines

This property was bought in the latter part of 1908 by the Bruce Mines, Limited, of which Mr. R. W. Leonard is president, and A. Longwell general manager. This company started work at once, and have since that time been working continuously underground with the exception of a few weeks lost time, caused by the burning of their power house in February, 1909. Work is being done chiefly on the fifth level. No. 2 shaft and third and fourth level west, No. 4 shaft. No. 2 shaft is 450 feet in depth and from the lower level drifts have been run on the vein east and west for a distance of 180 feet and 25 feet respectively. The fourth level of No. 2 shaft has been connected with the fourth level of No. 4 shaft by a drift 1,000 feet in length, this company having driven about 140 feet for a connection. All the hoisting from No. 2 working is done by means of a hoist on the third level, the rock being trammed to the abandoned stope, west, and the ore to the stope, east of the shaft, which has been partially stoped out. On the fourth level between Nos. 2 and 4 shafts a stope has been taken out of the roof to allow timbers to be put in for stoping. On the third level west between Nos. 2 and 3 dikes, stoping is being done.

No material change has been made in the surface plant. The boiler and power house was built to replace the one destroyed by fire and the machinery repaired. No work has yet been done at the concentrating mill, though some of the ore has been shipped from the mine for experimental purposes.

Instructions were given to put No. 2 shaft in proper condition.

Hermina Mine

No work was being done at this mine at the time of my inspection in March 1909, other than sinking the shaft from the 400-foot to the 500-foot level. Since last inspection work has been done on the second and third levels on both the east and west drifts on the ledge. On the second level east, a stope has been put up 13 feet by 27 feet in length. On the third level east, a stope has been put up 46 feet by 26 feet in length and west 18 feet high by 27 feet long. On the fourth level the stope is 25 feet high and 28 feet long.

A change has been made in the officers of the Company. Mr. James Chynoweth is president and general manager, Mr S. C. Chynoweth secretary, and Mr. Thomas Bowhay, superintendent.

Moose Mountain Iron Mine

The Moose Mountain iron mine did not send out much ore during the year, although some shipments were made. The docks at Key Inlet have been completed and it is expected that a regular output will be maintained during the season of navigation in 1909.

Michipicoten Area

Helen ron Mine

This mine, owned by the Lake Superior Corporation, continues to be the only large and steady producer of iron ore in Ontario. During the period of navigation from 900 tons to 1,000 tons per day are raised. It has been the policy of the company to stock-pile considerable ore during the winter when no shipping can be done. This custom was not carried out last winter, there being only such ore stock-piled as was taken out in development work.

No. 1 shaft has been deepened 50 feet, it now being 396 feet in depth, or the depth at which the fifth level is being run. The cross-cut from the fifth level station No. 1 shaft, has been driven 60 feet towards the No. 2 shaft, August 14th, 1908. It was the

Helen iron mine.

intention of the company to do all the development work on the fifth level during the winter, so that stoping could be begun with the opening of navigation. Most of the ore shipped during 1908 was taken from the fourth level. This level was being worked in manner similar to the third level, except that pillars were being left closer together. No iron pyrites was taken out in 1908. The ore on the north side of the ore body on the fourth level shows a distinct bedded structure, as if laid down or deposited by the action of water.

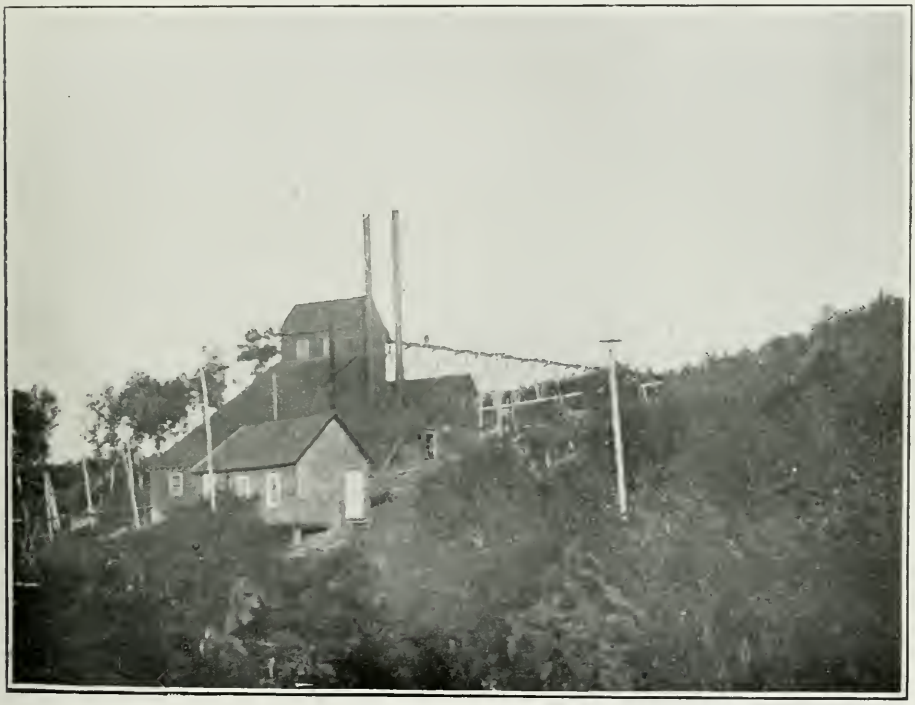
An average analysis of the ore now being shipped shows it to run as follows:

	Per cent.
Fe	59.4
S	.07-09
P	.13

Mr. A. A. Alsip was superintendent employing about 150 men, Mr. R. W. Seelye being general superintendent.

Grace Gold Mine

The Le Page Gold Mining Company, of which Mr. Angus Gibson is manager, operated the Grace mine continuously during 1908. On the first level at a depth of 100 feet the ore has been stoped out for 150 feet along the vein and to the level. In the north drift on this level, 90 feet from the shaft, a cross-cut has been driven east 40 feet. At 150 feet north of the shaft a winze has been put through to the second level stope. At the second level 200 feet in depth, the drifts north and south are 100 feet and 180 feet in length. The north stope has been carried through to the first level, while south of the shaft stoping is being done. On the third level at a depth of 300 feet, drifts have run north and south 80 feet and 50 feet respectively. No stoping has been done on this level.



Stamp mill, Grace gold mine.

The 10-stamp mill was run steadily throughout the year. The mill is driven by a 50-h.p. electric motor, the air compressor, developing 545 cubic feet of free air per minute, by a 100-h.p. motor, and the hoist by a 50-h.p. motor with type 167-B Westinghouse controller. From 20 to 25 tons of ore per day are being milled.

Golden Reed Claims

The Golden Reed Mining Company have acquired mining claims Nos. 1239, 173, 174 and 175. Mr. M. Gates of Sault Ste. Marie, Michigan, is president of the company, and Mr. F. M. Dale, secretary-treasurer and manager.

The shaft on claim 1239 is 46 feet deep on an incline of 60 degrees. It was sunk at the junction of two veins, one running north of east, the other at right angles to it. The mill is erected a short distance from the shaft and the ore is hoisted direct from the shaft into the mill. A crusher, Huntingdon mill and plates have been put in

the mill and a couple of tests made. The company claim to be waiting for electrical power to operate mill, and negotiations have been opened for obtaining it from the Algoma Power Company. Some work was being done on another discovery or claim No. 133, where some quartz showing free gold was seen.

Blueberry Claims

About two miles south of the Golden Reed and just east of the road, Mr. John Flynn is prospecting for Mr. A. H. Boyce of Minneapolis. Work was being done in a couple of places on the claim, consisting of stripping and sinking test pits.

Norwalk Mine

This property was formerly known as the Manxman, and is last described in the Eleventh Report of the Bureau of Mines. It has been taken over by the Norwalk Min-

Golden Reed stamp mill.

ing Company, of which Dr. W. E. Gill is president and Mr. Samuel Moore, general manager.

The shaft has been sunk on the vein, which dips at an angle of 45 degrees and has an east and west strike, to a depth of 138 feet, with a level at 110 feet, where drifts have been run east 25 feet and west 25 feet. Electric power is obtained from the Algoma Power Company at High Falls and a 50-h.p. motor has been installed to drive the air compressor. A new 6-inch by 8-inch hoist has been put in and the 40-h.p. return tubular boiler is kept in reserve.

Algoma Power Company

This company have installed a power plant at High Falls on the Michipicoten river, about 10 miles from the Mission. The effective head of water at the falls is 128 feet. The bulk head is fitted with opening for a 10-foot flume, but only a 7-foot wooden

Stamp mill, Norwalk gold mine.

Power development at High Falls, Michipicoten river.

flume has yet been constructed One unit has been installed, consisting of a 450-K.W. generator developing at 600 R.P.M. to 10,000 volts, at which voltage the current is transmitted to the mines. Two other units of the same size can be installed at the power house. The latter is built of concrete.

Mr. W. Chartrand is superintendent of the plant.

III.—TEMISKAMING

Cobalt and Vicinity

The centres of activity in this district in 1908 were Cobalt, South Lorrain, Elk Lake, Miller Lake and Gowganda. At the Cobalt mines the production nearly doubled that of 1907, there being 19,437,875 ounces of silver produced in 1908 compared with 10,023,311 ounces in 1907. This increased production demanded increased working forces at the mines. It was also augmented by the addition of several new shippers, of whom Crown Reserve was the largest. No attempt is made in this Report to describe all the claims on which work is being done, only the shipping mines and those propects on which considerable work has been done being mentioned. In the township of Lorrain and southeast Coleman work was begun on a number of prospects during the latter part of the year, but these have not been inspected as yet, as work on them consisted of trenching, sinking test pits, building camps, etc., rather than actual mining. Nearly all the production comes from the mines in the vicinity of Cobalt and Kerr lakes. At the mines and prospects in the Cobalt area proper there were employed on an average during 1908 from 3,500 to 4,000 men working above and below ground.

The number of accidents reported from the Cobalt mines in 1908 was 23, resulting in 21 men killed and 9 injured. The general subject of Mining Accidents is dealt with in another part of this Report.

At all the shipping mines power plants have been installed, consisting of boilers, compressors, electric light plants and hoists. The Taylor Hydraulic Compressed Air Company is developing a power at Ragged Chute on the Montreal river, with the object of supplying power to the mines of Cobalt. This power is developed in the form of compressed air by the Taylor system of air compression. Air at a pressure of from 80 to 100 pounds is to be piped to Cobalt, a distance of about 8 miles, where it will be sold to the mining companies at about 50 per cent. of the present cost of power. The power company expects to have the plant completed and air delivered to the mines at Cobalt some time during 1909. The Beach Bros. are developing the water power at Hound Chute on the Montreal river and the Mines Power Company the power at the mouth of the Metabitchewan river with the object of selling electric power to the mines and also to the towns of Cobalt and Haileybury. When power from these three companies gets into the camp, the working costs at the mines will be materially reduced. At present coal costs from $5.50 to $5.75 per ton f.o.b. Cobalt, a price which even with the best of plants makes the cost of power from $100.00 to $120.00 per h.p. per year.

The question of the concentration of the lower grade ores has become an important one in the camp. On the first of April, 1909, there were seven concentrating mills in operation, two of which were custom mills, and two other mills were in course of erection. The seven mills in operation treat about 400 tons of rock in 24 hours. With the completion of the O'Brien and Colonial mills now being constructed, and the additions to the mills that are at present in operation, it is expected that the tonnage treated per 24 hours will be from 900 to 1,000 tons.

In South Lorrain there was considerable prospecting in 1908. A few of the companies were engaged in mining work, but the majority devoted most of their energies to trenching and test-pitting. A shipment of ore was made from the Keeley mine early in 1908. The map of South Lorrain accompanying Mr. A. G. Burrows' report

in Part II. of this Report will show the location of the various properties. Several steam plants have been taken in and a gas producer plant has been installed at the Keeley mine.

Montreal River

In the Montreal River area, more particularly in the township of James and adjoining townships, very little active mining work was done until the latter part of the year, though considerable prospecting, trenching and test-pitting was done on the claims that had been staked. During the winter of 1908 active development work was begun on a number of properties in this area. Several plants consisting of boilers and compressors have been installed, besides a number of small boilers and hoists for development work.

In the Maple Mountain area, townships of Whitson and Van Nostrand, active work was carried on by the Canadian Ores, Limited, on the claims staked by the White Bros. Several other companies were also engaged in doing assessment work and prospecting their claims.

Miller, Everett and Gowganda

During the summer of 1908 discoveries of silver and cobalt ore were made in the vicinity of Miller and Everett lakes in the townships of Nicol and Haultain, causing a rush to this region. All the land in the vicinity of these lakes was staked and the prospectors drifted west to Gowganda lake, where a discovery of silver was made by the Mann Bros. just before the close of navigation. This caused another rush, and, as the winter set in shortly after the discoveries, the rush and boom have continued all winter. The land for miles away from the discoveries has been staked, the only requisite seemingly being that the rock shall be diabase, which formation appears to be the one in which the greater number of silver discoveries have been made in this area. Several properties have been sold by the original owners for a large sum; others on which no discoveries of importance have been made are changing owners in about the same way as real estate. In most instances no examination of the property is made by competent men; all that is required to make a claim saleable is that the rock shall be diabase and near some well known and well advertised claim. When one claim favorably situated is sold for a large sum, the price of the claims adjoining rises in consequence, not because valuable mineral has been found on them, but simply from the speculative enhancement of values.

During the first three months of 1909 several hundred thousand dollars were spent on supplies and haulage. Haulage of freight to Gowganda during the winter was by two routes, one by way of the Temiskaming and Northern Ontario railway to Charlton and thence by team to Elk Lake and Gowganda, the other by way of the Canadian Northern railway to Sellwood, thence by team to Gowganda, a distance of probably 65 miles. The cost of haulage to this new camp was excessive. Mining companies paid about the first price of their plant in getting it transported from the railway to their property. Several compressors, boilers and hoists have been taken to Miller lake and Gowganda and are being installed at the most important claims.

No extensive mining work has been done at either of the above places as yet, but it is to be expected that during the present year considerable development will take place. Numbers of prospectors are going into this section and the present year will see a steady exploration of the unprospected areas to the west and northwest of Gowganda. Prospectors should not overlook the conglomerate areas in their rush after the diabase, as 85 to 90 per cent. of the silver production from Cobalt has come from the conglomerate, and, although the majority of the veins in the Montreal river and Gowganda areas have been found in the diabase, there is still the possibility of discovering another productive area of conglomerate.

Larder Lake

There was very little activity in mining at Larder lake during 1908. A large number of the claims that were staked during the boom were cancelled for non-compliance with the working conditions. Some of these have been taken up by other parties and are being prospected. Stamp mills have been erected at three different properties on the lake and have been run at intervals. No systematic development has yet been done on any of the properties. A great deal of money has been foolishly squandered by men in charge of the work who had little or no knowledge of mining.

When the public begin to realize that money haphazardly spent on claims is in the great majority of instances absolutely wasted and that only intelligent development work counts, we shall have taken a great step towards placing the mining industry on the sound and legitimate basis which is its due.

Following is a description of the principal mines in the Temiskaming District arranged alphabetically. The location of the mines can be seen by referring to the maps of the Cobalt area, South Lorrain, Montreal River and Gowganda, published by the Bureau of Mines. The amount of ore shipped and the dividends paid by the various mines is given on preceding pages of this Report.

Cobalt Silver Mines

Argentite

At the time of my inspection of this property on January 21st, 1909, it was being worked under lease from the Argentite Mining Company by W. J. White.

No. 1 shaft had been sunk to a depth of 125 feet. No. 2 shaft, about 700 feet west of No. 1, had been sunk to a depth of 25 feet and sinking was being continued. A diamond drill was also at work.

A 60-h.p. boiler, straight line compressor and hoist have been installed near No. 1 shaft.

Instructions were given to have the ladder way put in at once to the bottom of the shaft and to have the hoist way separated from the ladder way.

Badger

Inspection was made of this mine on November 21st, 1908. At that time all work was confined to No. 6 shaft, which has been sunk to a depth of 200 feet. The first level is at a depth of 100 feet, where drifts have been run east 50 feet and west 75 feet. The station was being cut at the 200-foot level preparatory to drifting. A number of other shafts, described in the Sixteenth report of the Bureau of Mines, have been sunk on the property to test the veins.

During the winter of 1908 and 1909 a new power plant was installed, consisting of two 100-h.p. boilers, compressor and hoist. A new power house and camp buildings have also been erected.

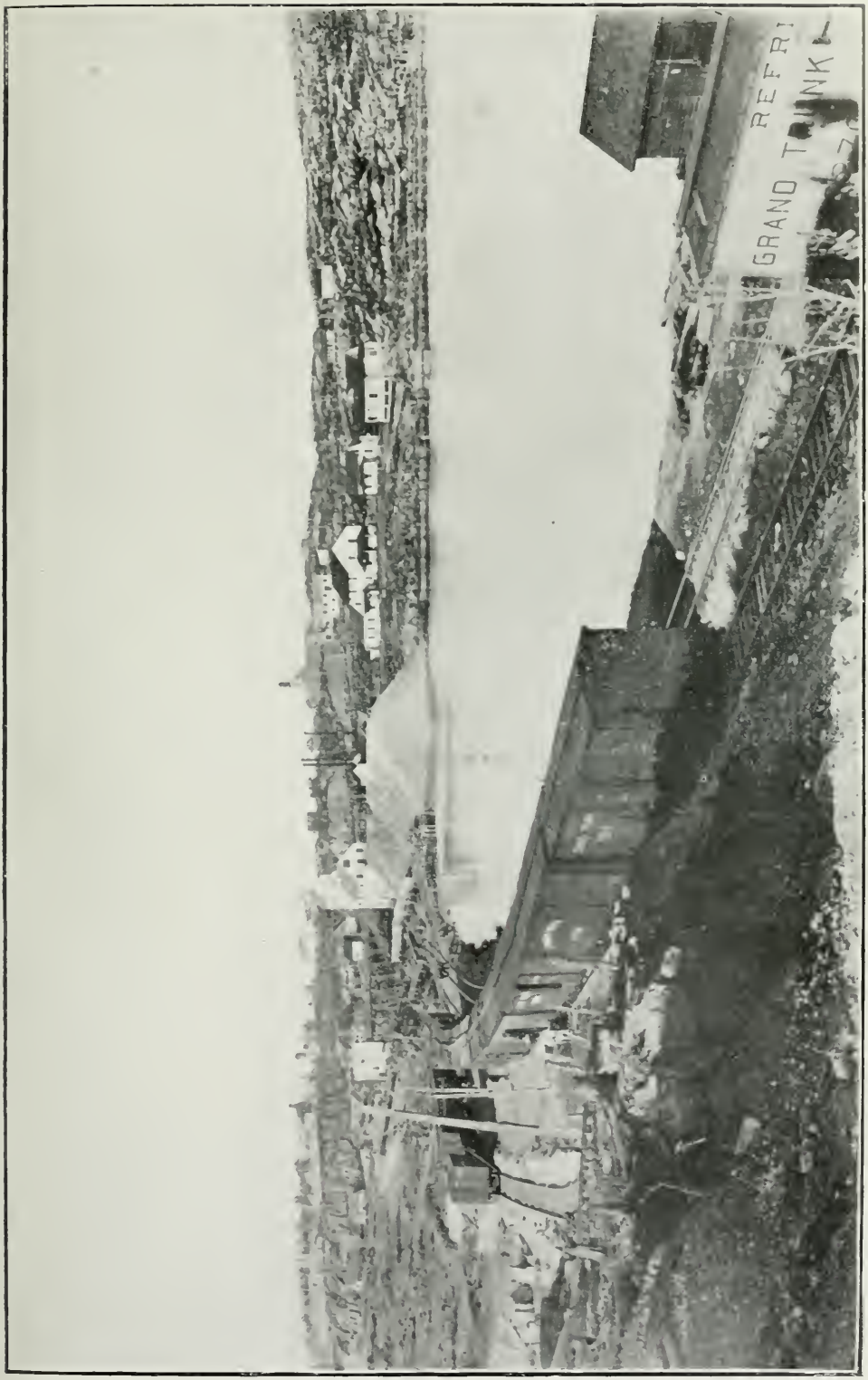
Instructions were given as to timbering the shaft and enforcing the law regarding men riding in the bucket.

Mr. A. A. Smith is manager for the owners, the Badger Mining Company.

Beaver

This mine is owned by the Beaver Consolidated Mining Company, Mr. A. J. Hewitt being superintendent, and Mr. Robt. A. Bryce consulting engineer.

No. 1 shaft has been sunk to a depth of 200 feet and No. 2 shaft, 261 feet west of No. 1, to a depth of 75 feet. At the 75-foot level the two shafts have been connected by a cross-cut. From No. 1 shaft a cross-cut has been driven east about 300 feet and some drifting done on the calcite veins cut. On the 200-foot level a cross-cut has been



North end Cobalt Lake, showing Right of Way, La Rose, O'Brien and Chambers-Ferland mines. Part of Cobalt town swept by fire, July 2, 1909, on left.

driven west 75 feet and east 325 feet, and a little drifting done. In April, 1909, the power house was destroyed by fire, but the work at the mine was continued, power being obtained from the Temiskaming mine, which adjoins the Beaver to the south.

Bailey

This property was operated under lease in 1908 by the Standard Cobalt Mines, Limited, the operating company of the Cobalt Central mine.

On the first level an adit has been driven from the shaft a distance of 120 feet, and on the second level a drift from the shaft southeast on the vein 60 feet. From the latter drift a winze has been sunk a depth of 50 feet, and a little drifting done. On No. 2 vein a drift has been run from the Cobalt Central line northwest a distance of 250 feet.

The management was the same as that of the Standard Cobalt Mines, Limited.

Buffalo

During last year all the underground workings at the Buffalo mine were connected. The ore is thus trammed underground to the main hoisting shaft No. 6, where it is raised to an overhead tram which leads into the concentrator. No work has been done on No. 6 vein first level since last Report, except breaking down some ore in the stopes. On the second level the drift has been driven east to connect with No. 5 shaft. A little ore has also been broken down in this stope. On No. 5 vein, first level, the drifts described in the last Report have been continued a short distance. Timbers have been put in and the ore is being broken down, only sufficient ore being drawn from the stopes to provide working room. On the second level of No. 5 vein the drifts have been driven on the vein corresponding with the drifts on the first level. Timbers have also been put in here, and some ore broken down. None of the stopes on this level have been carried up more than 20 feet. All the stoping done on the ore is by the overhand method. The main cross-cut from No. 6 shaft to No. 3 vein on the first level is 714 feet in length. At 406 feet from No. 6 vein a drift has been run east 225 feet on a small vein. On No. 3 vein the drift has been continued west a total distance from the cross-cut of 231 feet. From the east drift on the vein 167 feet from the cross-cut, a cross-cut has been driven north 46 feet to another vein having a strike east and west. A winze has been sunk just north of this vein to a depth of 75 feet and drifts run northwest 125 feet and east 60 feet. A cross-cut has been driven to No. 3 vein on this level and 170 feet of drifting done on it. The drift on the first level of the continuation of No. 4 vein east is driven to veins No. 10 and 11, which have been open cut to a depth of 25 feet. No. 12 shaft on the southeast corner of the claim has been sunk to a depth of 180 feet with levels at 80 feet and 140 feet respectively. On the first level drifts have been run on the vein northeast 175 feet and southwest 122 feet. At 73 feet from the shaft on this drift, short drifts have been run on off-shoots from the vein. Timbers have been put in preparatory to stoping, but very little ore has been broken down. On the second level drifts have been extended northeast 76 feet and southwest 50 feet. No stoping has yet been done on this level.

The main shaft house at No. 6 shaft has been raised to a height of 70 feet and the construction strengthened, so that the ore can be delivered at the top of the mill. The mill has been enlarged and the capacity increased, but the same system of concentration is used as that described in the last Report. The part of the mill for the cyanide treatment of the tailings is completed, but is not yet in operation.

A new stone boiler house has been erected with a battery of four boilers, two 100-h.p. and two 125-h.p. capacity.

Mr. Tom R. Jones is general superintendent.

Casey Cobalt

The Casey Cobalt Silver Mining Company, with Mr. James Rennie as manager, have been working continuously on their property, situated on the southeast quarter of the south half of lot 5 in the first concession of the township of Casey, about ten miles northeast of the town of New Liskeard.

The shaft has been sunk on the vein, which dips to the southeast at about an angle of 70 degrees, to the depth of 220 feet, with levels at 33 feet, 100 feet, 160 feet and 220 feet. The following drifts have been run on the first level, southwest 110 feet; on the second level, northeast and southwest 95 feet and 155 feet respectively, on the third level northeast 40 feet and southwest 120 feet. In the southwest drift a cross-cut has been driven north 30 feet. The shaft has been sunk in Huronian slate and conglomerate interbedded. A station and sump were being cut on the fourth level at the time of my inspection.

A power plant has been installed, consisting of two 40-h.p. boilers, a straight line compressor and hoist. A power house, office, shaft house and boarding camp have been erected.

Instructions were given to have the ladder way partitioned from the hoisting way, and landings put in

City of Cobalt

Work has been going ahead steadily at this mine since last Report. The main shaft has been sunk to a depth of 210 feet and levels opened up here. The first level remains about the same as described, except that a long prospect drift has been driven from the shaft north 230 feet to the boundary of the Nancy Helen property, then east 210 feet, then north again a distance of 295 feet, the end of the drift being just north of the jail on Nickel street, the total length of the drift being 735 feet. On the second level much work has been done and a considerable tonnage of ore taken out. The east drift on the vein is 215 feet in length and the west 75 feet, which takes it to the Buffalo line. From the east drift a drift has been run southeast 65 feet, where another vein was found, on which 150 feet of drifting has been done. From the westerly end of this drift a cross-cut has been driven south along Galena street 230 feet and then east on lot 478 a distance of 75 feet.

On the third level at 200 feet in depth, the vein is found about 25 feet south of the shaft, and drifts have been run east and west 145 feet and 70 feet respectively, also southeast 65 feet to connect with the winze from the second level south vein. A winze is being sunk in the drift west from the shaft. It is the intention to sink this winze to the next level, drift to the shaft and raise it. Considerable stoping has been done on all the levels. All the stopes that have been worked lie under Miller avenue.

A new power plant was installed during 1908, consisting of two 125-h.p. return tubular boilers, 12-drill tandem compound compressor, and hoist. A new power house was also erected.

Mr. B. W. Leyson is manager for the company and W. J. Donaldson mine captain.

Coniagas

Work was carried on continuously during 1908 at the Coniagas mine. The officers of the company remain the same with the addition of Mr. R. P. Rogers as assistant to president R. W. Leonard.

The underground work has been carried on, on both the 75-foot and 150-foot level. The mill has been changed and enlarged, so that it has a capacity at present of about 80 tons per 24 hours. Some stoping has been done, but the development work supplies the mill with a large amount of its tonnage.

The work on the first level of the mine was fully described in the last Report. During 1908 the work done consisted chiefly in extending the drift on the veins, cutting out the roofs of the drifts and putting in timber preparatory to stoping and breaking

down ore in the stope on the northerly veins on the property above the first level. The work on veins Nos. 8 and 9, the most southerly veins, has been carried on, about 260 feet of drifting being done on No. 8 and 200 feet on No. 9. On No. 9 veins a winze has also been sunk.

On the second level a drift has been driven west on the vein known now as No. 6 vein, formerly described as No. 3 vein, a distance of 210 feet and a raise put through to the first level in the vein. The vein continues east and southeast from the shaft, and has been drifted on for a distance of about 300 feet. A number of off-shoots from the main vein have also been tested. A cross-cut has been driven north to the No. 2 vein, a distance of 200 feet, and drifting on it to the east begun. There was a total of about 2,100 feet of drifting done in 1908.

The main shaft house on No. 6 vein is 85 feet in height, and the ore is hoisted in a self-dumping skip, which dumps into a shoot leading into the mill. The shaft is also equipped with pockets for filling the skip. A new hoist of increased capacity has been installed for the No. 2 shaft. This is placed in the engine house of the mill.

The concentrating mill has been remodelled by the installation of 30 stamps, doing away with the ball mill and Huntingdon mill for fine grinding. Additional tables have also been installed for handling the increased tonnage. A gas engine is used for driving the mill and electric light plant.

Mr. F. D. Reid is mill superintendent. A force of 125 men are daily employed at the company's works.

Cobalt Central

With the exception of diamond drill work on some of the outlying properties, the Standard Cobalt Mines, Limited, (the operating company of the Cobalt Central Mines Company), have confined their operation to their property on Glen lake.

The main shaft has been sunk to the third level at 180 feet in depth and a level driven from this. The first level remains about the same as formerly described, except that the stope on the No. 1 vein has been carried up about 50 feet for a length of 165 feet. On No. 2 veins stoping has also been done on this level west of the main drift for about 200 feet along the vein; part of this stope, however, is on the Bailey property. On the second level the main drift on No. 1 vein has been run to the No. 2 vein, a distance of 175 feet. On No. 2 vein, which is practically at right angles to No. 1 vein, an adit has been driven. This adit is 440 feet in length. West from this junction of veins Nos. 1 and 2, the vein has been followed 160 feet to the Bailey boundary. A considerable amount of stoping has been done on both Nos. 1 and 2 veins. On the third level, drifts have been driven to correspond very nearly with the drifts on the No. 1 and No. 2 veins on the second level. A drift has been driven on stringers from the No. 2 vein west 180 feet. At 80 feet from the shaft on the No. 1 vein a drift follows a stringer to the southwest 45 feet, where the diamond drill showed up some ore. A winze has been sunk from this drift to a depth of 75 feet and drifts driven east and west on the vein 50 feet and 40 feet respectively.

In sinking the winze from the third level, at a depth of 50 feet below the level, Huronian slate was encountered. This shows the diabase to have a thickness at this shaft of 230 feet. On the west side of Diabase Mountain the slate out-crops and is seen to have a dip to the east. The encountering of the slate at the Cobalt Central shows that the slate must dip quite uniformly to the east at about 14 feet per 100 feet. The vein has been found to be continuous from the diabase into the slate.

The capacity of the concentrating mill has been increased by the introduction of a tube mill for fine grinding, and of new screens and tables. The same scheme of concentration is in vogue as that described in the Sixteenth Report. The capacity of the mill is now about 80 tons per 24 hours. Some custom work has been done for the mines in the Kerr Lake area.

A new water tube boiler was installed during 1908.

Instructions were given regarding hoist and cage, and to have the ladder way boarded off from the hoist way in the shaft, and to maintain a ladder way in winze.

Mr. Jacob M. Young is superintendent, employing about 125 men.

Chambers-Ferland

The Chambers-Ferland Mining Company, Limited, are working on that section of land surrounding La Rose Mine as shown on the Cobalt map.

No. 1 shaft has been sunk on the continuation of the No. 10 vein on La Rose. The first level of La Rose is an adit level. On the Chambers-Ferland the shaft is 90 feet in depth, and has been sunk on the vein on an angle of the claim between La Rose and the O'Brien. The drift is being driven on the vein 190 feet from La Rose boundary. The shaft is being sunk to the second level, it being now 50 feet

Crown Reserve silver mine, showing exposed bed of Kerr lake.

below the level. The stope on the vein has been carried up 35 to 40 feet. No. 2 shaft is situated south of La Rose and is 85 feet in depth. From this shaft drifts have been driven west 280 feet, south 215 feet, east 135 feet and north 70 feet.

Instructions were given at this shaft regarding thawing the dynamite and having ladder way lined from hoisting way.

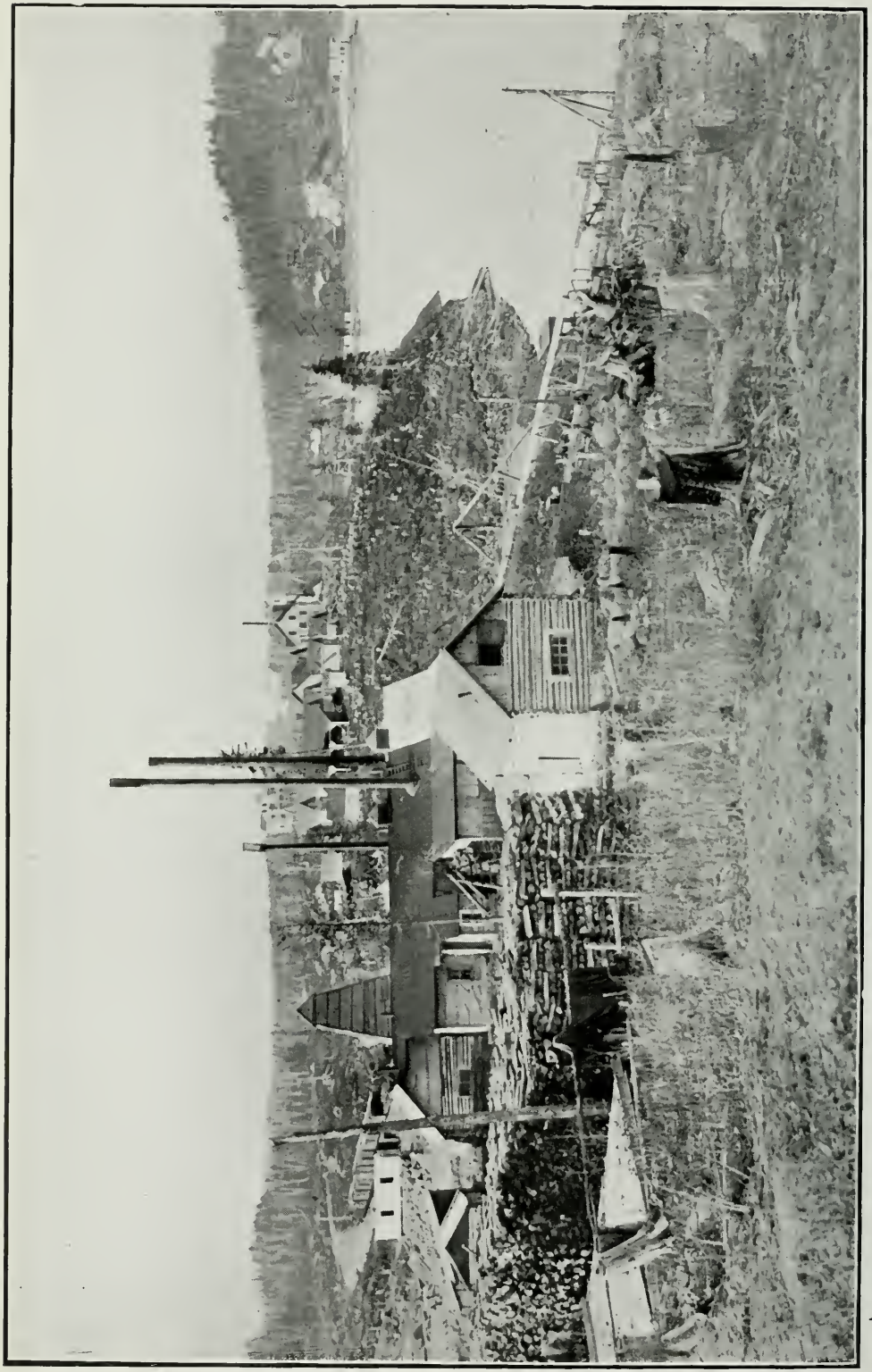
Contract work is also being done from the Right of Way shaft by that company on the Chambers-Ferland property on what is supposed to be a continuation of La Rose main vein. Some drifting has been done on it and a raise is being put through to the surface to be used as a permanent shaft.

A new power house has been built and plant installed, consisting of boiler and compressor.

Mr. W. H. Jeffery is superintendent in charge, employing about 50 men.

Crown Reserve

The Crown Reserve Mining Company have during 1908 been actively engaged in mining work, and have during the last six months been shipping regularly. The vein



Kerr lake, showing Drummond, Kerr Lake, Crown Reserve, Silver Leaf and Cobalt Central mines.

was first opened up by an open cut about 35 feet long near the Silver Leaf line. A main shaft has however been sunk off the vein to a depth of 100 feet, where a cross-cut of 25 feet was driven to the vein. Drifts have been driven from this cross-cut west on the vein 160 feet to the Silver Leaf line and east 100 feet to the Kerr Lake water claim J.B. 11. The shaft on the vein near the Silver Leaf line is being sunk to another level. Very little stoping had been done on the main vein at the time of my inspection. The cross-cut from the shaft has been continued north under the lake, a distance of 200 feet. At a distance of 170 feet from the shaft in this cross-cut, a prospect drift is being driven east, a distance of 140 feet having been attained. All the hoisting is now done through the main shaft.

The power plant consists of one 100-h.p. return tubular boiler, a 6-drill 2-stage compressor, hoist and electric light plant. A larger plant is to be installed during 1909.

The ore is roughly sorted underground, hoisted separately, and delivered into separate bins. The rock is put through a gyratory crusher and reduced to 2-inch size. This passes over a trommel which gives three products, under half inch, one-half inch to inch, and over-size. The fines are sacked, the middlings one-half inch to one inch are jigged, and the oversize passes over a travelling picking belt, where the ore is picked out by hand.

Mr. S. Cohen is manager of the mine, employing about 125 men.

Instructions were given to have the power magazine moved to a location conforming with the requirements of the Mining Act.

Coleman Development

The Coleman Development and Calumet Mining Companies have been amalgamated under the name of the Pan-Silver Mining Company, Limited. This company controls the south half of the north half of lot 2 in the third concession of Coleman. No. 1 shaft, sunk on the Calumet property to a depth of 100 feet, has been connected on this level with the No. 2 shaft on the Coleman Development property 230 feet northwest. From the No. 1 shaft a drift has been run south 120 feet and from the No. 2 shaft north 310 feet. Some 100 feet of drifting has been done on stringers encountered in the main drift. Another shaft has been sunk on the east shore of Brady lake to a depth of 100 feet and some drifting done.

Instructions were given as to timbering the shafts and putting in proper ladder ways.

A straight line compressor, 80-h.p. boiler and hoist have been installed.

Mr. Norman R. Fisher is manager and Mr. M. McCallum superintendent.

Columbus

Prospecting work was carried on continuously at this mine by the Columbus Cobalt Silver Company, Limited, during 1908. The main shaft has been sunk to a depth of 240 feet. On the first level at 75 feet a cross-cut has been driven east 30 feet and drifts run north 150 feet and south 40 feet. On the second level at a depth of 150 feet a cross-cut has been driven east 100 feet and drifts driven north 150 feet and south 75 feet. The station has been cut at the 240-foot level.

The mine was handicapped in 1908 by having its power house and camp buildings burned. New buildings were, however, at once erected and power plant, consisting of a 100-h.p. tubular boiler, a 5-drill straight line compressor and hoist, was installed.

Instructions were given to have the ladder way put in good condition, and to prohibit men riding in the bucket.

Mr. Wm. Shovells is superintendent, employing a force of 20 men.

Cobalt Lake

The work of prospecting under Cobalt lake was continued throughout 1908 by the Cobalt Lake Mining Company.

The north or No. 1 shaft was deepened to 140 feet, and a level run at 127 feet. The work on this level consisted of an easterly drift to the boundary at the end of the lake of 92 feet, a westerly drift down the shore of 141 feet, and a northerly drift toward the other side of the lake 383 feet.

Work was continued on the first level of No. 4 shaft. The north cross-cut was extended to a distance of 733 feet and the south cross-cut to a distance of 909 feet. The drift on the No. 3 vein was extended west 118 feet and considerable stoping done.

No. 4 shaft was deepened to 162 feet, with a second level at 154 feet, on which a cross-cut was made to the north 123 feet. A drift was run toward the west shore of the lake 448 feet. A raise was put on No. 3 vein from the second level to meet a winze from the first level on the No. 3 vein.

No. 6 shaft was deepened to 143 feet, with a level at 133 feet, on which drifts were run 267 feet to the east and 414 feet to the west along the McKinley-Darragh boundary.

Shaft houses have been erected at No. 1, No. 4 and No. 6 shafts and hoists installed. All pumps and hoists are operated by compressed air.

Mr. D. B. Rochester is managing director, and Mr. E. L. Fraleck, superintendent An average force of 60 men is employed.

Cobalt Town Site

No work was being done in the No. 1 shaft of this mine at the date of my inspection. Two shafts have been sunk on the north side of the property near the Buffalo mine 125 feet apart. The easterly shaft is 100 feet deep, and has a drift west 75 feet and east 75 feet. A drift was being driven south 25 feet on the vein from the west drift. The shaft 125 feet west is 65 feet in depth. Drifts have been run east to the easterly shaft and west 75 feet. On a cross vein between the shafts some stoping has been done.

The power plant near No. 1 shaft furnishes air for the operation of the drill and hoist.

Instructions were given regarding guard rails and ladder way.

Mr. B. W. Leyson is manager.

Colonial

Mining work was carried on at intervals during the year, but the mine was not in operation at the time of my inspection on January 23rd, 1909. At that time, however, the foundation was being prepared for a concentrator.

Mr. G. W. McCaskell is in charge of operations.

Century

The Century Silver Mining Company is working on the east half of the northeast half of the north half of lot 1 in the sixth concession of Coleman. A shaft has been sunk to a depth of 165 feet.

Instructions were given to have shaft timbered before further sinking was done.

Power was furnished by small upright boiler and hoist.

Mr. E. R. Mohr is superintendent.

Canuck

On the southwest quarter of the south half of lot 13 in the second concession of Bucke, the Canuck Silver Mines Cobalt, Limited, have sunk a shaft 100 feet in depth and have begun to drift. No more work was allowed to be done until shaft was timbered and new cable procured.

Mr. D. K. Martin is manager for the company.

Drummond

All work underground at this mine had ceased at the date of my inspection with the exception of work at one cross-cut, which was being driven southwest from the first level, 200 feet having then been driven from the shaft. The mine was full of water to the first level. During the year the main workings were connected with No. 2 shaft, a distance of 300 feet, and on the second level a drift was driven north under the lake. Considerable diamond drilling was being done on the property.

Mr R. W. Brigstocke is manager.

Davis Fraction

On the fraction west of the Rothschild and adjoining the Gillies Limit, Mr. H. P. Davis and associates have been prospecting and sinking test pits. One shaft has been sunk to a depth of 85 feet. Instructions were given as to timbering the shaft and strengthening the derrick.

Mr L. H. Barthe is in charge of the work.

Floyd

The Floyd Silver Mining Company, Limited, with Mr. Algernon P. Seymour as manager, have been opening up a prospect on the northwest quarter of the south-half of lot 1 in the second concession of Bucke. A shaft has been sunk 115 feet with the first level at 46 feet. On this level drifts have been driven west 40 feet and east 20 feet.

A 10-h.p. boiler and small hoist have been installed.

Instructions were given as to timbering the shaft and the building of a proper magazine.

Farah

During the latter part of the year considerable diamond drilling was done on this property, which is situated on the northeast quarter of the south-half of lot 3, in the fifth concession of Coleman. Surface prospecting work was also carried on. Camp buildings have been erected and preparations made for beginning mining at once.

Mr. Alex. H. Smith has recently been appointed manager.

Foster

All the work at the mine is now being carried on through No. 5 shaft. This shaft is 210 feet deep, with levels at 70 feet, 140 feet and 210 feet. On the third level drifts are being run north to follow the vein under Glen lake, and south towards No. 6 vein. A little drifting is also being done on the cross vein encountered south of the shaft. On the second level drifts have been driven north on the main vein and south to No. 6 vein. A drift is now being run on this vein On the first level the work is about as formerly described, except that a winze has been sunk to the second level from the vein south of the shaft. Connection has been made on this level between No. 5 and No. 6 shafts. Considerable stoping has been done on these upper levels. During the summer a shaft was sunk 40 feet deep on the discovery vein near the shore of Glen lake.

Mr. J. McDonald is superintendent in charge.

Green-Meehan

The Green-Meehan and Red Rock mines have been amalgamated under the name of the Consolidated Silver Cobalt Mines, Limited. At the date of my inspection, December 10th, 1908, the Red Rock mine was not in operation. At the Green-Meehan the main shaft was found to be 100 feet deep. Drifts have been driven north 125 feet

and south 175 feet and 75 feet of cross-cutting done. The other shafts on the property were not pumped out.

Two 100-h.p. boilers have been installed, and a straight line compressor.

Instructions were given as to riding in bucket and guarding the shaft.

Mr. Geo. Leyson was superintendent in charge, employing a force of 25 men.

Gould Consolidated

The Gould Consolidated Mines Company have obtained a lease on the south end of Cart lake. Two shafts have been sunk on the east shore of the lake about 400 feet apart, 65 feet and 80 feet deep respectively. From the deeper shaft drifts have been begun at the 75-foot level. It is the intention of the company to connect the shafts

Foster Cobalt silver mine.

underground, and also to drive out under the lake. Work at the shafts has been done chiefly by contract, air being obtained from the Nipissing mine.

Instructions were given to have the shafts properly timbered.

Hargrave

Work was resumed on this property by the Hargrave Silver Mines, Ltd., in the latter part of 1908 after having been closed for a couple of years. Settlement between the company and the Crown was effected by the company agreeing to pay a royalty on the output.

A shaft had been sunk to a depth of 100 feet and a cross-cut driven to the vein 45 feet. About 20 feet of drifting had been done on the vein. The company at present are sinking the shaft, it being their intention to sink to at least the 300-foot level before cross-cutting to the vein. Air for the drills and hoist is obtained from the Drummond mine.

Mr. E. V. Neelands is manager for the company.

Kerr Lake

Work was carried on continuously during 1908. The shaft on No. 3 vein has been sunk to the fifth level, a depth of 320 feet. The work done on this vein above the third level was described in the last Report of the Bureau of Mines. During 1908 the drift on the third level south was extended to a distance of 225 feet and 140 feet north. Considerable stoping has been done on this level. On the fourth level at a depth of 240 feet drifts have been driven north 60 feet and south 190 feet. A winze was first sunk 110 feet south of the shaft on the vein and a drift driven to the shaft, station cut and shaft raised. On this level stoping is also being done. On the fifth level the winze has been sunk from the fourth level a depth of 60 feet and drifts driven south 90 feet and north 110 feet to the shaft. The shaft was being raised at the time of my inspection. No stoping has been done on this level. On the second level 85 feet south of the shaft a cross-cut has been driven west 360 feet and on the same level 90 feet north a cross-cut driven northwest 320 feet.

All the work on the north side of the property is carried on through No. 7 shaft. This shaft has been sunk to a depth of 209 feet. The work during 1908 was confined chiefly to the second and third levels. The second level at a depth of 140 feet has drifts run south 580 feet and north 180 feet. Cross-cuts have been driven from the shaft west 240 feet and east 420 feet to connect with vein No. 9. On this vein 80 feet of drifting has been done on this level, and a cross-cut driven south from it 80 feet. On the No. 7 vein on this level considerable stoping has been done. On the third level at a depth of 200 feet a drift has been driven south 120 feet and north 340 feet. This north drift is mostly under the lake. A drift has been started on a stringer from this main drift west towards the Crown Reserve vein. Some stoping has also been done on this level.

A shaft called the Railroad shaft has been sunk near the Kerr Lake branch to a depth of 83 feet. Drifts have here been driven south 75 feet and east 50 feet.

New thawing houses and magazine have been built.

Mr. S. R. Heakes is manager, employing a force of 100 men.

Kerr Lake Majestic

The Kerr Lake Majestic Silver Mining Company began operations on the east half of the south east quarter of lot 3 in the fifth concession of Coleman in January, 1909. A power plant consisting of two 125-h.p. return tubular boilers, a 12-drill tandem compound compressor and hoist have been installed. A shaft has been sunk to a depth of 75 feet.

Mr. Wm. Powell is managing director, and Geo. Young, superintendent.

Kerry Lease

The Kerry Mining Company have obtained a lease on the northern part of Cart lake and a lease on 20 acres of Peterson lake, south of the Little Nipissing lease. On the Cart lake lease a shaft has been sunk to a depth of 85 feet and drifting begun on the west shore of the lake near vein 86 on the Nipissing. A shaft house has been built and two upright boilers and 3-drill straight line compressor installed. Camp buildings have also been erected on the west shore of the lake.

On the Peterson lake lease a shaft has been sunk to a depth of 65 feet and head frame erected. Air for the drill and hoist is obtained from the Nipissing Company.

Mr. Herbert E. Jackman is manager for the company.

King Edward

Work was done by the King Edward Silver Mines, Limited, in 1908, on both the Watts and King Cobalt properties. The general plan of development work outlined in the last Report has been followed during the year, the drifts on the main veins

having been extended and the stopes put in shape for getting out the ore quickly and cheaply. A cross-cut has been driven west from the No. 1 shaft, a distance of 190 feet. From the end of the main adit some diamond drilling has been done, to test the veins that have been located on the surface on the western side of the lot. Two shafts have been sunk on veins on the western side of the claim to a depth respectively of 50 feet and 80 feet. From the deeper shaft drifts have been extended 100 feet north and south.

On the King Cobalt location, No. 6 shaft has been sunk 50 feet, and an adit driven from the face of the cliff to the shaft 50 feet, where drifts have been run on the vein north 100 feet and south 110 feet. No. 4 adit south of No. 6 has been driven 110 feet west. No. 2 adit south of No. 4 has been driven west 230 feet. A drift 75 feet in length has been run north from this adit.

A 10-stamp mill has been constructed on the Watts property just south of the mouth of the main adit. The ore is first fed to a gyratory crusher which reduces it to an inch or inch and a half product. From this it is fed to the stamps. The pulp from the stamps passes to a classifier, the sands from the classifier to two James tables, and the overflow from the classifier to a Frue vanner.

Instructions regarding ladder way in shafts and the storage of dynamite were given.

Mr. Glenn Anderson has been appointed manager

La Rose

This mine is now owned by La Rose Consolidated Mines, Limited, who also own or control the Lawson, Princess, Eplett, Fisher, Silver Hill, University and Violet. These other properties will be taken up on other pages of this Report. No work was done, however, on the Eplett, Fisher and Silver Hill during the year.

La Rose mine during the last six months of 1908 shipped a large tonnage of ore, being one of the largest shippers in the camp.

The main levels of the mine are at approximately 80 feet, 175 feet and 255 feet. Intermediate levels have been run at 50 feet and 100 feet, and on these a great amount of the stoping has been done. The 50-foot intermediate level has been extended north 175 feet from within a few feet of the shaft. Access to it is obtained through a raise north of the shaft. This 50-foot level south extends from within a few feet of the shaft to the Right of Way line. Entrance to this level is through the old discovery shaft. On the No. 3 vein the 50-foot level has been extended from the main vein 165 feet east. On the same vein 300 feet from the main vein a raise has been put up 30 feet and a stope carried along it for 120 feet.

On the 80-foot level the main drift north has been extended 50 feet to a total distance from the shaft of 570 feet. At a point 320 feet north of the shaft on the main drift, a drift has been driven east 310 feet on what appears to be the No. 10 vein.

South of the shaft on this level from the junction of the main vein with the Right of Way line, a drift has been extended south 340 feet. Some stoping has been done on the main vein on this level, but the greater part has been done on the sub-levels.

On the 100-foot level from a winze sunk north of the shaft a drift has been extended north 640 feet. Considerable stoping has been done between the shaft and winze which is 100 feet north of the main shaft. South of the shaft stoping has also been carried on at this level from within a few feet of the shaft to the south limit of the vein.

On the 175-foot level, the north drift has been extended 450 feet north of the shaft.

On No. 3 vein 150 feet from the south boundary of the claim a shaft has been sunk 50 feet below the adit level. Just north of the No. 3 adit level another adit has been run 300 feet east.

The adit on No. 10 vein has been extended to the Chambers-Ferland line, a distance of about 300 feet. The vein is being stoped out to the surface. The adit north of No. 10 has been driven east 160 feet.

Bumping tables have been put in at the main shaft and No. 10 vein, on which to pick the ore.

No change has been made in the power plant except the installation of a new hoist.

Mr. R. B. Watson is general manager, and Mr. T. J. Harwood superintendent.

Little Nipissing

The Little Nipissing Silver Cobalt Mining Company, Limited, was working on mining location J.B. 2, immediately south of the Princess mine, during 1908. An adit has been driven east from the shore of Short lake, a distance of 205 feet. A discovery was made during the year on the west shore of the lake by the diamond drill, and a shaft has been sunk on the discovery to a depth of 50 feet.

Instructions were given as to the timbering of the shaft and the derrick construction.

Mr. S. D. Maddin is in charge of operations.

Litttle Nipissing Lease

The Little Nipissing Silver Cobalt Mining Company have taken a lease of 20 acres on the west shore of Peterson lake. The shaft has been sunk to a depth of 150 feet with the first level at 100 feet. On this level a drift has been driven northeast on the vein 175 feet. At a point 60 feet from the shaft a cross vein was encountered and a drift driven on it 75 feet. From the shaft drifts have been extended south 100 feet and northwest 60 feet. The second level is at a depth of 150 feet. No drifting had been done here at the time of my inspection.

The machinery consists of a reversible link motion hoist. Power is obtained from the Nipissing mine.

An interesting geological occurrence was noted, occurring in the drift on the cross vein from the main vein. While driving east a dark basic rock was encountered about 35 feet east of the main vein. This rock is apparently a dike rock showing biotite and hornblende, probably a mica hornblende lamprophyre. The dike shows to be at least 12 feet wide, though the width has not been fully determined. The vein, which was in Keewatin when found, passed into the dike and, although somewhat broken in the dike, still carries silver values in places. This proves that the vein filling was subsequent to the intrusion of the dike.

Instructions were given to discontinue hoisting ore or rock from first level while sinking was in progress, and to build a proper magazine and thawing house.

Mr. S. D. Maddin is manager and Mr. L. Church mine captain.

McKinley-Darragh

This mine was a steady shipper during 1908. The ore is now all hoisted through No. 1 shaft, as it is connected by tramway with the concentrating mill. On the 90-foot level of No. 1 shaft about 600 feet of drifting and cross-cutting have been done to the southwest of the shaft. On the 155-foot level No. 1 shaft has been connected with No. 2 by a cross-cut 400 feet long. Immediately east of No. 1 shaft a drift has been extended north 350 feet, about 200 feet being under Cobalt lake. On the main cross-cut, 140 feet west of No. 1 shaft, 180 feet of drifting has been done north of the cross-cut. From this drift a winze has been sunk 55 feet and 200 feet of drifting done on the vein at that level. At a point in the cross-cut, 260 feet from No. 1 shaft, a vein was encountered on which drifts have been driven south 220 feet and north 170 feet. This vein has been broken down for about 12 feet in height and timbers have been put in for stoping. In the north drift a winze has been sunk to the 210-foot

level and about 200 feet of drifting done at this level. From No. 2 shaft drifts have been driven south 330 feet and north 389 feet. In this north drift 80 feet from the shaft drifts have been run west 375 feet and east 200 feet, where a connection is made with drift from central vein. Considerable drifting has been done on the 60-foot and 110-foot levels of No. 2 shaft.

No. 3 shaft near the east boundary of the claim has been sunk 50 feet and 100 feet of drifting done.

No. 7 shaft, which adjoins the Kendall vein on the Nipissing, is 115 feet in depth, with levels at 70 feet and 115 feet. On the 70-foot level about 250 feet of drifting have been done on the vein and on the 115-foot level 110 feet.

A cage is used in No. 1 shaft having a counterbalance.

McKinley-Darragh silver mine, Cobalt lake in foreground.

Instructions were given regarding the ladder ways in the winze and men riding on the cage.

The concentrating mill has been erected to the south of No. 1 shaft and across the railway track. The ore is first fed to a jaw crusher which is placed near the base of the mill and then elevated by bucket elevator and belt conveyor to a trommel, from which it goes to the jigs. The tailings from the jigs are fed to the 20-stamp mill. The product from the stamps passes to a classifier and then to Wilfley tables and Frue vanners. The tailings from the tables and vanners are then reground in a tube mill. The product from the tube mill is treated on Deister slime tables from which the tailings run to waste.

Power for the mill is supplied by two 100-h.p. boilers and a 150-h.p. engine.

Mr. P. A. Robbins is general manager for the company, employing about 125 men.

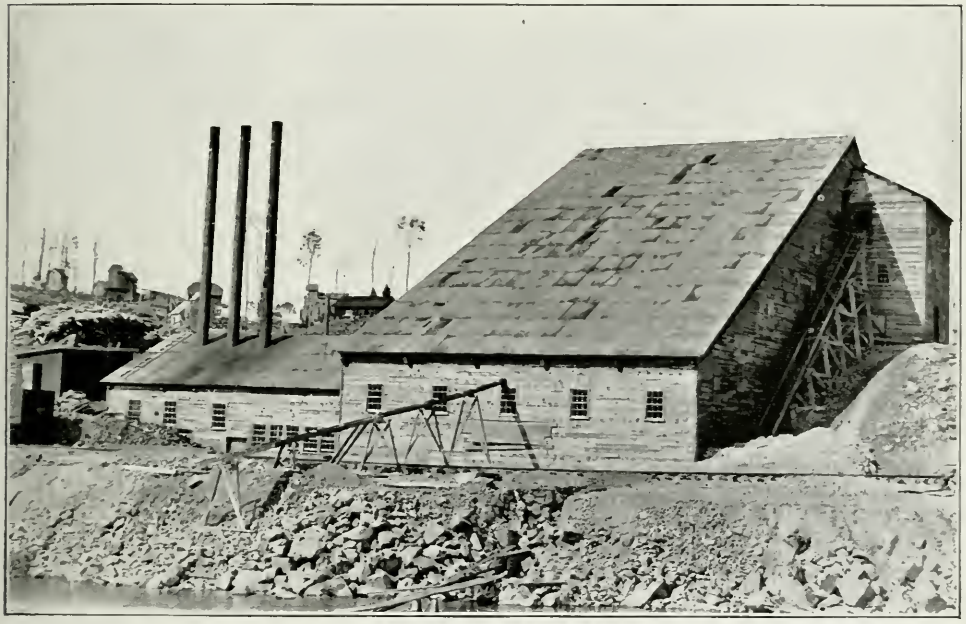
Red Jacket (Morrison)

This property, situated on the northwest part of the north-half of lot 7 in the fourth concession of Coleman, has been purchased from the original owners by a group of interests represented by Mr. B. E. Cartwright. A plant has been installed at the property and a shaft is being sunk, a depth of 60 feet having been attained. Camp buildings have been erected.

Mr. T. Fee is in charge of operations, employing a force of 25 men.

Northern Customs Concentrator

This concentrator was formerly known as the Muggley concentrator. It is now owned by the Northern Customs Concentrator, Limited, with Mr. F. J. Borne, manager. It is a custom mill and has been operated continuously during the year. The capacity of the mill is being increased by the addition of 30 stamps, making a total of 50 stamps in the mill and 2 Nissen stamps.



Northern Customs Concentrator, Cobalt.

Nancy Helen Mine

The main shaft at the Nancy Helen mine has been sunk to a depth of 190 feet. On the first level at 100 feet drifts have been run north 200 feet, east 80 feet and southeast 25 feet. A productive vein was encountered on a drift off the north drift and 75 feet from it. About 135 feet of drifting has been done on this vein and also some stoping. A winze 10 feet in depth was sunk on it. On the 175-foot level a station has been cut and drifting begun.

Instructions were given regarding the position of boiler and the necessity for an auxiliary exit.

Mr. J. W. Prout was manager, employing a force of 25 men.

Nipissing

The Nipissing Mining Company were operating eight different shafts at the date of my inspection, November 27th, 1908. During the summer, a number of other shafts were also worked, and a large amount of trenching and test-pitting done. About

half the company's mining work at present has, however, shifted from the east side of Cobalt lake, on R.L. 404 and 406, to the property north of the town of Cobalt on R.L. 400. In this section four shafts are being worked. These are the Meyer, Fourth of July, Promise and No. 64.

The Fourth of July, or No. 80 shaft is sunk on a vein just east of the Coniagas boundary, to the depth of 75 feet. On this level drifts have been run south 100 feet and north 150 feet. The shaft at the time of inspection was being sunk to the 150-foot level. A shaft house has been erected and ore house with picking table. Air for the drills and hoist at all the shafts is obtained from the power plants on the east side of the lake.

The Meyer or No. 73 shaft is 600 feet north of the Fourth of July, and east of the Trethewey. On the 75-foot level drifts have been driven on the vein 150 feet east and 200 feet west, and some stoping done. A cross-cut has been started south from the shaft to connect with the Fourth of July shaft. About 250 feet have already been driven. This shaft is also being sunk to the 150-foot level. Hoisting from this shaft was by means of hoist and derrick.

Instructions were given to put in pentice while sinking was being done, or cease all work on the first level.

The Promise shaft has been sunk west of the Right of Way shaft to a depth of 100 feet as a prospect shaft only, no vein having been found. The rock was here covered with about 40 feet of soil and gravel. From the level drifts have been driven north 200 feet, and west and south 50 feet and 90 feet respectively.

Shaft No. 64 was sunk 130 feet east of the Temiskaming and Hudson Bay mine to a depth of 75 feet. On this level drifts have been run east 130 feet and west 60 feet. From this west drift a cross-cut has been run north 80 feet. Since my inspection of this shaft it has been sunk to the 150-foot level and a station cut. While cutting the station a vein rich in silver of good width was struck.

Instructions were given regarding hoisting equipment and the thawing of dynamite.

To the east of Cobalt lake the Kendall vein has proved a large producer. The work on the first level was described in the last Report of the Bureau of Mines. The shaft is now 150 feet in depth. On this level two drifts have been extended west, about 70 feet apart, a distance of 200 feet and east 300 feet, where a vein was encountered striking at an angle of about 30 degrees to the main vein. On this 175 feet of drifting has been done. A raise has been put through to the surface from this east drift. From the station on the first level a cross-cut is being driven south under what is known as the valley of the "little silver" vein. It has now been extended 450 feet. A new ore house has been constructed 100 feet east of the main shaft house, and picking tables put in.

South of the Kendall shaft considerable work was done during the summer on vein No. 96. An adit was driven east into the bluff 260 feet. At 100 feet from the mouth of the adit, drifts have been driven on the vein 125 feet north and 140 feet south.

Veins 86 and 87 on the east shore of Cart lake were worked during the summer of 1908. On vein 86 a shaft was sunk to a depth of 75 feet and a drift run on the vein 220 feet southwest. From this level a cross-cut was driven 120 feet northwest to vein 87, where 100 feet of drifting was done.

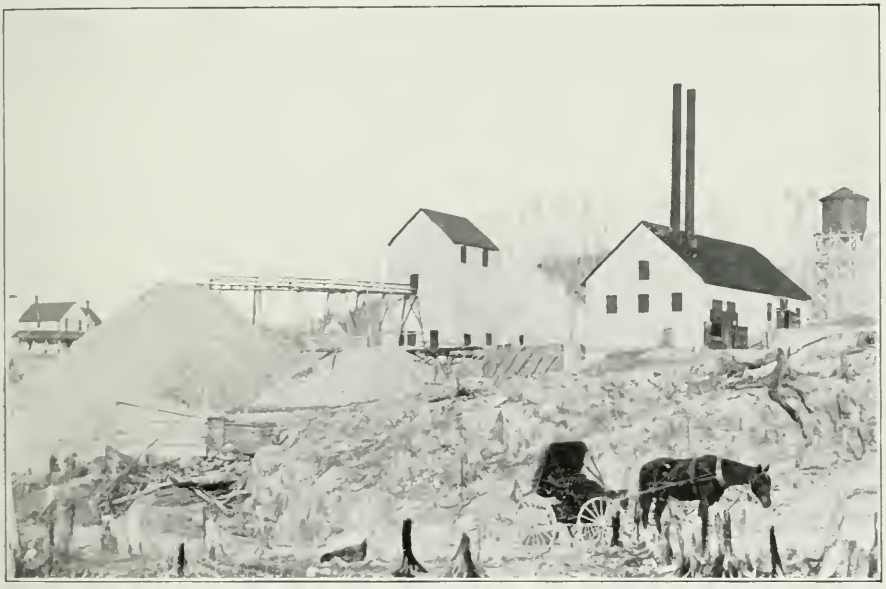
Work on vein 49 has been confined chiefly to taking out ore from the open cut and exploring on the first level. The adit on vein 28 from the shore of Cobalt lake has been connected up with the first level of this shaft. Shaft No. 25 to the northeast has also been connected on this level by a drift 560 feet in length. In addition to this a cross-cut has been driven south from the shaft 190 feet, and a drift driven east 440 feet on stringers from the vein. A winze has been sunk from the open cut on vein No. 49 to the 100-foot level 300 feet east of the shaft.

The shaft on veins No. 10 and 26 has been sunk to a depth of 210 feet, with levels at 50 feet (the level of the open cut), 110 feet and 210 feet. The shaft is sunk on what was known as vein No. 10, and cross-cuts driven to vein No. 26 from the different levels a distance of 65 feet. On the three levels the vein has been drifted on for about 250 feet, with short drifts or stringers from the main vein. The levels have been connected by raises and considerable stoping done. On the open cut level a cross-cut has been driven west about 500 feet.

Instructions were given regarding the thawing house.

On vein No. 81 on the shore of Cobalt lake a shaft has been sunk to a depth of 75 feet and 125 feet of drifting was done.

No work was being done at shaft No. 12 at the time of my inspection. This was worked, however, during the summer of 1908. The west drift from the first level was extended under the workings of vein No. 15, a distance of 175 feet, and vein No. 52, a further distance of 150 feet.



Nova Scotia silver mine.

The power plant remains the same except that another 100-h.p. boiler was added to the plant near the Kendall vein. The Kerr lake branch of the T. & N. O. railway runs near the Kendall shaft and power house, and all ore is loaded and coal unloaded here. The air from the plant here and from the Peterson lake plant is piped over the property to the several workings. The ore is all brought to the sampling plant on the shore of Cobalt lake, where it is crushed and sampled before shipping.

Mr. R. B. Watson is general manager of the company, and Mr. Hugh Park is manager, employing during the winter months about 200 men and in the summer 300 to 400 men.

Nova Scotia

The Nova Scotia Mining Company have made their No. 3 shaft near Peterson lake their main working shaft, and have erected a large shaft house and sorting tables here. The work done on the first, second and third levels was described in the last Report. The work done on these levels during the last year consisted chiefly of stoping and driving east on the second level and of cross-cutting. On the fourth level the vein

was cut 25 feet south of the shaft. From here drifts have been extended east 125 feet and west 320 feet. Part of this westerly drift is under Peterson lake. Considerable stoping has been done on this level. On the fifth level cross-cuts have been driven north from the shaft 115 feet and south 50 feet. Drifts have been extended east from the south cross-cut 90 feet and west 325 feet. A winze was sunk on the west drift from the fourth to the fifth level and stoping has been begun. Preparations were in progress to sink a winze from the fifth level in the west drift.

Instructions were given regarding the winzes and also with respect to a new thawing house.

New camp buildings have been erected during the year.

Mr. A. M. Bilsky is managing director, and Mr. Rex Taylor is superintendent.

Nugget Claim

This claim has been leased by Mr. A. M. Bilsky and is being worked by him. A shaft has been sunk to a depth of 100 feet and a drift run north 60 feet. North of this shaft an adit has been driven 200 feet east into the bluff. A shaft is also being sunk on island No. 22 on Giroux lake. This shaft is now 40 feet deep. Air for two drills and a hoist is obtained from the University mine.

Instructions were given regarding the ladder way and men riding in the bucket.

O'Brien Mine

The owners of this mine are the same as at last inspection. Mining work was prosecuted vigorously throughout the year. At No. 1 shaft most of the work has been done on the 200-foot level. On the 50-foot level little work was done in development, but considerable stoping was done both east and west of the shaft. The east drift on the 100-foot level has been extended to a distance of 650 feet from the shaft. Some drifting and cross-cutting was also done west of the shaft. On the 200-foot level the drift east has been extended to a distance of 900 feet from the shaft. It is the purpose of the management to connect this drift with the No. 6 workings. In this drift, 450 feet from the shaft, a raise has been put through to the 100-foot level. No additional work has been done on the 300-foot level.

Instructions were given at this shaft to maintain an auxiliary exit from all the working levels.

No. 2 shaft has been sunk 175 feet, with first level at 65 feet and second level at 165 feet. On the first level a drift east has been driven 250 feet and west 150 feet, then south 160 feet. From a point 50 feet east of the shaft a drift has been driven south 200 feet. Stoping has been begun in this drift.

On the second level drifts have been run south from the shaft 190 feet, southeast 150 and north 80 feet.

Instructions were given to have the ladder-way partitioned from the shaft, to place guard rails at the various levels and to make an auxiliary exit from the mine.

No. 6 shaft is now a depth of 260 feet. On the first level the east drift is 325 feet in length and the west drift 350 feet. Stoping has been begun from both drifts. On the second level the east drift has been extended 275 feet from the shaft and the west drift 300 feet. A raise is being put through from the west drift to the first level. On the third level drifts have been run southeast 125 feet, east 225 feet and west 150 feet. This shaft was started in diabase and sunk through it to near the third level, where Keewatin was encountered.

Instructions were given at this shaft regarding an auxiliary exit and the thawing house.

No. 16 shaft, northeast of No. 6 shaft, has been sunk 75 feet and drifts are being run northeast and southwest. The southwest drift is intended to connect with the first level of No. 6 shaft.

Instructions were given here as to putting the shaft in proper condition.

Another shaft was sunk during the year north of No. 6 to a depth of 75 feet.

A 30-stamp concentrating mill is being erected on the property. It is proposed to concentrate by means of jigs and tables and also to treat part of the ore by cyanidation.

Mr. M. T. Culbert is manager, employing a force of about 150 men.

Ore Reduction Company

This company first installed a dry process of concentration throughout. It was operated for a time, but did not prove a success. A partly dry and partly wet method was then tried. This was also unsatisfactory. It was therefore decided to instal a wet process throughout. This change was decided on during the first part of 1909. The ore is now crushed by two 6x10-inch jaw-crushers, six sets of rolls and a Hardinge mill. The concentrating end of the mill consists of four double compartment jigs, two Wilfley tables, seven James tables and a James slimer. The mill is expected by the management to have a capacity of 80 tons per day.

Peterson Lake

The Peterson Lake Mining Company have adopted the leasing system for the beds of Peterson and Cart lakes. The lake has been divided up into 20-acre lots and leased to a number of companies on a royalty basis. Among the lessees are the Nova Scotia Mining Company, Little Nipissing Mining Company, Kerry Mining Company, Gould Consolidated Mining Company, Union Pacific Mining Company, St. Anthony Mining Company, Brydge Syndicate, O. N. Scott and Cyril T. Young. Shipments have been made from Peterson lake ground by the Nova Scotia Mining Company and the Little Nipissing Mining Company.

Provincial Mine

The Provincial mine on the Gillies Limit has been worked continuously during the year. Shipments of both cobalt and silver ore were made. On the first level drifts have been driven east and west on the main vein 350 feet and 250 feet respectively. In addition to this, 270 feet of drifting has been done on other vein cuts. East of the shaft a cross-cut has been driven south 200 feet. West of the shaft cross-cuts have been driven north 170 feet and south 175 feet. A raise has been put through to the surface and some stoping done. On the second level drifts have been run east of the shaft 310 feet and about 125 feet of cross-cutting done north and south of the vein. A raise has been put through from this to the first level. A shaft has been sunk on a vein near the Savage mine to a depth of 67 feet.

Mr. S. Hunter is superintendent in charge at the mine.

During the summer of 1908 considerable prospecting was done on the limit in the vicinity of Giroux lake. This work was under the supervision of Mr. James Bartlett.

Princess

The Princess mine (J.B. 3) situated south of the McKinley-Darragh mine is owned by La Rose Consolidated Mines Company.

Mining work was carried on at the property during part of the year. The shaft has been sunk to a depth of 125 feet and drifting begun at the 50-foot level. About 330 feet of drifting and cross-cutting have been done.

A shaft and ore sorting house has been erected. Power for the drills is obtained from the Silver Queen mine.

Mr. James Adams is superintendent.

Pontiac

The Pontiac Mining Company have commenced operations on the northeast quarter of the south half of lot 2 in the fifth concession of Coleman. Some trenching has been done and one shaft sunk to a depth of 45 feet.

Camp buildings have recently been erected and preparation made for carrying on mining work.

Mr. H. P. Davis is manager for the company.

Paterson

This property is situated on the east half of the northeast quarter of the south half of lot 2 in the third concession of Coleman.

A shaft has been sunk to a depth of 100 feet and drifts run north and south about 75 feet.

A small boiler and hoist have been installed at the property.

Instructions were given as to timbering the shaft and putting in ladderway.

Progress

At the time of my inspection of this property work was being done in the north shaft, which was 80 feet deep. At this level 180 feet of drifting and cross-cutting had been done. Instructions were given to board up the ladderway, and respecting the care of explosives and men riding in the bucket.

Diamond drilling on the property has since been done, and a shaft started towards the south end of the claim.

Mr. Jos. Herman is superintendent in charge.

Queen Alexandra

This property is situated on the east shore of Cross lake, directly across the lake from the Silver Cliff mine.

During the winter a shaft was sunk on the top of the bluff to a depth of 100 feet. Another shaft has been begun on a vein at the shore of the lake.

Right of Way

All the work done by the Right of Way Mining Company on the veins adjoining La Rose mine has been through the No. 2 shaft. On the first level the drift has been extended and connected up with No. 1 shaft. Three veins have been worked near this shaft, all being parallel and from 20 to 30 feet apart. Stoping has been done on all three of these veins above this level. A drift has been extended north from the north vein under the centre of the railway track, a distance of 400 feet. From the second level of No. 2 shaft a drift has been driven north about 600 feet. Raises have been put up to the first level on each of the veins worked on the first level. A little stoping has been done below the first level on the central vein. On the second level, near the main shaft, a sump has been cut and a steam pump installed.

On the first level cross-cut west to the Chambers-Ferland property, the Right of Way Company have done some drifting for the former company, and have started a raise to the surface for a working shaft.

No. 3 shaft of the Right of Way Company is situated just east of the Silver Queen and on the continuation of the latter's vein. The shaft is sunk 75 feet to the first level and a cross-cut driven 60 feet north to the vein. On the vein 100 feet of drifting has been done. A drift has been run from this level and connected with the Silver Queen workings on the first level. Drifts are also being driven north anad south under the right of way of the railway. A shaft and ore sorting house has been erected. Power was obtained from the Silver Queen mine.

Mr. Jos. Houston is manager of the company, and Mr. R. Sandow mine superintendent.

Rochester

Work was resumed at this property in 1908. On the first level at a depth of 75 feet drifts have been run east and west on the vein, 75 feet and 125 feet respectively. At the time of my inspection the shaft was being sunk to the 175-foot level.

Instructions were given regarding guard rails and proper thawing houses.

Mr. C. E. Beard is superintendent in charge.

Savage

This property is owned and operated by the McKinley-Darragh-Savage Mines, Limited.

No. 1 shaft on the original discovery is 120 feet deep, with levels at 70 feet and 125 feet. On the 70-foot level 180 feet of drifting has been done east and west on the vein, and 175 feet of cross-cutting. On the 125-foot level the west drift is 150 feet in length, and cross-cuts from this have been run 95 feet north and 100 feet south.

No. 2 shaft, 400 feet west of No. 1 shaft, is 100 feet in depth, but no drifting has been done.

During the summer of 1908 a vein was discovered 500 feet southeast of No. 1 shaft. A shaft has been sunk on this vein 70 feet and 100 feet of drifting done on it.

This mine is under the same management as the McKinley-Darragh.

Silver Bar

Work was done on this property during part of 1908. A controlling interest in the property was acquired during the latter part of the year by a number of Toronto men.

Cobalt Silver Queen mine, and No. 3 shaft of Right of Way Mining Company to the left.

The old workings have not been re-opened, but a new shaft has been begun about 205 feet north of the old shaft, and another on a vein west of the shaft. A diamond drill has also been at work on the property for some time.

Instructions were given regarding ladderway and thawing house.

Mr. N. Fisher is consulting engineer.

Silver Queen

No sinking has been done on the main shaft of the Silver Queen in addition to that described in the last Report. The work has consisted chiefly in extending the levels east and west and in stoping. Both levels have been driven east to within a few feet of the Right of Way. The first level west drift has been extended about 450 feet from the shaft. A raise is being put through to the surface from this drift.

A new shaft has been sunk near the south side of the lot to a depth of 75 feet. No drifting had been done on it at the time of my inspection. A considerable amount of diamond drilling has been done on the property.

A new compressor of about 1,200 cubic feet capacity has been installed and a new 125-h.p. boiler. During the year the company were inconvenienced by the loss of their power plant from fire.

Instructions were given regarding the removal of the magazine to a proper position.

Mr. Robt. A. Bryce is superintendent.

Scott Lease

Mr. O. N. Scott of Toronto and associates have taken a 20-acre lease of Peterson lake. The area leased lies south of the Kerry Mining Company's lease. Two shafts have been sunk to a depth of 25 feet and 50 feet respectively, and a contract let to the Kerry Mining Company to drive a drift on the lease from the first level of their shaft.

Silver Cliff (foreground) and King Edward silver mines, Cross lake.

Silver Cliff

This property is owned by the Silver Cliff Mining Company, of which Company Rinaldo McConnell, J. F. Barnet and H. Hennessey are the principals. The claim has been sold to Dr. W. Beattie Nesbitt and associates, but the owners hold a mortgage on it. The north half has been worked for a time by the mortgagors, and the south half by the original owners.

On the south part of the claim an adit has been driven west 200 feet to the first vein, on which drifts have been run north and south 200 feet and 250 feet respectively. Raises have been put through to the surface on each of these drifts. The main adit has been driven 200 feet further to the second vein, on which about 300 feet of drifting has been done. A raise has been started to the surface, and a winze sunk about 40 feet in the north drift.

No work was being done at the date of my inspection, January 22nd, 1909.

St. Anthony Lease

The St. Anthony Mining Company have obtained a lease of 20 acres of Peterson lake, south of the Union Pacific lease, and across the lake from the Kerry Mining Company. A shaft has been sunk on the shore to a depth of 80 feet, but no drifting has yet been done.

Instructions were given as to timbering the shaft.

Mr. S. D. Maddin is in charge of the work.

Shamrock

The Shamrock Silver Company have been working on the south half of the southwest quarter of the south half of lot 1, concession 4, Coleman, adjoining the Beaver to the north. The shaft is 100 feet deep. A cross-cut has been driven from the shaft west 128 feet to the contact between the Keewatin and diabase. From here drifts have been run south 150 feet and north 140 feet. Since my inspection the shaft has been put down further and a winze sunk from the south drift.

Another shaft was being sunk 600 feet north of No. 1.

The power plant consists of one 100-h.p. return tubular boiler, a straight line compressor and hoist.

Mr. A. M. Bilsky is managing director of the Company.

Silver Leaf

The Silver Leaf Mine was worked for part of 1908 by Mr. H. D. Symmes under lease from the Silver Leaf Mining Company. The lease was, however, not renewed, and the Company are now operating the mine.

The shaft in the continuation of the Crown Reserve vein is 215 feet deep, with levels at 75 feet, 135 feet and 200 feet. On the first level a drift has been run west 109 feet, and from the end of this drift a cross-cut 180 feet. On this second level a drift west has been run 291 feet and a cross-cut 56 feet. On the third level a drift has been run west 67 feet and cross-cut south 40 feet.

Instructions were given regarding derrick and men riding in the bucket.

Considerable diamond drilling was being done on the property.

Mr. F. M. Thorne is superintendent in charge.

Strathcona

The Strathcona Silver Mining Company are conducting operations on the southeast quarter of the north half of lot 10 in the second concession of Bucke. One shaft has been sunk to a depth of 75 feet and about 80 feet of drifting done at this level.

Instructions were given to put the shaft in proper condition.

A small upright boiler is being used. A diamond drill was at work on this property at the time of my inspection.

Mr. R. Sohier was superintendent in charge.

Silver Cross

At the Silver Cross mine work had just been resumed at the date of my inspection, January 22nd, 1909, with Mr. Hurdman in charge and Messrs. Campbell and Deyell consulting engineers.

The shaft to be worked is now 95 feet deep. It is proposed to drift and cross-cut from the 60-foot level. Another shaft north of the road to Cross lake is 50 feet deep. A small boiler and hoist are being used.

Susquehanna Lease

The Brydge Syndicate have taken the above lease of the north 20 acres of Peterson lake. A shaft has been sunk on the shore to a depth of 50 feet.

Machinery consisting of one 100-h.p. boiler, compressor and hoist has been installed and a power house built.

Temiskaming and Hudson Bay

Four levels have now been opened up at the Temiskaming and Hudson Bay mine. The first level at 60 feet remains about the same as was described in the last Report, except that some stoping was done. On the second level at 100 feet drifts have been extended east a total distance of 310 feet and west 200 feet. From a point in the east drift 170 feet from the shaft a drift has been driven southeast 120 feet to the Trethewey line. Some drifting has been done on the Trethewey ground on a vein struck near the line. From the shaft a cross-cut has been driven north about 400 feet to the north vein. A raise was put through to the surface on this vein, and 65 feet of drifting done on the level. A winze has been sunk on the vein 65 feet and from the bottom of the winze drifts run east 250 feet and west 180 feet, and a cross-cut north from the west drift 120 feet. On the third level at a depth of 150 feet a drift has been run east about 250 feet. No drifting has been done on this level west of the shaft. On the fourth level at a depth of 200 feet a station has been cut and a drift started east.

Temiskaming and Hudson Bay silver mine.

Instructions were given with respect to guard rails at the shaft and winze, and bucket riding in the winze.

On the northwest quarter of the north half of lot 7 in the fifth concession of Coleman, north of the Silver Queen mine, the Company have sunk a shaft 50 feet deep and have drifted southeast 350 feet towards the Silver Queen line.

Instructions were given regarding the thawing and storage of dynamite.

Mr. J. R. Kinler is manager for the company.

Trethewey

The greater part of the work done in 1908 was in No. 2 shaft. On the first level a drift east has been run 110 feet and connects with No. 3 shaft. The west drift connects with the workings of No. 1 shaft. On this level considerable stoping has been done. The second level at a depth of 110 feet has drifts east 150 feet, west 120 feet and cross-cuts north 120 feet and south 100 feet. There are a number of short drifts

on stringers from the main vein. The stope is being carried up to the first level. This also connects with No. 3 shaft 90 feet east. No. 3 shaft has been sunk 60 feet below this level, and 100 feet of drifting done on it and some stoping.

Instructions were given regarding the ladderway and passage way around the shaft.

The ore house has been remodelled. The ore is trammed on surface from the No. 2 shaft to the ore house at No. 1 shaft. The officers of the company remain the same, with Mr. G. F. McNaughton as superintendent.

Trinity

This property is situated on the west shore of Cross lake on the south part of the east part of lot 2, in the fifth concession of Coleman. A shaft has been sunk 150 feet, the first 60 feet being through subsoil. It is the purpose of the company to drift out under the lake.

A 60-h.p. boiler, straight line compressor and hoist have been installed and camp buildings erected.

No work was being done at the time of my inspection.

Union Pacific Lease

The Union Pacific Cobalt Mines, Limited, have a 20-acre lease on Peterson lake on the west shore opposite the Little Nipissing lease. A shaft has been sunk to a depth of 100 feet on the shore.

Instructions were given to have shaft timbered properly before further work was done.

Mr. H. H. Short is looking after the work for the company.

University

The University mine is controlled by La Rose Consolidated Mines, Limited. During the summer of 1908 an open cut was made on a cobalt vein near the Foster line. Since that time a shaft has been sunk to a depth of 60 feet on a small vein west of Giroux lake post office A shaft house and hoist have been erected.

Power is supplied from the main power plant, which is located near the No. 1 shaft and has been described in former Reports.

Temiskaming

The Temiskaming mine is still the only shipping property in South Coleman. During the year a great many changes have been made, both underground and on surface. A new three-compartment shaft has been sunk 360 feet northeast of No. 1 shaft. On this shaft a 60-foot steel head frome has been erected, the first to be used in the camp. This has been connected with the workings on the 200-foot level and is nearly so with the 250-foot level. A new power house has also been built and a new power plant installed, consisting of a compressor developing 1,800 cubic feet of air per minute, a double drum 18 inches by 32 inches first motion hoist, two water-tube boilers and an 18-K.W. generator. The shaft is equipped with safety cages. New camp buildings have also been erected.

On the 200-foot level from No. 1 shaft, parallel drifts have been run southwest on the lot 120 feet. North of the shaft on the No. 1 vein, a drift has been run 230 feet to where it joins No. 2 vein. No. 2 vein, about 40 feet from No. 1 vein, has drifts run south 200 feet from cross-cut which is driven 230 feet east from No. 1 vein, and north 300 feet. The No. 2 shaft is 360 feet northeast of No. 1 shaft, and

connected with No. 2 vein by a 25-foot cross-cut. On the 250-foot level the drift on No. 1 vein has been extended northeast 260 feet. No. 2 vein is cut by a cross-cut 35 feet in length and has 250 feet of drifting done on it.

Considerable stoping has been done on both levels and raises have been put through on the vein.

Mr. Norman R. Fisher is general manager for the company.

Victoria

The main shaft has not been worked for several months. A shaft was being sunk west of the main shaft. This has reached a depth of 75 feet.

In the main shaft at the 75-foot level a drift has been run west 100 feet and cross-cuts north and south 20 feet and 50 feet respectively have been run. On the 150-foot level 315 feet of drifting has been done and 190 feet of cross-cutting. From the north cross-cut on this level a winze has been sunk 95 feet.

Temiskaming silver mine.

The power plant consists of one 80-h.p. boiler, the high pressure half of a 10-drill compressor and a hoist.

Mr. John Harris is superintendent.

Violet

This property is now controlled by La Rose Consolidated Mines Company. The work done on it during the year consisted of trenching and test-pitting.

White Prospect

Mr. W. J. White of New York is sinking a shaft on the south shore of Giroux Lake on the Silver Hill property, for the purpose of prospecting the bed of Giroux lake. A shaft has been sunk to a depth of 100 feet. It is the intention to sink to 150 feet and drift out under the lake.

Mr. A. McGarry is in charge of the mining work.

South Lorrain

Considerable stripping and test-pitting was done during 1908, in that section of country between the south boundary of Lorrain and the Montreal river. A number of veins, carrying some silver values, have been found. These veins occur chiefly in the diabase and in the Keewatin near the contact with the diabase. The occurrence is quite similar to the veins at Cobalt, but the ore in some of the veins differs, in that it sometimes occurs with quartz as gangue along with calcite. The silver in places occurs as fine, hair-like threads, almost mossy in appearance, as at the Keeley mine.

The map of this area by Mr. A. G. Burrows, accompanying this Report of the Bureau of Mines, shows the location of the properties on which the best discoveries have been made, occurring near the contact of the Keewatin and diabase. No veins carrying high values in silver have been found in the conglomerate here.

Bousquet Claim

On H.R. 103 and 104, south of the Keeley and Woods claims, Messrs. Grover and Smith did considerable trenching during the summer of 1908. No mining work has yet been done.

Haileybury Silver Mine

On H.R. 16, the Haileybury Silver Mining Company have sunk a shaft on their No. 1 vein to a depth of 100 feet. This vein is chiefly smaltite and niccolite, and has a dip to the north of 70 degrees. At the bottom of the shaft a drift has been run east 15 feet on the vein. On No. 2 vein, 500 feet south, a shaft has been sunk 25 feet. This vein strikes about north and south, and has been stripped for some distance. Some silver values have been found in it.

Mr Cyril T. Young is president of the company and Mr. A. Brough managing director.

Keeley Mine

The Keeley mine is located on H.R. 19, about 3½ miles from lake Temiskaming. The property is owned and operated by the Keeley Mine, Limited, of which Mr. Wishart of New York is president and Mr. Boyd Magee manager.

The main shaft has been sunk to a depth of 125 feet, with the first level at 65 feet. On this level drift have been run 80 feet east and 94 feet west. Some stoping has been done both east and west of the shaft. A head frame has been erected over the shaft and hoisting done by horse and whim. Another vein was found by trenching south of the main vein. This vein on surface showed a fairly good width of smaltite. A shaft is being sunk upon it.

Machinery is being installed, consisting of a 220-h.p. gas producer, one 150-h.p. gas engine to drive compressor of 1,015 cubic feet capacity, and a 40-h.p. high speed gas engine directly connected to a 40 kilowatt generator. The generator is to furnish power for electric hoist, electric station pump, pump at the lake some 2,300 feet distant and light for camps. This electric power is to be delivered at 220 volts.

Dining-room, two bunk houses, office, assay office, blacksmith shop and ore house have been erected.

Harris-Lorrain Syndicate

On H.R. 88, adjoining the Wettlaufer on the east, the above syndicate have done considerable trenching, and preparations have been made for sinking shafts on some of the discoveries.

H. R. 24

This claim, lying to the east of and adjoining the Haileybury Silver Mining Company, property, is owned by Mr. Mark Harris. Captain Terrill is in charge of the work and has sunk two pits to the depth of 22 feet and 18 feet respectively.

Maidens Silver Mining Company

On mining claim H.R. 70, which lies about one mile northwest of the new Government dock, the above company are doing mining work, south of the government road and consisting of adits driven south into the hill, which has an elevation of over 100 feet above the road. No. 1 adit was driven 63 feet through clay to the rock and 135 feet farther, part of it being on the vein which was encountered. Another adit has been begun 300 feet west of the No. 1 and has been driven 50 feet through clay to the rock.

Camp buildings have been put up.

Mr. A. J. Murphy is president and managing director, and Mr. W. R. Montgomery superintendent.

Keeley silver mine, South Lorrain.

Proudfoot Fraction

This fraction, H.R. 25, lies to the north of the Keeley and adjoining it. It is owned by Messrs. Nesbitt and Crompton. Prospecting was done during the summer of 1908, and a shaft sunk 40 feet on a calcite vein near the north boundary of the Keeley mine.

Wettlaufer

This claim, H.R. 85, adjoins the Keeley to the southeast. Most of the claim is in diabase, and the vein found runs about at right angles to the contact of the diabase with the Keewatin, and in a northeast and southwest direction. The vein or fissure has been stripped for a considerable distance, and some test pits have been sunk on it. The vein opens up in lenses in places 3 to 4 inches in width, carrying good values in silver. A company has been formed known as the Wettlaufer Lorrain Silver Mines,

Limited, of which Mr. Wettlaufer is president, Mr. F. C. Loring managing engineer, and Mr. A. C. Bailey, superintendent.

A small boiler and hoist has been put in and shaft sunk to a depth of 40 feet. It is the intention of the Company to instal boilers and compressor at an early date.

Woods

The claims, H.R. 21 and 22, are owned by the original owners of the Keeley mine, Messrs. Keeley, Jowsey and Woods, and lie immediately to the west of it. Considerable trenching was done on the two claims during 1908, and veins carrying silver discovered. A shaft has been sunk on it 25 feet and sinking was to be continued. This vein had a strike of about north and south, and was only a short distance from the west boundary of the Keeley claim.

Camps have been built on the claim.

Wiltsey

This claim (R.L. 482) is owned by a syndicate in which Mr. A. M. Bilsky of Cobalt is interested. It lies about 2½ miles from the lake and 1½ miles north of the Keeley. A 50-foot shaft has been sunk on it.

Elk Lake Area

In this area, which includes those properties in the townships of James, Mickle, Farr, Smyth, Tudhope, Barber and Willet, there are a large number of companies engaged in development work at the present time. Very few of these had any work done at the time of my inspection and only one, the Moose Horn, had a steam plant at the mine. During the winter of 1908-09 about 20 steam plants were taken in and set up. About half this number of compressors have been installed, with a corresponding increase of boiler capacity. No ore has yet been shipped to the smelters from any of the mines in this area.

A number of the properties now operating will only be mentioned, as there has been no opportunity yet to inspect them.

Devlin

On the northeast quarter of the south half of lot 1 in the first concession of James, the Devlin Mining Company are carrying on both prospecting and mining operations.

No. 1 shaft has been sunk to a depth of 50 feet, using horse whim and derrick. It is the intention to sink a little deeper here and then drift.

Another pit is being sunk about 500 feet from the above shaft. This pit was only about 10 feet deep. Camp buildings have been erected on the claim on the shore of a small lake.

Cragg

No work was done on these claims at the time of my inspection. They are located north of the river in James and Smyth. On one of the claims a shaft 75 feet in depth has been sunk, besides a number of test pits.

Mr. Shirley R. Cragg has been in charge of the work.

Elk Lake Discovery

This claim is situated about 2½ miles east of Elk City and near the road to Charlton. It is owned by the Elk Lake Discovery Mining Company, of which Mr. J. G. Harris is superintendent.

A power plant has been installed, consisting of a 60-h.p. boiler, straight line compressor and hoist. A shaft is being sunk on one of the veins discovered, a depth of 50 feet having now been attained. It is the intention of the company to sink the shaft to at least 100 feet in depth.

Elk Lake Silver Cobalt

This property is situated about 2½ miles from Elk City and adjoining the Elk Lake Discovery. It is owned by the Elk Lake Silver Cobalt Mining Company, of which Mr. F. L. Culver is president.

A small plant has been installed and two shafts sunk to a depth of 40 feet and 25 feet respectively.

Gavin-Hamilton

The Gavin-Hamilton Mining Company control 160 acres of mining land near Elk Lake. A 5-drill straight line compressor, and a 65-h.p. boiler and hoist have been installed. A shaft has been sunk to a depth of 55 feet, and 90 feet of cross-cutting done.

Camp buildings have been erected for the accommodation of 40 men. Mr. P. J. Fleming is superintendent in charge.

Langham

Mr. H. H. Lang of Cobalt and associates have begun work on claims in Tudhope and have organized a company known as the Langham Mining Company.

A small plant has been installed and work begun.

Lucky Godfrey

The Lucky Godfrey claims are situated in the southeast corner of the township of James near the Montreal river. The work done up to the present has consisted chiefly in trenching and test-pitting.

McFadden

On the northeast quarter of the south half of lot 12 in the first concession of Tudhope, Mr. D. McFadden was prospecting and sinking a shaft. This shaft was at the time of my inspection, October 28th, 1908, 50 feet deep. Instructions were given regarding condition of hooks and derrick.

Mother Lode

On the northwest quarter of the south half of lot 8 in the sixth concession of James, on the claim formerly known as the Gates, the Mother Lode Mining Company have been working steadily for the past year. Some work was done on the vein on top of the hill, a test pit having been sunk 10 feet. An adit has since been driven in on the vein about 65 feet below the outcrop, a distance of 250 feet. At 65 feet from the mouth of the adit a winze is being sunk on the vein, a depth of 45 feet having been attained. The vein consists of specular iron and calcite. It occurs in diabase, and carries silver in part.

Instructions were given to keep the explosives out of the workings when not in use, and to provide a suitable place for thawing them.

Mr. W. H. Shutt was in charge at the time of my inspection.

Moose Horn

On the north half of the north half of lot 4 in the fifth concession of James, about half a mile from Elk City, the Moose Horn Mines, Limited, have been sinking shafts and prospecting during the year. This was the first company in the Elk Lake area to bring in a small boiler and hoist, and to use a power drill. One shaft has been sunk 35 feet in depth and a second shaft to a depth of 65 feet. This latter shaft is to be the permanent one from which the other veins or fissures on the claim can be cross-cut. A new compressor plant has been purchased and is on the ground ready for installation. This consists of a 3-drill straight line compressor and a 80-h.p. boiler.

Instructions were given to have proper ladder way constructed and guard rails placed around the shaft.

Otisse

On mining location E.B. 21 in the township of Mickle, near Silver lake, the Otisse Mining Company have begun mining operations. Very little mining work was done at the time of my inspection, but during the winter one shaft was sunk to a depth of 50 feet and other shafts begun. The veins or fissures are parallel, have a strike of 5 degrees north of east, and occur in the diabase.

During the winter a complete power plant consisting of a 10-drill compressor, two 80-h.p. boilers and hoist was installed.

Camp buildings have been erected for the accommodation of 30 men.

Mr. F. C. Loring is managing engineer.

Otisse-Currie

This property, consisting of several claims in the vicinity of Silver lake in the township of Mickle, is being operated by the Otisse-Currie Consolidated Silver Mines, Limited.

Otisse silver mine, Silver lake.

A shaft has been sunk on one of the claims to a depth of 60 feet and drifting begun. During the winter boilers, hoist and compressor were hauled in and set up.

Mr. M. Fleming is superintendent in charge.

Otisse Claim near Hubert Lake

Just west of Hubert lake, work was being done in October, 1908, by a company which had the claim under option. Mr. L. Mapes of Pittsburg was in charge.

A shaft had been sunk 75 feet deep, and drifting begun on an aplite dike in diabase. Hoisting was being done by horse whim. Instructions were given as to ladderway and guard rails, and to discard the open hook in hoisting.

A number of other claims in this area have had steam plants installed on them during the winter, but have not been inspected.

Maple Mountain Area

Foster

The Canadian Ores, Limited, under the management of Mr. R. W. Foster, were working continuously during 1908, developing the claim R.S.C. 56 purchased from the White Bros. An open cut was made on one of the veins, and from 8 to 10 tons of ore taken out. A shaft has also been sunk to a depth of 125 feet. On the 70-foot level a cross-cut was driven 90 feet. It is the intention of the manager to sink to 150 feet and then cross-cut to the main vein north of the shaft. The company are getting the foundation ready for installing a 100-h.p. return tubular boiler and air compressor developing 950 cubic feet of free air per minute, and a 12 by 15 inch hoist having a 4-foot drum.

Camp buildings have been erected for the accommodation of 40 men. The company during the summer take in their supplies by way of the Montreal river, Mattawapika river, Evelyn lake and a wagon road which they have constructed. Last winter a winter road was cut through the bush from Pork rapids on the Montreal river to the mine, and supplies and machinery brought in.

Stevenson

A shaft has been sunk on this claim to a depth of 65 feet and a cross-cut driven, but a large volume of water was encountered, and work was discontinued until the boiler and hoist could be installed.

Darby

Prospecting and assessment work was done on these claims during the year, but no active mining development carried on.

The development work required by the Mining Act was also done on a number of other claims in this area.

Gowganda and Miller Lake Area

No inspection has been made of the workings in this area as yet. A description of the more important properties will be found in Mr. A. G. Burrows' report on the Gowganda, Miller and Elk Lake areas, Part II. of this Report.

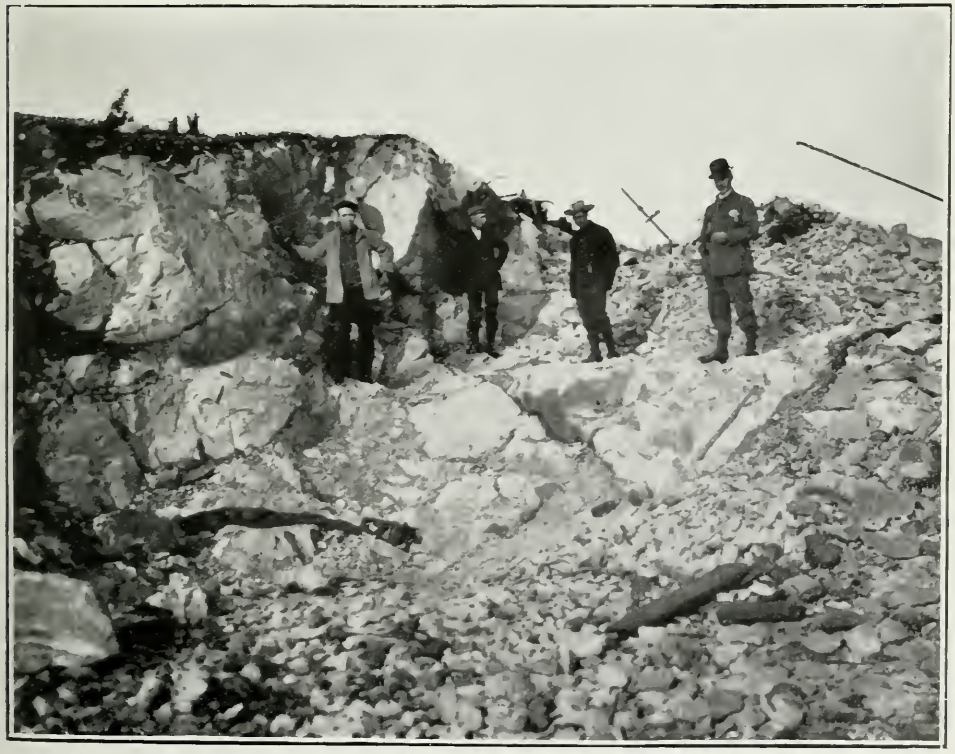
Larder Lake

A large number of claims in this camp have had the assessment work done on them, but it was impossible to visit all the workings, the more accessible and those on which work was being done alone being inspected. There has been little mining work in the camp to date, and what has been done has not yet demonstrated just where the richest ore is in the ledges. The concentrates, consisting chiefly of iron pyrites, of which there was considerable in the rock already milled, are claimed by the owners to run about $8.00 per ton. Whether the gold is intimately associated with the iron pyrites has not yet been proven, but it is thought to be the case. Some of the properties show some very nice free gold, but these rich pockets appear to be small, and the success of the mines seems to depend on the working of a large tonnage of low grade ore. The grade of ore may be raised by sorting when it has been proven which is ore and which is rock. As to the permanency or value with depth of the veins, nothing can be said, as at the time of my inspection the deepest shaft in the camp was but 42 feet. Some of the companies have already become handicapped with a large expenditure, and but little work done to show for it.

Harris-Maxwell

The Harris-Maxwell Larder Lake Gold Mining Company have been carrying on work on claims H.S. 114 and 115 about one-half mile northeast of Larder City. Most of the work has been done on H.S. 115. On this claim some open cutting and trench-

Stamp mill, Harris-Maxwell gold mine, Larder lake.



Open cut, Harris-Maxwell gold mine, Larder lake.

ing has been done on the top of the hill, which is about 90 feet above the lake level. At a point on the lake side about 10 feet above the lake level, an adit has been driven in on the deposit, a distance of 25 feet, then turning to the south for a distance of 35 feet. The ore in the adit is similar to that on the surface, consisting of quartz stringers through a serpentine carbonate rock. A 10-stamp mill has been erected on the northwest side of the hill, and had at the time of my inspection made one run of 30 tons. A tramway has been built from the open cut on the top of the hill to the mill, where the ore is fed to a crusher and into bins and then to the stamps by a Challenge feeder. The pulp from the plates is concentrated on a Wilfley table. The concentrates are chiefly iron pyrites, said to carry several dollars in gold.

The president of the company is Mr. W. Wakefield, and secretary-treasurer, Mr. Robt. Patterson.

Larder Lake Proprietary

The Larder Lake Proprietary Gold Fields, Limited, had at the time of my inspection 36 claims. Most of the work, however, had been done on C.E. 33, which is on the north side of Larder lake, about seven miles from Larder City. A shaft has been sunk 40 feet in depth and considerable trenching done.

A 5-stamp mill has been erected on the water front on mining claim C.E. 31. The ore is hauled by wagon from the shaft to the mill, a distance of 1,000 feet. The machinery in the mill consists of one 50-h.p. boiler, 6 by 10-inch Gates crusher, 40-h.p. engine and a 5-stamp battery. A few test runs have been made at the mill.

Colonel G. S. Ryerson is president of the company and Mr. T. H. Brooks, manager.

Assessment work has been done on the other claims.

Reddick

The Dr. Reddick Larder Lake Mines, Limited, control mining claims H.J.B. 30, 31, 29, 28, 32, 33, and H.F. 33, situated to the north of Larder lake. Most of the mining work is being done on claim H.J.B. 30. A shaft has been sunk on this claim to a depth of 42 feet, and a few test pits to a depth of 10 to 30 feet. The ore that was being milled at the time of my inspection was being taken out by open cut work. A boiler has been set up and steam used for drilling. A tramway about 1,000 feet long has been built from the mine to the mill. The latter is situated on the south side of the hill north of the lake on H.J.B. 30.

At the time of my inspection 10 stamps were in operation, and 10 stamps more being put in. An 80-h.p. boiler and engine have been set up for driving the machinery. One small run was made during the summer. Since then a considerable number of mill tests have been made.

Dr. Reddick was president of the company, and Mr. W. Morley Ogilvie superintendent.

Camp buildings for the accommodation of 40 men were erected near the mill. It was the intention of the management to sink the shaft to a depth of 100 feet and crosscut the deposit, in order to ascertain, if possible, its probable extent and value.

Gold King

Claims H.F. 140 and 141 are owned by a syndicate of five men. Work has been done chiefly on H.F. 140, consisting of driving an adit into the hill, a distance of 35 feet, stripping the deposit on the hill side and doing a little open cutting. The quartz ledge has a strike of east and west; it is composed of quartz stringers through a serpentine carbonate gangue. Some free gold could be seen in the quartz. The top of the hill, on which the deposit occurs, is about 100 feet above lake level.

Larder Lake Proprietary Company's stamp mill, Larder lake.

Dr. Reddiek Company's stamp mill, Larder lake.

Richardson

On claims L.M. 31 and 32 assessment work has been done. This work consisted chiefly in sinking a number of test pits on the ledge. The quartz occurs here as stringers through the serpentine and carbonate rocks.

H. S. 109

On this claim, owned by the Cobalt and Larder Lake Gold Mining Company, only the assessment work has been done, showing a somewhat similar occurrence to the Richardson.

Big Pete Canadian Mines

On claims H.F. 31 an 32, about two miles north of the Reddick, the Big Pete Canadian Mines, Limited, have been prospecting and testing the deposits. The claims occur in a belt of serpentinized carbonate rocks, and three pits have been sunk to a depth of 10 to 12 feet, in addition to considerable stripping. A diamond drill has been at work for some time testing the deposits as to depth.

Craig

These claims are about four miles north of Larder City. The work done consists of stripping, test-pitting and sinking two shafts to a depth of 25 feet each.

Temagami Area

In the section of country tributary to the T. & N. O. railway, between Temagami and Latchford, a variety of minerals are found in quantities sufficient to induce companies to undertake work on them. These consist of iron pyrites, chalcopyrite, arsenopyrite, molybdenite and gold. Calcite veins are also being tested in the hope of finding silver.

Northland

Iron pyrites has been shipped from this mine (formerly known as the Harris or Rib Lake mine) for the last two years. The property is situated near Rib lake about one half mile from the T. & N. O. railway, from which a spur line has been built. The main shaft is sunk to a depth of 175 feet with levels at 100 feet and 175 feet. Drifts have been run north and south on the first levels 150 feet and 250 feet respectively. The south drift connects with the open cut south of the shaft. On the second level drifts have been run north and south 165 feet and 200 feet respectively, and raises put through to the first level. Ore is being taken out from between the first and second levels both north and south by underhand stoping. The stopes are about 75 feet in length and vary in width from 10 to 20 feet. On the second level 75 feet north of the shaft a winze has been sunk a depth of 100 feet, and a drift started to the shaft preparatory to raising the shaft.

Instructions were given as to scaling, guard rails, ladderway and the handling of dynamite.

The property is operated by the Northland Mining Company, of which Mr. L. Hanna is manager.

Sterling

About three miles west of Grey's siding, T. & N. O. railway near Arsenic lake on what was formerly known as the Little Dan, the Grey's Siding Development Company, Limited, are working chalcopyrite and mispickel. Mr. John McMartin is president of the company, Mr. Wm. Marshall managing director, and Mr. J. E. Wilson, superintendent.

Two pits are worked, the ore being taken out by open cut work. The ore in the pit to the east of the lake is mispickel, and that in the pit north of the lake is

chalcopyrite, carrying values in gold. At the former a shaft has been sunk to a depth of 60 feet, but the work at present is being done by carrying an open cut from the shaft south into the hill. At the latter a hole has been sunk about 15 feet. About 4 cars of ore were being shipped per day at the time of inspection.

Instructions were given regarding thawing of dynamite.

Temagami Gold Reefs Company

This company were engaged in sinking two shafts on mining location T.R. 12 on the west side of Net lake. No. 1 shaft has been sunk 40 feet on a ledge of quartz showing molybdenite. At this shaft a 15-h.p. boiler, a Westinghouse air pump and a small hoist have been installed, and head frame erected over the shaft. No. 2 shaft about 500 feet northeast of No. 1 has been sunk to a depth of 40 feet.

Mr. H. Dreany is managing director of the company, and Mr. E. J. Rossiter, superintendent.

Temagami Cobalt

The Temagami Cobalt Mines, Limited of which Mr. Wm. H. Hayden is engineer in charge, have taken up 30 claims on the east shore of White Bear lake about four miles east of Temagami. A shaft has been sunk on T.R. 1609 to a depth of 80 feet.

Instructions were given with regard to fitting up the shaft for the protection of the men.

On T.R. 1836 a shaft has been sunk 50 feet. Instructions were given at this shaft to have collar of shaft raised and doors put on.

Some assessment work has been done on the other claims of the group.

Mr. Joseph Sauvé is foreman in charge.

IV.—EASTERN ONTARIO

Gold

The condition of gold mining in eastern Ontario is about the same as in 1907. A number of companies have done a little work on their properties at times during the year. Among these are the Golden Fleece, Pearce, Boerth and a company near Gilmour Station.

Gilmour

The Gilmour Mining Company, Limited, of Syracuse, N.Y., are opening up a gold prospect on lot 30 in the nineteenth concession of Grimsthorpe township.

Mr. C. C. Snedeker is president of the company, and Mr. F. Landenberger manager.

A shaft has been sunk to a depth of 75 feet and a drift run northeast 210 feet. A couple of test pits have been sunk on the outcrop of the ledge. The plant at the shaft consists of a small upright boiler and hoist. A 5-stamp battery is being erected near the shaft.

Iron

Mayo

This property is being operated by the Canada Iron Furnace Company under lease from the Mineral Range Iron Mining Company. No work was done during the winter but operations were resumed in March, 1909.

Work is being carried only on at No. 4 mine at present, where the 3-compartment shaft has been sunk to a depth of 75 feet on the ore body. A station has been cut at the 50-foot level and drifts run west to the open cut and to the east 25 feet. In the east drift a winze has been sunk 50 feet. From the bottom of this winze a drift has been run to the shaft where a station has been cut and the work of raising the shaft begun. As soon as the shaft is connected the drift west will be continued and stoping begun on this level. On the 50-foot level west the ore is being taken out by open cutting, the face

of the open cut being now 200 feet from the shaft. Here it is 35 feet wide and 30 feet in height.

The ore is dumped directly into a gyratory crusher from which it is carried by a travelling and picking belt to storage bins. This belt is about 50 feet in length and boys are employed picking out the rock. Two return tubular boilers and compressor developing 1,015 cubic feet of free air per minute have been installed.

Instructions were given as to scaling, the posting of notices and riding the buckets.

Mr. W. M. Stevens is superintendent, employing 75 men. About 75 tons of ore per day are shipped by the Bessemer and Barry's Bay railway to the junction with the Central Ontario railway near L'Amable station.

Rankin Property

Messrs. Coe and Rankin are opening up an iron property on the south half of lot 10 in the ninth concession of the township of Mayo. No work other than test-pitting, stripping and making a magnetic survey has yet been done.

Mayo Iron mine, Bessemer.

Zinc

Richardson or Olden Mine

This mine was worked during most of the year. The Rothwell shaft is now 117 feet deep. At the 70-foot level drifts have been run east and west on the vein and some stoping done. The old No. 1 pit has also had some work done in it during the year. A new vein was discovered a short distance northwest of the Rothwell pit. This vein apparently cuts the other vein at an angle. At the time of my inspection the Rothwell and No. 1 pits were full of water, and work was being done on the new vein which had been sunk on to a depth of 17 feet.

Mr. M. J. Flynn is superintendent.

Vankleek

On lot 24 in the eleventh concession of the township of Madoc Mr. W. A. Hungerford and associates are doing some development work. A shaft 75 feet deep on an incline of 70 degrees has been sunk on a quartz ledge carrying galena, sphalerite and chalcopyrite. The vein appears to be on the contact between the granite and greenstone schists. It dips to the west and has a strike of north by south.

Instructions were given as to guard rail around the shaft and thawing house. A small boiler and hoist are used for hoisting.

Mr. D. Phillips is foreman, employing a force of 10 men.

Iron Pyrites

The mining of iron pyrites is becoming an important industry in parts of eastern Ontario, more particularly in Hastings county.

Surface showing of magnetite at Coe and Rankin's mine, Mayo township. The bank in foreground is ore.

Hungerford or Sulphide Mine

Work at the Sulphide mine, owned by the Nichols Chemical Company, and situated about 4 miles east of Tweed on the Canadian Pacific railway, has been confined chiefly to the third level, and to sinking a winze on the north vein below this level. Some work has been done in lengthening the drifts on the north vein on the first and second levels, and breaking down ore in the stope between the first and second levels. On the third level the east drift on the south vein has been extended to 300 feet from the shaft. On the north vein the drifts east and west on the vein have been run to a distance of 400 feet and 325 feet respectively from the cross-cut. A winze has been sunk on the north vein 50 feet east of the cross-cut to a depth of 75 feet on the incline of the vein, and drifts run on the vein at this depth 95 feet east and 125 feet west.

A raise has been put through on the north vein from the third to the second level and stoping begun.

Instructions were given to have ladderway divided from hoistway and proper landings put in, and also regarding the handling of explosives.

The acid works located near the mine have been in operation continuously during the year. No marked change has been made in the plant.

Mr. W. H. De Blois is superintendent of the mine and works, employing about 75 men.

Craig

Mr. B. A. C. Craig has begun work on an iron pyrites deposit about one quarter mile west of the Sulphide mine. A shaft 40 feet deep has been sunk on the vein and a contract let to sink it to the 75-foot level.

Gillespie pyrite mine, near Queensboro.

Canadian Pyrite Syndicate

Mr. G. H. Gillespie has been opening up an iron pyrites deposit in the northeast quarter of lot 9 in the tenth concession of Madoc township, for the above syndicate. A shaft has been sunk 50 feet deep on the ore and drifts started. Another shaft 75 feet southeast is 20 feet deep. About 500 tons of ore have already been shipped. Two small boilers are used to furnish steam for drills and hoist.

Feldspar

A few properties in Frontenac county shipped a little feldspar in 1908, but the great bulk of it came from the Richardson mine. These smaller properties were not inspected, as they were all closed down at the time inspection was made of the mines in that part of the Province.

Richardson

The open pit has now assumed the shape of a horseshoe, the central part of the horseshoe being a capping of quartz which is being mined during the winter months and shipped to Welland. About 6,000 tons of quartz were shipped during the winter of 1908-09. The pit is now about 130 feet below the top part of the deposit, having been sunk 25 feet deeper since last year. The main stope is being continued northwest from No. 2 pit under the capping of schist, which has to be removed for the safety of the workmen. During the summer months the feldspar is hoisted by derricks and cable way in 2-ton boxes which are lowered on to cars at the surface. These cars are then let down the hill to the barge on the lake by a system of balanced hoisting, the speed being regulated by a drum with brake.

Mr. M. J. Flynn is superintendent, employing during the summer about 40 men.

Talc mill, Madoc.

Graphite

The year 1908 was a fairly successful year in the graphite industry of eastern Ontario. The Globe Refining Company were operating their mine near Oliver's Ferry and the mill at Port Elmsley throughout the year, and the Black Donald Graphite Company near Calabogie were also producing. A little graphite was shipped from a couple of prospects near the Irondale and Bancroft Railway at Kinmount and Wilberforce.

McConnell

The work done at this mine consists of sinking on the vein following its dip, which is about 40 degrees to the horizontal. The chamber being quarried is 30 feet wide by 20 feet in height. Hoisting is done by skip, which dumps into an ore pocket, from

Globe Refining Company's graphite mill, Port Elmsley.

Globe Refining Company's graphite mine, near Port Elmsley; view showing shaft house.

which the ore is loaded into wagons to be teamed to the mill at Port Elmsley. A small, upright boiler furnishes steam for boiler and hoist. The back of the chamber needs constant attention. The foreman at the mine is James Benton.

A few improvements have been made at the mill. These consist of more sand screws, rolls for fine grinding, and buddles and bolts for sizing the graphite.

Mr. C. Meech is mill superintendent, and Mr. Allen Fraser manager for the owners, the Globe Refining Company.

Black Donald

The Black Donald Graphite Company, of which Mr. R. F. Bunting is general manager, has been producing refined graphite at the Black Donald mine for the last year. No mining was being done at the date of my inspection in June, 1909. The open cut was worked for two months in the fall of 1908 and sufficient graphite taken out to keep the mill in operation up to the present time. About 4½ tons of graphite are produced daily from the mill.

Some alterations are to be made in the mill to give them a greater capacity. Power from the mill is obtained from a power plant on the Madawaska river, two miles from the mine.

Talc

With the erection of the mill at Madoc for grinding the crude talc and preparing it for the trade, the production from the Henderson talc mine on lot 14, in the fourteenth concession of Huntingdon has been considerably increased. Mr. S. Wellington is in charge of operations at the mine. During the winter a shaft was sunk on the deposit southwest of the open cut, to a depth of 100 feet. A drift has been driven on the talc northeast from the bottom of the open cut, which is 100 feet deep, a distance of 150 feet. Most of the talc at present being mined is from this drift. The talc is hauled by wagon from the mine to the mill about 1 mile distant.

Mr. G. H. Gillespie is in charge of the talc mill, buying the crude talc from the mine operators. About 8 tons of finished talc is produced every 24 hours. New screens have been put in for sizing the material. It is the purpose of the management to increase the capacity of the mill at an early date. Most of the finished material is sold in Canada, and of this, the greater part is used in the paper trade. The mill is situated near the Grand Trunk Railway station at Madoc.

Mica

The demand for mica is still limited and the price is consequently low. As a result, most of the small mica properties in eastern Ontario have been lying idle. The mica trimming works in Ottawa have been taking on more hands, showing that trade in mica is on the increase.

Hanlan

This mine, owned by the Loughboro Mining Company, has been producing continuously during the year. The central part of the workings has now reached a depth of 165 feet, being an increase of 25 feet. Mica is being taken out by underhand stoping from the shaft, east for a distance of 200 feet. A pillar was being cut to the east of the shaft. West of the shaft a drift has been driven 60 feet on the vein which consisted at first of pink calcite. Mica crystals were, however, found, and stoping on this side of the shaft was begun. The mica is rough-cobbed at the mine, and then shipped to the General Electric Company, Ottawa.

A new shaft house was to be erected in the spring of 1909.

The management is the same as last year, Mr. G. W. McNaughton being manager and Mr. S. Cordick, superintendent.

Lacey

Work has been carried on steadily at this mine during the year. The only active operations at the time of my inspection were on the new deposit in the foot-wall side of the working. This deposit is parallel to that of the main workings, and about 60 feet from it. A drift stope has been run on this about 200 feet southeast, where it is intended to connect with the shaft sunk from the surface to a depth of 80 feet. The mica is being taken out by open cut just north of the air shaft. This open cut is about 45 feet deep, 75 feet long and 60 feet wide. A large swinging arm derrick has been placed on the hill above the open cut and all hoisting done by it.

Mr. G. W. McNaughton is manager for the owners, the Loughboro Mining Company, and employs a force of 40 men.

Silver Queen

This mine has been described in former Reports as the Smith mine, being situated on lot 13 in the fifth concession of North Burgess. Mr. Edward Smith is owner and Mr. Jas Thompson, foreman.

The pit is now about 80 feet deep on an average dip of 45 degrees to the west, from a point 25 feet from the surface. At 10 feet from the bottom of the pit, a stope drift has been driven 60 feet to the northeast. The productive zone appears to extend northeast by southwest. Considerable prospecting on the location was done during the summer, test pits having been sunk on several surface showings. In addition to the mica a considerable tonnage of apatite is produced, which is shipped during the summer by boat by way of the Rideau canal. The mica is shipped to England.

Mica Prospects

Messrs. Stoness and Kent have worked a property on the west side of Bob's lake during part of the year. This has been described in former reports of the Bureau of Mines. Most of the work being done is in surface pits. The mica is rough-cobbed at the mine and shipped to Kingston to be cleaned and split.

In the vicinity of Perth in North Burgess Mr. Terry Smith has been doing a little prospecting. Messrs. McConnell and Watts have also been engaged in prospecting for mica in North Burgess.

Mica Trimming Works

In Ottawa the following companies are engaged in trimming and thin-splitting mica: The General Electric Company, corner Bridge and Albert streets; Laurentide Mica Company, corner Queen and Bridge streets; Eugene Munsell and Company, 400 Wellington street; Wallingford Mining and Mica Company, Sussex street; R. Blackburn, Sussex street.

In Kingston, Kent Bros. are also engaged in cleaning and thin-splitting mica.

Corundum

The operations of the Canada Corundum Company at Craigmont were suspended during 1908. Work was resumed the first part of 1909 by the Manufacturers Corundum Company, who are operating the property under lease from the Canada Corundum Company.

The old system of open cut mining is still in vogue. The concentrating mill is run only day shift.

Mr. D. A. Brebner is general manager for the operating company. A force of 135 men are employed at the mine and mill.

IRON RANGES OF NIPIGON DISTRICT

By A P COLEMAN

In accordance with instructions from Mr. T. W. Gibson, Deputy Minister of Mines, my field work during 1908 was directed toward completing the mapping of the iron ranges near lake Nipigon begun two years before.

Mr. O. Bowles, fellow in Mineralogy in the University of Toronto, was appointed my assistant and proved energetic and efficient in every way.

During the two previous summers the iron ranges near Poplar Lodge on the east shore of lake Nipigon, and northwest of the lake on the head waters of Red Paint river near the Hudson bay watershed had been mapped. Three known iron ranges remained unmapped in the region, one near Little Long lake to the east, a probable extension of the Poplar Lodge range; a second near Black Sturgeon lake southwest of lake Nipigon; and a third to the north of lake Nipigon. It was decided to take up the work in the order just given.

Routes to Little Long Lake

There are three possible routes to Little Long lake, by Sturgeon river and a chain of lakes from Poplar Lodge on lake Nipigon; north from Jackfish on lake Superior to Long lake and then west from its northern end; and from Heron bay up Pic river and then west over some small lakes to the northern end of Long lake. The route by Jackfish bay and Long lake was chosen as shortest going in; and the return journey was made by Pic river, easily navigated down stream, but difficult for canoes going up. As the canoe route by Long lake has received little attention it will be described here.

From the head of Jackfish bay the canoe route begins with the old road toward the Empress and other mines,[1] none of which are now working. With canoes two little lakes may be made use of on the way. Granite with felsite dikes, greenstone and green schist with quartz veins, are encountered on the way to the Empress mine, with an ascent, as shown by aneroid, of 187 feet.

Beyond the mine the route followed is the winter tote road used in taking in supplies for the fur companies' posts on Long lake; and travel over the long and rough portages is much worse than before. A very stiff climb leads to a third small lake, about a mile from the last one, 510 feet above lake Superior, after which there is another small lake followed by a steep ascent on a portage, reaching 646 feet above Superior, the highest point on the route. A succession of ponds or small lakes with short portages between brings one to the three-mile portage leading to Black river. The rocks exposed along the way are green schist, greenstone, and granite; but much of the surface below the highest point is covered with sand terraces having elevations of 967 to 904 feet above sea.

No old beaches or sand plains were found just north of Jackfish bay, perhaps because there was little drift material to be arranged by the waves; but descending towards Black river, terraces are very distinct, the river having brought down delta materials for deposit in lake Algonquin.

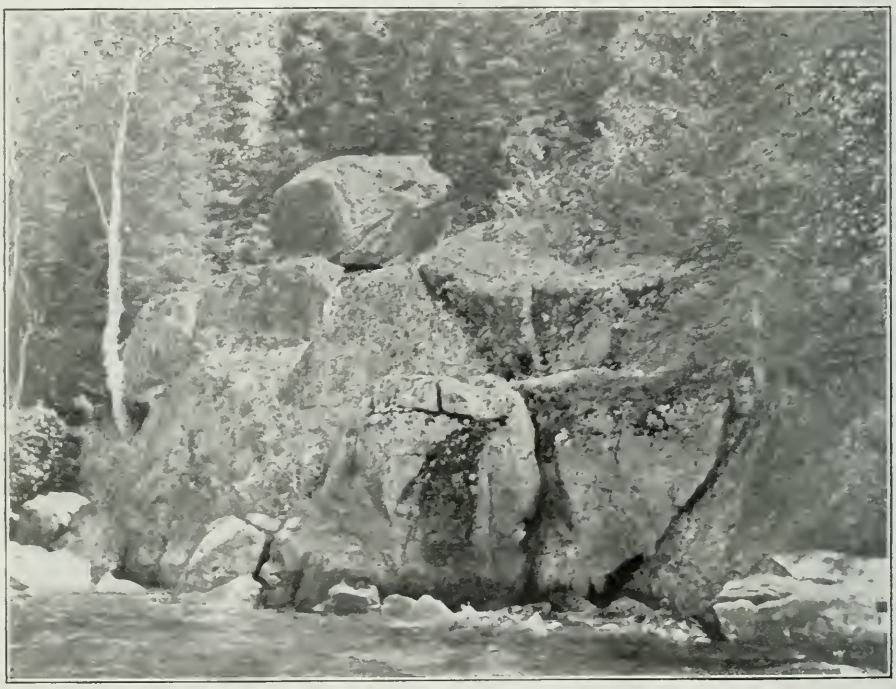
The trail follows Black river for a quarter of a mile up stream past rapids to a level of 380 feet above lake Superior, as determined by aneroid, beyond which it is navigable.

The rapids are caused by the boulders of a moraine, but on the hill side above gneiss of a grayish flesh color crops out, probably Laurentian. The sand terraces mentioned before continue as far as the moraine, but are not seen farther north.

[1] See Walter S. Davidson's report in "Survey and Exploration of Northern Ontario, 1900," pp. 138-9.

After 100 yards of swift water the river expands into a narrow lake for a mile and a quarter. On the east side granite shows for half a mile, and then is followed by green schist.

Above the lake there is swift water on the crooked river for two miles and a half before it expands again into Trout lake, which is several miles long, and has Keewatin rocks at the south end and Laurentian at the north. Black river enters the lake from the northwest, but the winter road and the canoe route go northward, following a chain of nine small lakes with short portages between. The highest of the lakes is 1040 feet above sea level, as determined by aneroid. The shores of the lakes or ponds are chiefly of gray gneiss with some granite, but the portages are often over stony morainic deposits or kame gravels. The watershed occurs between the 7th and 8th lakes on a portage half a mile long over morainic boulders. It does not reach an elevation of more than 1,050 feet above the sea.



An erratic on shore of Lake Nipigon.

The whole distance from Jackfish to the south end of Long lake is about 29 miles by the winter road, but no doubt considerably less in a straight line, probably not more than 22. The route is rough and toilsome in summer and adapted only for very light travel with one trip over portages. It runs through typical "rocky lake" country with hills of gneiss or granite or Keewatin rocks rising in places 200 feet above the small lakes traversed. Toward Long lake morainic materials are present in large quantity, but no lake terraces are seen until the lake is actually reached.

In winter when the lakes and swamps are frozen, the route is traversed by teams, and makes a fairly good road except for the steep ascents on the way up from Jackfish.

Long Lake

Long lake does not belie its name, since it is 54 miles long, less than a mile wide for a third of its length, and not more than three miles wide at any point. In a general way it is very straight, though there is one important bend 8 miles down from some-

High Falls of Kenogami river, 28 miles below Long lake.

Hudson's Bay Company's post, Long lake.

what west of north to about 30 degrees east of north. A good but brief description of this lake is given by Dr. Robert Bell[2] in his report on the "Country North of Lake Superior."

As mentioned by Dr. Bell, the southern end has rocky and mountainous shores, some points rising 500 feet above it, but the country grows more level toward the north and is low and swampy with few hills at the north end, where Kenogami (or English) river flows out. It has only insignificant tributaries and occupies a curious, narrow southward projection of the Hudson Bay watershed, which here reaches its nearest point to lake Superior. The northern part of the chain of ponds and small lakes just described, and Black river which drains them follow a continuation of the valley of Long lake with a very low divide (about 1,050 feet) between them. The cause of this narrow valley leading north from Jackfish bay to the Hudson Bay slope has never been worked out. A reference to this pass and to the terraces along the lake is given in the account of glacial lake Ojibway in another part of this Report.

As Dr. Bell's account of Long lake makes only brief allusions to the geology, the results of our coasting work may be given here.

At the south end of the lake a cliff of gray gneiss rises 300 or 400 feet from the water, and gray gneiss and schist with some dikes of pegmatite are found along the east shore to a point almost opposite the storehouses of the fur companies situated on a peninsula projecting from the west shore. These log houses were occupied by only one man at the time of our visit, and the supplies teamed in and stored there during the winter were rapidly being transferred to the posts at the lower end of the lake.

The rocks on the narrow upper end of the lake are coarse granite and gneiss, with green schist intermixed in about equal proportions, or fine grained gray gneiss or schist very like the Couchiching of the Rainy Lake region, cut by some pegmatite dikes. About six miles down a boss of coarse white granite rises as a cliff 200 feet high, cut half way up by a horizontal sill of diabase 20 feet thick forming a very conspicuous band. Beyond this to the north Keewatin-looking schist with granite dikes rises as cliffs, but presently the lake begins to widen with lower shores of the gray gneiss and schist resembling Couchiching, here and there penetrated by granite. Similar rocks are found along the eastern shore as far as the narrows half way up the lake, the green or gray schist having a strike running from northeast to due east, and averaging about 70° E., with southward dips from 60° to vertical. A few masses of hornblende porphyrite interrupt the schist near this point, and beyond them the strike of the schist has varied to 20° with a dip of 70° south. Soon, however, the strike returns to the more easterly trend, but the schist is now green and is mixed with some greenstone and amygdaloid, rocks characteristically Keewatin in appearance.

At Seven Mile point (7 miles from the north end of the lake) granite reappears on points and islands, and continues with some inclusions of greenstone to the post of Revillon Brothers, a mile or two from the outlet of the lake, where a sand terrace hides most of the surface.

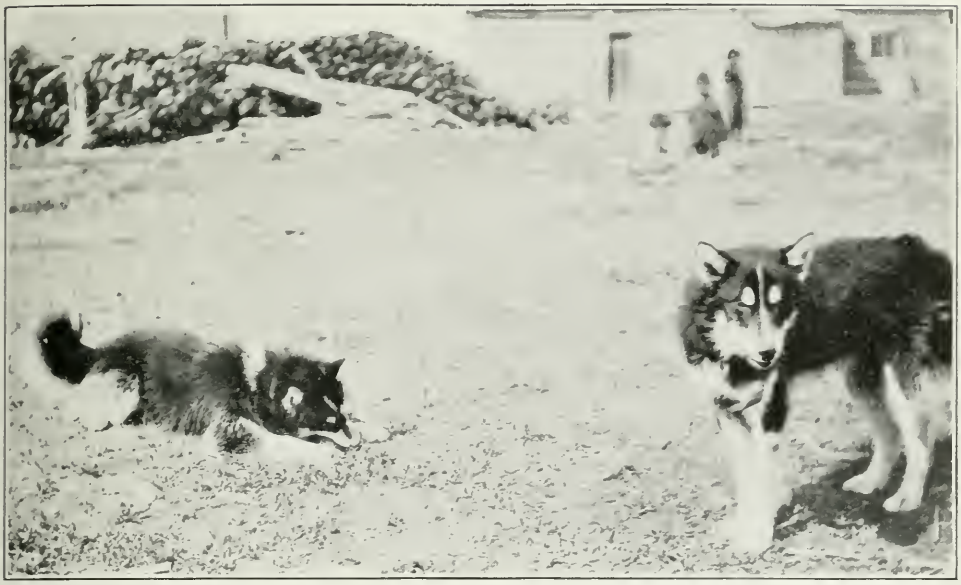
Just at their little harbor, rocks of varied kinds show themselves, chiefly coarse granite, cut by a dike of diabase 13 feet thick, and on the next point coarse hornblende porphyrite cut by granite dikes.

In the wider upper part of the lake the west shore could not be studied, but much of it is low and swampy or drift-covered.

It is evident that the lake runs not far from the contact of areas of Laurentian and Keewatin, with a larger amount of Keewatin rock visible, if the gray schist be reckoned to that formation as corresponding to the Rainy Lake Couchiching.

On the west side of the north end of Long lake near the Hudson Bay post there are fairly high hills of coarse granite rising through silt and clay, one of them forming a point which protects a small inner harbor from the waves of the lake.

[2] Geol. Sur. Can., 1870-71, pp. 335-7.



"Husky" dogs, Hudson's Bay Coy's post, Long lake. This type of dog is largely used for transportation purposes in winter.

Creek navigation between Little Long lake and Long lake.

Long Lake to Little Long Lake

Going west from the bay near the post, the portage trail begins over low wooded ground, rising gently to low flat surfaces of granite, followed by boulders, and then by very wet muskeg to a small north and south lake, the length being about a mile and a half. The next portage begins on flat granite and ends in muskeg, with a length of about two-thirds of a mile After another little lake, a third portage of about the same length leads first over trembling bog, quite under water when we crossed it, then over drier ground to a third small lake with an outcrop of greenstone on the east shore, but mostly surrounded by muskeg. The fourth portage, also about two-thirds of a mile long, is not quite so wet, and some greenstone rises in low swells above the swampy ground. This leads to a small but navigable creek, reaching in a mile a lake with swampy shores, followed by a larger creek winding through marshy ground for about three miles, when a bay of Little Long lake opens out.

The region traversed is of a rather hopeless kind, more than half muskeg with low swells of granite or greenstone and a small amount of clay soil, with or without boulders, covered with a dense growth of small birches or spruces.

The portages, the muddiest and most disagreeable crossed during the summer, make up more than half of the journey. Except a low hill or two near the Hudson Bay post, no rising ground is to be seen between the two lakes.

Little Long Lake

Little Long lake is a very tangled body of water with many bays, narrows, and islands, only roughly represented on either of the two maps available. It is about 12 miles long in a straight line, though the canoe route is somewhat longer than this. Before the first narrows no rock is seen; but rounding a point to the southeast one finds green schist a little beyond, with diabase on the next point. Most of the shores, however, are swampy or covered with low swells of drift, in one place west of the narrows rising as sand cliffs 20 feet above the water.

The western bay of Little Long lake presents more rocks on its shores than the eastern parts, though even here much of the shore is marshy; but west of the bay the character of the country changes, and a few fairly high hills of rock and moraine extend toward the divide between the water flowing into James bay and lake Nipigon.

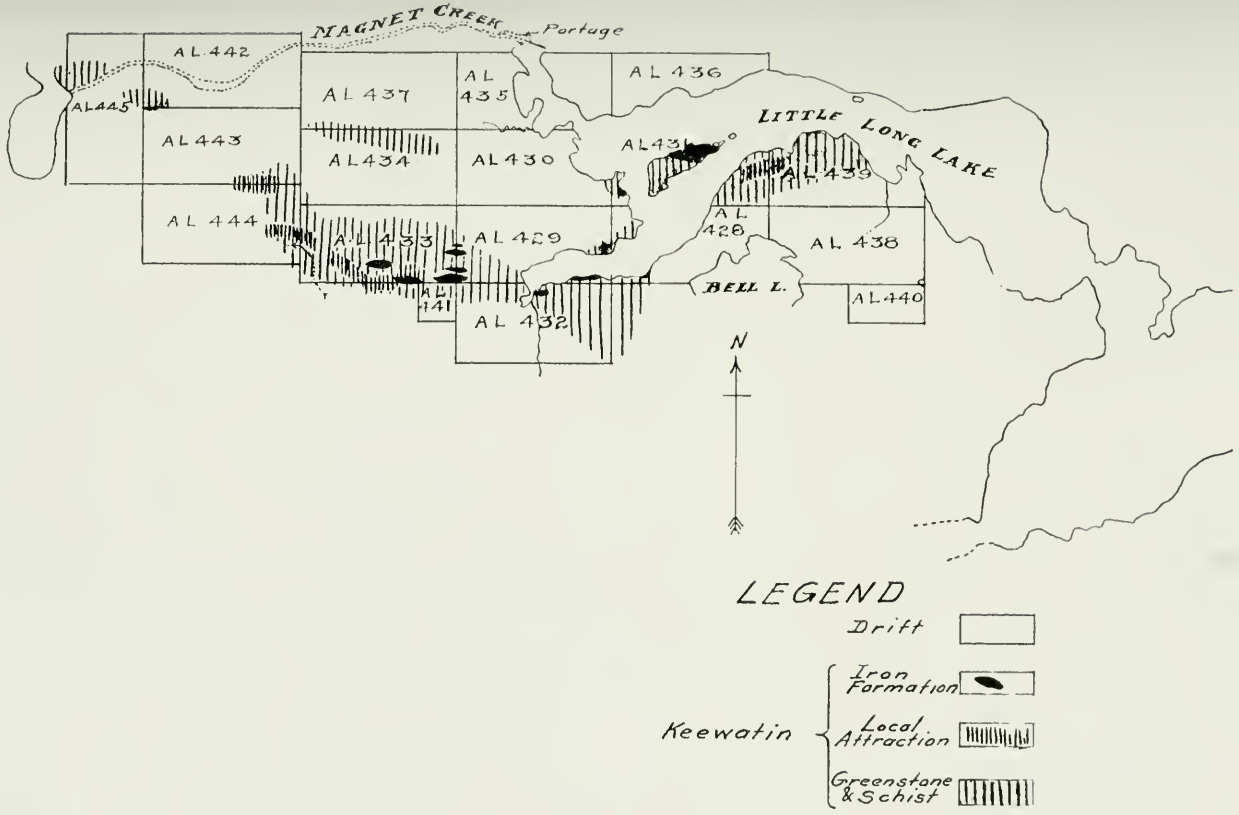
The object of our expedition was to study a number of iron ore locations taken up on or near the western bay, probably a continuation of the iron ranges east of Poplar Lodge, described in two former Reports.

Iron Claims on Little Long Lake

The first suggestion of Iron formation is found on the south side of the western end of the lake, in location A.L. 439, where low cliffs of Keewatin rocks rise west of a marshy bay. A few thin seams of banded gray and black material are evidently very low grade examples of the usual Iron formation. They are associated with green schist and irregular masses of coarse arkose, all squeezed and more or less drawn out and torn asunder. There are also many small seams of white quartz in shear zones.

The shore for some distance east and also west, in location A.L. 431, consists of the same rocks with a little of the Iron formation and, where drift-covered, often some local attraction. Inland in these two locations and also in A.L. 428, A.L. 438 and A.L. 440, no rock was seen, only swamp or muskeg, small, gently-rolling sand plains, and several esker ridges of sand.

The most important outcrop is at the east end of a large island included in A.L. 431, where stripping discloses a width of 24 yards of Iron formation intermixed with schist, some of the bands almost heavy enough to be ore. The colors at this stripping are gray and black, and there is magnetite enough to make the ordinary compass use-



Iron claims west of Little Long lake. Scale, 1 mile to the inch.

less, so that the dial compass was resorted to; but much of the material gives a red powder when pounded, showing the presence of hematite also.

Another stripping a short distance west shows 40 yards of surface, made up of very lean Iron formation, without schist, and containing some dull red jasper. The iron mineral here seems to be mainly hematite, though the compass is still useless. The greatest width of the banded silica and ore found on the island is 130 yards, and the total length of the outcrops is a little over a quarter of a mile. The rest of the island, where not covered with a thin sheet of drift and soil is of green and gray schist.

A little peninsula included in A.L. 431, on the west of a narrow channel, shows the same rocks but with very little of the banded silica.

On A.L. 436, on the north side of the lake, only marsh and low sandy plains, completely wooded, were found; and the same is true of A.L. 430 and of A.L. 435; but green schist crops out of the end of the northwest bay of Little Long lake, where Magnet creek comes in from the west.

Along the shore of the southwest bay, in A.L. 428, A.L. 429 and A.L. 432, rock is more frequently seen, on the south shore rising in places 20 or 30 feet, chiefly massive greenstone and green schist, but including some very lean Iron range along the northeast shore of A.L. 432.

Iron Claims West of Little Long Lake

Seven locations have been taken up to the west of the lake, but only one of them, A.L. 433, shows outcrops of any importance, all the others being largely covered with drift or muskeg. The boundary line between 433 and 429 going northward ascends a steep rocky hill, consisting of green schist striking east and west with nearly vertical dip, and containing several bands of Iron formation, mostly very lean, but with some narrow streaks heavy and black with magnetite. In a number of places these ore bands are greatly contorted and torn asunder. The width of rock exposed is about a quarter of a mile, the northern part of the location being drift-covered.

Sections at short intervals to the west show much less rock, but of the same kinds, and in the southern half of the location strong local attraction at many points proves that there is magnetite below the covering of drift.

The other locations do not require a separate description. The few low outcrops of rock are all greenstone or green schist with an east and west strike. No actual Iron formation was found, though fairly strong local attraction occurs in several places.

The surface is generally flat or gently rolling; but in A.L. 444 rather sharp moraine ridges were encountered. Probably half of the surface is covered with muskeg, and most of the rest with low swells of sandy till.

There appear to be two small parallel iron ranges running east and west in the region; the more important one including the north half of the island in A.L. 431, the other extending along the south side of A.L. 433 and stretching a little east and west into 429 and 444.

Until some work has been done in the way of test-pitting or diamond drilling, little can be said as to the value of these claims. The Iron formation resembles that of the southern range near Poplar Lodge, but, so far as known, the outcrops are much less extensive and of lower grade.

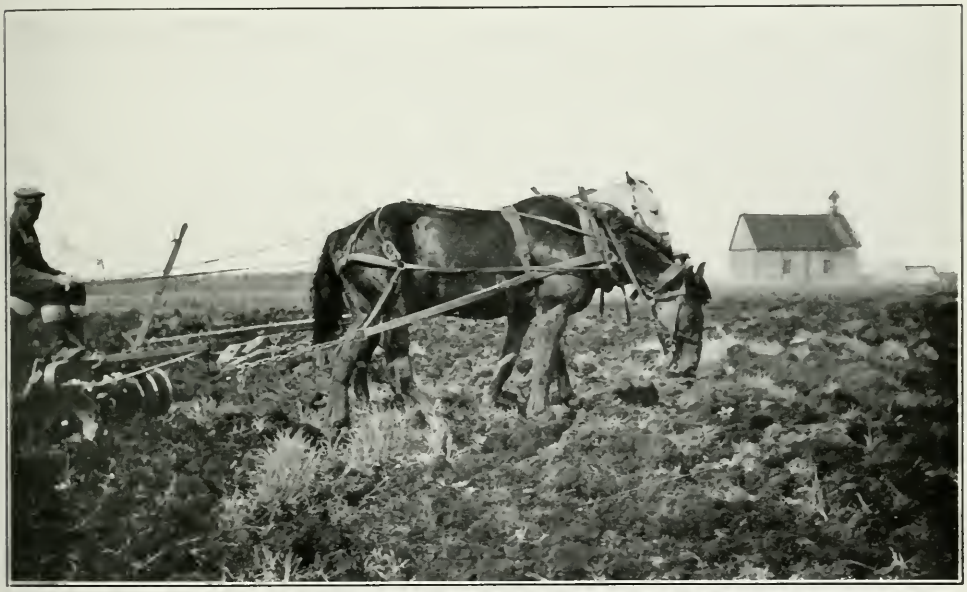
There is a gap of several miles between this Iron range and the most easterly one mapped by us in the Poplar Lodge and Sturgeon River region; but it is said that indications of iron ore have been found along the canoe route west via Magnet creek, which would fill in the gap. As we had no map or other definite information regarding this part of the region, it was thought unadvisable to spend time in searching for the Iron range to the west.

If ore bodies of importance should be found on Little Long lake only about 20 miles of railway would be required to connect them with the nearest point on the National Transcontinental.

Northern End of Long Lake

The northern end of Long lake is of interest as presenting the southern edge of the clay belt as mapped in 1900. The clay soil at the Hudson Bay post lies flat, rising only from 3 to 10 feet above the water, and passes into swamp and muskeg toward the north and west. The soil, where cultivated in a small way at the post, seems good, and but for the poor drainage should be of some importance at a point where baled hay is brought in by canoe at a fabulous cost. Unless drainage schemes can be carried out on a large scale, however, no important area of farming land is available on the west shore of the lake. On the east near Revillon's post rather light and sandy land has been cultivated for some time by the Hudson Bay people, and more is now being cleared near the new post.

The two trading posts facing one another across three miles of water have been engaged for the last two years in transporting supplies for the engineers on the line of the National Transcontinental, which runs at a comparatively short distance to



Cultivating Clay Belt, Long lake.

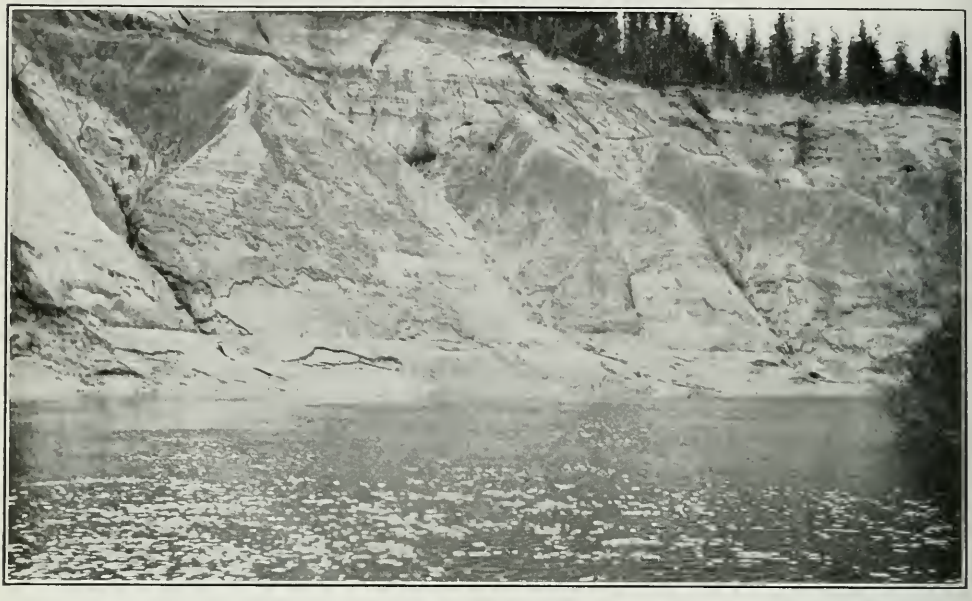
the north. A few parties of prospectors also have outfitted here. The hardships which some of the latter endure were shown in the case of a Mr. Bell, who went in during the winter, was attacked by scurvy and was on his way out with a band of Indians when we overtook the party and took charge of him as far as Revillon's post. He was so emaciated and crippled that he had to be carried in an improvised stretcher across the portages.

When the railway is completed and the temporary traffic connected with its construction is at an end, there will be only the dwindling Indian trade to justify the two stores unless white settlers come in, which seems improbable in a region so widely covered with swamps and muskegs. Except some spruce large enough for pulpwood, the timber is of little account.

Pic River

The route most frequently used from Long lake to Heron bay is by McKay lake and Pic river, and more than one description has been published of its topographical and geological features. Dr. Bell in 1870-1 gives some account of the stratified sand

and clay of the lower part of the river and a more detailed account of the rocks found along it[3] and Mr. A. L. Parsons has described the bed rock outcrops in the last report of the Bureau of Mines.[4]



Clay bank, Pic river.

Pic river below falls.

It will be unnecessary therefore to describe here the general geology or topography of the river; but some references to the Pleistocene deposits, conveying new information, may be given.

[3] G. S. C., 1870-1, pp. 237-333.

[4] Vol. XVII, pp. 130-134.

Between Long lake and McKay lake the land is low and there is little variation in level. The portages are over low clay flats, partly boulder clay, with an esker ridge and some bouldery bands. A bay running northeast from McKay lake, at the

Falls at Lake Superior portage, Pic river.

Sandhill falls, Pic river.

beginning of a canoe route leading to lake Pegutchewan, has on its north side a terrace of stratified silt, evidently a lake deposit, rising about 8 feet above the water, or 1,020 feet above sea level; and a little beyond there is a somewhat higher terrace of well stratified silt and fine sand. Following up a creek connecting a chain of ponds,

Gneiss, Lake Superior portage, Pic river.

Stratified glacial lake clay. Mud river, below Long portage.

the shores are sandy and the region rises from 10 to 50 feet above lake McKay, forming somewhat rolling sand plains covered with jackpine. The higher surfaces are too irregular for wave work, and may be formed of dunes or esker ridges, probably deposited near the edge of the ice sheet. The portage to lake Pegutchewan crosses this rolling sand region, which forms the watershed at this point.

Going down Pic river from McKay lake a sand terrace appears above the first rapid, rising nearly as high as the terrace first mentioned (1,018 feet); and below that for two or three miles there are low sand plains turning to silty deposits as one goes down stream.

Viewed from a hill top at the second rapids the river shows a very narrow flood plain, and no more sand terraces. Very little drift is seen beyond this except some boulder clay, until a point is reached a mile or two above Sandhill portage, where a good sand terrace rises about 45 feet above the river, or 895 feet above the sea. The terrace seems to be lake-formed, with a flat surface and distinct stratification; but going inland the surface becomes irregular, suggesting esker ridges. Going down the portage path silt or clay is found at 818 feet underlying the sand.

At White Otter falls also there is a terrace, rising 757 feet above sea, or 157 feet above lake Superior, showing well stratified sand, silt, and some gravel; and about four miles farther down there is a cut bank about 120 feet high, consisting of finely stratified silt for about 80 feet, covered by 40 feet of stratified sand.

At Lake Superior falls, the last portage on the way down stream (44 miles in a direct line from the lake according to Dr. Bell), there is some boulder clay resting on the bed rock of gneiss with 50 feet of sand rising above it, and from this point down as noted by Dr. Bell, there are generally high cut banks and broad terraces of stratified clay at the bottom and sand above. About 15 miles below this, following the windings of the river, a terrace reaches 820 feet, as shown by aneroid, consisting of coarsely stratified clay to the top.

Four or five miles farther down, terraces show a similar arrangement of stratified clay at the bottom with ten feet of sand and silt on top, the strata of clay being an inch or two thick and pale gray and dark brownish gray alternately. The highest terrace here reaches 810 feet (aneroid) above sea level, or 210 feet above lake Superior. The most interesting feature is the finding of many small fresh water shells in some of the upper sandy layers, including fragments of unio or anodon, sphaerium, pisidium, poniobasis, limnaea, planorbis, amnicola, succinea, valvata, and probably two or three other genera. The point where the shells were found is about 35 miles above the railway bridge near Heron bay, considerably higher up the river than the locality where Dr. Bell found numerous species of shells including "two species of unio, one of anodon, one of margaritana," with four of the genera mentioned above. These were found nine miles below Herrick's line half way up a bank 60 feet high.[5]

Below the terrace at 810 feet, the banks of the river are lower, and a flood plain of clay generally forms the immediate bank. As this is 10 or 15 feet higher in the mid-June stage of water, almost vertical and clothed with a dense growth of small willows, it is by no means easy to land for camping purposes.

About 12 miles above the railway bridge a cut bank rising to 718 feet above sea, or more than 100 feet above the river consists of stratified clay in the lower part with 15 feet of yellowish silt on top. The railway levels give 685 to 708 feet for the continuation of this terrace toward the south.

As noted by both Dr. Bell and Mr. Parsons the river and its tributaries are rapidly cutting away the old delta materials of clay and sand, giving rise to ravines and "bad land" scenery. No doubt similar delta materials to the thick beds of clay, silt and sand disclosed by the river banks cut in the old delta formed in lake Algonquin and the Nipissing Great lakes in earlier days are now being deposited in Heron bay.

[5] G. S. C., 1870-71, p. 328.

IRON RANGE NORTH OF ROUND LAKE

By E S MOORE

Introduction

In order to complete the exploration of the iron ranges of the Nipigon region, a short trip was made to Round lake, to examine a small range reported from that vicinity. This lake is an expansion of the Mud river and lies about twenty-seven miles up the stream and directly north of Wendigo bay, on lake Nipigon. As the range proved to be of little importance, and a map issued by the Canadian Department of Mines[1] was found to cover the essential features of the region, exclusive of the Iron formation, the work done was confined mostly to mapping in detail the small band of Iron formation occurring just north of the lake. A short time, however, was

First falls on Mud river.

spent in exploring the neighborhood of the range for other outcrops of the Iron formation, and an excursion was made as far up the Mud river as the northern border of the Keewatin. The above mentioned map has been of great service in connection with the preparation of this report, and it will prove valuable to anyone intending to prospect in the vicinity of Round lake or farther west.

On the way up Mud river a portion of a day was spent on "Haystack Mountain," a large hill lying near the National Transcontinental railway line and about two and one-half miles west of Mud river. This visit was made for the purpose of verifying or disproving statements to the effect that a large body of titaniferous magnetite was associated with the hill, around which a number of claims had been staked. There

[1] Map of a portion of Northwestern Ontario, traversed by the Transcontinental Railway, between Lake Nipigon and Sturgeon Lake; compiled by W. H. Collins; No. 993.

proved to be no foundation for the rumors, beyond a very local deflection of the compass and the presence of small bunches of ilmenite, or titaniferous magnetite, which occurred as little segregations in the diabase.

Mud River Between Nipigon and Round Lakes

The Mud, or Pikitigushi river, is one of the largest streams entering lake Nipigon. It was first surveyed in 1871, by Dr. Robert Bell and Mr. G. F. Lount. From its mouth to the foot of the first portage there are about nine and one-half miles of deep steady stream. The National Transcontinental railway line crosses it seven and one-half miles from lake Nipigon, and here on either side there are many miles of almost flat sand plain without rock outcrops, with many muskegs, and swamps of thick cedar and spruce. The bench marks along the line show that these plains have an elevation of 903 to 924 feet above the sea, and from 51 to 72 feet above lake Nipigon. The banks at this point are high, rising about 40 feet above the river, and all along the lower part of the stream they are muddy, and from this circumstance the stream has obtained its name.

At the first portage there is a combined fall and rapid, making a total change of elevation in the river of nearly 18 feet. The rock over which the water falls is a fine-grained, gray gneiss or schist of Keewatin age which resembles the Couchiching gneisses of Lawson. The portage is well beaten and only 215 yards long.

At 300 yards above this portage there is a second one 75 feet in length. This portage is necessary to pass an old log jam, which has blocked the channel.

Between the second and third portages there is a stretch of four miles of steady current. The latter portage is about one mile and an eighth in length, and crosses a silt and sand plain, which rises at the lower end of the portage, according to careful barometric readings, 75 feet above the stream. This makes the elevation of the plain approximately 959 feet above sea level and 104 feet above lake Nipigon.

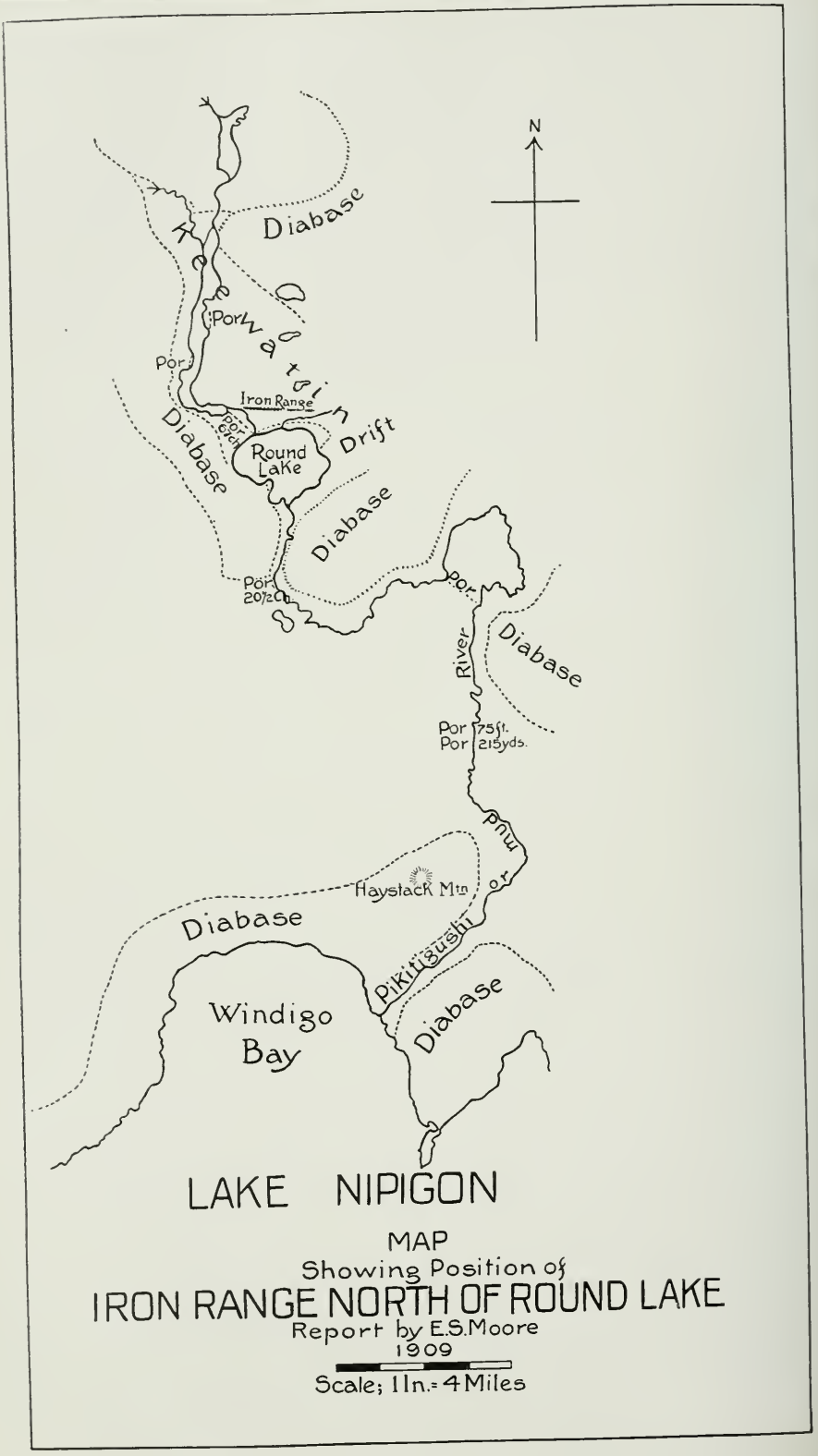
Both above and below this portage the high sand and silt terraces are common, and they continue pretty regularly to the fourth portage, above which they are inconspicuous. In the lower portions of the river banks there is well stratified clay with stratified silt and sand above.

The object of this long portage seems to be the escaping of a trip of ten miles, around a great bend in the river. Careful estimation showed a change of only 15 feet in the level of the river, between the upper and lower ends of the portage.

The stream is much swifter between the third and fourth portages than in its lower stretches, but it remains a good stream for canoe navigation. The distance between these portages is approximately eight miles. In this stretch there are excellent examples of clay and sand terraces, and plenty of opportunity to contrast the regularity of stratification and assortment in the glacial lake deposits, with the irregularity of arrangement in the flood-plain deposits of the present river. The flood-plain is restricted to narrow limits, as the stream is doing so much cutting. It has cut down into the shallow water deposits of the old lake, to a depth of 60 to 70 feet.

The fourth portage is one-quarter mile long, and passes a rapid with a difference in level of 50 feet between its foot and head. The rock occurring at this point is Laurentian gneiss with some narrow bands of gray Keewatin schist.

It is about three miles from the fourth portage to Round lake, and there are no high sand terraces to be seen. The clay and silt are not so common as they were farther down stream, and coarse sand, gravel and boulders replace them. In these coarser deposits and in the well-rounded boulders in the vicinity of Round lake, there is evidence that the shore line of the old glacial lake once lay in this region. Above


N
Diabase
Kee Watin
Por
Por
Iron Range
Por
Por
Diabase
Round Lake
Drift
Diabase
Por
20 & 20
Por
River
Diabase
Por 75 ft.
Por 215 yds.
Mud
Haystack Mtn
Diabase
Pikitigushi
Windigo Bay
Diabase
LAKE NIPIGON
MAP
Showing Position of
IRON RANGE NORTH OF ROUND LAKE
Report by E.S. Moore
1909
Scale; 1 In. = 4 Miles

Round lake the drift deposits are irregular, and do not form level plains as they do below the lake and immediately around it.

Below Round lake the banks of the Mud river are thickly wooded with spruce and cedar, and where the land is high, white birch, poplar and jackpine are common. The timber is, as a rule, small. North and west of the lake the land has been burned very bare, and the country presents a very desolate appearance, while east of the lake there is a sand plain covered with fine jack-pine.

Rocks of the Round Lake District

In the vicinity of Round lake there are four geological systems, represented by different types of rocks. These are:

Pleistocene—Drift and lacustrine deposits.

Keweenawan—Diabase.

Laurentian—Granite and gneiss.

Keewatin—Greenstone, green schist, fine-grained quartzose gneiss, and Iron formation.

The Mud river district is predominantly a Laurentian area, but, by referring to the small map accompanying this Report, it will be seen that an area of Keewatin rocks occurs north of Round lake. This area stretches about five miles directly north of the lake, where it is cut off by Laurentian granite. It extends only a short distance west of the river, and is then intruded and cut off by diabase, though, from information received regarding the Caribou Lake region, this band of Keewatin appears again beyond the large diabase outcrop. It is not probable that these rocks extend far eastward, because outcrops of diabase north and south of them converge toward the point where they pass under the drift and no doubt cut them off in this direction. The strike of this Keewatin band is about 100°, and it lies nipped in between the great bands of Laurentian granite and gneiss to the north and south.

Both the Laurentian and the Keewatin rocks are overlain and broken through by sheets and irregular masses of diabase.

Keewatin Greenstones and Green Schists

These are rocks similar to those in other Keewatin regions. There is, however, a scarcity of acid eruptives of the quartz-porphyry type so common in the Onaman Iron Range region, and less common in the Sturgeon River district. Many of the greenstones show remarkably well developed pillow-structure, which is evidence of their extrusive nature. Besides these extensive greenstones there are many hornblende-porphyries and some diorites, which have a comparatively fresh appearance for Keewatin greenstones, and they may be of later age, although they were not found cutting the Iron formation or the Laurentian rocks. There are diorites in the Lake Wendigokan region whose age cannot be definitely fixed, and which also look comparatively fresh for Keewatin greenstones. Two diorite dikes have been found cutting the Iron formation in the Onaman Iron Range region, showing that the diorite is at least younger than the Iron formation.

A thin section of one of these diorites, from the Round lake district, was examined. About five-sixths of it was composed of blue-green hornblende, in most cases pretty fresh, but in some spots passing over into calcite. The feldspars generally had the composition of andesine, and some of the crystals were much saussuritized, giving rise to zoisite, kaolin and fresh feldspar. The weathered crystals were probably of a more calcic type than the unweathered forms, since the calcic feldspars are, as a rule, less stable than the sodic members of the series, and most readily give rise to saussurite.

There are some green schists developed from the greenstones by regional metamorphism, and there are some chloritic schists whose origin is uncertain, associated

with the Iron formation. There are also quartzose, gneissic schists which seem to resemble some of the Couchiching gneisses of the west, associated with the Iron formation. They are doubtless a phase of a clastic sediment metamorphosed, or they may be a combination of a cherty chemical sediment and a clastic sediment, which have suffered metamorphism. No thin sections of these rocks were examined.

The Iron Formation

About one-third of a mile north of Round lake some narrow bands of lean Iron formation occur. The length of the range is only about a mile, and its width is very indefinite. It occurs in a chloritic or gray, gneissic schist, and only shows in a few places where it outcrops in drift, which is very heavy in this region. Bands of magnetite and silica, from eight inches to as many feet in width, occur, but they gradually grade out into a fine-grained gray gneiss, or into schist containing much silica and

Transporting materials for Transcontinental railway.

chlorite, and in some cases stained with oxidized pyrite. One cannot always find the contact between these rocks and the massive greenstones, but the Iron range rocks do not lie in contact with the greenstones. They grade through a thin series of sediments and schists toward the greenstone, and the contacts are usually covered by drift.

The typical Iron formation rock is composed of a crystallized chert interbanded with magnetite and hematite, and containing small amounts of siderite. The magnetite is present in sufficient quantity to affect, very locally, the compass to a considerable extent. The silica has a saccharoidal appearance, and is similar to that which occurs near Trap lake in the Sturgeon River region, or near eruptives in the regions where contact metamorphic action has occurred. It differs from these contact phases, however, in not possessing any actinolite, so far as the specimens collected would indicate. The relation of the silica and iron oxide bands to one another is very irregular, and strongly resembles what one would expect if one of the large cake-like concretions,

common in bog ore regions, were drawn out under great pressure. There is no evidence, however, of clastic quartz such as one finds in the bog ore concretions.

A thin section of this silicious magnetite rock shows that a chert has completely crystallized into interlocking quartz grains, often six-sided. As to the cause of this alteration in the chert, there are several agencies which might produce it. It might be due to the action of the Keweenawan diabase, which seems to have covered this whole region, or to that of the hornblende-porphyrites, or diorites, which are common in the vicinity of the Iron formation, and which may be, as already suggested, younger than the Iron formation, although there is no proof of their younger age. The action might be due to regional metamorphism, or to the existence of Laurentian granite, within half a mile of the Iron formation. The presence of the granite is a very probable factor, because considerable pyrite occurs in some of the schists associated with the Iron formation, as it does in some of the Iron formation rocks intruded by granite in other regions.

The strike of the formation is 100° and the dip is vertical or at a high angle to the north. According to W. H. Collins, a narrow band of Iron formation occurs on the shore of Caribou lake, and it seems probable that it is a continuation of the small band on Round lake.

Mr. McInnes in his notes on the Pikitigushi (Mud) river mentioned the finding of good Iron formation boulders in the drift of the Round Lake region, without any evidence of their origin.[2] He has regarded the Keewatin area as Huronian, which classification is in accordance with the nomenclature in vogue at the time of his visit.

The Laurentian Granite and Gneiss

The Laurentian granite and gneiss are the predominant rocks of the region north of lake Nipigon. They are to a large extent excluded from view by the drift and in places by the diabase sheets, but they outcrop in many places, thus showing their widespread distribution.

In the vicinity of Round lake, granite occurs near the northeast corner of the lake and there is a small outcrop along the north shore. It is prominent southwest of the first portage on the Mud river, above Round lake, and the upper part of the portage follows near the contact between the Laurentian granite and Keewatin greenstone. Granite is again seen over large areas beyond the great diabase outcrop along the west side of Mud river, and it occurs about nine miles north of Round lake.

There was nothing striking about these rocks, as they possessed the monotonous characters common to the great Laurentian areas.

The Keweenawan Diabases

The Keweenawan system of rocks has been well developed in the Round Lake region, but it is now only represented by remnants of intrusive sheets or batholiths. There is a ridge of hills, conspicuously rounded and irregular, running along the west side of Mud river from a short distance south of Round lake, to beyond the Height of Land to the north, and a similar ridge extends along the east side of the stream but a little farther removed from it. The exterior west and east borders of these respective masses have not been traced out, but the band on the west side of the river is not very wide.

The exact form of these diabase masses has not been determined, but the occurrence along the west side of Round lake seems to be a great, irregular, intrusive mass, which has broken through the older rocks and which probably supplied a course for the material of which the sheets of the region were composed. The base of this mass could not be found, and it seemed to cut, rather than overlie, the older rocks. On the eastern

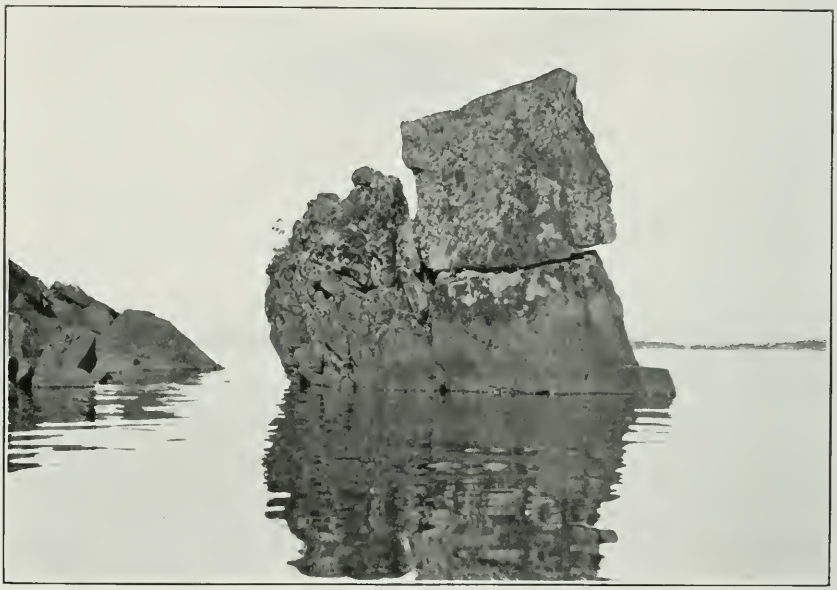
[2] Can. Geo. Sur., Vol. 15, pp. 211-13A.

side of the lake the mass seemed to be the remnant of a great intrusive sheet, which was injected into rocks now eroded away.

An observation of the diabase outcrops of this region gives one an idea of the tremendous extent of the volcanic activity during Keweenawan time, and of the great quantity of basic igneous rock which has been eroded away since that period. No sediments of Keweenawan age were observed.

Pleistocene Geology

The drift in the vicinity of Round lake is heavy in places. There is no distinct beach line in the neighborhood, but there are evidences that the north shore of the old glacial lake, which covered the Nipigon region was not far from Round lake. These evidences are found (1) in the gradual lowering of the sand terraces as one



A column of diabase, Lake Nipigon.

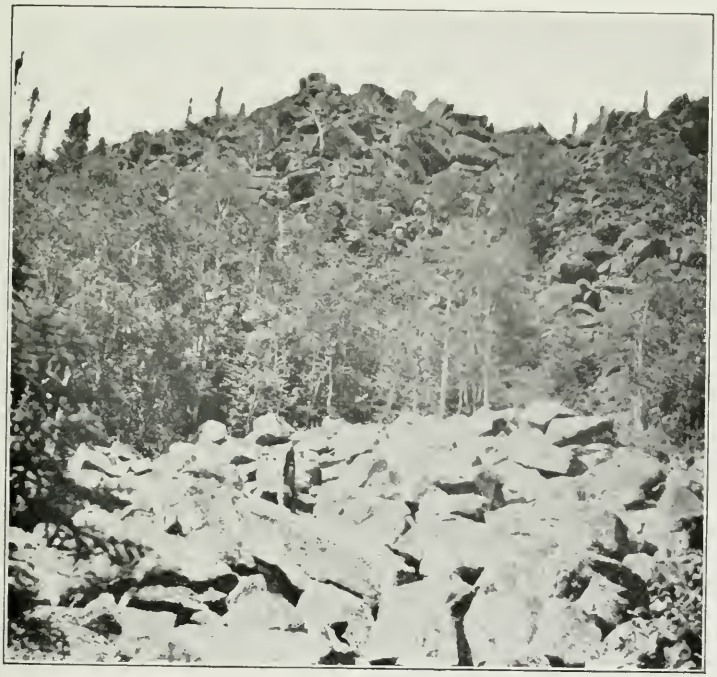
approaches the lake from the south, by way of the river; (2) in the increase in the proportion of coarse clastics, such as boulders, gravel and coarse sand, and the decrease in clay and silt; (3) in the well-rounded boulders found in the vicinity, which are too large and well-rounded to have been worn by the present lake, and (4) in the irregular morainic hills occurring north of Round lake. These hills show no evidence of having been worked over by the glacial lake.

The fact that no distinct beach remains, may be due to the ice acting on the north shore in this region as it has undoubtedly done in the Red Paint region. As Round lake has an elevation of approximately 977 feet above sea level and 125 feet above lake Nipigon, the glacial lake level was a little above this. As the writer has previously pointed out in another article, there seems to be some difference of opinion as to whether this glacial lake was Lake Warren or Lake Algonquin. According to the latest work of Goldthwait, the latter is the only one possible.

Between the third and fourth portages on the Mud river, there are first-rate examples of stratified clay grading upward into the silt and sand. These are the shallow water deposits of the glacial lake, and the river has cut through them to a depth of 60 feet. Along the stream the contrast between the lacustrine deposits and the

flood-plain deposits of the present river is well illustrated. The former are well assorted and perfectly stratified; the latter are characterized by ill assortment of materials, by very irregular stratification and cross-bedding, and by red colors in places. The color occurs in patches of coarse sand, where small pools in the flood-plain have become separated from the main stream, and have been left to evaporate

"Haystack Mountain," from Lake Nipigon.



View showing fractured condition of "Haystack Mountain" on southeast side.

and to deposit their salts of iron, as in a bog. Some of this sand is quite red and the grains carry a coating of limonite.

As an example of the vertical distribution of the drift, it is interesting to note that Laurentian granite boulders were found on the top of "Haystack Mountain," which rises 414 feet above the level of lake Nipigon.

"Haystack Mountain"

"Haystack Mountain" is a large diabase hill of conical shape resembling at a distance an old volcano. It is not, however, a volcano, and on account of its peculiar shape it has locally been given the above name, "Haystack Mountain." It is situated about three miles north of lake Nipigon, but since it rises like an island in a large swamp, it is most easily reached by going up to the Mud river to the Transcontinental railway line and following the latter two and one-half miles west. The hill lies close to the line.

A half day was spent in investigating this hill, because some prospectors' claims had been staked around it. These claims were staked on account of a local deflection of the compass which prospectors and railway surveyors had observed in the vicinity of the hill. They supposed that it contained a large mass of magnetite.

The hill is, according to a careful barometric measurement, 342 feet higher than the swamp around it, and 414 feet above lake Nipigon. The latter determination was made from bench marks on the railway line. The conical shape seen at a distance is due to a great talus pile on the southeast side. This talus is a very striking feature of the hill, as brecciation begins at the foot and extends to the very summit. Many of the blocks close to the top are huge masses, and it seems strange that such a comparatively small hill should suffer such extensive brecciation. This extreme brecciation seems to be largely limited to the southeast side, as the other sides are without much talus and have steep to comparatively gentle slopes. The only explanation of the conditions which seems to be satisfactory, is to suppose that a fault occurred in comparatively recent time, with a strike nearly northeast and southwest. This would leave a steep fault scarp along the southeast side, and permit the rapid destruction, by weathering agencies, of that part of the hill. The hill is evidently a remnant of a large sheet, the remains of which can be seen in many places over this portion of the country, but the general shape and nature of the mass suggest that it may have been a sort of plug which served as a channel for the ascension of the diabase magma forming the sheet. The fact that there are two other hills somewhat similar to "Haystack Mountain" but of smaller size, lying in line with it, about a mile and a mile and a half respectively to the southeast, suggests that these three hills may be of similar origin, and that the three plug-like masses arose along some line of weakness in the pre-Keweenawan rocks.

The rock in this hill is a diabase similar to that in the Poplar Lodge region, and varies from fine to very coarse grain. There is no iron of importance associated with it, but there are little bunches of titaniferous magnetite or ilmenite occurring as segregations in the coarser diabase. It could not be noticed that the segregations were confined to any particular portion of the hill, but they seemed to be scattered all through it, as they are in other portions of the Keweenawan diabase.

The diabase is cut by small dikes from half an inch to a foot in width. These are of a crypto-crystalline rock resembling fine-grained granite, and are similar to those frequently occurring in the Nipigon region which Dr. A. P. Coleman has identified, from the thin section, as granite. In some cases these dikes are without very distinct boundaries, and since they occur on Flat Rock portage between Lake Nipigon and Nipigon river, filling cracks in a columnar-jointed sheet of diabase, and associated with small pegmatite veins, the writer regards them as an acid phase of the diabase magma, and of a pegmatitic nature

BLACK STURGEON IRON REGION

By A P COLEMAN

A number of iron locations were taken up years ago southwest of lake Nipigon in the neighborhood of Black Sturgeon lake and river, and a certain amount of work was done on them in the way of stripping and diamond drilling. As some very high grade hematite has come from this region, it was of interest to have its geology worked out and mapped. In undertaking this work great assistance has been given by Messrs. Wiley and Marks of Port Arthur, who took up many of the locations and did most of the development work. They were good enough to provide copies of maps and plans of the locations showing where work had been done, and also rough maps of routes by which to go into the region.

Black Sturgeon lake may be reached from three directions: from a point near Wolf on the Canadian Pacific railway, canoes starting under the railway bridge and going up Black Sturgeon river to the lake of the same name: by going part way up Nipigon river and crossing westwards along a chain of lakes, of which Fraser lake is the largest: and by going up Nipigon river to lake Nipigon, then turning westward to Black Sturgeon bay from which there is a canoe route south to Black Sturgeon lake. The route up Black Sturgeon river was chosen as the shortest, though it seems to be seldom used and we could get little information regarding it.

The Black Sturgeon River

Although this river and the lakes between it and lake Nipigon have been traversed several times, by Dr. Bell,[1] Dr. A. W. G. Wilson,[2] and others, the accounts given of it in the Geological Survey reports are very brief and without details, so that the characteristic features, topographical and geological, will be given here.

Our canoes were put in the water beneath the railway bridge, a mile or two from Black bay of lake Superior and, according to White's Altitudes, ten feet above it. At this point the river flows between banks of stratified clay at the bottom, and sand above, having cut its channel down through about 55 feet of old delta deposits. Two or three miles up there is a rapid, where the portage path climbs to the top of the terrace, which it follows for a fifth of a mile. The fall here is about 14 feet. Three quarters of a mile up stream there is a second portage over a low terrace, rising 20 feet from the river: followed after 200 or 300 yards of paddling by a third short portage; and half a mile farther up, by a fourth, only 100 yards long. The first portage is on the east side, the others on the west; and the total rise is to 643 feet (aneroid). No rock is seen until a bend in the river two or three miles above the fourth portage, stratified clay covered by stratified sand making the banks, which reach the level of the main terrace at about 667 feet. Here a cliff of red granite and gray gneiss rises about 200 feet on the east side of the river, with a talus of great blocks at its base.

About two miles above the cliff, following the windings of the stream, there is a fifth portage, 100 yards long, on the west side over red Keweenawan shale: followed a mile beyond by the sixth portage, on the east side over boulders. An excursion inland to the west of one of the bends showed a low sill of diabase about 60 feet above the river, followed by talus and a cliff, the lower part of Keweenawan stratified rock lying nearly horizontal and rising 300 feet above the sill, the upper part of roughly columnar diabase having a height of at least 200 feet.

The red shaly rock between the diabase sheets turns to gray as it comes against the upper diabase, and is finely laminated in places, pale gray and dark gray or red;

[1] G. S. C., 1866-9, pp. 333-4; 1872-3, pp. 97-8. [2] Ibid, 1901, 97A and 101A to 103A.

while in others there are ripplemarks, mud cracks, and cross-bedding on a small scale. From a distance the cliffs are bright or dark red in the lower part with the gray diabase above.

In general, the river swings to and fro across its valley, which is about three-quarters of a mile wide, between cliffs of granite and gneiss to the east and Keweenawan rocks to the west, presenting very striking scenery. The valley has either been eroded out of the Keweenawan where it leaned up against a pre-Keweenawan cliff; or represents a much widened fault zone where the western side has slipped down as compared with the eastern. The former theory seems on the whole the more probable.

Beyond this on the way up stream the valley widens, and in a few miles the diabase cliffs to the west are miles away, while the hills of granite and gneiss continue their course not far to the east, though never actually reaching the river. There are a few terraces with clay beneath and sand above, reaching an elevation of 700 or 710 feet above the sea. The current is stiff with riffles or small rapids requiring the pole or rope in places for about 20 miles above the sixth portage, before the seventh

Diabase cliffs, Black Sturgeon river.

portage is reached, 150 yards long on the east side, over a sand terrace, past a rapid with a fall of ten feet over boulders. Not far above this portage another, on the west side, with a length of about a quarter of a mile cuts off a bend of the river, avoiding an almost continuous series of rapids with a total fall of about 20 feet. Soon after Little Nonwatin or Nonwatinose lake, about two miles long, opens out, with marshy shores. Three miles of river and another rapid with a fall of ten feet, bring one to the level of Nonwatin lake, the portage being on the east side and about 250 paces long.

Nonwatin Lake

Before reaching Nonwatin a lake expansion more than a mile long from southeast to northwest, and about a mile of river with low marshy shores must be passed. Nonwatin itself is roughly square in outline, three miles long from southwest to northeast, and two miles from the stretch of river just mentioned northwestwards to the continuation of Black Sturgeon river. Its shores are low, but there is a high range

of rocky hills half a mile to the east and north. To the west and south the hills are distant and comparatively low. The bold escarpments of the Keweenawan diabase sheets, so striking a few miles down the river, are wanting, or are so distant as to attract no attention. According to railway surveys, lake Nonwatin is 759 feet above the sea or 159 feet above lake Superior. Points on its shore are definitely fixed by two base lines, one east and west, and the other north and south. Beatty's east and west line cuts Black Sturgeon river at 9 miles 38½ chains from its starting point to the east, and strikes the southeast end of the lake about a half mile to the west. On the other side the 12-mile post is a few hundred yards west of the southwest bay of Nonwatin lake.

Beside Black Sturgeon river coming in from the lake of the same name on the northwest, another large stream, Nonwatin river, comes in from the west, with many windings through low ground.

The iron locations touch Nonwatin lake at its northeast corner and extend southeastward nearly to Beatty's line, and northwestward to Black Sturgeon lake. Some of the lines are old and by no means easy to follow; but the later ones are well cut out and present no difficulty except in swampy places. Most of the locations have been so chosen as to include the southwestward cliffs of the range of granite hills, and the lines often require a stiff climb of several hundred feet from the drift-covered low ground along the lake to the summit of the Laurentian ridge.

Geology of the Nonwatin Region

It was soon found that no Iron formation of Keewatin age and character existed in the region, the lower ground consisting of drift with a few outcrops of Keweenawan sediments or diabase, and the range of hills of granite, gneiss and certain schists. The iron ore occurs always along or near the southwestern flank of the Laurentian hills, mainly in small fissures.

Beginning at the southeast at Beatty's line, which runs about a quarter of a mile to the south of the last claim, the geology may be followed to the northwest. Along Beatty's line eastward from the lake only boulder clay is seen for a third of a mile, when a slope of much weathered diabase rises toward the east and continues to mile IX., after which drift covers the rock again for 620 paces, with granite rising here and there through the mantle of boulder clay. At three-eighths of a mile east of mile IX. there is a cliff of gray schist, either Laurentian or Keewatin, capped by a sheet of diabase, and on the cliff there are a few red streaks suggesting hematite, but nothing that could be called ore.

The sheet of diabase extends for several hundred yards to the east and forms the highest summits of the ridge at this point, reaching 730 feet above Nonwatin lake, or 1,490 feet above sea level. To the north it breaks off as a steep cliff, under which granite is found, 235 feet below the top of the hill, showing that the diabase sheet has at least this thickness.

On locations G 711, G 712, and G 713 the overlying diabase sheet was not found, the top of the broad ridge consisting of granite, gneiss and gray schist, the last rock being most common. Toward the southwest corners of G 711 and G 713 the ridge descends steeply toward the lowland and a few thin seams of red hematite or black specular hematite occur on the edge of the slope. In one place on the south side of G 713 a coarse breccia of granite fragments with a little hematite is found, as if the granite had been shattered on a talus slope before the small stringers of ore were formed. It may, however, be a fault breccia.

At the foot of the cliff talus blocks of recent age hide the rock, and boulder clay forms the lower slopes, but within one or two hundred yards low swells of Keweenawan rock occur, in one place near the southwest corner of G 713 red shaly limestone, in others diabase.

There is a gap of a quarter of a mile between the northwest corner of G 711 and A.L. 6, the rocks along the tie line connecting the two locations being Laurentian where not covered with drift. A.L. 6, includes only Laurentian granite and gray schist, so far as the east and north side are concerned, but the southwest corner sinks down under drift deposits, broken by a low outcrop of diabase just south of the corner post.

A.L. 9 also displays chiefly gray gneiss or schist somewhat cut by granite, and penetrated toward the northwest corner by a broad dike of diabase. The southwest corner consists of reddish or gray shaly limestone or marl overlain towards the foot of the Laurentian hill by a thin sheet of reddish fine-grained sandstone. In places coarse diabase, and also what appear to be dikes of much decayed felsite, occur in it, but the outcrops are low and often covered with boulder clay, so that the relations are obscure.

G. 709, touching the northeast bay of lake Nonwatin, is mainly covered with boulder clay, though its northeast side rises upon the Archean ridge to a height of 1,300 feet with fine cliffs of the usual granite and gray schist. The only rock found below the steep hill slope is a low outcrop of much weathered diabase an eighth of a mile from the northwest corner post. No rock was seen on G. 710, only low hills and swampy flats covered with boulder clay and an esker ridge or two, but angular fragments of red shale or marl on some of the hill slopes probably indicate Keweenawan rocks not far below the surface. This location is the only one near the lake which does not rise upon the Archean ridge.

G 708 also is mostly drift-covered, the only rock observed being on the ridge of granite and gray schist at the extreme northeast corner. Descending a precipice 300 feet high toward the west the northern boundary crosses a stream and immediately rises more than 150 feet to the crest of a moraine which runs northwest into G 707 parallel to the Archean hills. Granite and gray schist rise steeply along the eastern and northern sides of G 707 and continue into G 706 and G 705, occupying the northeast corners of these two locations, the rest being covered mainly with boulder clay.

It is evident that the locations northwest of A.L. 6 have been taken up along the edge of the Archean hills so as to include the slope to the southwest, where in many places red Keweenawan rocks occur at the base of the cliffs. As no ore was found by us along this hillside for the three miles of outcrop northeast and north of lake Nonwatin, it may be that the red Keweenawan marl, etc., was looked on as indicating ore; or the claims may simply have been intended to connect up the southeastern outcrops containing a little hematite with the more promising ones toward the northwest.

Along Black Sturgeon River

Along Black Sturgeon river between Nonwatin and Black Sturgeon lakes there are considerable exposures of red shale or marl belonging to the Keweenawan, the longest continuous outcrop of the sort being on its banks toward the eastern end. The shale rises from 8 to 15 or 20 feet above the river as red cliffs rapidly crumbling under the weather, so much so that a hand specimen is hard to get. The weathered surfaces show the horizontal stratification better than unweathered ones, and occasionally ripple marks may be seen. The rock is surprisingly fresh looking and, so far as appearance goes, might be of any age up to recent times, though the general relationships in the region make its age almost certainly Keweenawan. The red shale may be followed up stream for more than two miles, when it is covered by drift. The thickness of the shale is undetermined and it has not been found in contact with any other rock, though the diabase found at some of the rapids above is probably part of an overlying sheet.

South of the river boulder clay and morainic ridges completely cover the bed rock so far as our work extended; and the same is true to the north for about a mile, though angular fragments of red shale occur here and there where trees have

Laurentian hills, Black Sturgeon river.

Canyon near Black Sturgeon river.

been overturned, showing that the bed continues not far below the surface. As red shale in the form of sand and gravel occurs along the shore of Nonwatin lake at many places, one may conclude that its bed is made of this material, which probably underlies the gray shale, soft sandstone or diabase found outcropping in many parts of the low ground southwest of the range of Archean hills.

The upper part of the river, west of the two miles of rapids where the shale is cut into, flows mainly between shores of morainic materials, but a low sill of diabase with blocks which have been somewhat shifted, forms the short island portage between two small lake expansions.

Parts of the shore of the river may fairly be described as of wood, for cedar swamps full of fallen trunks scarcely decayed have encroached on the river bed; so that in places one can walk 50 yards out on the tangle of logs and branches with small arms of the river flowing through or beneath them.

Iron Locations Between Nonwatin and Sturgeon Lakes

Most of the region northeast of the river as far as the top of the Archean hills has been blocked out into locations, several of those in the lowland showing, however, nothing but morainic deposits where not covered with muskegs.

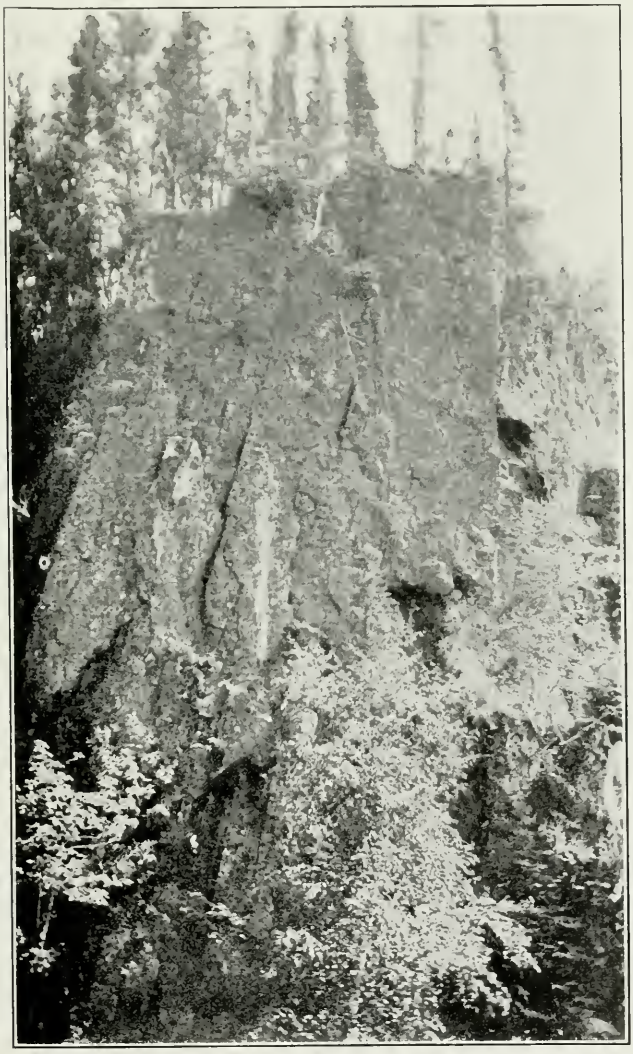
In a former paragraph location G 705 was referred to as including the edge of the hill at its northeast corner; but in the succeeding locations to the west, G 704-3-2 and 1 no rock whatever was found. They were apparently taken up with the idea that iron-bearing rocks might underlie the drift, the red shale found here and there in the boulder clay giving a suggestion of this sort.

North of this row of locations there are much older ones, with lines now hard to follow, so laid out as to take in the front of the Archean hills, A.L. 4, 2, 3 and 5. A.L. 1, however, is on lower ground, where only glacial materials were seen by us. Toward the eastern end of A.L. 4 the edge of the hill is of the kind frequently referred to before, with little suggestion of ore, but toward the west the crest of the steep hill shows red stains on the Laurentian rocks and a few thin seams of hematite connected with a breccia of Laurentian materials. A hundred yards west, in location A.L. 2, a singular ravine or narrow canyon opens up between walls of Archean rock, running first about north for an eighth of a mile, then turning off to the northwest. The walls are of granite, often vertical and in places more than 100 feet high. At one point gray schist has tumbled in from the top, partly filling the canyon, the tiny creek flowing under the loose rocks. The cause of this curious vertically walled ravine is not easy to assign, since the present creek is insignificant and does no appreciable work. The canyon may be pre-Keweenawan in age. Near its mouth and for some distance along the cliff on each side red stains and small seams of ore occur, and at the bottom in some places there are irregular veins of jasper and brecciated granite, often quite pretty with different tones of red. Concretionary masses of chalcedony without iron oxide occur also. The amount of ore observed is small near the mouth of the canyon, and none is seen farther up.

Slight seams of hematite and some breccia and jasper are found westwards along the edge of the cliffs of granite and gray schist through A.L. 3 and the north side of A.L. 5. Here another ravine, on a smaller scale, penetrates the front of the hill, but runs only a short distance in. The rocks found along the bed of a small creek which cascades down the ravine for about 200 feet are greatly weathered and hard to interpret. They look like red and gray shale, steeply tilted to the south so as to rest against the Archean hill side of granite, but are probably much decomposed gray schist of Archean age. They seem to have been shattered, brecciated or even crushed to material like arkose before the hematite was deposited, since this fills fissures and encloses fragments of the crushed rocks. The edge of the cliff may really be a very ancient zone

of faulting, where waters charged with iron compounds from overlying Keweenawan rocks could deposit their contents. Since then the removal of the Keweenawan has exposed the once buried fault zone. It is possible, however, that it was a pre-Keweenawan cliff, weathered and frost shattered before the Keweenawan sediments were laid down.

Besides the canyon-like ravines mentioned above there is an even more striking one cutting the Archean tableland a quarter of a mile north of A.L. 4. Following the



Cliff in Canyon near Black Sturgeon river.

north and south base line one rises upon the usual surface of granite with some gray schist, with an elevation of 1,100 to 1,160 feet above sea level. A little south of mile 4 on the base line the canyon opens suddenly with vertical walls a hundred feet deep. At the bottom there is only a trickle of water making its way through heaps of talus. The width of the canyon is less than 100 paces, and the north side rises as precipitously as the other to a height of more than 1,200 feet. The direction of this valley

is about northwest and southeast. These is no observable cause for the sudden and sharp depression in the tableland, no remnant of diabase visible to suggest the weathering out of a dike, no softer layer of vertical schist that could be easily destroyed, and no hint of a former river or succession of water falls capable of carving such a narrow and steep walled ravine.

South of the Archean cliff at the west end of A.L. 5 there is a small lake with a sharp moraine ridge beyond it, a narrow ravine, and then a second parallel moraine, running for perhaps a mile from east to west. On the southern lake shore there are large angular blocks of sandstone, but this rock was not seen in place, being buried under the drift.

The continuation of the edge of the Archean tableland strikes to the west beyond this, passing through locations G 698, 697 and 695 without much change in character, but at some points on its flanks diabase is found; and farther to the south in G 700 and G 699 Keweenawan sediments occur, partly drift-covered, a yellowish dolomitic rock along the north of the locations, and red shale and breccia about midway in them. East and west of the boundary between G 699 and G 695 streaks and seams of hematite occur along the Archean slope, as at so many other points. No rock was observed on G 696, which extends southward from G 695 to Black Sturgeon river.

Locations Southeast of Black Sturgeon Lake

Locations G 694 and 693 occupy low ground covered with swamp and drift near Black Sturgeon lake, but the line of outcrop of the Archean hills crosses the northeast side of 200 E. and runs from south to north in 97 E., partly as rather steep slopes and cliffs, but toward the north sinking to lower, drift-covered slopes. To the southwest of the cliff in some places diabase appears on the lower slope; while the cliff itself consists of red granite or gray schist, or a mixture of the two rocks. Near the middle of 200 E a small ravine opens in the Archean hills running northeast and occupied by a small creek. Very similar relationships to those described before occur here, rusty and much weathered rocks, looking like sandstone or sandy shale, being found at the foot of the ravine as if piled up against the Archean, but showing all transitions to the gray schist penetrated by granite dikes which makes the top of the tableland. The weathered front of the cliff has almost lost its original character and is seamed and streaked with hematite, red or micaceous. The small granite dikes in this weathered zone have been brecciated, sometimes taking on the character of arkose, a little chalcedony forming part of the cement.

No important amount of ore occurs, though the reddened rock bulks quite largely.

Following the outcrop of Archean northwards through 97 E, the extent of the weathered material diminishes and it sometimes almost disappears, the gray schist looking quite fresh, and having a strike of east and west with about vertical dip. The granite is generally more weathered, broken surfaces showing the feldspar mostly changed to decomposition products. Among the finer grained granites and schists, there are some very coarse pegmatitic parts, almost white where not weathered.

The face of the cliff turns toward the northwest near the northern end of 97 E and is less precipitous, sinking to a gentle slope at the northwest corner of the location, where boulder clay covers most of the rock.

Location 94 E

The most interesting seams of ore in the region are found on location 94 E, where a good deal of stripping and diamond drilling have been done, and several log houses have been built. At the southwest corner of the location a shallow pond named Beaver Dam lake hides the rock, but just to the south a low escarpment of diabase rises as a cliff and continues westward into G 692. To the north of the pond another canyon cuts into the Archean rocks, running very straight in the direction N. 55° E., with

steep walls, often unscaleable, reaching a height of 200 feet or more above the floor. In many places great heaps of talus have rolled down, giving a V-shaped bottom to the ravine. At the time of our visit there was no stream flowing in the canyon, but strong springs rising from broken rock near the pond no doubt represent an underground drainage.

Trenching along the foot of the cliff near the mouth of the canyon begins in 95 E and runs into 94 E, having a direction of about northwest and southeast, and a length of about 60 paces. It shows mainly gray green slate or schist as country rock, standing vertical and having a strike of 55° or 60°. The rock north of the pond is greatly crushed and slickensided in places, showing evidence of faulting, as suggested by Mr. Knobel, who studied the geology of the region for the owners of the locations. There is a good deal of rusty, greatly decomposed, rock near the mouth of the canyon, especially just to the east of it, with seams of pure hematite; micaceous or botryoidal in places, and also of reddish black martite with very perfect octahedral cleavage, evi-

Indian Children, Height of Land portage, Pic river.

dently pseudo-morphous after magnetite. The ore occupies narrow fissures between the small blocks of the crush breccia, and frequently the same octahedral cleavage runs for several inches, quite enclosing bits of the rusty country rock. We have then here soft red hematite, black micaceous or specular hematite, botryoidal concretionary coatings of hematite, and also martite. Small veins or fragments of the ore may be selected which are practically pure, but the total amount to be seen is only small. The ore is of admirable quality if it occurred in amounts to make it of economic importance. Very few other minerals were seen, though a little calcite occurs with the ore in small cavities.

Going up the canyon a little of the red rock with films of ore is found for 480 paces, mostly on the face of the cliff to the northwest.

The walls of the canyon correspond in direction to the strike of the schist and consist of that rock for nearly a mile northeast of the pond, when diabase takes the place of schist, and the sharply defined character of the ravine gives way to a less regular depression. The relation of the diabase to the schist is not quite certain, though it is, of course, later, and grows finer grained at the contact. Small outcrops of diabase

were found by Mr. Moore towards the northeast end at the bottom of the canyon between walls of schist, suggesting that the ravine may have been due to the weathering out of a dike. If so, the dike materials seem to have been very effectively buried under talus blocks of schist or slate at the southwest end; however, no other theory of the origin of the canyon seems as probable as this. The main mass of diabase to the northeast seems to be an irregular sheet overlying the Archean.

The schist varies a good deal, some parts resembling slate and others being spotted with small patches of white or red. It has the appearance of a true Keewatin rock rather than of the Couchiching phase found in some other parts of the region.

In various directions within a mile or two granitic and gneissoid rocks are found, so that the area of distinct Keewatin schist is not large, and owing to the invasion of dikes and bosses of granite, is hard to define on a map.

Beaver Dam lake stands at 940 feet, while the highest point along the walls of the canyon, half a mile up, was found to be 1,230 feet. Close to the north end of the pond a test-pit shows loose blocks of red shale and sandstone, probably not far from their source, so that Keweenawan sediments probably underlie the pond and the diabase sheet which rises as a cliff 20 feet high at the other end.

95 E and 96 E

Following an old line nearly obliterated running east from the canyon near where the east side of 94 E reaches the cliff, the Keewatin gray schist is found for half a mile, when a hill of diabase rises to 1,270 feet, no doubt overlying the Archean. Going south on the eastern line of the old location (R 409) granite and schist are encountered, and the same is true of the line on the south side of this old location.

These old lines are very hard to follow, and the fresh lines of the new locations have been placed with no relation to them.

Going northwest from the mouth of the canyon just described the Archean hill side may be followed through 95 E into 96 E without much appearance of ore, partly perhaps because of the large amount of drift covering the slope, which is here not very steep. A few hundred yards within 96 E rusty surfaces and thin seams of ore occur, and then a wide expanse of rusty rock where a comparatively large amount of work has been done in the way of pits, trenches, and diamond drilling. Much of the lower surface is covered with sandy till, which has been stripped in places, disclosing the rusty rock beneath. One or two of the pits sunk through the till, though timbered, have been partly filled with sand, so that little is to be seen in them. The bed rock appears to be brecciated coarse granite, much reddened with hematite, but seldom heavy enough to be called ore. The dumps consisting of this material show slickensided surfaces, and thin films of black hematite with a little dull jasper. Near one pit part way up the hill side a little very lean ore occurs with the usual rusty rock.

The hill to the east of the pits has been more or less trenched and stripped, showing first minute ore seams and rusty granite, and then reddish black much weathered slate or schist passing into fresh gray green Keewatin schist, with a dip varying from 80° to vertical and a strike of 60° to 80°. Even in the freshest schist near the hill top a few narrow seams of reddened material or films of hematite show that the ore-bearing solutions have acted on the rock, the solutions probably coming from overlying Keweenawan rocks now removed. The rusty area in 96 E is the largest seen in the region, though no really valuable ore is disclosed in the dumps. A little of the very cleavable martite described before is found in the brecciated rock, but less than in one of the test pits near Beaver Dam lake in 94 E.

Along the hill side northwest toward the eastern line of A.L. 7 a few ore seams are found, mainly in Keewatin schist, but these disappear soon, and before the west boundary is reached the hill slope is no longer well marked. Farther to the northwest morainic ridges and hills seem to hide the rock completely.

The locations to the southwest of those along this part of the escarpment show hilly surfaces of sand silt and boulder clay, with some sharp esker ridges and several kettle basins, either empty or enclosing a small lake. Still to the southeast, across the Black Sturgeon river broad moraines rise with steep stony slopes and extend for some distance. No rock was found in that quarter and no location lines were to be seen, so that work was not continued in this direction.

Indian mother with pappoose.

Summary of the Geology

Summing up the geological relationships in the Nonwatin-Black Sturgeon region, we have underlying all an Archean surface of granite, gneiss and gray or green schist, sometimes of a Couchiching aspect, at others typical Keewatin, the schistose rocks being cut by dikes of granite in many places. The flat Archean surface stands at two levels, a lower one, now chiefly hidden under Keweenawan rocks and drift, and an upper one rising from 300 to 500 feet higher and having a somewhat uneven surface,

granite bosses and hills often standing above the areas formed of gneiss and schist. Whether these two levels existed in Archean times or have been separated since by faulting along the northwest and southeast line of escarpment mentioned in the description of the claims, cannot be settled positively, though faulting in Keweenawan or somewhat later times seems probable.

No Archean rocks later than the Keewatin and Laurentian have been found, the whole of the Huronian appearing to be absent, unless possibly some of the overlying sedimentary rocks are of Animikie or Upper Huronian age.

At one time the whole Archean surface seems to have been covered with Keweenawan rocks, though most of the tableland northeast of the escarpment, so far as explored by us, is now free from them.

The rocks generally called Keweenawan include various sediments and diabase. The sediments found in our work are red and gray shale, impure dolomite or limestone, and reddish sandstone, the red shale being the lowest, and much thicker and more widespread than the other rocks. They all appear to lie nearly horizontal and to have suffered practically no distortion or metamorphism, since they are still soft and easily crumble under weathering. In appearance they might be quite recent, but no fossils have been found in them, and the association with diabase sheets like those of the Keweenawan makes it probable that they are of Keweenawan (or Lower Cambrian) age.

The sedimentary rocks have been found only below the step between the lower and higher Archean surfaces, and they often occur in small outcrops just at the foot of the cliff or slope separating the two levels. Their wider extent is shown along the channel of Black Sturgeon river and by the angular fragments of red shale commonly found in the boulder clay. In many places they are covered by a sheet of diabase; and it is pretty certain that the exposed parts of the sedimentary rocks were once protected by an extension of this sheet, now removed by weathering and glacial erosion, since such very fragile rocks as the red shale could hardly have survived the immense period of erosion since Keweenawan times.

No sedimentary rocks of this age have been found by us on the higher level of the Archean, which looks as if this portion was originally higher than the low ground covered with the sediments. In several places diabase is found on the flanks of the escarpment and frequently also on the higher points within the region studied. A northward excursion by Mr. Moore showed that a wide sheet extends towards lake Nipigon from the outcrop crossing the canyon northeast of 94 E.

It is likely that diabase sheets of several ages and levels occur in the region, but our work provided no means of correlating the various outcrops. Large dikes of diabase occur in various places, and it seems probable that the steep-walled narrow canyons in the higher Archean level were caused by the weathering out of dikes of this or some other easily weathered basic eruptive. The canyons sometimes run parallel to the strike of the schistose structure of the Archean, but at least one of them is at right angles to this direction, so that the supposition of softer layers of schist is precluded.

The diabase dikes may show the channels through which the molten material of the sheets or sills rose from below. None of the diabase seen in the region shows amygdaloidal or pillow structure, nor are there any other hints of surface volcanic activity, such as agglomerates or ash rocks; so that the sheets of diabase appear to have been injected between sedimentary layers, or, on the Archean tableland, between the Archean and some overlying sedimentary rock now removed.

The source of the iron solutions which have so widely impregnated the Archean granite and schist at the edge of the escarpment between the two levels, must be

looked for in the Keweenawan sediments, most of which are charged with enough hematite to be red. So far as known, the leaching process went on chiefly along the cliffs or slope of the escarpment, where these rocks lay against the edge of the older rocks. The brecciation of the granite and schist along this line suggests that some faulting took place here after the Keweenawan covered the region, though probably part of the change of level had already taken place before the shale was laid down. The later faulting, affecting both classes of rocks, would give a good opportunity for the leaching of the sediments and the deposit of seams of hematite in the crushed and fissured Archean beneath. The total throw of the fault, or faults, must have been several hundreds of feet; but it is probable that the lower diabase sheet is not simply a continuation of the upper sheet faulted down to its present level, since the lower one seems to be much thinner than the upper one, and more easily weathered.

The Fraser Lake Region

As iron claims had been reported near Fraser lake between Nonwatin lake and Nipigon river, an expedition was made to the region. The canoe route turns off to the east from Black Sturgeon river a little south of the first rapids below Nonwatin. The portage is well beaten and about one and three-quarter miles long, first over low and swampy ground for a quarter of a mile, then ascending rapidly on a slope of boulder clay followed by outcrops of granite and gray schist, reaching a level of 470 feet above the river or 1,230 feet above the sea half a mile before Magee lake is reached on the other side of the water shed. The trail takes the lowest point in the Archean ridge, which rises 200 feet higher to the north and south. Magee lake is a beautiful body of water 1,106 feet above the sea, as shown by aneroid, with cliffs of diabase on the south and a small outcrop of gray green schist at its east side.

From Magee lake a portage of nearly half a mile leads eastward over low ground to a small pond, from which there is another half mile to the creek draining Magee lake into Fraser lake. A quarter of a mile's paddle brings one to the southern end of Fraser lake. There are no rocks exposed between the two lakes. Fraser lake is six miles long from north to south and nearly two miles wide at the widest place, near the lower end; and is 1,043 feet above sea as shown by aneroid. Its shores are generally low and with few outcrops of rock. On the west side along a low promontory, flat-lying conglomerate and arkose of the Keweenawan rise three or four feet above water, and diabase is seen on the small peninsula to the north and for half a mile along the shore beyond, nowhere rising more than a few feet above water.

The iron claims lie about a mile and a half to the west of the north end of Fraser lake and are best reached through two small lakes tributary to the main lake. We gave the name Oliver to the first lake, which has low shores and, so far as observed, no outcrops of rock. A small creek with very little fall leads into the second lake, which we named Roland. It also has low shore of drift or swamp, though a fine flat-topped hill of diabase rises a quarter of a mile to the west. At the southern end of a narrow bay the first claim begins, and is followed by three others in succession toward the south. On the first claim only drift was seen, while on the second granite with some gray schist is found to the southwest, and a low ridge of gray schist runs north and south about midway across the southern boundary, showing on its slopes a few narrow streaks and seams of hematite. This low escarpment may be followed for about half a mile from the middle of the second claim to the middle of the fourth, more or less of the hematite showing all along, on granite as well as gray schist. In the low ground a little soft sandstone occurs to the west of the escarpment, but most of the surface is covered with bouldery drift.

Toward the southwest end of the third claim there is a low escarpment of diabase, which rises to the south along the west side of the next claim forming an eastward facing cliff. At its bottom gray slate of the Keweenawan is exposed, followed by

Archean gray schist, and then by another diabase escarpment facing west. Between the two diabase escarpments the ground is low.

Evidently the geological relationships and the peculiar little seams of hematite are exactly like those of Nonwatin and Black Sturgeon lakes, except that everything is on a much smaller scale. The amount of ore seen is quite insignificant.

The diabase on and near the claims nowhere rises more than perhaps 75 feet above the general level; but the escarpment a quarter of a mile east of lake Roland is much more impressive, reaching 290 feet above the lake, though the lower third of its front is covered by a talus of large blocks fallen from the cliff. The surface of the diabase is fairly level, and from the edge of the cliff lakes Roland and Oliver as well as Fraser lake and several other smaller bodies of water can be seen toward the east, while a bay of lake Nipigon is visible to the northeast.

Jackfish, the largest 2 feet 11 inches long. This variety common in waters of Nipigon region.

The shores of all the three lakes are largely formed of rounded pebbles or boulders which can hardly have been shaped by the waves of such small bodies of water, and must have been derived from some old lake beach or from unusually well rounded stones out of the glacial deposits.

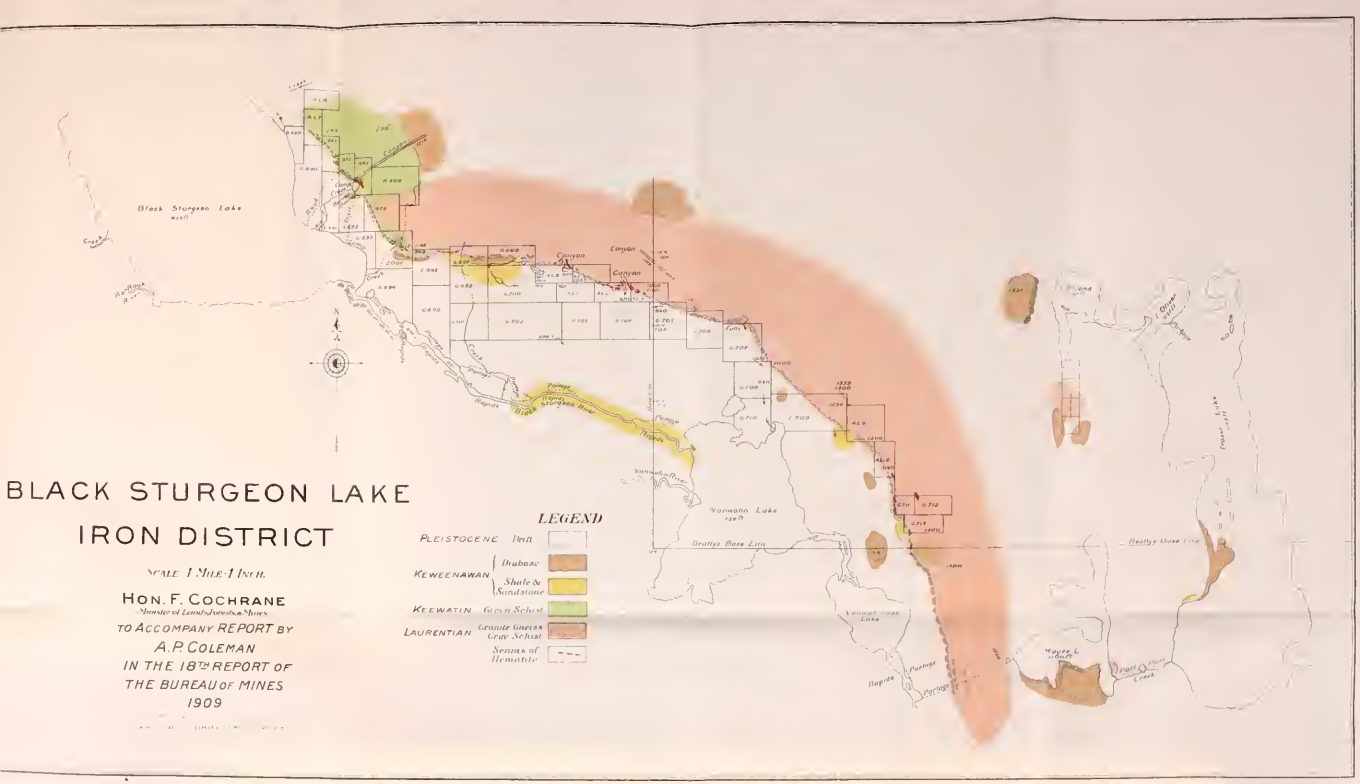
Black Sturgeon Lake

Black Sturgeon lake has been briefly described by Dr. Bell[3] and Dr. A. W. G. Wilson,[4] and it is not intended to give details regarding it here, but to refer to the main topographical features observed on the route to lake Nipigon, followed on our way out.

The shore along the claims described on an earlier page begins with a beautiful sweep of sand and gravel beach near the outlet into Black Sturgeon river, the materials partly derived from glacial deposits, and partly from the underlying Keweenawan rocks such as red shale. Toward the northwest the gravel beaches give way to coarser

[3] G. S. C., 1866-69, p. 333.

[4] Ibid., 1901, p. 97A.



BLACK STURGEON LAKE IRON DISTRICT

SCALE 1 MILE-1 INCH.

HON. F. COCHRANE
Minister of Lands Forests & Mines.

TO ACCOMPANY REPORT BY
A. P. COLEMAN
IN THE 18TH REPORT OF
THE BUREAU OF MINES
1909

stones, mainly well rounded cobbles or boulders of diabase, though in places there are angular blocks of red shale, and in others of gray schist or slate, evidently derived from near-by sources.

Similar bouldery shores, mostly of rounded diabase, extend along the south shore of the lake toward the point of entry of Rat Root river, though sand or gravel beaches have been formed in the more sheltered bays. Rat Root river has its outlet deflected to the east for a quarter of a mile by a wall of large boulders, probably transported and built up by lake ice. The shores at the south end of the lake are all low and without exposures of bed rock, though morainic hills 100 or 200 feet high rise toward the southeast.

At the narrows half way up Black Sturgeon lake low shores of granite and gneiss occur on the east side, with rounded hills to the northeast, and at the opposite or southwestern side flat surfaces of coarse diabase pass under the water at the different points, with drift inland. Along the northeast shore there is higher ground with some steep cliffs reaching the lake, apparently of columnar diabase, but circumstances did not permit a visit to them.

The canoe route passes northwest from Black Sturgeon lake into a marshy bay, nearly cut off by a sandy point from the main lake, and then by a quarter of a mile of flat portage over rounded boulders into a pond. From this a portage two-thirds of a mile long, over rounded stones only partially drift-covered, leads to the southwestern bay of lake Nipigon, often called Black Sturgeon bay. The portage rises very little above lake Nipigon, probably not more than ten feet, and the bare boulders along the route with swampy ground to the east suggest an old outlet of lake Nipigon to lake Superior. As Black Sturgeon is 829 feet above the sea and lake Nipigon 850, there would be a fall of 21 feet in the distance of about a mile, sufficient to scour the clay from the boulders in the way now to be seen. Dr. Bell noticed the same relations nearly 40 years ago, and was informed by Indians that formerly in high water there actually was an outflow in that direction.[5] It may be that Nipigon river has been slowly deepening its channel and so has gained the advantage of its western rival outlet.

The south end of Black Sturgeon bay is narrow and river-like with several bends and with much higher ground on each side, the hills being capped with diabase. No solid rock was observed in the abandoned river channel, only large rounded boulders of diabase.

Black Sturgeon Bay to South Bay

Cruising northeastward along the right shore of Sturgeon bay, Laurentian is seen first as large blocks, then diabase, then Keewatin schist, followed by diabase and once more green schist, with low shores for the first two miles. Then diabase cliffs rise for two miles more with a few small outcrops of Keewatin schist at intervals, almost as if large blocks of Keewatin rocks had been carried off by the molten diabase.

Where the winter portage crosses the long peninsula between Black Sturgeon and Grand bays granite shows itself, and the rest of the low point near by consists of granite, gneiss and bands like Keewatin. In one place a small horizontal sheet of diabase parts two layers of gneiss; and 100 yards to the south there is a cliff of diabase, though the contact between the rocks is hidden. As angular fragments of fine-grained red sandstone and also of what appears to be a basal breccia occur near by, there may be a thin bed of sedimentary rock between the diabase and the Archean.

Going north round the promontory which bounds Black Sturgeon bay toward the west, montonous cliffs of diabase form the shore with a few tiny dikes of later granitic rock. Round the point to the east there are smooth, gently sloping surfaces of

[5] G. S. C., 1866-9, p. 333.

diabase often beautifully ice-scoured, with striae running 65° west of south, and well formed "chatter cracks." The same diabase is met with along the east side of the promontory as far as the portage across a narrow neck of peninsula between the main lake and Grand bay. The portage is over muskeg almost at lake level.

Following along the lakeward side of the peninsula limestone forms the low shore for some distance, sometimes fairly pure, but mostly mixed with serpentine. It is rather crystalline and at times shows a rude eozoön structure. Fine-grained diabase appears to run beneath the limestone where first met, and a quarter of a mile farther east there is a nearly vertical contact between the marble-like limestone and diabase, the two rocks rising as a low cliff. The diabase at this point appears to be a dike, but 200 or 300 yards to the northeast it overlies the limestone and presently only diabase is to be seen.

Bear cubs at Indian camp, Nipigon river.

The limestone may not be very thick—only 20 feet of thickness could be seen at any one place—and its crystalline character is no doubt due to the effects of the neighboring diabase sheets above and below.

Rounding Gros Cap toward the mouth of Grand bay there are high shores and cliffs of diabase with no more sedimentary rocks. The flat top of Gros Cap rises 320 feet (aneroid) above the lake and forms a conspicuous landmark in the southern waters of lake Nipigon. At one point this thick sheet is cut by a nearly vertical dike of finer-grained diabase, which weathers more easily and so makes a canyon-like depression.

Otter head, on the south side of the opening into Grand bay, rises, according to aneroid readings, 470 feet above lake Nipigon and shows only diabase of a very coarse texture. There are three round-topped hills on the promontory suggesting remnants of a sheet, though they may be only small stocks. If a sheet, its chilled upper surface must have been much above the present tops of the hills.

The shore of south bay, so far as seen, is entirely of diabase, sometimes rather low, at other times rising as fine cliffs. Big Flat Rock portage, described in a former Report,[6] is mainly over the flat top of a diabase sheet. A little south of the steamboat landing at Flat Rock, on the shore of a small bay, a dike of coarse flesh colored pegmatite eight inches wide cuts the diabase and may be followed for 20 or 30 feet, partly under water. Close by and parallel to it is another dike of fine-grained granitic rock, similar to one described in the Report mentioned above.

It is rather singular that no well defined old lake terraces have been found near Black Sturgeon lake or the shores of lake Nipigon just described, while fine terraces and delta flats occur along the east shore of lake Nipigon and Nipigon river. It may be that suitable drift materials were lacking toward the southwest end of the lake where no large rivers entered the Nipigon bay of lake Algonquin.

The region traversed by the little used canoe route up Black Sturgeon river, through Nonwatin and Black Sturgeon lakes, and homeward along the south shore of lake Nipigon to Nipigon river, includes some of the finest scenery in northern Ontario, and should be opened up for tourists, since it is included within the easily reached parts of the Nipigon Forest Reserve, one of our Provincial parks. Fish are plentiful and, though no trout were seen, fine black bass were caught where the river enters Black Sturgeon lake. Moose are numerous, and red deer were seen several times also. The timber in the region includes some good bunches of red pine on the east shore of Black Sturgeon lake, and there are many isolated trees of white pine, often of large size, scattered through the region over which we worked. There are also quantities of good spruce, so that the best timber in the forest reserve is found in this southwest corner.

[6] Bur. Mines, 1907, Part I., p. 131.

BOG IRON ON ENGLISH RIVER

By E S MOORE

Introduction

In the autumn of 1907 bog iron was discovered on Little Bear lakes southeast of Selwyn lake, and during the following winter on Yellow and Greer lakes along the boundary between the Districts of Thunder Bay and Rainy River. Shortly after this discovery in the Selwyn Lake region, similar deposits were located near Niblock station, on the main line of the Canadian Pacific Railway, and since that time over one hundred and forty claims have been staked out there. Very little development work has been done on the deposits already known, but considerable prospecting has lately been carried on in their vicinity, without the discovery of any new deposits.

Last September the writer received instructions from the Deputy Minister of Mines to examine the bog ores in the districts mentioned and to report on their distribution and economic importance. Consequently, a short time was spent in an examination of those claims which were accessible at that time of the year, and a general knowledge of the deposits and their geological relations was obtained. While engaged in this work Mr. O. Bowles performed the duties of field assistant in a very creditable manner.

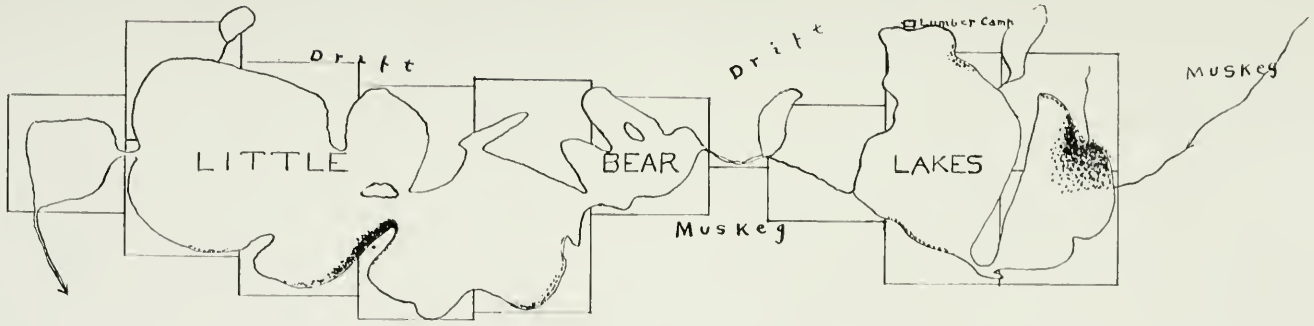
In connection with this Report acknowledgements are due to Mr. J. W. Morgan, Mining Recorder at Port Arthur, who put forth every effort to obtain information for us concerning the region, and to Mr. A. Lougheed, also of Port Arthur, who supplied us with an instrument which proved serviceable in raising samples of mud from the bottoms of the streams and shallow lakes.

Distribution of the Bog Ore

The deposits of bog iron so far recorded in the region under discussion, may be grouped as deposits occurring, (1) on Little Bear lakes, (2) on Greer and Yellow lakes, and (3) in the vicinity of Niblock station. They occur not far from English river, a stream which follows roughly the boundary line between the districts of Rainy River and Thunder Bay, in the region between the main line of the Canadian Pacific railway and the Lake Superior branch of the Grand Trunk Pacific railway.

The first ore to be discovered was found on Little Bear lakes, which lie about seven miles southeast of Selwyn lake, an expansion of English river, just below the G. T. P. railway. They are also placed about four miles northeast of the one hundred and nineteenth mile post, measured from Fort William on this railway. These lakes are reached most easily from the railway track by following a log road, which begins near mile-post one hundred and nineteen, and runs in a general east-northeast direction through a wooded region to the lakes. On the most easterly number of this group a considerable deposit of bog iron occurs and much smaller quantities are found in the northeast corner of the adjoining lake and along the southern shore of the largest lake of the group. It is chiefly along the northwestern border of the projection near the middle of this lake, that the ore occurs. These were the only deposits found in the immediate vicinity of this group of lakes, but on Sand lake, an expansion of Bear river, lying between Little Bear lakes and English river, thin films of bog iron occurred on the beach sand, and there were evidences of it in various places in the swamps in the surrounding districts. Nothing, however, of any economic interest was seen.

Between four and seven miles in a westerly direction from the first rapids on English river above Selwyn lake, there are a number of claims on Yellow and Greer lakes, two small bodies of water lying in an area of large swamps and muskegs. These claims were not visited, because a guide was not available and no trails existed, the

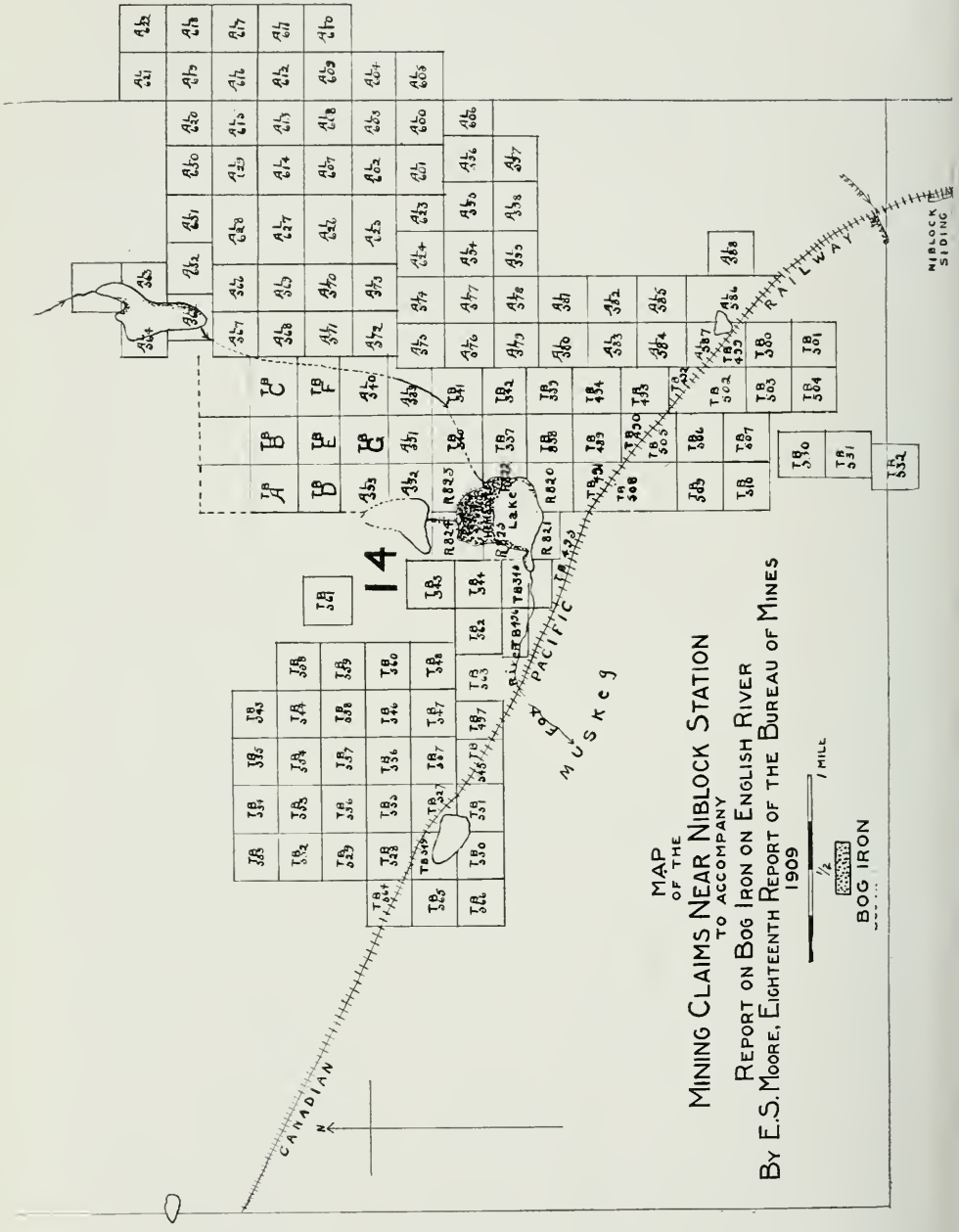


MAP
OF THE
MINING CLAIMS ON LITTLE BEAR LAKES
TO ACCOMPANY
REPORT ON BOG IRON ON ENGLISH RIVER
BY E.S.MOORE; EIGHTEENTH REPORT OF THE BUREAU OF MINES
1909

½ 1 MILE

BOG IRON

prospecting having been done in winter. However, the prospector who had staked these claims as well as those in the Little Bear lakes region, and who had very accurately described the deposits on the latter lakes, said those on Yellow and Greer lakes



were of similar character, but less accessible when the lakes were not frozen sufficiently to permit one to work upon the ice.

Passing up English river to the main line of the C. P. R. and going eastward about fifteen miles to Niblock station, one crosses the Height of Land, the continental divide, near Shebandowan siding about half way between English river and Niblock.

Between the latter place and Shebandowan, there is an area covered by large muskegs which are separated only by irregular ridges of drift or granite. These muskegs have scarcely any trees, except on the knolls and ridges, and resemble diminutive prairies covered with Labrador tea and moss, and generally threaded by meandering streams. In this muskeg area the mining claims cover the greater portion of a patch about four miles square with Niblock lying near the southeast corner. Extending north from the railway at a point a little west of Niblock, there is almost continuous muskeg for three miles. Near the northern border of these large muskegs in claims A.L. 561-564, there is a little lake containing a small amount of bog iron along its northern and southeastern shore, while within a quarter of a mile of the railway and near the centre of the muskeg, Hematite lake contains a considerable deposit along the northern half of its shores.

A number of tests were made in other lakes and in the muskeg at various places, and although in many spots the bottom was not reached owing to the depth of the water in the lakes, or of the peat in the muskegs, where it was reached no iron worthy of mention was found. A small patch, however, covering an area about fifty feet square and about one and one-half feet in maximum depth, had already been uncovered in the muskeg near the point where the C. P. R. crosses the Beaver river.

In summing up the occurrences of bog iron ore in the vicinity of English river, we find deposits on Little Bear lakes, lying east of the river and about four miles northeastward from the G. T. P. railway. We find some on Greer and Yellow lakes, lying west of the same stream, being about twelve miles west of the above mentioned lakes and five miles from the railway, while there is a gap of about twenty miles between Little Bear lakes and the Niblock deposits, the latter lying in a southerly direction from the former and beyond the Height of Land. McInnes' Ignace sheet, issued by the Canadian Geological Survey covers part of this region, but I regret that no reliable general map, covering all of the region is to be had. The small maps accompanying this Report will show the extent and local distribution of the deposits.

Rocks of the District

The geological series of this district is a very simple one. The only consolidated rocks appearing in any quantity are hornblende and biotite granite and gneiss of the Laurentian system. Enclosed in these rocks are a few narrow bands of Keewatin schist, which in most cases cannot be readily differentiated from the gneiss, since the granite was originally intrusive into the schist, and the two were so closely folded together that the contacts are indistinct. One narrow band of garnetiferous schist, a rock developed by contact action of the granite on some Keewatin rock, is found at a little rapids on English river, about fourteen miles below the C. P. railway and just below a deserted sawmill on the river bank.

The only other rocks in the region are the drift and some recent clastic and chemical sediments, including the alluvial deposits of the present stream and such chemical sediments as the bog iron. The drift is composed very largely of sand, which in many places contains numerous granite boulders, and its constitution is such that it may have been derived by the disintegration of granite. The disintegrating work was probably accomplished to a large extent by the glacier in its passage over the great granite region to the north. This sand is found everywhere, in the bottoms of streams and lakes, around shores and on hills. Its almost white color gives no evidence of the presence of any considerable proportion of iron, but if it be heated it takes on a red color by the oxidizing of the iron, which is there in an inconspicuous form, and which, under the microscope, may be seen to constitute a very thin red coating on parts of some of the quartz and feldspar grains. The drift throughout the district exists in the form of ground moraines, and terminal moraines accompanied in places by kames and eskers, and in the vicinity of Niblock the latter moraines cap the continental divide.

Physiographic History of the District

After the intrusion of the Laurentian granite into the Keewatin rocks there followed a long period of base-levelling. This base-levelling affected practically all of the Archean continent, and in the region under consideration there is no definite evidence that any rocks of post-Laurentian and pre-Pleistocene age were laid down on this eroded surface. It is quite probable, however, on account of their occurrence in surrounding regions that such rocks were formed, and later were entirely removed by erosion. When the glacier passed over the region great quantities of drift were deposited on the surface, filling up stream channels and compelling the streams to seek new courses. As the relief in the underlying rocks was low, the change in the courses of the streams only resulted in their passing over comparatively low ledges of gneiss, making small waterfalls, or in their developing rapids where numerous boulders from the drift blocked their channels. Above these falls and rapids the streams soon reduced their beds to local base-levels in the easily eroded sand, and now they are nearly all sluggish, meandering streams in the stretches between the points where their courses are obstructed. There is so much material for the streams to carry that they become heavily loaded with sediment near their heads, when their velocity increases in flood-time. As a consequence of this overloading of the streams their velocity is always kept low, and where they reach their flood-plains they deposit large quantities of sediment, which fills up the channel, causing the streams to extend themselves laterally. Thus most of these streams have comparatively wide flood-plains.

The streams connect numerous small, shallow lakes lying in the depressions in the drift. Most of these lakes, which exist during the summer season, are mere remnants of much larger lakes which are now nearly destroyed by being filled with peat. In the wet season these peat bogs again become lakes, and large areas, which are comparatively dry in the summer, become completely submerged. The depressions developed in the Laurentian rocks by differential weathering, form more or less impervious basins for water, and when a region underlain by granite becomes heavily coated with drift so that streams are sluggish and small lakes are formed, ideal conditions are developed for the deposition of bog ore. It is not that the sands or other rocks of a region such as this, are such as would supply more iron than those of some other, or even as much, but the physiographic conditions are such, that the organic acids of the plants are able to extract from the drift and the other rocks a comparatively large amount of iron salts, and to supply these to the sluggish streams whose waters soak through the sand. When these slow-moving streams enter the shallow lakes already mentioned there is a good opportunity for the iron salts to become oxidized and to be precipitated in the form of bog iron. These conditions seem to be characteristic of bog iron regions, being found in Quebec, Sweden and other places where large deposits of bog ore are found, but in these regions the lakes containing most of the ore are larger than those in the districts around English river. The size of the lake may have some influence on the extent of the ore deposit. One other difference might also be mentioned, and that is the greater proportional amount of clay and smaller amount of sand found in Quebec. This may have some bearing on the value of the deposit, because where much sand is present it is continually shifted by the waves and becomes mixed with the ore.

The Height of Land passes just northwest of Niblock, and here, as along a great part of this divide, the streams are very sluggish. This is because drainage conditions are in a more youthful stage than in the lower part of the streams which rise near the divide. It is also characteristic for the streams to take their origin in large swamps and muskegs located on drift, which is so plentiful along the divide and which so often caps it.

From what has been said it will be seen that for several reasons the artificial drainage of the lakes of the bog iron district would be difficult. The chief difficulties would

lie in the ever rapidly renewed supply of sediment, which overloads the streams and makes them sluggish, in the large size of the basins which become lakes in high water, and in the comparatively low relief of the ancient peneplains on which these bodies of water lie.

Description of the Deposits

Under this head there will be considered (1), the manner of occurrence of the ore, and (2), the extent or size of the deposits.

Bog iron ore below a layer of soil, near Niblock station. Hammer lies on ore.

How the Iron Occurs

The iron occurs in both the ferrous and ferric conditions, and as a combination of the two forms. The ferrous form exists in the state of the greenish salt, or salts of the protoxide, and the ferric form as the common hydrous oxide, limonite. The ferrous salts are in all probability the sulphate and silicate, chiefly the latter. The combination of the two oxides gives a small amount of magnetite, which cannot be proved to originate in the bog, as it may have been carried in by streams and deposited as a clastic sediment. It is found in very small fragments, which can easily be separated from the other oxides by use of a magnet. No carbonate of iron was detected.

According to Julien[1] this salt is not formed in a bog or near the surface at the present day. It is, however, frequently observed in bogs at a short distance below the surface, where the decay of vegetable matter gives rise to carbon dioxide, but where there is not a sufficient supply of oxygen to form the soluble humates by combining with organic substances.

The limonite occurs in red, brown and yellow colors, and forms either soft or hard, bedded masses, concretions, slimy mud, or cement in sand. In the mud there is usually more of the ferrous salt, than of the ferric, because of the abundance of organic material which acts as a reducing agent, preventing the oxidation of material carried into the bog in the ferrous condition, and even reducing the ferric oxide. This reducing action may be readily observed along the shores of the lakes where vegetable matter is present. Here the red or brown limonite concretions, which have a thickness of eight or ten inches, become gradually dissolved away in the lower layers of the deposit and changed to a greenish salt. The gradual dissolution of the concretions may be observed with increasing depth. This condition is similar to that which is found in the bogs of Quebec.[2] This greenish salt readily turns red on heating, on account of its oxidation to the anhydrous oxide, hematite. As some manganese occurs in these deposits, a portion of the black and greenish colors is due to its presence in different forms.

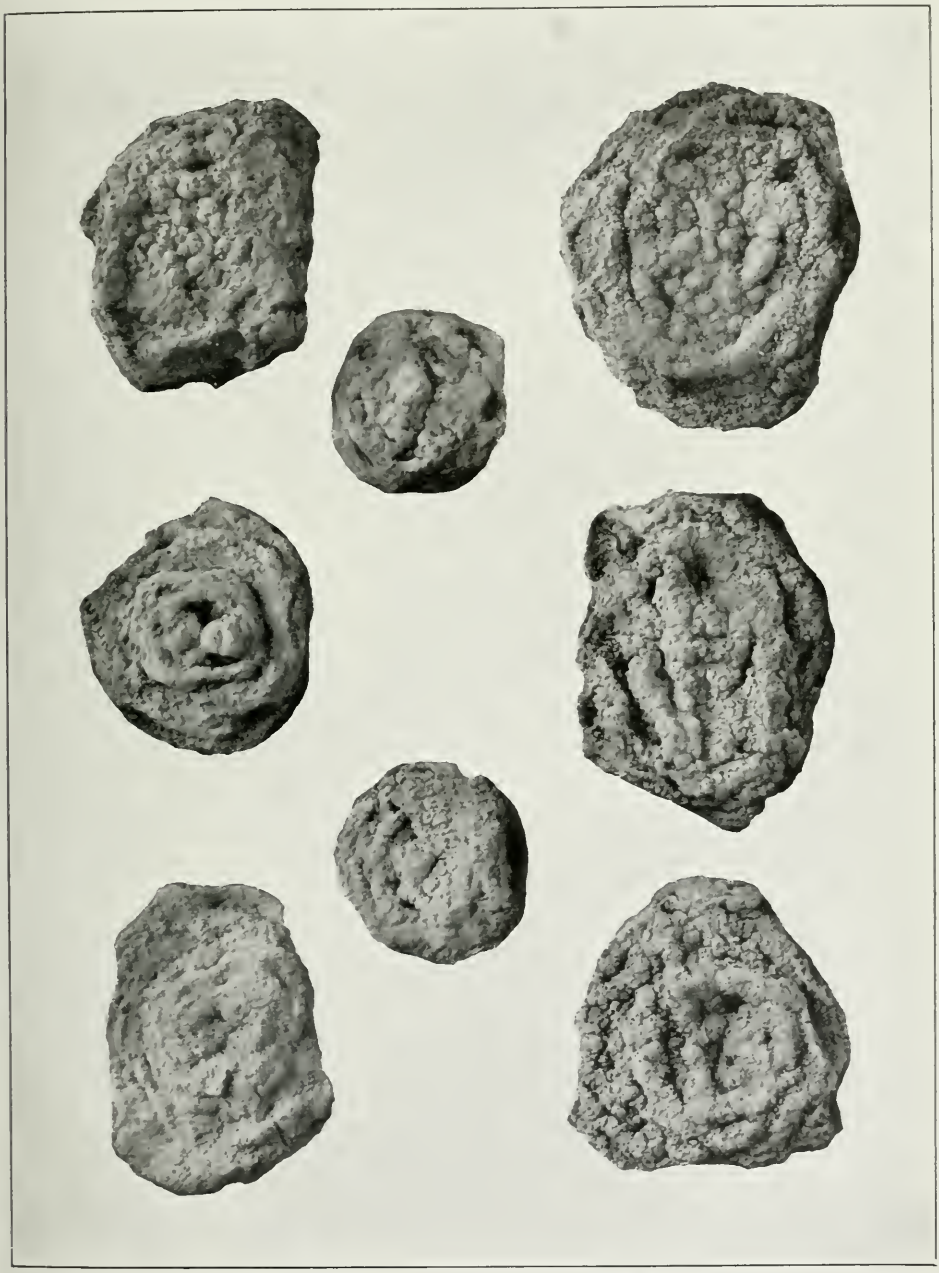
The soft, bedded, yellow limonite occurs in the most easterly of the Little Bear lakes as a layer four inches in depth, in water about two feet deep. It is badly mixed with sand and is consequently of low grade. A partial analysis of a sample of this by Mr. N. L. Turner, Provincial Assayer, gave: Silica 35.17 per cent., metallic iron 27.34 per cent., carbon dioxide absent; loss on ignition 8.52 per cent. A similar deposit covering an area about fifty feet square to a maximum depth of one and one-half feet occurs near the C. P. railway in peat and under a layer of alluvium about three inches thick. Parts of this mass are hard, brown limonite, which resists digging with a spade, but most of it is a comparatively soft, yellow mass with the roots of plants running through it.

Concretionary Discs of Ore

The most frequent occurrence of the iron is in the form of concretions, which assume various shapes. They are dark brown or yellowish brown in color, rather disc-shaped and possess a roughly spiral structure. To one used to camp life the disc shaped forms immediately suggest dried apricots, while some other forms more irregular in shape and more nearly equi-dimensional strongly resemble dried prunes. The larger ones are more of a concave cake-shape. They vary in size from half an inch to three inches in diameter, while most of them are from one inch to two inches in diameter and from one-quarter to one-half an inch in thickness. These are much smaller than the large ones found in Quebec or in New Brunswick, where Chalmers states that the larger cakes have a diameter as great as from two to three feet.[3] In most cases when one of these bodies is broken, it exhibits a skeleton structure of hard, brittle, metallic limonite. These concretions occur along sandy shores of the lakes and in the shallow waters. They were found extending a distance of two hundred yards from shore, but few of them in water more than two feet deep. They apparently owe their origin, partly at least, to the presence of sand which forms nuclei for centres of crystallization. There is no doubt that some close connection exists between the formation of these concretions, the movement of sand by the waves, and the depth at which the limonite can harden. When the water in the lakes becomes low in the summer time, considerable areas of concretions become exposed to the air, and along the edge of the water they become piled up by the waves. It can be observed that the deposit of these bodies is thickest near the water's edge, and that it thins both toward the lake and the land.

[1] A. A. Julien, The Geological Action of the Humus Acids, Proc. Amer. Assn. for the Adv. of Sc. Vol. 28, p. 403.
[2] Geology of Canada, 1863, p. 511.
[3] Can. Geo. Sur., 1882-84, p. 46 GG.

A thin section was made from one of these concretions, and another one was ground to a smooth surface so that its internal structure could be seen. An examination of these specimens showed an opaque reddish-brown mass, which was not entirely homo-



Bog iron ore concretions from Hematite lake, near Niblock station. Natural size.

geneous, although no distinguishing feature, beyond a finely porous condition, could be detected. In this mass were numerous fragments of quartz and a few of feldspar,

the latter nearly all orthoclase. The fragments were angular, subangular, or rounded, and there was no definite orientation of their longer axes, although a roughly concentric arrangement could be observed in one case. The fragments were arranged either in bunches or as individuals scattered through the limonite groundmass. An analysis of some of these concretions made by Mr. N. L. Turner gave: silica (soluble) 8.92 per cent., silica (insoluble) 4.88 per cent., ferric iron (Fe_2O_3) 68.36 per cent., ferrous iron (Fe O) 2.16 per cent., metallic iron 49.5 per cent. The metallic iron is a little lower than that of the average bog ore worked in other regions.

The slimy mud already mentioned may contain very little limonite and may be composed almost entirely of the ferrous salts, fine clay and organic matter. It is known to have a depth of eight feet in one of the lakes, but its content of iron is very low, and one and one-half feet of it would not contain more iron than that required to form an inch of solid limonite. It is found in the deeper parts of the lakes and in some sluggish streams.

Extent of the Deposits

Bog iron is rather widely distributed in the English river district, but concentration has occurred at a few points only. These points are, as indicated by the accompanying maps, on the most easterly of the Little Bear lakes and on the south side of the largest lake of this group; on Hematite lake; on a small lake covering a portion of claims A.L. 561-564; near Niblock, and on the bank of Beaver river at the railway crossing. None of these deposits shows any large quantity of iron, although it is possible that development work might reveal the presence of beds of ore under the sand in some of the lakes, and as isolated bodies in peat beds. It occurs under these conditions in the bog regions of Quebec, though there are there much larger deposits in sight than any in the regions under discussion.[4]

Little Bear Lakes

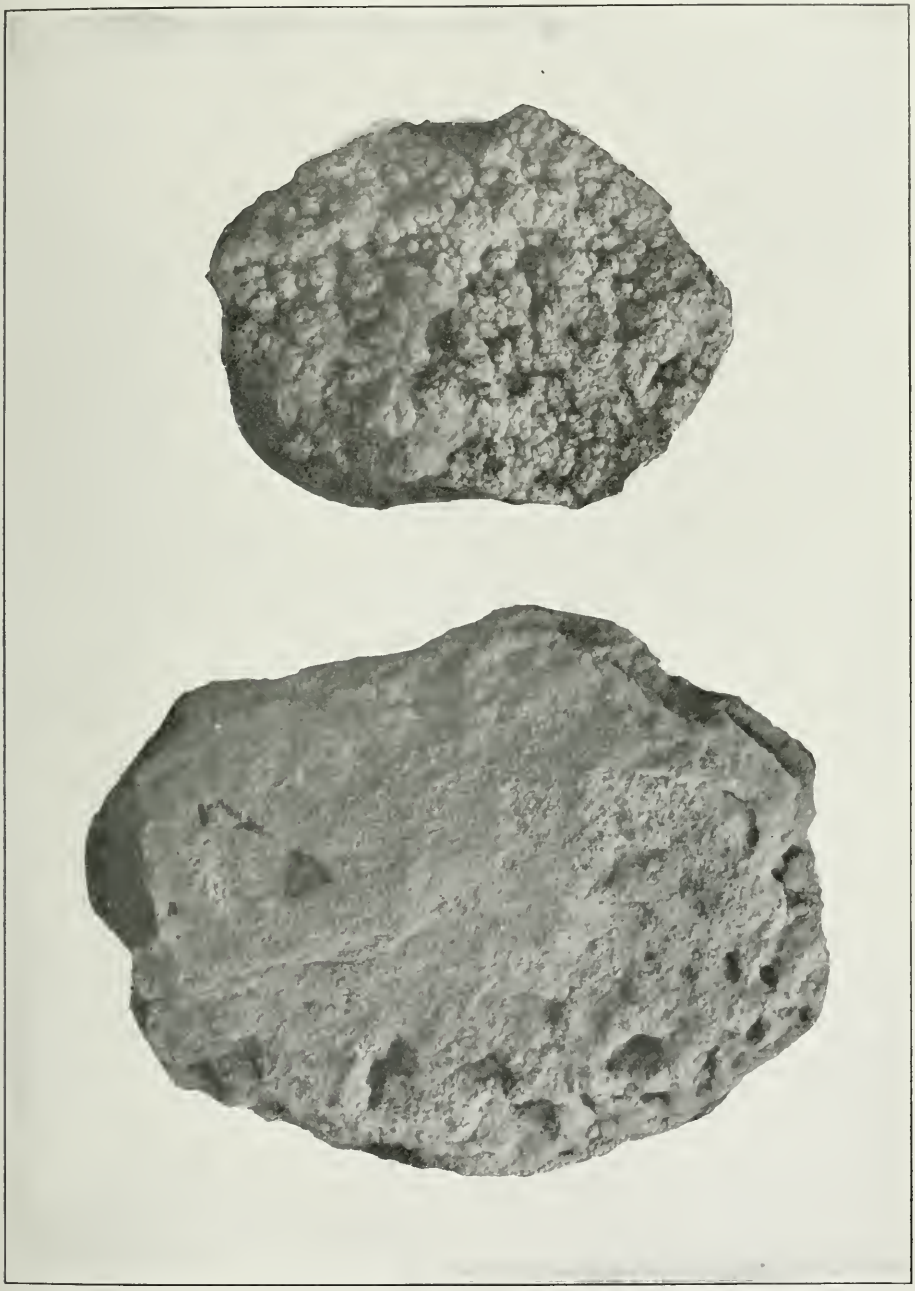
On the first lake mentioned there was exposed on a point at its northern end, an area of sand forty-five yards wide and one hundred yards long. This area was covered to a varying depth of one to ten inches by mixed limonite and sand, with a thin layer of concretions on top. In the lower portions of this bed the iron was in the form of red and green mud mixed with sand, and there is a gradual transition toward the top through soft mud and fragments of broken concretions, to fresh and intact concretions. The deposit was thickest along the water line. In passing outward into the lake one could find concretions scattered in a thin layer over the bottom for some twenty yards, at which point the water deepened and soft mud occurred.

By means of a raft a portion of the lake was tested, and it was found that the lake bottom was very irregular in profile, and that the iron deposit was not uniform over the bottom. In some places the water was so deep that the bottom could not be reached with the tools at our disposal, but in places as much as six feet of slimy mud was found, and in other places where the water was shallower, yellow ochre occurred over limited areas. Many patches of the bottom showed nothing but sand, and it was concluded from all the observations that the deposits of iron were quite limited.

It was further observed that the iron was practically confined to the northern end of the lake, and this seemed to be a constant feature of all the larger occurrences in the region. The cause of this is probably found in the fact that the streams which supply the iron enter the northern part of the lake in every case, and further, that the prevailing winds in summer, when the evaporation of the water and the concentration of the solutions of iron is greatest, tend to drive the water from the creeks toward the northern end of the lake, where precipitation takes place in the shallow

[4] Ells. Can. Geo. Sur., Vol. 11, 1898, pp. 58-60J.

water. The rolling sand grains probably act as nuclei for the concretions, as other bodies are known to do for concretions in many places. There was almost no iron found



Bog iron ore concretions from Little Bear lakes. Natural size.

anywhere along a beach which was not sandy. Further notes on the influence of physical conditions on precipitation of the iron will be found in the section dealing with the genesis of the ore.

Going westward from the deposits described above, there is found a layer of concretions along the northwest side of the little peninsula on the south side of the largest of the Little Bear lakes. These extend for seven hundred feet along the shore and they were traced, by wading, for twenty yards into the lake. The thickness of the layer of concretions varies from almost nothing, to four inches, and a good deal of sand and gravel is contained in it. The lower part of it is greenish from the presence of ferrous salts. A few concretions were found scattered along the shore of this lake in several other places, but the quantity was very small.

Bog iron ore concretions, shore of Hematite lake.

Hematite Lake

The most important deposit of the region was found around Hematite lake, and, as on the Little Bear lakes, it was practically confined to the northern half of the lake. Beginning near the outlet and following the shore, one finds an almost continuous band of limonite mixed with sand, extending around the northern half of the lake. It varies in depth from one inch to fifteen inches, and in width from one foot to three hundred feet. The maximum width is obtained near the extreme north end of the lake. In color the deposit is of varying shades of brown, red, yellow or greenish black. Some parts of the band are covered by a thin layer of concretions which

tend to become disintegrated in the lower portion of the deposit. The sand is a rather pure feldspar and quartz sand with a little mica, and of the type common to this district.

An attempt was made to test the lake for ore by means of a punt and a sort of iron pump attached to the end of a long pole. It was found that the lake was shallow and that the water above the mud on the bottom was nowhere more than ten feet deep, but we were not always able to reach the bottom of the mud because of the difficulty in withdrawing the pole. There was lying above the sand at least six feet of a very thin slimy mud of greenish and black color, made up to a large extent of vegetable matter. It would require at least two feet of this mud to make an inch of limonite. It was further found that when the water was not more than one and a half or two feet deep, the sand was mantled with a thin and broken layer of concretions, even to a distance, at one point, of two hundred yards from the shore.

The deposit near the point where the C. P. R. crosses the Beaver river, is about fifty feet square; and from a maximum thickness of one and a half feet it thins rapidly to zero.

The iron around the small lake in claims, A.L. 561-564, is very limited, being confined to a few concretions scattered around the northern and southeastern shores.

Origin of the Bog Iron

A great deal has been written on the subject of the origin of bog iron ores, and only a few principles and facts which seem to bear upon the conditions existing in the English River district will be cited here.

In going into this district with a view to studying the bog deposits, a few conditions attract the attention of the observer. The chief of these are the unusually large muskegs, with their meandering streams and great quantities of vegetable matter, the presence everywhere of the sand, which contains apparently so little iron, and the red streams which deposit iron in the lakes and on almost every object they touch.

We may first consider the source of this iron. As previously mentioned, the sand which is the principal substance over which the waters flow, is made up chiefly of quartz and feldspar, the former barren of iron, and the latter also barren except for the very small proportion which may exist as coloring matter. Besides these two minerals there are minor amounts of biotite, hornblende, magnetite, pyrite, ilmenite, pyroxene, and other iron-bearing minerals. Although the greater portion of the sand has been derived from the granite, a considerable amount must have come from diabase and gabbro, so widely distributed to the north, and from the Iron formations, which have suffered so much erosion. Besides these sources, there is the probable source from previous bog deposits, which were eroded by the glacier and the contents mixed with the sand. An examination of the sand showed that iron existed everywhere as a thin coating on the grains, which became red on heating and when examined under the microscope showed a very thin coating of iron oxide. However inadequate the sand may appear as the source of the iron, it is the only rock present that can furnish it.

How Water Carries the Iron

As to the quantity of iron in solution at any time, a few analyses of water collected from streams and lakes in the region and analysed by Mr. S. J. Lloyd, M.Sc., will be of interest. The quantities of water collected were necessarily small, and it was not possible to obtain from them sufficiently accurate quantitative results for substances such as carbon dioxide, silica and manganese, although the two latter were present in very small amounts. There was, however, so much iron in the water that in every case flocculent iron hydrate precipitated from apparently clear water, after standing a few days in corked bottles. In one case there was enough of the precipitate to almost cover the bottom of the bottle.

To find if possible the relation existing between the proportion of iron carried by the streams, and that contained in the lake waters, samples were collected from the most easterly of the Little Bear lakes, near the point where the most iron was precipitated, and from the main creek entering this lake. This creek rises in the large muskeg to the northeast, and where the stones are left bare along its bed by the lowering of the stream in the dry season, they are coated red with a layer of oxide.

Analysis No. 1 of the water from this stream showed .061 grammes Fe_2O_3 per litre, No. 2 from the lake contains .056 grammes Fe_2O_3 per litre and a trace of manganese. These figures indicate that the creek was carrying ferric oxide at the rate of about one-eighth of a pound to a ton of water. When one considers that this stream was about three feet wide and four inches deep and flowed at a moderate velocity, an estimate may be made of the amount of iron which would be carried by it in the course

Bog iron and sand on shore of Hematite lake, near Niblock station.

of a season or a decade. As an example of the rate at which bog ore collects, P. H. Griffin states that in Lac-a-la Tortue, Quebec, paying quantities of ore could be obtained from areas completely exhausted some eight or ten years previously,[5] and other writers have stated that ore is renewed in the lakes of Sweden in twenty-five years.

Three samples were collected from the water around Hematite lake, and the following analyses obtained. The first was taken from the creek at the outlet of the small lake in claims A.L. 561-564, and yielded according to analysis No. 3, .047 grammes Fe_2O_3 per litre. To ascertain the effect produced on this stream by flowing through more than two miles of peat to Hematite lake, a sample was collected from the stream near this lake and the analysis, No. 4 with .045 grammes Fe_2O_3 per litre, instead of showing an increase of iron as was anticipated, showed a slight decrease. This decrease might be due to the thorough leaching which the sands and peat along the stream had already suffered, depriving them of any soluble salts of iron which the stream

[5] P. H. Griffin, M.E., Trans. Amer. Inst. Min. Eng., Vol. 21. 1892-3, p. 974.

might obtain. This leaching out of all available salts of iron might result in precipitation instead of an addition of iron, on account of the oxidation of the salts already in solution.

Analysis No. 4 showing .021 grammes Fe_2O_3 per litre was stated by the analyst to be a little uncertain. However, it represents approximately the proportion of iron carried by the streams draining Hematite lake, as the sample was collected from the stream near the outlet. Comparing the latter analysis with that of the water entering the lake, it will be seen that a considerable portion of the iron is left behind, but about half of that which enters the lake passes on with the stream.

Solvents for the Iron

It is generally agreed that plants are the chief agents in producing chemical action in the formation of bog iron. Small amounts of iron may be carried as ferrous sulphate derived by the oxidation of pyrite, but this quantity is comparatively small when compared with that which is derived by the action of the organic acids upon iron-bearing silicates. The action of these acids is well described by Julien in the article already cited and he gives so many examples of the action of these acids, that their importance seems to be fully demonstrated. They are also capable of dissolving sufficient silica to supply the quantity of soluble silica found in bog ores. This quantity will vary from almost nothing to over 20 per cent., and in an analysis of concretions already given in this paper, the soluble silica amounted to 8.92 per cent.

The organic acids include among others less common, crenic, apocrenic and humic acids, and of these the crenic compounds are probably the most active agents in the solution of minerals. Probably the best illustration of the action of these acids in the formation of bog ores, is furnished by the chemical experiments of T. Sterry Hunt[7] in which he showed that a sample of bog iron ore contained 15.01 per cent. of organic acids, crenic and apocrenic.

The action of carbon dioxide is an important factor in the weathering of minerals, but unless it is accompanied by other organic constituents its action is comparatively small. Professor Ossian Ascham[8] claims that organic acids rich in carbon dioxide act upon rocks in a chemical manner, and as soon as they have freed some bases, such as potassium, magnesium and iron, certain bacteria are able to begin work and aid in the solution of the minerals, by feeding upon the humates developed from these bases. As a result of the action of these bacteria the iron humates are decomposed and finally give up the iron in the form of limonite.

Precipitation of Iron in the Bog

The small amount of ferrous sulphate, which is carried into the bog in solution, can be readily precipitated by calcium carbonate, which is commonly present in solution, and the result will be calcium sulphate and ferrous carbonate ($FeSO_4 + CaCO_3 = CaSO_4 + FeCO_3$). But as the oxygen of the air is always present at the surface of the bog lakes, the ferrous carbonate is not formed, and instead of it the ferric hydrate, limonite, results thus; $2FeSO_4 + 2CaCO_3 + 3H_2O + O = 2CaSO_4 + Fe_2O_3 + 3H_2O + 2CO_2$. The limonite thus formed collects as a thin film on the surface of the water, to sink later or become deposited on objects along the shore. Such a thin film may frequently be seen where a little stream seeps out of a bank containing pyrite, and it may also be seen where organic material is plentiful. This oxidizing influence is not entirely confined to the surface, and this is especially the case when the water is disturbed by wind.

The action which takes place when the iron humates, *i.e.* the iron salts of the organic acids, reach the bog lakes where they become exposed to oxidizing influences, is rather indefinite and complicated. It is generally agreed, however, that these salts

[6] A. A. Julien, Proc. Amer. Assn. for the Adv. of Sc., Vol. 28, 1875, pp. 311-410.
[7] Geol. of Canada, 1863, pp. 512-513
[8] Zeit. für Proct. Geol., 1907, pp. 56-62.

become oxidized and the insoluble limonite results. It is supposed, as already pointed out, that bacteria play some part in the freeing of the iron hydrate from solution by the breaking up of the humates.

There are certain physical forces which also appear to influence the precipitation of the hydrates. The association of the iron with sandy beaches and the development of the deposits on certain portions of the lake are striking features. The sand grains probably serve as nuclei about which crystallization takes place. After some iron has been deposited the force of crystallization causes a further precipitation. This influence of the presence of iron is illustrated in bog iron regions where all iron pipes used for the transportation of water become heavily coated with iron hydrate. A piece of iron, suspended in one of the lakes in Quebec, soon became coated with this mineral. The winds which tend to blow from about the same general direction during the summer, when the iron solutions are the most concentrated and likely to produce a maximum precipitation, drive the water toward the northern and eastern sides of the lake. When the solutions are continually passed back and forth over the concretions already formed, precipitation will be aided. It is also known that the movement of water will sometimes tend to cause a deposit of a salt from solution, as for example it has been stated that at the foot of waterfalls calcium carbonate was formed, when there seems to be no other reason for its formation than the escape of carbon dioxide due to the movement of the water. Of course, the wave action in a bog lake would cause more perfect oxidation of the water. These various forces tending to deposit the iron, act in a cumulative manner by increasing precipitation because of the presence of iron already precipitated, and by building out those spits or points where greatest accumulation occurs, so that the currents along shore tend to converge at certain points and make further deposits. Examples were seen in the field, where the direction of the current had an influence on the deposits, as such were likely to be found where a current drifted along a sandy point.

There is one other condition which may be mentioned, as probably having a small influence on precipitation. When examining the deposits on the Little Bear lakes, it was found that a person wading out into the water would suddenly experience a very sudden change in the temperature of the water at a short distance from shore, although the wind was blowing at the time and to all appearances the water was pretty well disturbed. The point at which this change occurred was just about the point where the concretions ceased to form on the bottom and the water became only a little deeper. The cause of this difference in temperature was attributed to the great effect of the reflection, where the water was shallow, of the sun's rays by the sand of the lake bottom. The question which immediately arose was whether the increased temperature might have any influence in precipitating the iron by greater evaporation and concentration in this area, and whether the greater amount of light dispersed through the water would have any influence in dehydrating and hardening the limonite.

There has been in the past considerable speculation concerning the cause and the process of the hardening and the dehydrating of limonite. The observations of W. Spring are interesting in this connection. He states that iron hydroxide spontaneously loses its water if the iron is not combined chemically with some other substance. The yellow ochre color would thus indicate the presence of Al_2O_3, CaO, MgO, etc. Wittstein found that if iron hydrate was left for several years under water at ordinary temperatures, it dehydrated and became crystalline. It is stated that organisms may dehydrate limonite. Spring concludes that iron hydrate is thus not a stable compound, and gives up its water when it is not in chemical equilibrium with other oxides.

Bog Iron Elsewhere in Canada

Bog iron has not been mined to any great extent in Ontario. It is reported from Carleton, Norfolk, Kent, and Leeds counties. A deposit at Rondeau, Kent county, was worked some years ago, but has since been abandoned. A furnace was built at

Normandale, Norfolk county, but it has long since been abandoned. Bog ore is also found in Muskoka.

In Quebec and the Eastern Provinces bog iron is plentiful and widely distributed. An area containing many deposits of ore extends along the north side of the St. Lawrence river from northwest of Montreal to the vicinity of Quebec. Ore was mined and smelted in St. Maurice, Quebec, as early as 1737, and since that time work has been carried on almost continuously, though a few periods intervened during which little mining was done. The bogs in this vicinity supplied ore to the furnaces for one hundred and fifty years, but they are now mostly worked out.

The region where these deposits occur is covered with drift, consisting of sand and clay, and judging from the Geological Survey Reports, there is a greater proportion of clay in the drift than there is in the English River district. The solid rocks outcropping on the north side of this belt are Laurentian granites and gneisses, and they appear to have furnished much of the sand found in the region. The ore occurs in the form of soft ore and as concretions, which in some cases reach a considerable size. As already mentioned, Chalmers reports cake-like aggregations in New Brunswick, which measured even three feet in diameter, but most of the cakes are much smaller. The deposits are often quite large. Beds are reported which cover three acres to a depth of four to eight feet, and one at St. Anne de Beaupré, covers four acres to a depth of four to seventeen feet. Numerous patches, often of small size, are found in the peat bogs and buried by alluvium.

The most noted region for bog ore in Canada is Radnor Forges district not far from Three Rivers, Quebec. In this district Lac Tortue and Lac aux Sables supply a large quantity of ore. The muddy ore is raised from the bottom of the lake by an endless chain dredge, then passed over seives and washed. The lake is shallow and the whole bottom can be worked over. The ore accumulates very rapidly, and P. H Griffin[9] states that portions of the lake completely exhausted produced paying quantities of ore ten years later. As a rule the ore occurs from twelve to eighteen inches below the surface of the water, and where found deeper than this, is usually of old formation. In one case six feet of ore was found buried under the sand in the bottom of the lake. Much of the ore consists of concretions, and some of it is in hard layers, so hard that it cannot be dredged.

The cost of the ore at the furnace is said to be about $2.50, or more, per ton. It averages about 50 per cent. iron and contains very little phosphorus or sulphur. It is this low percentage of phosphorus and sulphur which has made the iron obtained from bog ores so valuable. The Swedish pig made from bog ore is the basis for nearly all the famous steels made in England. In Quebec, the iron has been used mostly in making an excellent quality of car wheels. It has also been used in the manufacture of excellent axes and scythes. Limonite has an extensive use, when it can be conveniently obtained, in the manufacture of gas, where it is employed in the extraction of the sulphur.

Economic Possibilities of English River Region

After a careful consideration of the bog iron deposits in this vicinity, the writer has concluded that there is not sufficient iron in sight to warrant much expenditure in attempting to work them, although some tons might be collected from the larger deposits by washing the sandy ore. The presence of these deposits, however, shows that prospecting in the region is warranted, and that there is a possibility of finding other deposits in lakes not yet explored, and in some of the large peat bogs. Should old deposits exist they will probably be found within a short distance of the surface of the sand.

[9] Trans. Amer. Inst. Min. Eng., Vol. 21, 1892-93, p. 974.

GEOLOGY OF ONAMAN IRON RANGE AREA

By E S MOORE

I.—Introduction

The Onaman Iron Range area comprises about 70 square miles, lying northeast of Lake Nipigon and surrounding the head waters of the Red Paint river. It was from this stream that the area obtained its name, but the more euphonious Ojibway term, Onaman, has been substituted for the English, Red Paint. A geological survey was begun by the writer in August, 1907, according to instructions received from Mr. T. W. Gibson, Deputy Minister of Mines, but the time available proving too short for the completion of the work, a report covering a portion of the region was published[1] the following winter and the field work completed in 1908. In the above mentioned report there will be found a detailed description of the Red Paint river and some general information relating to the surrounding region, not contained in this article.

After the completion of the field work and the examination of over 200 thin sections of rocks from this region and the similar one lying along the Sturgeon river, 50 miles to the south, it is possible to give a more satisfactory and definite account of the geology of the area than was previously attempted, and in any case where the two reports differ this one is to be regarded as final. Although greater knowledge of the region has been obtained, there still remain problems which cannot yet be settled, principally because of the great metamorphism which the rocks have suffered and the thick mantle of drift, which conceals so many of the contacts.

The region has so lately been opened up that previous to the time of the survey mentioned above, no geological work had been done upon it. As a consequence of this, no mention of it is found in the literature beyond a mere reference by one of the geologists[2] of the Canadian Geological Survey who passed through this portion of the Nipigon district on a reconnaissance trip. The district, however, resembles in many respects some of the iron-bearing districts south of lake Superior, and the literature on these areas has been largely drawn upon for purposes of comparison.

During the preparation of this report much assistance has been received from various persons, and I desire to express my sincere gratitude to all those who have so generously rendered it. Special thanks are due to Messrs. W. F. Green and O. Bowles, who filled in an efficient manner the position of field assistant during the field season, and to the professors of the Geological Department of the University of Chicago, who have criticized and directed my work. To Professor Bensley, also of the University of Chicago, I am much indebted for his kindness in making some of the photomicrographs for this paper. Professor Leith of the University of Wisconsin has been good enough to offer suggestions regarding the geological relations of the district and to place at my disposal the results of some of his work. I regret that his monograph on the pre-Cambrian is not yet published, as it will contain much valuable data on the iron ranges, and throw considerable light on difficult problems connected with their origin.

II.—History of the District

The iron ranges of this district first attracted attention about the year 1904, when engineers began the survey of the National Transcontinental railway line through the region northeast of Lake Nipigon. As this line runs close to some of the outcrops, and the work connected with the surveying of it brought a number of people through this previously neglected and isolated region, considerable interest was soon manifested in the Iron formation. Shortly after the discovery of iron a number of claims were recorded by the Flaherty syndicate, and within the last two years a new iron range has

[1] 17th Rep. Bur. Min. (1908), pp. 170-189. [2] Dr. W. A. Parks, Can. Geol. Sur. Rep., Vol. XV., p. 221A.

Fig. 2 A. Sketch map showing position of the Onaman Iron Range area.

been located by C. Bain, about two miles south of the first claims staked. A number of prospectors entered the field in the summer of 1906 and prospecting for iron was actively carried on, but without much success.

Since there is at present no railway within 140 miles of the iron ranges of this district, and the Iron formation does not show "pay" ore, no development work has been carried on beyond one short season of diamond drilling, and sufficient trenching and stripping to satisfy the requirements of the Ontario Mining Act. The diamond drill outfit used in the district was transported up the Red Paint river and down Johnson creek, a total distance of nearly 55 miles. The means of transport were canoes and packstraps, and there is probably not another case in the history of mining in Ontario

Fig. 1. Prospectors' camp on the southern iron range.

where such a feat has been accomplished. The building of the new railway, which will pass close to one of the iron ranges, will doubtless revive some of the interest previously shown in this district.

III.—Geography

Position and Extent of the District

The area under discussion lies in unsurveyed territory, within the limits of latitude 50° and 50° 30′ and longitude 87° 10′ and 87° 25′. Its long axis extends east and west across the Height of Land, the continental divide running east and west across Canada, and the western end of this axis lies about 45 miles up the Red Paint river, northeast of Lake Nipigon. (See Fig 2A.) To reach the district one leaves the main line of the Canadian Pacific railway at Nipigon village and travels to South Bay,

a little harbor at the south end of lake Nipigon, and from this point a journey of 50 miles is made to the mouth of the Red Paint river, which empties into Humbolt bay. The journey of 35 miles between the village and the lake may be made either by canoe or by a tug and tramway, which have been put into commission in connection with the construction work on the Transcontinental Railway line, and that across the lake either by canoe or steamer. The canoe trip of 50 miles from the mouth to the head waters of the Red Paint is easily made. Although there are twelve portages, the longest of them is only two-thirds of a mile, and the others are much shorter. All have well beaten trails. A good portage of one mile and a quarter crosses the divide and connects the Red Paint river with Johnson creek. The latter stream flows in the

Fig. 2. Geological party crossing Lake Nipigon by canoe.

opposite direction to the former, and for a considerable distance follows closely the iron range along the east side of the divide.

As indicated on the accompanying map, the Onaman Iron Range district includes an area about 11 miles long and 7 wide. Although this is the extent of the area mapped, there are two small areas outside of this which will be considered when discussing the geology of the district, because they are not far removed geographically from the main iron ranges and are closely related to them geologically. These areas are found at the "Red" or ninth portage on the Red Paint river, about 21 miles from its mouth, and on Ste. Marie's lake. The latter area is locally known as Trombley's claims and is situated 8 miles west of Wilgar lake, along the line of the National Transcontinental railway. Both of these areas are interesting because of the contact metamorphism exhibited in the rocks.

Climate, Soil and Vegetation

The climate in this portion of Ontario is similar to that along the continental divide in many other parts of the Province. It is characterized by cool, and, as a rule, wet summers, and very cold, dry winters. There may be frosts during every month of the year, due principally to the presence of large swamps and muskegs which retain snow and ice throughout the year and thus reduce the summer temperature in their vicinity. Cultivation and drainage of the district would largely reduce the summer frosts, but the region does not give promise of becoming an agricultural one. The soil is mostly too light for agricultural purposes, although some of the clay flats around the Height of Land and the clay plains along the lower stretches of the rivers rising in the vicinity contain soil suitable for hardy crops. Wild strawberries grow in abundance on some of these flats, and the cache-keepers at Cache 12A had a garden containing fairly good beans, lettuce, turnips, radishes and other vegetables and roots.

An abundance of rain fell during the parts of two seasons spent in the field. In 1907, which was exceptionally wet, rain fell on 22 days in July and 17 in August, and in 1908 there were 19 days with rain during the latter month. This record corresponds well with athat of many other months. The great precipitation may be due to the chilling of the warmer southerly air currents laden with moisture, by the cool air of the Hudson Bay slope.

Possibly on account of the cold climate and the nature of the soil, many trees common as far north as the northeast shore of Lake Superior and some common even in the southern portion of the Nipigon region, are not found here. No red or white pine occurs, but the more hardy evergreens flourish. The district has suffered terribly from forest fires, which in 1906 burned large areas almost bare of vegetation. Fires had also occurred during several seasons previous to this, and almost all the higher lands have been burned over, so that now they are covered with a tangled mass of dead timber, through which a new generation of trees is growing up. Great difficulty is experienced in travelling through parts of the district because of the piling up of the dead trees in the burned area, but the fact that the moss has been burned from the rocks greatly aids the geologist or prospector in search of rock outcrops.

The swamps and stream borders have escaped the fires, and so have some of the higher spots surrounded by these wet lands. In these swamps and along the streams occur the black spruce (*Picea nigra*), the white spruce (*Picea alba*), the cedar (*Thuja occidentalis*), the balsam (*Abies balsamea*) and the tamarac (*Larix americana*). On the sand plains the jack pine (*Pinus banksiana*) is especially common, and on other dry lands the poplar (*Populus tremuloides*) and white birch (*Betula papyrifera*) are plentiful. Large areas are covered with muskegs on which few trees grow, but which are covered with sphagnum moss. In these muskegs the pitcher plant is a very characteristic feature. The alder grows in thick banks along the streams and causes great annoyance to any one canoeing on small creeks.

Among small fruits, blueberries are very plentiful on the sand plains and rocky knolls and, as already mentioned, wild strawberries are found on the clay flats.

Around the Height of Land the timber is all small, but there is a general increase in size of the trees as one descends the streams from the divide. On the lower stretches of many of these streams good spruce and tamarac occur and numerous trees are suitable for lumber.

Fish and Game

The lakes and some of the streams abound with fish. The lakes contain pike in largest numbers and pickerel and whitefish to a lesser extent, while in some of the streams pike and brook trout are plentiful. Among the large land animals the moose, the caribou, and the bear were seen, but no red deer. The latter animal seems to be scarce in all of the Nipigon region, and probably because of its scarcity, wolves are

not so numerous as they are in many other parts of northern Ontario. The small fur-bearing animals are trapped in large numbers during the winter, and among these are mink, marten, muskrat and fisher. The beaver is quite common and the houses, dams, trails and cuttings of this animal were seen in many places. The first flying squirrel which the writer has seen in northern Ontario, was observed in this region.

Among game birds, the partridge and Canadian grouse are plentiful, and some men familiar with the region state that the latter bird often appears in large numbers about the time the snow begins to disappear in the spring. They are then seen feeding on the buds of the bushes along the streams.

Fig. 3. Typical brulé, southern iron range.

Surveys

Since this district lies in unsurveyed territory, the chained try-line of the Transcontinental railway proved to be of great service in the preparation of the geological map accompanying this report. Some of the mining claims had been staked out by use of a dial compass, and in that case were quite accurately outlined and have been placed on the map, while others were so badly laid out, on account of the deflection of the compass, that they were of no service in our field work.

This surveyed railway line was used as a base to which the work was tied, but as it did not represent the final line for the railroad it has not been placed on the map. Off-sets were made from the line across the Iron formation outcrops at intervals of 100 to 300 feet, depending upon the complexity of the geological structures. Where the Iron formation was out of reach of the railway line, as in the southern range, a picket

line was run along the range and off-sets made from it. To locate the outcrops near the north and south borders of the map and at some distance from the iron range, north and south lines one mile apart were run by compass and paced to the border of the area, and other lines were run between the first ones mentioned, well out towards the border. The work was checked by running these lines in the form of three sides of a rectangle and always returning to the base line to tie in. As an ordinary compass could not be depended upon over the greater part of the region, the dial was used almost entirely.

IV.—Physiography

Under this head will be considered (1) the topography and (2) the drainage of the district. Under topography, the three items, the ancient peneplains, the influence of the rocks on topography, and the topography of the drift will be taken up in order.

Fig. 4. Kettle lake in foreground and regular outline of Keewatin hills in the distance.

Topography

The Onaman area was a portion of the great post-Laurentian and pre-Huronian peneplain. Evidence of this is found in the remnants of this old plain underlying the basal conglomerate of the Lower Huronian in surrounding areas, and in the rocks which make up that basal conglomerate. It has been pointed out by Wilson[3] that a peneplanation also followed the folding of the Huronian, and that the Keweenawan and Cretaceous periods were both followed by great periods of erosion, which developed peneplains in the northeastern portion of our continent. That the area under consideration was concerned in all these changes, and that it must have been several times elevated

[3]A. W. G. Wilson, The Laurentian Peneplain, Jour. of Geol., Vol. XI., 1903.

is shown in the relations of this area to those surfaces overlying the Keweenawan and the Cretaceous rocks in surrounding regions. We have no evidence that since Cretaceous time this region has suffered much change in level, but it has probably been subject to continuous erosion which has so thoroughly worn away the hills that the present surface may be regarded as a characteristic peneplain. The amount of material removed since Keewatin time must have been enormous, as we have no direct evidence that this region has been submerged, and it would appear that some area in this portion of the Archean shield was supplying clastics to the surrounding seas almost constantly after Laurentian time. This great erosion is probably responsible for the fact that the synclines of Keewatin rocks, and particularly the Iron formation, are so shallow and narrow in this northern region.

Fig. 5. Kettle lakes in terminal moraine on Johnson creek.

The present surface is dotted with numerous rounded hills of Keewatin and Laurentian rocks rising through the drift, but none of them have any great elevation above the general level. The altitude of the highest hills in the area mapped is not more than 1,150 feet, while that of the bottoms of the deepest valleys is over 1,000 feet. The surface is very rough, but the relief is low and in all directions one sees for many miles, hills rising to the same general level, and on account of the drift filling many of the valleys the surface of the district is brought nearer a plane (See Fig. 4.) As the highest hills in this area correspond pretty closely in elevation with those of the Keweenawan diabase in the vicinity of lake Nipigon, they appear to represent the remnants of the Cretaceous base-level. In the district covered by the diabase the contours are much more irregular than they are in the Archean region, and the rivers in some places have gorges 400 feet deep where they descend from lake Nipigon to lake

Superior. These deep gorges seem to be due, however, to the streams following new channels because their old valleys have been blocked with glacial drift. Towards the northeast, the peneplain grades down into the coastal plain of the James Bay slope.

The region has been so thoroughly peneplained that the several rock formations have not exerted, on account of varying qualities of resistance, any great influence on the topography of the district as a whole. The greenstones may occur under swamps or in the highest hills. The hard jaspers which have retained a glassy polish since Pleistocene time may have the lowest outcrops of any of the rocks, and while the rhyolites usually form hills, their white color on the weathered surface makes them unduly conspicuous, and one is liable to overestimate their height when looking over the region. The Keweenawan diabases have eroded readily, and the dikes have been worn away as rapidly as the surrounding rocks.

The drift is thick over parts of this area and since the forest fires have denuded it of trees, its topographic features stand out clearly. Its topography is in a youthful stage of development, as the ridges are sharp and many comparatively deep undrained depressions exist. Almost every phase of drift topography is found, from that of the ground moraine with almost level surface, now covered with swamps or muskegs and broken only by small knolls of drift, to the terminal moraines with deep undrained depressions and irregular hills. (Figs. 5, 21 and 22.) Some of these depressions contain lakes, while others are dry and the bottoms of them are as much as 80 feet below the tops of the hills surrounding the basin. Besides the kettle lakes still in existence, there are local clay flats with small streams cutting very youthful gulleys across them, and these areas bear evidence of having been covered by small lakes in the drift, which have since been drained. Eskers and kames are not prominent, although two small examples of the former and a few of the latter were seen. Small outwash plains occur in front of the terminal moraines. The irregular topography around the Height of Land gives place, as one descends the streams leading from it, to plains of sand and clay formed in the shallow waters of the large glacial lakes, Algonquin on the west side of the divide, and Ojibway[4] on the east.

Drainage

Two streams of considerable volume rise in this district and control its drainage. These are Johnson creek with several tributaries, two of which, the McCrey and Jeffries creeks are important; and the Red Paint river, which has very few tributaries in the Onaman district, but receives several large ones lower down in its course. The former stream rises in a large muskeg saturated with water, and the latter originates in Red Paint lake, a beautifully blue lake, fed by calcareous springs issuing from the drift. They flow in opposite directions and represent the drainage of the Hudson Bay basin and that of the St. Lawrence River basin on either side of the Height of Land. In some places this divide is so inconspicuous that one can travel across it in a swamp from which water issues in opposite directions, and in other places it is represented by a distinct ridge of drift or solid rock. The region, as a whole, is characterized by a great number of swamps and muskegs which are a serious impediment to travel in the wet seasons. The rivers have broad, shallow valleys and meandering courses.

V.—Geology

Outline of the Historical Geology

The rocks of this area may be classified as in the following table. The greenstones, being the oldest, are placed at the base, and the others are arranged in order of their

[4] See Dr. Coleman's paper on Lake Ojibway in this volume.

relative ages. The age of the diorites is not fixed beyond the fact that they are post-Laurentian, and therefore they are placed apart in the classification.

- CENOZOIC
  - Recent,—Alluvial deposits and travertine.
  - Pleistocene,—Drift and lacustrine sands, silts and clays.
- RE-CAMBRIAN
  - Keweenawan,—Diabase (dikes).
    (Igneous contact.)
  - Huronian,—Hornblende-porphyry (small intrusive masses.)
    (Igneous contact.)
  - Laurentian,—Granite and granite-gneiss (batholiths).
    (Igneous contact.)
  - Keewatin
    - Iron formation.
    - Rhyolite-tuff, agglomerate and conglomerate.
    - Rhyolite, rhyolite-porphyry and feldspar-porphyry.
    - Greenstones and green schists.
  - Post-Laurentian,—Diorite dikes.

The geological history of the district begins with the formation of the greenstones, which occupy a very prominent place here, as in almost all other Keewatin areas. On account of their great age and consequent metamorphism, they are now dark to light green from the presence of chlorite, and are often so altered that their original mineral composition cannot be determined. Thus the term greenstone seems to be appropriate for them. A detailed examination shows, however, that they are made up of a complex of basic igneous rocks composed of two types, extrusive and intrusive; the former being characterized by their fine-grained texture and pillow or ellipsoidal structure, and the latter by their granular texture. The only typical extrusive structure observed in this region is the pillow or ellipsoidal structure, which is well developed over considerable areas.

The composition of at least some of the extrusives is that of diabase. The intrusives are represented by greatly weathered gabbros, coarse diabases, augite porphyries and probably other basic rocks. These represent the rocks which formed at depths possibly contemporaneous with the extrusives and which have, in places, been exposed by erosion. From these massive rocks green chloritic schists have been developed by dynamo-regional metamorphism. It is possible that some of these schists have been developed from sediments, but such an origin cannot be established for them.

Following the period when the basic rocks were the predominant product of vulcanism, there was a period when the acid rocks were the prevailing type. It is probable that during the time that the basic rocks were being most prominently formed, some acid rocks also originated, but it is clear that there were periods in which first one and then the other was largely predominant. There are patches of rhyolite here and there in great masses of greenstone, and they are so intimately folded together that their relations cannot be defined, but it is certain that the acid rocks in many places cut the greenstones, and in no case observed do the greenstones cut the acid rocks. Some of the latter rocks are regarded as later than the Iron formation, but none of the greenstones have been so recognized.

So far as can be gathered from the field and laboratory study of these acid rocks, they are largely extrusive in origin. This is shown by their fine-grained groundmass, with very few and small phenocrysts which are often well rounded or eaten into by the absorptive action of the groundmass, possibly upon relief from pressure when the rock reached the surface. The phenocrysts are often broken and the spaces between the fragments are filled with the groundmass, as if these had been broken during the movements of the lava. Another evidence of their extrusive character is the fact that they are associated with tuffs, which grade into sedimentary rocks, in such a way that rhyolite

forms the cement of the tuff fragments in a few places, and almost everywhere the tuff overlies the acid rocks. That these rocks are not intrusive into the Iron formation, except in one case, is shown by outcrops of them in the Iron formation where they are always surrounded by a zone of tuffs, showing that they have been folded in from beneath, with the sediment above them. The outcrop of the rhyolite also conforms with the structure of the Iron formation, in that it has the same strike and dip and never cuts across the bands. There is no evidence that extrusive sheets of rhyolite have been interbedded with the Iron formation. It is probable, however, that in some parts of the district volcanic activity continued, because there is a large mass of rhyolite and rhyolite-porphyry cutting off the eastern end of the northern iron range in such a way that it must be considered later than the Iron formation.

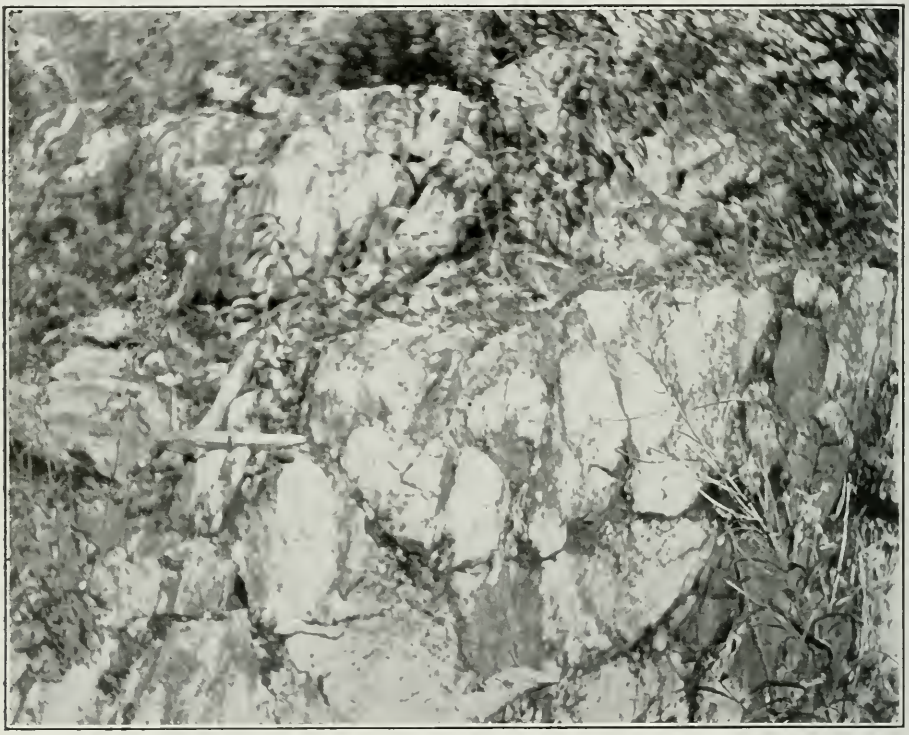


Fig. 6. Agglomerate at the twelfth portage on the Red Paint river, below Holliday lake.

Accompanying the rhyolite, but for the most part a little later than it, there is a series of pyroclastics grading into true sediments. They are composed of tuffs grading through agglomerates or distinctly angular, coarse fragments with a sedimentary matrix, to a rock with the pebbles sufficiently waterworn to be called a conglomerate. The angular type of fragment is, however, largely predominant, and these fragments represent the results of the explosive phase of volcanic activity. (Fig. 6.)

Above the pyroclastics, the Iron formation, consisting of sedimentary deposits, was laid down. In one place a few pebbles or tuff fragments were found lying in a slate near the base of the Iron formation and between narrow bands of jasper. In another place there is evidence that a band of tuff with a sedimentary matrix had been deposited with the Iron formation, as it is difficult to explain the presence of this band on any other supposition. This band may indicate either volcanic activity during the deposition of the Iron formation, or the transportation of a small amount of coarse

material from the surrounding lands where it had previously been deposited by volcanic action.

It is the writer's opinion that the Iron formation was deposited in lakes, some of which were of large size. The reasons for holding this opinion are as follows: (1) The very irregular surface which would be developed during such a great period of igneous activity as that which characterized the Keewatin, would be conducive to the formation of enclosed basins which would tend to increase in depth as the rocks adjusted themselves during the transfer of material from below upward. (2) That there was poor drainage is shown by the lack everywhere in the Keewatin of coarse sediments well water-worn, but that there was weathering action and transportation of materials going on all the time, is evident from the presence of slates of distinctly clastic origin and of graywackés, which grade into fine slates and occur as narrow bands interbedded with jaspers and magnetites. (3) It is clear that land surfaces must have been in the vicinity to supply the above mentioned clastic deposits, always found in the Iron formation. If one considers the distribution of the Keewatin iron ranges in Canada, it is difficult to conceive of the sea covering all the area over which these ranges have been formed, and at the same time leaving sufficient land exposed to supply the clastics. (4) The difficulty of saturating the ocean with iron salts would be obviated and a geological condition more nearly like some conditions existing on the earth at the present time could be postulated.

As time passed, the mountain building thrusts seem to have folded the Keewatin sediments into close folds with their long axes running in a general east and west to northeast and southwest direction. Beneath the anticlines of these folds, the great granite batholiths had a tendency to rise and form the Laurentian granite and gneiss masses so widespread in the Archean of Canada. On the accompanying map it will be observed that the two outcrops of granite and gneiss represented there occur between synclines in the Keewatin sediments.

The forces which folded the sediments, in many places mashed the igneous rocks into distinct schists, with their plane of schistosity as a rule nearly vertical.

After the folding of the Keewatin, the intrusion of the Laurentian, and the consequent metamorphism developed by this intrusion, a great peneplanation began and affected all of the Keewatin-Laurentian shield. During this peneplanation the basal conglomerate of the Huronian was developed, and it includes pebbles of all types of older rocks found within many miles of the point where it was laid down. This rock was not found in the Onaman area, possibly because the continental divide has always been near this region, and very little of the conglomerate was formed here, or because it was formed and since worn away and the materials carried to lower levels. It is well developed along the Sturgeon river, about 45 miles south of this area, and it is probable that this is a portion of a large deposit made in the Nipigon basin during Huronian time. There is evidence of the existence of this basin at an early date, in the presence of the great Keweenawan deposits which filled it, and the remnants of older quartzite and some ancient limestone.

Since the formation of the above mentioned peneplain, we have a rather meagre history of the district. There was a little volcanic activity during the Huronian, as shown by the presence of hornblende-porphyries occurring in small irregular masses which cut the Iron formation, and are themselves cut by the Keweenawan diabase dikes. Two diorite dikes also cut the Iron formation on the Height of Land claims, but beyond the fact that they are post-Laurentian and possibly related to the hornblende-porphyry, nothing can be said about their time of origin.

In the Keweenawan period the great igneous activity of the Lake Superior and Lake Nipigon basins extended as far northeast as the region under discussion. Here there are large diabase dikes running for miles across the country, with persistent strike, and cutting all earlier formations regardless of their nature. There are no

remnants of sheets or sills which would make it appear that these dikes served as channels through which material ascended to form such masses, as similar dikes have served in some other parts of the Nipigon region. As these dikes run in an approximate northwest-southeast direction, and roughly parallel to the lake Nipigon basin, where there was such extensive volcanic activity, it is very probable that the adjustment of the rocks around the basin caused the fissures which became filled from the main diabase magma.

From Keweenawan time until the Pleistocene, there is a lost chapter in the geological history of this area, except what can be read from the results of great periods of erosion in the surrounding rocks. If any rocks were formed here they have since been entirely eroded away. It seems probable that during this time erosion was in progress, continuously, and a Cretaceous peneplain was the result.

In the Pleistocene period the glacier halted here for a long time and left extensive terminal moraines and their accompanying structures. That the ice remained until after lake Algonquin began to subside from its highest level is shown by the absence of beaches or water action on the morainic deposits, while the lake is known to have reached a level higher than that occupied by these deposits, and lake beds can be traced up the Red Paint river to their base. It is therefore evident that the ice formed the northern shore of the lake when it reached its greatest extension.

The only recent deposit of interest is the travertine which is being deposited in and around Red Paint lake and along the stream leading from it. This mineral comes from springs which feed the lake, and arise in the drift from which the calcium carbonate is derived.

Structure

Under this heading will be considered (1) rock relationships, or the structural relations of the several rock formations to one another; (2) folding; (3) faulting; (4) cleavage; (5) fracture. The sections on the accompanying map will give the reader some idea of the general rock structure of the district.

Rock Relationships:—The rock relationships here are extremely complicated because of metamorphism, of the great predominance of igneous rock, and the occurrence of both intrusive and extrusive types. The greenstones consist of deep-seated intrusive rocks, overlain by and intruding into surface flows, and they have again been intruded and overflowed by acid rocks in the form of dikes, bosses, irregular masses, and flows. The consolidated stratified rocks of the region are the thin beds of pyroclastics, which have been in part worked over by water, and the Iron formation. These have in one place been cut through and overflowed by acid eruptives, and later, in Laurentian time, the batholiths of granite which seem to have accompanied the folding at the close of the Keewatin, cut through all the earlier rocks. Some of the Keewatin rocks, including the Iron formation, were, about Huronian time, cut by dikes and irregular masses of rock of medium composition, and in Keweenawan time the diabase dikes cut all earlier rocks, and, in some spots, in an intricate manner. The drift was then deposited over all these during the Pleistocene period.

Folding:—Folding occurred on a large scale about the end of the Keewatin period, and two synclines, which represent the minor portions of much larger synclines, are represented by the iron ranges. There seems to have been a tendency for the synclines to develop at the junction between the chief rhyolite and greenstone masses, probably because of a line of weakness there, and of an original depression which would be emphasized during the folding.

There has been extensive folding in some parts of the Nipigon region since Huronian time, and evidences of it may be seen in the folding and mashing of the Huronian conglomerate in the Lake Wendigokan region, on the east side of lake Nipigon. The

post-Huronian folding was not so extensive, however, as that of the post-Keewatin, as there are areas in Ontario where the Huronian is almost undisturbed, but in no place, so far as reported, has the Keewatin been found without intense metamorphism.

That the greater thrusts occurred before the solidification of the Laurentian granite is evident from the facts that this rock is not folded into the same great regular anticlines and synclines as the Keewatin rocks, and is not mashed to nearly the same extent, but has its greatest schistosity developed around the periphery of the batholiths, while the central portion may often be almost non-schistose. To what extent the eruption of the granite was the cause of the folding or the result of it, cannot be decided, but on account of the relations between the granite and the anticlines of the folds, it is probable that the former rose beneath the latter as warping took place, as it appears to have done in more modern mountain building.

Fig. 7.—Folding and fracturing in the Iron formation of the southern range.

The thrusts producing the major folding were from nearly north and south, judging from the general east and west strike of the axes of these folds. The sediments were closely folded, so that their bedding planes now stand almost vertical, but their dip varies greatly because of the presence of large masses of igneous rock, which produce, on account of superior resistance to folding stresses, local irregularities in the folds of the sediments. The dips run from 55° to 90°, with 70° northward as a common occurrence. Where the dips are less than 90° they must be regarded as those of overturned folds, and in the case of the 55° dip, the fold has been overturned to the extent of 35°. (See structure section on accompanying map.)

Superimposed on the major folds are many minor folds and crumplings, varying even to microscopic size (Fig. 1, Plate 1). The result of the combination of major and minor folds is an extremely complicated structure, and it is impossible to work out

with any degree of satisfaction the thickness of the Iron formation, as beds are often repeated in the most irregular manner. The distinction between some of the rock formations has to be made entirely on a lithological basis.

That the following occurred when the sedimentary rocks were, in most cases, not deeply buried, is evident from the fractured condition of many of the rocks, a good example of which is seen in Fig. 7, and that some minor folding occurred within the zone of flow is illustrated in Fig. 8. This condition was observed on the Miller claims, and it shows a thickening of the beds in the apex of the anticlines and a thinning of them along the limbs. The more brittle jasper bands have been entirely pinched off in the limbs and thickened in the apex of the anticline, while the slates enclosing the jasper bands, being in the zone of flow for slate and more plastic than the jasper, have thinned and thickened without leaving any trace of the dragging which must have occurred during the process. This folding occurred in a horizontal plane normal to the plane of schistosity common to the region, and it is only tributary to the major folding produced by the forces which developed the schistosity.

Faulting:—A number of faults were observed in the region, and they were all of the normal type. On the Winter Camp claims two fault planes were seen, which repre-

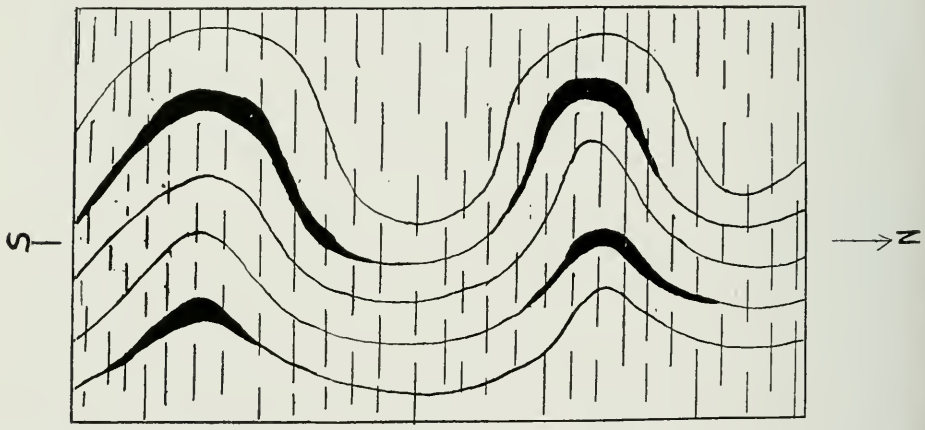


Fig. 8.—Sketch made in the field to illustrate the thickening and thinning of the beds in a minor fold, formed in the zone of flow. Black represents jasper bands in bands of slate. The schistosity is normal to the bedding planes.

sent the most extensive faults of the area. At this point a large block of ellipsoidal greenstone had risen through the Iron formation. The evidences of faulting were distinctly seen in the brecciation of the jasper, and the slickensided surfaces still remaining on the hard jasper.

Connected with the movements and brecciation, there appears to have been deposition of pyrite from solution. This may be seen everywhere as little veins penetrating the greenstone and jasper. The fault plane on the north side of the block appears to be nearly vertical, and information obtained from a drill hole put down at an inclination of 60° to the vertical shows that the dip of the plane is at least 65°, because the hole failed to reach the greenstone at 351 feet, although the distance on the surface of the ground between the drill hole and the greenstone is only 300 feet.

A number of small faults, some of which are indicated on the map, occur in the southern iron range, and they are all either of the dip or oblique type. They are not of great extent and, so far as observed, their planes were vertical and their strike roughly north and south. There are all variations, from the largest faults to those of microscopic size. For a good example of faulting on a small scale see Fig. 2, Plate 1

The age of the faulting seems to be pre-Keweenawan, and it was probably connected with the fissuring which opened the channels now filled with the diabase dikes. Near the eastern end of the southern range a diabase dike is displaced, but at the point of displacement it is broken up into numerous little branches which indicate that the branching of the dike was due to previous faulting, and the fracturing of the rock near the fault.

These displacements brought out one interesting point regarding the relations of the Iron formation and the underlying rhyolite and tuff. In all cases where a dip fault cut across an outcrop of the rhyolite within the Iron formation, the outcrop of the rhyolite was widest on the upthrow side of the plane, thus showing that it widened with depth and therefore that it was not folded down into the Iron formation from above. This condition was seen in several cases, and seemed to establish the relations between the tuffs, rhyolite and Iron formation.

Cleavage:—Cleavage is well developed in many of the rocks, although there is a tendency for fracture rather than flow to occur, owing to the rocks not having been deeply enough buried to cause flowage. In the greenstones all gradations between massive rocks and perfect schists can be found, and there are examples within these rocks of unorientated, partly orientated, and completely orientated crystals. When the condition of complete orientation has been brought about, most of the original minerals have completely disappeared and are now represented by sericite, biotite and secondary hornblende. The rocks which have been so completely mashed as to produce a perfect cleavage are generally much weathered and now almost unrecognizable for purposes of lithological classification. A linear-parallel cleavage,[5] *i.e.*, a cleavage parallel to a line, is often developed in the greenstones, and they part into masses more or less hemicylindrical.

In the rhyolites a megascopic schistosity is developed, but, on account of the nearly equi-dimensional nature of the feldspar and quartz crystals, no great degree of orientation of the crystals is noticeable. In most cases these crystals have fractured without flowing, and although granulation and some recrystallization has occurred, very little parallel orientation has been effected. In the rock sections in which much sericite or biotite has been developed, considerable orientation has taken place.

In some of the slates a good cleavage is developed; and this is particularly well shown under the microscope by some of the phyllites, or slates bearing much mica, which is arranged with the long axes of the plates parallel.

A fracture cleavage is very common in the jaspers and slates. It occurs on a very small scale in the jaspers, in which from one to three sets of parallel intersecting fractures may be seen with the aid of the microscope. There is, according to Leith, a difference of opinion as to whether this type of cleavage, like flow cleavage, is dependent upon a parallel arrangement of the mineral particles.[6] In the slides examined no relation was found between the fracture lines and the arrangement of the minerals, nor is there always any relation between the bedding planes and the direction of the fractures, though they often follow one another. In slide 112 there is a set of fractures parallel to the bedding planes, another set cuts these at 18°, and a third set at an average of 40°. There is also a set of coarser, irregular fractures cutting the bedding planes nearly at right angles. A series of fractures as described above would be developed by stresses applied in a direction normal to the bedding plains in Fig. 3, Plate I and Fig. 1, Plate II., examples of fracture cleavage will be found. In the first of these there is illustrated a series of closely spaced fractures in a jasper, and in the second a good example of two parallel sets of fractures intersecting in an acute angle of 37°. Slipping along one set of fractures has produced a lengthening of the rock section in the horizontal direction through the application of pressure in a direc-

[5] U.S. Geol. Surv. Bull. 239, p. 158.

[6] *Ibid*, p. 123.

tion intersecting the obtuse angle at which the fractures intersect. A striking feature about these fractures is that they are almost always filled with quartz, showing that during metamorphic changes the movement of quartz has been a prominent process. With the quartz is often associated sericite, chlorite, carbonates or even a little hematite.

Fracture:—In the greenstones a very common feature is a series of open cracks which often subdivide the rocks into nearly rhombic forms and give them a very rough surface. This fracturing is also seen to some extent in the rhyolites, and some of the apparent conglomerates of this region, composed of oval-shaped fragments of rhyolite lying in a matrix of the same material, were thought, in the field, to be formed by the rounding of these blocks. This rounding would be due to movement of the blocks under shearing stresses, as Smyth and Finlay have shown that some of the pseudo-conglomerates of the Vermilion district have been rounded.[7] Some of the conglomerates thought to have been so formed have proved from a microscopic examination of the matrix to be agglomerates and conglomerates and it is probable that they are all of the same origin.

In the jaspers, fracturing instead of flowage often occurred during the metamorphic changes, and there are all gradations between the two processes. Fig. 9 is a sketch made in the field to illustrate the effect of longitudinal thrusts on bands of jasper embedded in slate. The jasper is much harder and more brittle than slate, and requires a deeper burial to place it in the zone of flow, so that in this case the slate was well within its zone of flow while the jasper was on the border of its corresponding zone. The rock was buried deeply enough to cause some flow, but not sufficiently deep to prevent all fracture, and the result has been that certain bands of jasper have become rolled up and portions nipped off, leaving a pseudo-pebble. Fig. 10 is also a sketch from a field observation to show the result of the isolation of one of these autoclastic fragments.

Metamorphism

Under this heading might be included a description of all those changes which have affected the rocks since their origin, such as folding, mashing, production of cleavage and other structural processes, as well as the weathering, cementation and development of new minerals. Since the structural characters of the rocks have already been considered in the previous sections, and the weathering processes can be best described in connection with individal types of rock, this section will be devoted to a brief discussion of the formation of new minerals in the zones of anamorphism and contact metamorphism. The former are produced under the influences of dynamo-regional agents, and the latter by the intrusions of igneous rocks acting on the older rocks in their immediate vicinity. The two types of metamorphism are superimposed upon one another, and the results of the different types are not always readily discriminated. It is also difficult to distinguish some of the minerals which are the products of weathering from those which have resulted from dynamo-regional metamorphism, or from the two combined.

Dynamo-regional Metamorphism:—The greatest changes produced by this type of process are probably the development of quartz from chert, magnetite and hematite from siderite, actinolite from ankerite, and biotite from the iron minerals, while the origin of epidote, zoisite, apatite, dumortierite, garnet and tourmaline cannot always be definitely fixed. Some of the garnet is due to contact action, and it seems reasonable to regard the greater part of the tourmaline as of fumarole origin; but both of these minerals are probably produced in some cases by dynamo-regional influences.

The most interesting mineral formed in this connection is dumortierite, a rare mineral and one never before reported from the Iron formation. On account of its rarity it is given special consideration.

[7] Eng and Min. Jour., Vol. XXV., p. 629.

Dumortierite:—This is a basic silicate of aluminium, having the composition (Al_{20} Si_{17} O_{44}) or Al_2 O_3, 70.8 per cent., SiO_2 29.2 per cent. Part of the alumina may be replaced by boron, but in this case no analysis for boron was made.

The mineral, as examined, has the following characters: It is orthorhombic. It occurs in distinct prismatic and fibrous crystals, or as irregular grains or plates with terminal faces which in very small crystals can be recognized as pyramidal. In all previous descriptions of this mineral no terminal faces have been recognized. The prismatic angle is over 55°. The cleavage is prismatic and quite distinct. Fractures normal to the prism are very prominent, and a rather imperfect zonary development was recognized in cross section. Optically negative with the axial plane parallel to (010). The acute bisectrix X[8] is normal to (001); X is parallel to c; Y to b and Z to a. The maximum birefringence for blue and violet is .014. Elongation is negative.

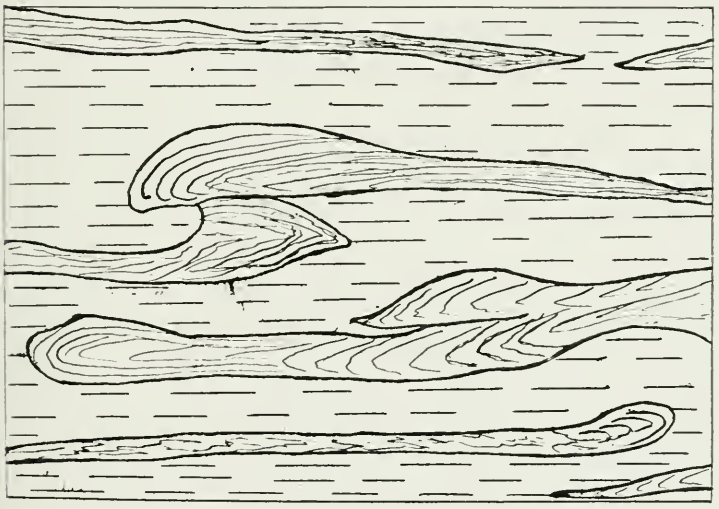


Fig. 9.—Sketch made in the field to illustrate the effects of longitudinal thrusts applied to bands of jasper interbanded with slate. The rock has been sufficiently near the zone of flow to permit some flowage, but not near enough to eliminate all fracturing Scale 1 inch = 3 feet.

The color is a deep sky blue or a phase of Prussian blue. In this section the mineral is strongly pleochroic; colorless to deep blue. X is deep sky blue, Y violet or reddish violet, Z colorless to slightly yellow.

The mineral occurs only over a very limited area in the Iron formation on the Miller claims in the northern range, but it was found in two hand specimens from the area, and three thin sections have been examined. In slide 50 it occurs in a very dark bluish magnetite slate, properly called a dumortierite-magnetite slate, which had been highly metamorphosed. The only minerals present in this rock are quartz crystallized from chert, magnetite, hematite and dumortierite. The iron oxides appear to compose about 65 per cent. of the rock, the dumortierite 20 per cent. and the quartz 15 per cent. It is fine-grained, and the longest prism of dumortierite is 0.78 mm. in length. The mineral occurs all through the chert, and its growth is often interfered with by the magnetite somewhat after the nature of the occurrence of minerals in a contact metamorphic deposit. There is, however, no definite evidence in the field of contact action and there are no distinctive contact minerals associated with it, and the mineral

[8] Iddings, Rock Minerals.

is, to all appearances, a product of dynamo-regional metamorphism. A chemical analysis of the rock made by Mr. N. L. Turner, Provincial Assayer, Belleville, gave the following:

—	Per cent.	—	Per cent.
SiO_2	26.72	MnO	Trace
Fe_2O_3	23.19	CO_2	
FeO	19.61	P_2O_5	0.05
Al_2O_3	26.85	K_2O	0.92
CaO	Trace	Na_2O	1.35
MgO	"	Moisture	0.85

The most striking feature of this analysis is the very high percentage of Al_2O_3. The analyses of slates and shales from various sources do not contain, on an average, more than 16 per cent. to 17 per cent. of this oxide, and no other mineral than dumortierite can supply so much of it. As the mineral is secondary, it has evidently derived its alumina from kaolin resulting from a thorough weathering of feldspars, and

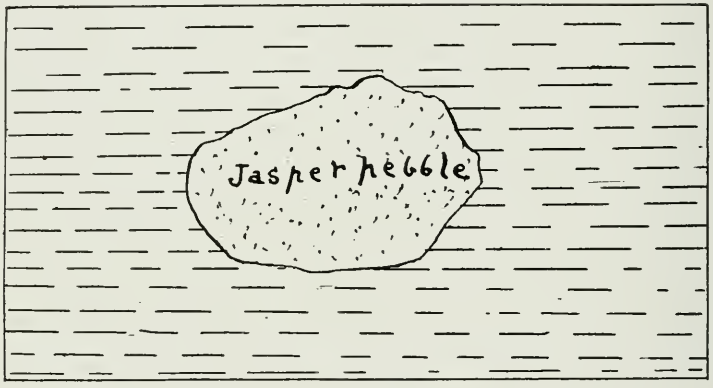


Fig. 10.—Sketch showing an autoclastic fragment of jasper developed by the rolling up and pinching off of a band similar to those in Fig. 9. This illustrates a more advanced stage of the process. Natural size.

a concentration of the products during the formation of the enclosing rock. An investigation of many analyses of clays, compiled by Ries[9], shows that most of these do not contain more than 20 per cent. of Al_2O_3, but that a number exceed 40 per cent. That this is the source of the alumina is supported by an examination of the other two slides, one of which is made from a jasper grading in to a slate (Fig. 2, Plate III), and the other from a banded slate and fine-grained graywacké containing a little magnetite, some siderite partly altered to limonite, much pyrite, some clastic and cherty quartz, apatite, and a good deal of considerably altered unstriated feldspar. The dumortierite occurs scattered universally throughout the section and does not seem to be related to any of the other minerals. It cuts across fractures filled with quartz derived by crystallization of chert from the groundmass. In this section the crystals are not so distinctly prismatic as in the others, and the mineral usually occurs in irregular crystal forms.

The occurrences of dumortierite in other places are comparatively rare. It has been reported from several districts where it was found occurring in granite-pegmatite and in gneiss. It has also been found in a quartz rock. Tourmaline, cordierite and apatite have been found associated with it. In the present case no tourmaline occurs

[9] Clays, Occurrence, Properties, and Uses.

in the dumortierite-bearing rocks, but it is found in small quantities at a short distance from them and in rocks of several types. Apatite is associated with it here.

The other minerals formed by this type of metamorphism do not deserve particular attention beyond an actinolite-magnetite rock which, in one case, was found representing a narrow band of Iron formation. It seems to have been formed from ankerite and chert, which were present in such proportions that all the silica entered into the constitution of the actinolite.

Biotite makes up a large percentage of the phyllites which have been developed where the slates contained a good deal of iron.

Garnets are not common outside of contact zones, and in the one case where they are well developed and their origin is in doubt, they are probably due to contact action, although the intrusive could not be definitely placed. They are associated with a good deal of tourmaline and a little actinolite, and the rather vitrified nature of the slate in which they occur indicates that they are due to a mass of rhyolite-porphyry, which is probably connected with a larger mass considered later than the slate, and which shows as a low outcrop not far away. The slate occurs on the border of a swamp southeast of the Miller claims.

Although tourmaline is widely scattered throughout the region, it is probably due to the after action of the acid magma, and it will be considered under the heading "Contact Metamorphism," which immediately follows.

The development of magnetite from siderite, with a reduction of volume in the iron compound and a transfer of silica to fill the rhombic space formerly occupied by the siderite, is well illustrated in Figs. 2 and 3, Plate II.

Contact Metamorphism:—There are two areas which contain particularly distinct contact results. These are, as already mentioned, situated on the ninth, or "Red" portage of the Red Paint river and on Ste. Marie's lake along the National Transcontinental railway line, about 8 miles west of Wilgar lake. The latter area is locally known as Trombley's claims, because a prospector by that name has staked some claims on the Iron formation there.

In the former of these areas a large batholith of Laurentian granite has intruded the greenstones, green schists and a little lean Iron formation, causing alterations decreasing in intensity for about a quarter of a mile from the granite where they die out. From the greenstones and green schists, garnetiferous schists have been developed and from the Iron formation, actinolite-magnetite-quartz schists. The garnetiferous schist possesses a banded structure with pink to purple garnets developed along certain bands. It is very hard and appears to have been baked. In thin section, a typical contact rock is seen, which has been developed by the contemporaneous development and intergrowth of garnet, cyanite, calcite and blue-green hornblende. No actinolite was seen in this slide, but it occurs in other parts of the same rock. In some cases the garnet completely encloses grains of cyanite.

The actinolite-magnetite-quartz schists show that they have been developed by the crystallization of chert into a mass of quartz crystals fitting closely together and often six-sided, and by the alteration of ankerite and quartz to actinolite. A thin film of iron oxide occurs along the borders of the quartz crystals, and the actinolite needles run along the borders or cut directly across them. Twinning is very highly developed in the amphibole, and one striking feature is the distinct cleavage cutting across the twinning planes at an angle of 20°. This is due to the particular manner in which the section happens to be cut. Chlorite and sericite occur along veins, and in one case a vein of magnetite and actinolite cuts across the section. It appears that this vein has been developed by the alteration of iron carbonate.

As a result of the intrusion, a great deal of pyrite is found in the surrounding rocks, and it is widely disseminated through them. It is largely altered to limonite, which has stained the hills red and has been responsible for the staking of a number of claims in this vicinity by the Algoma Commercial Company, and for the naming of this portage on the river, the "Red" portage.

On the Trombley claims a large mass of diabase has broken into the Iron formation, brecciating it and filling the cracks with pyrite. Along the contact, weathering has been rapid, and Ste. Marie's lake obscures the real relations between the diabase and older rocks. On the east side of this lake a band of very lean Iron formation about 500 feet wide stretches eastward, and in it a good deal of pyrite and some pyrrhotite have been deposited as secondary constituents. These two sulphides are intimately intermixed, but the pyrrhotite is confined pretty closely to the border of the lake, and the outcrop disappears beneath it. The conditions show that the pyrrhotite is closely related to the diabase in some way, and suggest that the pyrrhotite is the direct product of the diabase magma deposited either in the form of a magmatic segregation, as a contact deposit, or as a combination of the two.

The Iron formation has been altered to grünerite and actinolite-magnetite-quartz schists. In thin section the silica is seen to be well crystallized, often into distinct hexagonal crystals, and scattered through it are rhombs of ankerite or siderite partly or completely altered to actinolite. (Fig. 1, Plate III). In the alteration of the carbonate there is often a thin zone of fine-grained magnetite near the border of the rhomb, with the interior filled with a skeletal structure of fine needle aggregates of actinolite, and little needles radiate from the border of the rhombs, giving them a fuzzy appearance. The magnetite crystals are mostly restricted to narrow bands in the quartz, and where they occur the quartz grains are very small, making it appear as if the presence of the magnetite prevented the most complete crystallization of the chert. This feature has probably played a role in preventing the coarse crystallization of many of our fine jaspers, as there seems to be, in most cases, some relation between the percentage of the iron oxide in the rock and the degree of coarseness in the crystallization which has occurred.

The contact effects, superimposed on weathering and dynamo-regional changes, have produced extensive alterations in a rhyolite occurring in this area. Remnants of orthoclase crystals remain in places, but, in other cases, the outlines are indicated by the presence of sericite, kaolin and quartz. Biotite is developed to a considerable extent, as well as a deep bluish-green hornblende, in small crystals, and often in a somewhat irregular radiating arrangement. The hornblende and biotite are intergrown. A good deal of chlorite, epidote and some zoisite have been developed by weathering and contact action, and, in one section, a large number of garnets were found. The latter are intergrown with the groundmass, with quartz, with hornblende, with chlorite, and, in some cases, they penetrate the remnants of feldspar phenocrysts. The zoisite occurs in grains and in long slim prisms. One small crystal of almost colorless enstatite was found. Little apatite crystals are very numerous.

The groundmass has almost entirely recrystallized and there has been a tendency for the quartz to segregate into little bunches of crystals. A fracture cleavage has been developed in the groundmass, and the parallel fractures filled with calcite and sericite. One small vein of lime-soda feldspar, containing a number of grains of epidote, cuts across the section. The materials for this vein appear to have been derived from the groundmass.

The diabase dikes cutting through the Onaman region seem to have had very little influence on the rocks in contact with them, and this condition is surprising when one considers that some of these dikes are as much as 150 feet in width. They have cut the Iron formation without reducing the hematite close to them to magnetite. The only noteworthy contact effect is seen in the large amount of epidote which has been

developed. It occurs in crystallized form in little veins in the vicinity of the dikes or, as may be seen in the thin section, it is widely disseminated through the surrounding rocks as innumerable small crystals.

The absence of more extensive contact effects may be ascribed to the comparatively cool condition of the magma when it was intruded into the older rocks, or to the intrusions occurring at comparatively shallow depth where the accompanying gases and solutions readily volatilized. The contact effects of the Keweenawan diabase in the Nipigon region as a whole vary greatly; as a rule it has had little effect on the surrounding rocks, but in some cases it has produced very extensive alterations.

Tourmaline:—This mineral is widely distributed in the region, and occurs in several types of rock. Some of it may be due to dynamo-regional metamorphism, but it seems more probable that it is the result of fumarole action, occurring as the after effects of the acid magma which formed the rhyolites and rhyolite-porphyries. Tourmaline has rarely been found in extrusive igneous rocks, and this seems natural because the conditions under which these rocks are formed would permit the ready escape of boron-bearing gases. It appears from the field relations of the tourmaline-bearing rocks that the gases which contained boron arose in different parts of the area, mineralizing some of the rocks, and some of these again much more than others. The mineral occurs in rhyolites, in slates, in graywackés and, to a slight extent, in the matrix of the conglomerate. It occurs in the slates of both the iron ranges and in the rhyolite near the southern range. A little is found in the rhyolite lying between the ranges and in the conglomerate on the Miller claims. It is not found in the jaspers, but occurs in the slates of the Iron formation, which contain a good deal of magnetite and grade over into the jaspers.

The age and source of this tourmaline are difficult to establish. That it is later than the rhyolites in one case is evident from a thin section of rhyolite from the southern range, in which it occurs in little grains and prisms arranged along a plane of schistosity where considerable weathering has occurred. It is entirely limited to the plane of shearing. In another case, the secondary nature of the mineral is not so certain. It is found widely scattered through the section in prisms varying in size from 1.17 mm. in length and 0.05 mm. in width, to extremely small dimensions. The crystals are euhedral and have clear-cut edges. They have been greatly dragged and broken by fractures normal to the prism axis (Fig. 3, Plate III). This breaking shows that these crystals were formed before the development of the schistosity evident in the rock, and they strongly suggest crystals of primary origin. They may be primary, but the fact that this rock has the characters of a re-crystallized extrusive and is greatly weathered, goes to show that the tourmaline cannot be definitely regarded as a pyrogenetic mineral, as it may have been introduced by mineralizers. They have not any definite relation to the feldspars as in many other regions, where they are found replacing feldspar crystals.

The only place where tourmaline has been reported as primary in an extrusive rock is mentioned by Iddings, who found it in spherulites of the rhyolite in Obsidian Cliff[10], and he points out that although the mineral is the product of fumarole action, this action may take place either before or after the solidification of the rock. That this mineral in the Onaman region is the product of the fumarole action of the magma which produced the rhyolite, seems to be probable, because there appears to be no other source for it unless it be the Laurentian granite. The distribution of the granite is not, however, so far as can be detected, related to that of the tourmaline. Although tourmaline is more likely to be associated with granite than any other rock, it may be the product of some rhyolite-porphyries or quartz-porphyries, as it has been found in these rocks and in felsites. Weed and Pirsson[11] have found it in the former, and

[10] Bull. Phil. Soc., Washington, Vol. XI., p. 455.

[11] Weed and Pirsson, Bull., 139, U. S. Geol. Surv., pp. 99-102.

Lawson[12] in the latter rocks. A slide from a rhyolite-porphyry lying between the iron ranges contains two small crystals of bluish-green tourmaline, which are, to all appearance, of primary origin. As some of these rocks are regarded as later than the Iron formation, they could supply the boron-bearing gases to produce this mineral in all the rocks in which it is found, and this is the probable source of it.

In the slates the tourmaline crystals are small and are arranged with their long axes running in all directions, thus showing that they could not have been laid down as clastic fragments in the slate.

In the one case where this mineral was found in the matrix of the conglomerate, it forms a few crystals and grains, mostly with rather ragged outlines, and is, in every case, surrounded by irregular masses of pyrite. The latter mineral in some places fills cracks in the tourmaline crystals. It may be noted in this connection that Lawson found tourmaline in a felsite from the Lake of the Woods region, and the crystals of this mineral occurred most commonly around grains of pyrite. The only reason which I can assign for the occurrence of these two minerals together is that possibly the crack or other opening which permitted the penetration of the boron-gases into the rock also permitted the permeation of pyrite-bearing solutions.

In a slate occurring on the border of a swamp a short distance southeast of the Miller claims, tourmaline is associated with numerous pink garnets. The other minerals present are zoisite, epidote, pyrite widely disseminated in little specks, and an aggregation of small actinolite crystals. The slate is hard and close-grained and the mineral associations suggest contact action, even though the individual minerals are not intergrown to the same extent as they are in some other established contact zones. No igneous mass can be seen close to this slate, but about a quarter of a mile away a low outcrop of rhyolite-porphyry was found. It is probably related to the large mass a little farther east, which is regarded as later in age than the slates, and the contact action observed in the slate may be due to a mass of this rock occurring in the immediate vicinity but concealed from view by drift.

There is a considerable variety in the color of the tourmaline in different parts of the area, and there does not seem to be any relation between the type of rock in which the tourmaline occurs and its color. The colors observed vary from nearly colorless to dark brown and blue. The pleochroism noted in the brown varieties is brown to bluish brown for O and almost colorless to bluish-yellow for E. In a bluish-brown variety the colors are bluish and pale reddish-violet, and in a blue variety O is blue and E bluish-brown to bluish-violet.

The Rock Formations in Detail

It is proposed to treat the different rock formations in detail, beginning with the oldest and considering them in order to the youngest. The igneous rocks will be discussed with regard to (1) their distribution, (2) their structural relations, and (3) their petrographical characters; and the sediments in regard to (1) their distribution, (2) their stratigraphic relations, (3) their thickness, (4) their origin, and (5) their petrography.

The Greenstones and Green Schists (Basic Rocks)

The Greenstones and green schists are the most widely distributed of any rocks of the region, and they are equivalent in general characters to the Keewatin basic rocks in many other parts of the continent. Their descriptions correspond closely with those given by Clements for the Ely greenstones of Minnesota, by Coleman and Willmott for the Gros Cap greenstones of Michipicoten, and by Miller for those of the Cobalt region. They form the base through which the other rocks have risen to the surface and upon which they have been deposited. They constitute a complex series of intrusive and

[12] Lawson, Can. Geol. Sur. Rep., Vol. I., 1885, p. 34 c.c.

extrusive origin. They have been subjected to great dynamic influences, which have developed schists in some of them and altered them in so many ways that the individual minerals and therefore the individual rocks are often undeterminable.

The greenstones and green schists are classed together because it is impossible to separate them on a map. Many of the chlorite schists whose origin would otherwise be unrecognizable may be traced with all gradations into nearly massive greenstones. There is, however, no case where the greenstones do not possess a considerable amount of schistosity.

That some of these schists represent mashed sediments or pyroclastic rocks is possible, because their origin could no longer be determined.

Regarding the relations between the greenstones and the later rocks, it may be stated that in no case was any member of the former series found cutting the acid rocks, and the jaspers were never found directly in contact with them except where this relation was the result of faulting. A good example of the latter condition may be seen on the Winter Camp claims, where the greenstone has been greatly brecciated and an infiltration of pyrite in little veins has occurred.

Petrography of the Basic Rocks

Megascopic Characters:—The megascopic characters of these rocks are: a dark to light green color, on account of the presence of much chlorite; a large content of calcite in little veins or in holes due to weathering; and the ellipsoidal or pillow structure. The latter is seen where the greenstones have retained their massive nature sufficiently for this structure to be identified. That this is a distinctively extrusive character is shown by the fact that in the Poplar Lodge region on Lake Nipigon it occurs in association with amygdaloidal and flow-breccia structures in Keewatin rocks, and in the Vermilion district of Minnesota with spherulitic structures. It is very common in the greenstones of the Onaman region, and is found over wide areas. The structure has often been described from other areas, and its origin is regarded as due to the rolling of lava as it cooled and flowed along. The dark streaks separating the pillows consist of fine-grained decomposed rock containing a mixture of iron oxide, chlorite and other products of weathering action, while the pillows themselves consist of more or less schistose greenstone. The pillows vary in size from three inches to four feet in length. Fig 11 is a typical example of this structure.

Microscopic Characters:—Microscopic work on these rocks is unsatisfactory because of the great alterations which they have suffered. A number of thin sections from specimens taken in different portions of the district showed three greatly weathered gabbros or closely related rocks, two of diabase, one of much altered augite-porphyry and several other basic, chloritic rocks too much metamorphosed to be identified.

A thin section of a rock taken as a type of the greenstones without pillow structure showed a diabase of medium grain with saussuritized feldspars giving rise to kaolin and zoisite. Considerable accessory or possibly secondary pyrite, generally altered to limonite or little specks of hematite occurs, and a greenish secondary hornblende, often becoming almost colorless, is frequently found. The latter mineral has weak pleochroism and often consists of fibrous aggregates (*Strahlstein*) with low polarization colors. This type of amphibole is very common in these rocks and represents an alteration product of hornblende. It resembles actinolite in some respects and may be a variety of it. Other minerals present are quartz, zoisite and epidote. These are all products of weathering. In the gabbros, leucoxene developed from ilmenite is very common. The greenstones with pillow structure are very fine-grained, and little information regarding their fabric or their minerals could be obtained from the thin section.

Where any distinction could be made between the rates of weathering of different minerals, the feldspars were found to alter more rapidly than the ferro-magnesian minerals.

Rhyolites and Rhyolite-Porphyries or Quartz-Porphyries (Acid Rocks)

Relations to other formations:—It was impossible to determine whether the line of separation between the basic and acid rocks occurring here was distinct, or whether there was a rather gradual transition from one type of rock to the other. That the greater part of the acid rocks were the distinct successors of the basic rocks is shown

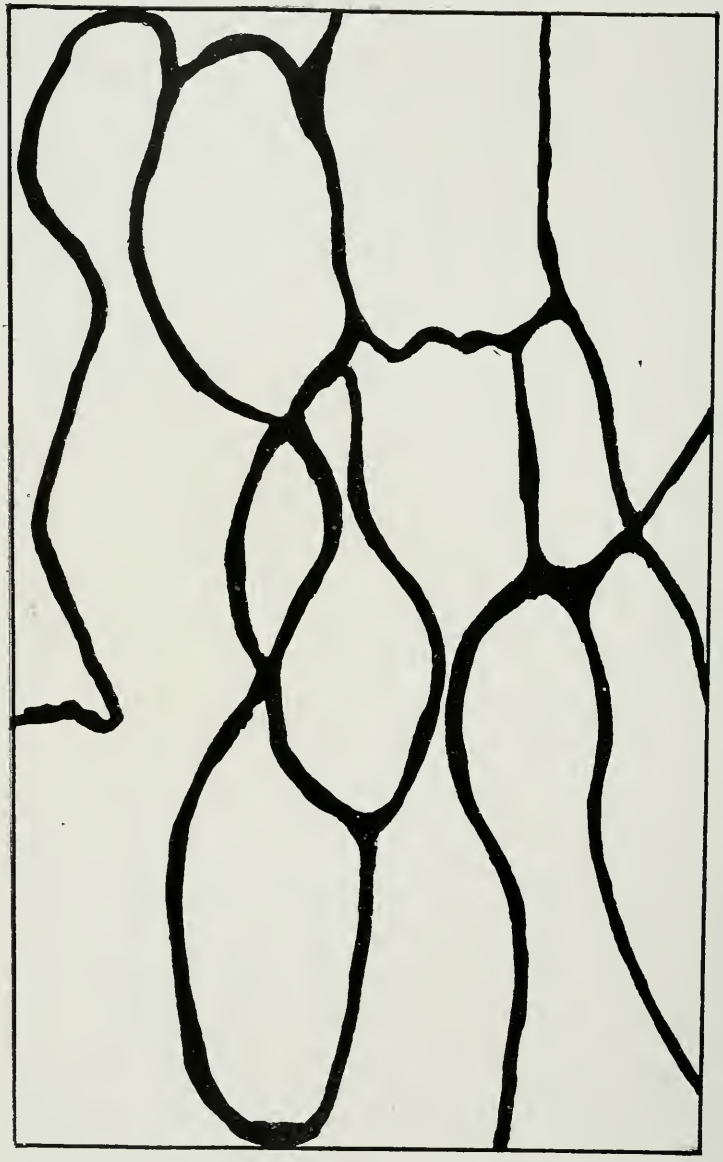


Fig. 11.—Sketch of ellipsoidal or pillow structure in greenstone. Scale 1 inch = 1 foot. (Compare Clements, U.S. Geol. Surv., Mon. XLV., Pl. IV.)

by the fact that the greenstones were never found cutting the rhyolites or acid porphyries, but the porphyries cut the greenstones in many places. The two are often so folded and mixed up together that their relations cannot be definitely

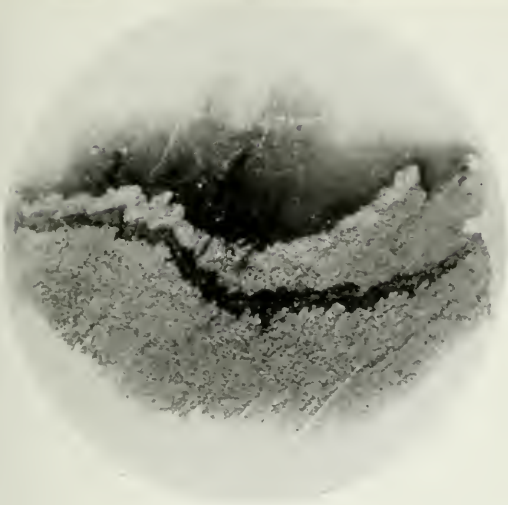


Fig. 1

Fig. 1.—Photograph of thin section 75, showing minor folds developed in a banded slate.
Natural size x 2½.

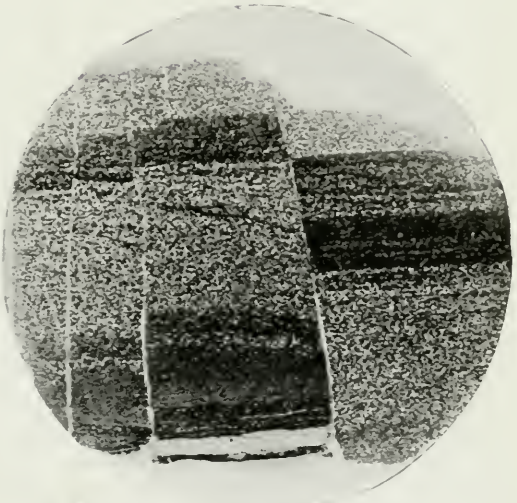


Fig. 2

Fig. 2.—Photograph of thin section 74, showing minor faults in a carbonate slate. The fractures are filled by calcite cement.
Natural size x 2½.

Fig. 3

Fig. 3.—Photomicrograph of thin section 55, showing fracture cleavage in jasper. The fractures are filled with cherty quartz.
Natural size x 35.

PLATE I.

established. There appears to be, in general, less quartz in the acid rocks, which are certainly older than part of the Iron formation, than in those which are to all appearances later. In the field one gets the impression that the line of separation between the acid and basic types is pretty sharp, because the distinction is emphasized by the better preserved texture of the former rocks on account of their greater resistance to weathering agencies.

The great intrusion of Laurentian granite following the close of the Keewatin period, suggests that the granite magmas and the magma from which the later rhyolites and porphyries were derived may have been closely related, the former solidifying at great depths and representing the most acid phase of the magma, while the latter solidified at or near the surface. That there was, however, a considerable differ-

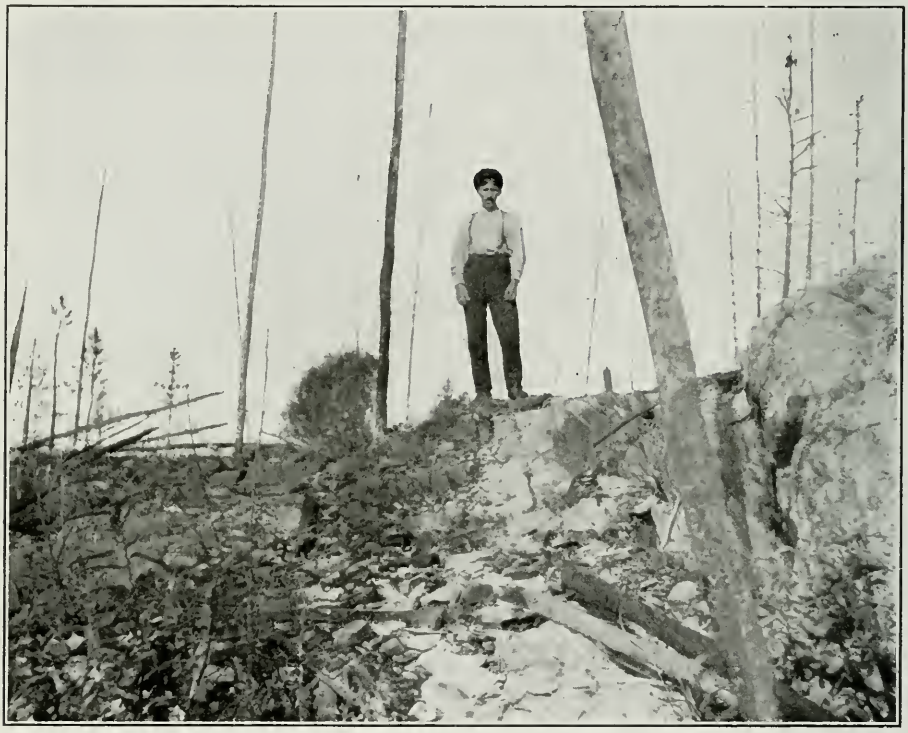


Fig. 12 —Contact between Iron formation and agglomerate on the southern range.

ence in the conditions existing at the time of their formation is shown in the fact that after the peneplanation of the region the two types of rock appear at the surface at the same altitude. One of these possesses the characters of a deep-seated rock and the other those of an extrusive, or a rock formed at shallow depths. These differences indicate a great time interval or structural change between the time of formation of these two types.

In regard to the relation of the rhyolites to the Iron formation, no case was observed where the two formations were actually in contact. Their relations are illustrated best in the southern iron range, where the rhyolite is found on both sides of the range, though only a narrow band of it occurs on the north side. Here the two formations are always separated by a thin band of tuff or agglomerate. Some narrow bands of rhyolite occur in the Iron formation, but, so far as observed, these bands were always surrounded by a zone of tuffs or agglomerate, which showed that this rock had been

folded in from beneath. Further, the dip faults cutting the formation in several places produce a wider outcrop of the rhyolite on the upthrow than on the downthrow side, thus showing that this rock widens with depth, and as several such cases were observed, the older age of the rhyolite seemed to be established. Similar conditions were observed on the Miller claims in the northern range.

That there are acid rocks later than the Iron formation is shown by the large mass of rhyolite and rhyolite-porphyry which cuts across the eastern end of the northern range. The contact between it and the Iron formation cannot be seen, but the mass stands at a greater altitude than the Iron formation where the latter disappears beneath the drift, and it lies directly across the strike in such a way as to almost completely cut off its extension to the east.

Since we have acid flows and intrusives of both older and younger age than the Iron formation, it was expected that flows would be found interbedded with the sediments. In the field it is impossible always to distinguish between the altered sediments and altered igneous rocks, so specimens were frequently collected from indefinite bands. In no case, however, did these, under the microscope, prove to be igneous, but were tuffs, graywackés and slates. It is nevertheless possible, moreover, that such bands exist and were overlooked.

Distribution:—Next to the greenstones and the drift, the acid eruptives are the most widely distributed of any rocks in the region. An examination of the map shows that they are closely associated with the Iron formation,—so closely, indeed, that a genetic relation with the Iron formation is suggested. I do not think that such a relation can be proven for them, and the chief reason for their occurring together is probably that, in the folding of the Keewatin rocks, the synclines tended to develop near the junction of the greenstones and rhyolites. There would be a structural line of weakness along this line, and since the folding the Iron formation and rhyolite have been preserved in the synclines. Regarding the relation of the rhyolite, which has been considered later than the Iron formation, it is supposed that it was poured out in the basin over the Iron formation and that it has also been preserved in the syncline.

Petrography of the Acid Eruptives

There are, among the acid eruptives, types which, in individual sections, might be regarded as rhyolites, meta-rhyolites, apo-rhyolites,[13] quartz-porphyries,[14] or rhyolite-porphyries, feldspar-porphyries[14], and some which even approach dacites in composition. There is, however, such a close connection between the different types, and they grade into one another in such a way, that they must all be regarded as different phases of the same magma. The rhyolites differ in different parts of the field in somewhat the same manner as those described by Iddings in the Eureka District of Nevada,[15] *i.e.*, some are characterized by a paucity of phenocrysts, while others are crowded with them, and there is some evidence of variation in the coarseness of the groundmass.

The characters common to more recent lavas have been largely lost by these rhyolites through metamorphism, and some petrographers may object to this use of the term rhyolite for them. The groundmass has recrystallized, the feldspars can no longer be recognized as sanadine and the flow structure has been obliterated in the development of schistosity. On the other hand, textural features, such as their porphyritic characters, re-absorption of the phenocrysts, and the field relations seem to warrant one's considering these as acid extrusives and therefore as rhyolites.

The rhyolite-porphyries, in some places, are with difficulty distinguished from the rhyolites, and probably represent those portions of the magma which have been intruded near the surface or formed in the deeper parts of some of the flows. They show less

[13] Term suggested by F. Bascom, for metamorphosed rhyolites, U. S. Geol. Surv. Bull. 136, p. 38. [14] These terms are no longer used by the U. S. Geol. Surv.

[15] Geol. of the Eureka Dist., Nevada. U. S. Geol. Sur. Mon. XX.

re-absorption of the phenocrysts, larger and more numerous phenocrysts and a slightly coarser groundmass.

The feldspar-porphyries are rare, but one example was found in a dike cutting the greenstones. The description of individual sections will bring out the differences in the types.

Megascopic Characters:—The distinctly rhyolitic types vary from a yellowish-green aphanitic mass to a dark gray crypto-crystalline mass with small phenocrysts of quartz and feldspar. The former type resembles a perfectly silicified rock with the appearance of horn. Both types weather almost white, with small spots of brown ferro-magnesian minerals, and in some cases a thin white coating of something like an efflorescence of magnesium or calcium carbonate may be rubbed off. The fracture is sub-conchoidal, and a platy cleavage has been developed in most cases.

In the feldspar-porphyry type, which was taken from a dike, the rock is dark gray and spotted with numerous dull white phenocrysts of feldspar and a good many of dark mica. It weathers a dirty white and has an irregular fracture.

The rhyolite-porphyry type has, in the hand specimen, a more granular look than the rocks described above and the crypto-crystalline groundmass is crowded with phenocrysts of quartz and feldspar. Some of the quartz crystals are as much as 5 mm. in diameter. The color on fresh fractures gives a sort of a pepper-and-salt effect. Weathered surfaces are white.

Microscopic Characters:—These rocks all have a porphyritic texture and a holocrystalline groundmass, the latter developed by re-crystallization under metamorphic agencies. The groundmass is usually crypto-crystalline, but varies in some cases to micro-crystalline. In almost all cases the phenocrysts have been broken during the metamorphic processes and the cracks filled with sericite or calcite, or both. In some of the rhyolites the crystals have been pulled apart and the spaces between the fragments filled with the regular groundmass, in such a way as to indicate that this process took place during the extrusion and movement of the molten rock. The proportion of quartz, orthoclase and plagioclase phenocrysts varies greatly. In some slides no quartz crystals occur, in some plagioclase and orthoclase are nearly equal, and in others all three may be well represented. The quartz phenocrysts sometimes contain mineral inclusions. The phenocrysts of both quartz and feldspar are very often rounded or gouged by the groundmass (Figs. 2 and 3, Plate IV).

Rhyolite

A thin section of the above mentioned rhyolite, which, in the hand specimen, has the appearance of horn, shows the following characters: The phenocrysts have been greatly crushed, so that now they are represented by irregular aggregates of microcline with quartz from the groundmass intergrown with it along the borders of the crystals. By this intergrowth a resemblance to graphitic intergrowth is produced. The remains of these phenocrysts reach a maximum size of 0.54 mm. by 0.3 mm. Besides these larger ones, there are some small fresh-looking orthoclase crystals, showing Carlsbad twins and not more than 0.108 mm. by 0.08 mm. in size. These may have developed by the re-crystallization of the groundmass.

It has been observed that microcline occurs in the rocks which have been subjected to very great pressure. This would indicate that the microcline twinning may be due to pressure, as some petrographers have suggested.

The groundmass of the above mentioned rock is crypto-crystalline, with portions micro-crystalline, or so finely crystallized that the microscope only shows that it is crystalline by its aggregate polarization. It is composed of quartz, orthoclase and a great deal of very fine scales of sericite.

Tourmaline-bearing Rhyolite

A thin section (17) from the rhyolite underlying the Iron formation on the southern range is interesting because of the large amount of tourmaline it contains (Fig. 3, Plate III). This section contains 14 phenocrysts of orthoclase and microcline, varying in size from 1.97 mm. by 1.18 mm. to 0.5 mm. by 0.3 mm. They do not compose more than 5 per cent. of the rock, and some of them have been greatly mashed and broken. The groundmass is considerably weathered to sericite, and although most of it is cryptocrystalline some portions are micro-crypto-crystalline. Cutting across the planes of schistosity there are lines similar to lines of flow, which have produced a pseudo-banded structure. It is impossible to say whether this banding is a remnant of flow structure or not, as the rock has been so much crushed that this may be a type of false cleavage. A little apatite and iron oxide are present.

The tourmaline in this rock is in euhedral crystals varying in size from 0.98 mm. by 0.098 mm. to almost sub-microscopic. They are scattered through the groundmass and lie in all directions. They have been greatly broken and dragged during the development of schistosity in the rock. They do not seem to have any relation to the feldspars, and do not replace them as tourmaline frequently does in other rocks when it is of secondary origin. This mineral probably composes 1 per cent. of the rock. The color is brown to bluish-brown and the pleochroism strong; O bluish-brown and E pale reddish-violet.

The probable source of this tourmaline is discussed fully under tourmaline in the section on Contact Metamorphism.

Rhyolite-Porphyry or Quartz-Porphyry

The following characters were observed in a good example (slide 196) of rhyolite-porphyry which occurred along the north side of Castor lake as an apparent intrusive mass of irregular outline. A very finely granular groundmass contains numerous phenocrysts of orthoclase, plagioclase, and quartz. The phenocrysts have been crushed and broken, and the quartz crystals show considerable re-absorption by the groundmass (Fig. 3, Plate IV). The quartz crystals vary in size from 5 mm. in diameter to 0.2 mm. and are not numerous. The largest orthoclase crystals are 2 mm. by 1.4 mm. and they are also not so plentiful as the striated feldspars. A large phenocryst of zonally built plagioclase is 5 mm. by 2 mm. and there are a good many plagioclase crystals which, as a rule, are less than half this size. There is some chlorite and iron oxide representing what appear to have been phenocrysts of biotite. These are not numerous.

The phenocrysts occupy about 70 per cent. and the groundmass 30 per cent. of this rock. Of this 70 per cent., the ferro-magnesian minerals probably compose 3 per cent., the quartz 12 per cent., the orthoclase 20 per cent., and the plagioclase 35 per cent. This composition indicates that the rock approaches a dacite, but the groundmass contains so much orthoclase that it may still be regarded as a rhyolite-porphyry. The groundmass is holo-crystalline, re-crystallized, coarser than that of the rhyolites and composed of quartz and orthoclase, the latter considerably altered to sericite. In the large zonally-built feldspar mentioned above, the index of refraction is greatest in the centre and grades towards the borders. Some of the zones have given rise to white mica by weathering. The facts that the larger phenocrysts have their inner zones of the more sodic feldspar than the outer, and that the groundmass contains so much orthoclase shows that the more basic feldspars were the first to crystallize.

A thin section (32) from a dike of porphyry about two feet wide and cutting the greenstones between the iron ranges, shows that rock to be a feldspar-porphyry. Its composition would be about that of a trachyte-porphyry, but its structure would not justify the application of the term trachyte. There are no quartz phenocrysts, and the groundmass does not contain a great amount of quartz. The phenocrysts are not rounded, and are composed of Carlsbad twins of orthoclase, crystals of plagioclase, some of which are zonally built and composed of albite and anorthite, and one crystal of a

composition between that of labradorite and andesine. Some interesting biotite crystals occur. They are deep brown, colorless, or greenish, the latter color being found where they are considerably altered to chlorite. The shape of the plates is rudely triangular, and they are spotted with little holes around which radiating aggregates of very fine rutile needles have developed as a secondary product. Little crystals of iron oxide are also a product of weathering action and they occur around the border, scattered throughout the crystals, or grouped in little bunches. In the cases where this mineral has lost its color by bleaching, its pleochroism has largely disappeared; otherwise it is typical for biotite.

Fig. 13.—Tuff and agglomerate, Johnson creek. (Compare Bayley, Mon. XXVIII., U.S. Geol. Surv., p. 161).

Rhyolite-Tuffs, Agglomerates and Conglomerates[1]

The terms rhyolite-tuff, agglomerate and conglomerate can be properly applied to one rock formation occurring in the Onaman district, because these different types of rock grade into one another, so that no sharp line can be drawn between them. There seem to be all gradations from a pyroclastic rock composed of fine materials or cemented by them, through a sediment composed of coarse and fine volcanic fragments to a fragmental, volcanic rock with some of the fragments sufficiently waterworn to be called a conglomerate. The predominant part of the formation is composed of coarse and angular volcanic fragments with a matrix which shows that much of the rock was deposited in water and is therefore a true agglomerate.

Portions of these rocks correspond very closely to the agglomerates which Lawson has described from the Lake of the Woods region[16] and the descriptions given by Bayley

[16] Can. Geol. Sur., Vol. 1. (1885), pp. 49-54 e.e.

for the Kitchi Schists of the Marquette region of Michigan[17] would also be quite appropriate for portions of this series. Both of these series should be classed as Keewatin tuffs according to the scheme of the International Committee on Nomenclature.

Fig. 14.—Pebbles from the conglomeratic tuff on the Miller claims. (Compare Bayley, Mon. XXVIII., Pl. V., U.S. Geol., Surv.).

At the close of my first period in the field, a portion of these rocks was doubtfully regarded as Huronian and was so laid down on the map accompanying my first report on this area[18]. This article has already been referred to in the Introduction to this

[17] The Marquette Iron-bearing District of Michigan, U. S. Geol. Surv., Mon. XXVIII., pp. 159-162.
[18] 17th Rep. Bureau of Mines, 1908, p. 183.

paper. The true composition and stratigraphic relations were, however, seen later when larger areas of the rocks were located.

Distribution:—These rocks only occur in rather small outcrops, but they are scattered pretty well over the two synclines in which the Iron formation occurs. They begin at the twelfth portage on the Red Paint river below Holliday lake and extend for over a mile along the south side of the river to near the Maple Leaf claims, where they are replaced by the rhyolite and Iron formation. A small outcrop of rock along the north side of the Iron formation on the Height of Land claims, resembles the tuff, and on the southeast side of the greenstone mass which is faulted into the Iron formation on the Winter Camp claims, a small patch of tuff occurs. About half way between the Winter Camp and Miller claims an outcrop projects through the drift along the north side of the syncline, and some of the fragments strongly resemble pebbles in a true conglomerate, while others are very angular. (Fig. 13.) On the Miller claims a small outcrop appears where it has been folded into the Iron formation and another patch along the south side of the outcrop between the rhyolite and the Iron formation is very similar to a conglomerate. Another small outcrop occurs a short distance northeast from the latter and along the same syncline.

In the southern range these rocks occur along either side of the Iron formation for practically the whole length of the syncline, and a few outcrops were found farther south, but the greater portion of them are confined to the basin along which the Iron formation occurs.

Stratigraphic Relations:—In almost every case where these tuffs, agglomerates and conglomerates were found in contact with solid rock, the contacts were with rhyolite and Iron formation. In the small outcrop northeast of the Miller claims an outcrop of greenstone occurred beside the conglomerate and on the Winter Camp claims the tuff lay against the greenstone. In the southern range there are a few doubtful cases, as some of the schists which come in contact with the agglomerate are of uncertain origin. The fact that almost no greenstone fragments occur in the overlying conglomerate shows that it cannot be regarded as a basal conglomerate, such, for example, as that of the Lower Huronian.

The Iron formation overlies conformably this series of rocks and, in a few cases, there is a possibility of interbedding of the two. The relations are such that it is impossible to determine, in some cases, whether the presence of the tuff bands in the Iron formation is due to folding in, faulting in, or interbedding. If they are interbedded, we have a condition here similar to that described by Coleman and Willmott for the Michipicoten district.[19] The outcrops occurring in this way are always very limited in size, and the fragments are not large, so that they may have come from the surrounding lands where they had previously been deposited by volcanic explosions. They could have been transported by water as the fragments of feldspar in the graywackés have been carried. In one case a half dozen of these fragments were observed in a slate lying as narrow bands between thin seams of jasper near the apparent base of the Iron formation of the southern range, and these could not have been folded into the latter formation. They may have originated contemporaneously with the jasper and slate or have been washed in from surrounding lands.

Thickness:—This formation is nowhere very thick. In many places it is impossible to form any conception of what the thickness is, since folding has destroyed all signs of bedding, but where it occurs between the Iron formation and the rhyolite it varies from 1 foot to 50 feet in thickness. It appears to be thicker than that in some places, but the measurement cannot be given with certainty.

[19] 11th Rep. Bur. Min., Ont., 1902, p. 170.

Petrography of the Tuffs, Agglomerates and Conglomerates

Megascopic Characters:—Probably the most striking features in these rocks are the great variation in size of the fragments, the spherical and angular shape of fragments occurring side by side, and the presence of fragments which are almost entirely of one type of rock. There are small areas in which the pebbles are almost all somewhat rounded—some of them, indeed, quite spherical—and as the matrix consists of sedimentary material, this rounding must be due to water action in favorable places along a shore or in shallow spots in a lake. The scantiness of water action on the greater part of the fragments shows that this conglomerate cannot be regarded as marking a great time interval.

The size of the fragments varies from microscopic sizes to those over 3 feet in length. One fragment measured 3¼ feet in length and 1½ feet in width, and another 2

Fig. 15.—Tuff and agglomerate from the north side of the Iron formation on the southern range.

feet by 1¼ feet. A common size is 8 inches long by 3 inches wide, while along the southern iron range the fragments, as a rule, are much smaller, a great many of them being an inch long and a half inch wide (Fig. 15).

The color of the fragments is almost white on the weathered surface and this causes them to stand out above the matrix. They are often of a cherty appearance and harder than the matrix, so that this also causes them to be conspicuous.

The similarity in the composition of the fragments is a prominent feature. They are composed, almost without exception, of rhyolite with usually a very fine groundmass containing few phenocrysts of quartz and feldspar. In one case a small fragment of quartz similar to vein quartz formed a pebble in the conglomerate and in an outcrop of agglomerate one large fragment was identified as greenstone.

The matrix in places has the appearance of rhyolite, while in other cases a brownish mass is speckled with small quartz fragments and shows the characters of a sedi-

ment resembling arkose or graywacké. Portions of the matrix show no textural features, and appear as solidified material of very fine grain and of soft consistency.

Microscopic Characters:—Under the microscope the fragments in these rocks appear to be composed of rocks similar to the fine-grained types of acid rocks previously described. They are often very badly weathered and sometimes too fine-grained for their texture to be determined, but a great many of them are recognized as rhyolite-tuffs.

The matrix has various compositions, even within small areas. It varies from rhyolite to rocks with a composition similar to that of graywacké or arkose. Where rhyolite is the matrix it appears that this rock originally formed the cement for the fragments, while it was in the molten condition, and that flows accompanied the pyroclastic rocks. In the agglomerate at the twelfth portage on the Red Paint river, just below Holliday lake, one can find as cement between the fragments, rhyolite, carbonate and sericite, weathered chloritic and micaceous material like ash, and a rock corresponding in composition to arkose, all within a square mile.

The arkose-like type of matrix is seen in slide 161 and consists of numerous sharply angular to round quartz fragments, with a maximum size of 0.9 mm. by 0.2 mm. There are quartz grains scattered through a mixture of feldspar, carbonate, fragments of the groundmass of rhyolite, and sericitized material. The feldspar fragments consist of orthoclase and plagioclase. They are angular, and, as a rule, a little smaller than the quartz grains. The quartz and feldspar grains are in the proportion of about 3 to 1 in this slide, but in all others examined the feldspar is greatly predominant. The quartz contains mineral inclusions, but no liquid or gas inclusions were seen.

In the rock which is most conglomeratic in appearance, as, for example, the outcrops in the vicinity of the Miller claims, the matrix is composed of fragments of quartz, sometimes angular, but often subangular, and occasionally rounded. These are surrounded by sericite and fine-grained quartz. There is considerable calcite and pyrite, the former scattered irregularly through the section and the latter in small, anhedral masses, often partially or entirely altered to iron oxide. There are few fragments of feldspar. Zoisite crystals are present in one slide. Under the action of pressure the quartz grains have been granulated and partly re-crystallized into interlocking granules. In a few places a fabric resembling that of vein quartz or crystallized chert has been produced by this granulation and recrystallization. In one section (21) a few grains and parts of crystals of brown tourmaline are found. The association of this mineral with pyrite has already been discussed under tourmaline in the section on Contact Metamorphism. It might be repeated, however, that the tourmaline crystals have been fractured and the cracks, in some cases, filled with pyrite, which seems to be always associated with the tourmaline. It is probable that the cracks or pores which permitted the permeation of the boron gases forming the tourmaline, later permitted the infiltration of pyrite. It does not seem probable that this tourmaline is clastic in origin, but from a consideration of all its relations it must be regarded as due to fumarole action of the acid magma.

The matrix above described cements small angular to subangular fragments of rhyolite consisting of a fine-grained re-crystallized groundmass with an occasional weathered orthoclase phenocryst. Slim, needle-like feldspars occur in one of these fragments in a way characteristic of weathered igneous rocks.

Along the southern iron range the matrix of the agglomerate and tuff is made up essentially of broken fragments of feldspar, orthoclase and plagioclase, chiefly the former, with a lesser amount of quartz. The quartz grains have been granulated by pressure and partly re-crystallized. Considerable biotite and sericite are developed between the fragments and along the lines of cleavage. The mica has been bent around the feldspar and quartz fragments during the development of schistosity in such a way

as to produce a resemblance to flow structure. There is little evidence of orientation of the fragments during the formation of cleavage, since they are all so nearly equidimensional. The pyroclastic fragments consist of a fine-grained groundmass, crystallized so that the granules of quartz and feldspar composing it are drawn out into a fine net work of more or less parallel lines. In this groundmass there are a few scattered phenocrysts of orthoclase.

In other parts of this range, the composition of the matrix of the agglomerate and tuff approaches that of a graywacké, and it is hard to distinguish the two rocks, in some cases, except by the presence of the coarser fragments. The graywackés are, as a rule, more extensively weathered.

The Iron Formation

Distribution:—The Iron formation of the Onaman district occurs as outcrops arranged in two bands, so-called ranges, extending nearly east and west across the district and about 2 miles apart. For convenience in description, these ranges have been distinguished as the northern and southern ranges, the latter name replacing the local term Bain claims, used for the southern band in my previous report. The northern range, beginning below Holliday lake, extends across the Height of Land and along Johnson creek nearly to the border of the district, a distance of almost 10 miles. It is not represented by a continuous outcrop, the gaps being of considerable extent. The outcrops are, however, sufficiently close together and the local magnetic influences, where outcrops do not occur on account of the thick coating of drift, are sufficiently strong to warrant one in regarding this as a continuous band lying along a syncline. The strike of the outcrops is, in general, east and west, but it varies from 70° to 120°, because of irregularities in the syncline due to faulting and the presence of igneous rocks. The latter have resisted the folding stresses better than the sediments, and have not conformed to the regular troughs which tend to develop in the sedimentary rocks.

The width of the range varies greatly. At the western end the range is represented by a few feet of very lean Iron formation, but near the Maple Leaf claims it widens to nearly half a mile. At this point the area is not, however, occupied by continuous Iron formation, but only by narrow outcrops appearing in green schist, tuff, or rhyolite. Where the range crosses the Height of Land the formation is continuous over a width of 150 yards, but contains a good deal of graywacké and slate, and some rhyolite and green schist have been folded into it.

The outcrop at the divide disappears under the drift and re-appears again on the Winter Camp claims, 2 miles to the east, where the formation occurs as narrow outcrops on either side of a mass of greenstone which has been faulted into it. The formation is again hidden under the drift and three miles to the east re-appears as a considerable outcrop in the vicinity of the Miller claims. Although the range here is broken up by the older rocks near the surface and the formation is excluded from view by the drift which covers portions of this area to a depth of 100 feet or more, sufficient outcrops occur to show that the range can be traced over an area 2 miles long by 1¼ miles wide. The formation here is, on the whole, pretty lean, there being much slate and schist with the jasper.

The southern range is somewhat more continuous and compact than the northern. The most westerly outcrop lies along the south side of Castor lake, where a very narrow band of jasper occurs. There is then a break where drift extends for a mile between this small outcrop and the main portion of the range. It is quite probable that the formation underlies the drift. The main portion of the range is represented by almost continuous outcrops for a distance of two miles, with a maximum width of 700 feet. This range, like the northern one, also contains a good deal of foreign rock in its widest areas.

At the east end of the southern range the Iron formation runs under drift, but local deflections of the compass in a large swamp and the occurrence of a very small outcrop of Iron formation a mile and a quarter east of the main range, show that the range is continuous for at least a mile and a half under the swamp. East of this little outcrop large hills of moraine, composed of sand and gravel, extend eastward as far as the eye can reach.

Outside of the outcrops already mentioned there are two very small patches of the formation occurring to the southeast of the main range, near a large diabase dike. There did not seem to be any evidence that these were related to the dike, but they were found as little ledges of jasper contained in slate and green schist. The Iron formation must have extended over much larger areas than the outcrops now indicate, and now only remains in synclines developed along the original basins which have initiated the downward movement during the folding.

Thickness, strike and dip:—On account of the complexity of the folding in this area, it is impossible to work out the thickness of the Iron formation even approximately. Bands of jasper appear, disappear and re-appear again, and cannot be correlated with any degree of certainty in different portions of the range.

The strike of the ranges is approximately east and west, but locally that of the outcrops of the Iron formation varies considerably. On the Height of Land claims, the strike of the outcrop changes from 80° at the western end to 70° at the east, and on the Winter Camp claims, two faults are responsible for a strike of 70° in the Iron formation. In the vicinity of the Miller claims the strike varies from 90° to 120°, the latter being in a narrow band extending southeast from the main range. The presence of large masses of igneous rock seem to be responsible for the differences in strike here.

In the southern range the general strike is 95°, with local variations as in the small outcrop south of Castor lake.

The dip in the northern range is close to 90°, but towards the eastern end it varies from 55° north to 75° north; in other words, the folds seem to be overturned to the extent of 15° to 35°. (See structure section on accompanying map.)

In the southern range the dip varies from 55° northward to 90°, with 70° north as a common occurrence. This dip is also that of the planes of schistosity in the rhyolite along the southern edge of the Iron formation, and although it represents a considerable overturning of the folds, I think this is only local and due to the presence of igneous rocks. The latter became mashed into schists and did not respond to the folding stresses in the same way as the sediments.

In other Keewatin areas the dip of the Iron formation is, as a rule, more steep than that mentioned above; on the whole, closely pressed together, nearly vertical, folds, with a commonly occurring dip of 70° north, are the results of the great folding which included all of the Keewatin rocks.

Stratigraphic and structural relations:—The Iron formation lies conformably everywhere upon the pyroclastic and sedimentary series previously described. Where these rocks are absent, it may come in contact with rhyolite or green schist, but it has not been observed in contact with typical greenstone, except where the two formations were brought together by faulting. The jasper is separated from the green schist and, as a rule, from the rhyolite, by a slate, usually a phyllite. There seems to be good evidence, as already pointed out in the consideration of the acid eruptives, that the Iron formation has been intruded and to some extent overflowed by the rhyolite-porphyry and rhyolite mass lying across the east end of the northern range. Outside of this one case, there is no definite evidence to show that these rocks have intruded this formation, and there is a good deal of evidence to show that most of them are older than the Iron formation. They are folded into it in several places, and, as already mentioned, the presence of a zone of sediments around the outcrop dis-

tinguishes these masses from those which were intruded. The pyroclastics are frequently found folded and sometimes faulted into the Iron formation and, in some cases, outcrops appear to indicate that some of these are interbedded with the Iron formation. It is difficult to explain some of the narrower bands on any other assumption than interbedding, and if they are interbedded it is impossible to determine whether they were deposited by volcanic eruptions occurring during the deposition of the Iron formation, or whether they were brought in from higher lands by water. As these doubtful bands consist of tuffs, and the fragments are not large, it is possible that they may have been deposited by earlier eruptions on the neighboring lands and transported by water action, as the coarser portions of the graywackés have been carried. In the Michipicoten area Coleman and Willmott considered that volcanic eruptions were contemporaneous with the deposition of the Iron formation, and that the Wawa tuffs were interbedded with the slates and jaspers. It is possible that a similar condition existed in the Onaman district, but there is no definite evidence regarding the matter.

Careful microscopic investigation has failed to reveal any rhyolites interbedded with the Iron formation, but, as previously stated, these might exist and be overlooked, as some of the weathered igneous rocks might very readily be mistaken in the field for weathered sediments.

The Iron formation is not cut by the Laurentian granite on the accompanying map sheet, but on the "Red" portage on the Red Paint river the granite and granitoid gneiss cuts Iron formation of the same age as that on the map. The hornblende-porphyry cuts this formation as a small irregular mass on the southern range, and two diorite dikes cut across it on the Height of Land claims. The Keweenawan diabase dikes cut this same formation in many places, especially on the southern range, and they represent the latest consolidated rocks in this area.

Petrography of the Iron Formation

There are several distinct rocks included in the Iron formation, but they are so related that they must be treated as a unit. These rocks are ferruginous cherts, slates, phyllites, graywackés, actinolite-magnetite-schists, dumortierite-magnetite slates and jaspers, garnetiferous and tourmaline slates. The last four of these types have been treated pretty fully in the sections on Dynamo-Regional and Contact Metamorphism and will not be discussed in detail here.

The relations between the rocks of this formation are such that a band of jasper half an inch in width may occur between bands of slate and graywacké 20 feet in width, and, on the other hand, almost clear jasper bands may reach a maximum of nearly 50 feet. Some of the narrow bands of ferruginous cherts may contain a large percentage of iron, as, for example, one band a few inches wide from the southern range, which was analysed and found to contain 50 per cent. of metallic iron and 23 per cent. of silica.

The banding in the jaspilites, which consist of banded jasper, red or black, alternating with bands of cherty quartz, is often distinctly marked, but the bands are not so clear cut as in the Iron formations of some other regions. Fig. 16 is an example of banded jasper and slate from the Lake Wendigokan district east of lake Nipigon and it is particularly adapted for illustration, because the white slate bands stand out in strong contrast to the red jasper. The slate weathers on the surface to a white shade which is a color characteristic of many of these slates. Another example of remarkable banding is seen in Fig. 1, Plate IV, in which there is represented a magnetite and siderite chert, from the Iron formation on Little Long lake, about 50 miles east of Lake Nipigon. This specimen was obtained through the kindness of Dr. A. P. Coleman, by whom it was collected.

Although many of these bands are clear cut in the hand specimen, they grade more or less into one another in the microscopic section. In many cases there is a gradual transition between cherty magnetite bands, red jasper bands and slate bands, these transitions indicating a gradual change from predominant elastic and minor chemical sedimentation to predominant chemical and minor mechanical deposition.

The Slates

Megascopic Characters:—The slates in some cases possess almost perfect cleavage, and the parting varies from this to an irregular and sub-conchoidal fracture. They are banded with coarser and finer layers, varying in thickness from $\frac{3}{4}$-inch to a millimetre. In some cases the coarser layers may be classed as graywackés. Their color

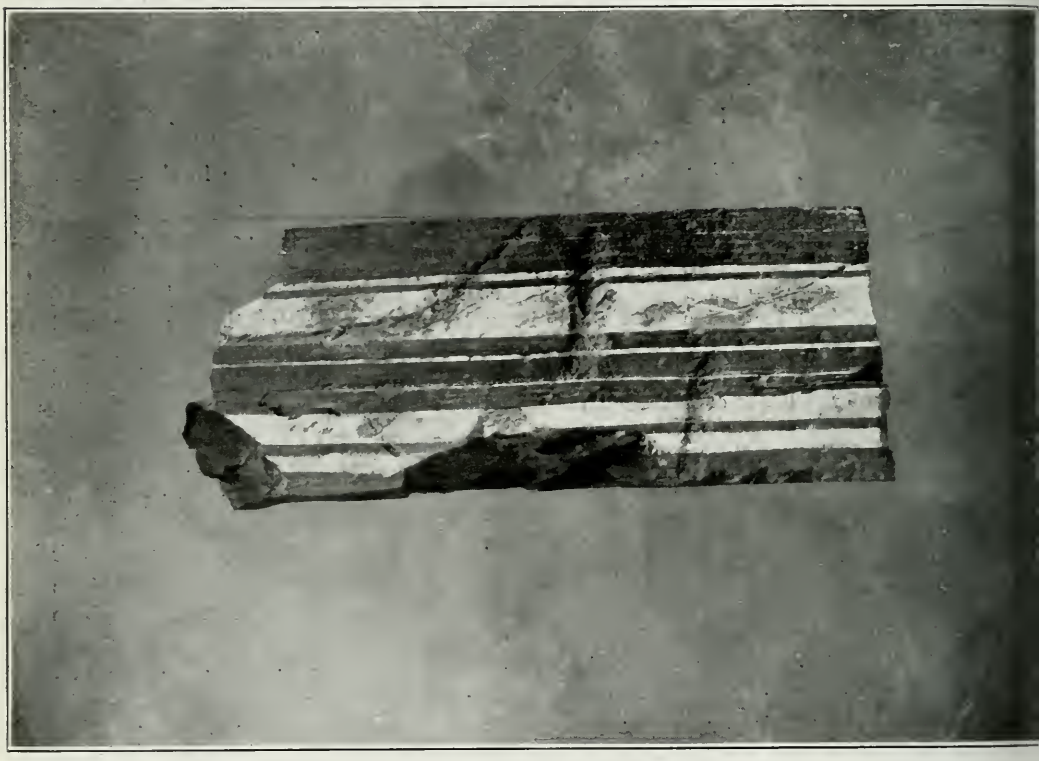


Fig. 16.—Banded jasper and slate from the Lake Wendigokan district.

varies from white to black on the weathered surface, with usually a dark gray to black interior. In some cases the color is greenish from the presence of chlorite along the cleavage planes. Very small veins of silica frequently cut across the rock in all directions and fill small fractures.

Microscopic Characters:—The chief minerals of these rocks are quartz, in clastic fragments, and in the form of crystallized chert, green and brown biotite, sometimes bleached almost colorless, sericite, magnetite, hematite, pyrite, dumortierite, kaolin, small bits of feldspar, iron carbonate, calcite, epidote and sometimes tourmaline and garnet. The biotite often reaches such proportions that the slate should be regarded as a phyllite. The magnetite or hematite may form nearly half the rock, and often the carbonates reach such proportions that the rock may be called a carbonate slate. The tourmaline is rather widely distributed in these rocks, and it occurs as very small cry-

stals lying in all directions, and in such a way that it appears as an undoubted secondary development, and not as a clastic mineral. It is more common in the slates of the northern than in those of the southern range, and it occurs most plentifully near the eastern end of the former range.

Slide 126 is from a phyllite on the Miller claims. It consists more than half of brown biotite in small flakes with their long axes nearly parallel to the cleavage lines, and with a poorly developed false cleavage cutting the true cleavage plane.

Slide 113, from an outcrop of garnetiferous slate southeast of the Miller claims, contains quartz fragments, many of which have suffered re-crystallization around the borders. Sericite, chlorite, kaolin and iron oxide are widely distributed in the section and disseminated pyrite occurs usually in small specks. Small, pink garnets, in euhedral crystals, are associated with a considerable amount of tourmaline in very small crystals. The tourmalines in long slender prisms have been broken by dynamic action. The color of this mineral varies from nearly colorless to brown, and the pleochroism varies with the color. Epidote and zoisite occur in very small crystals and one aggregate of actinolite needles was seen. Although there is not the intimate intergrowth of the individual minerals generally characteristic of contact rocks, this slate, on account of its mineral associations, strongly suggests a contact metamorphic rock. It occurred on the border of a large swamp without any igneous rock supposed to be later, within a quarter of a mile. About a quarter of a mile away, a low outcrop of rhyolite-porphyry occurs, and some related mass may have been responsible for the development of this group of minerals in the slate.

Slide 173, from the slates of the Iron formation on the southern range, is interesting in showing the transition of a slate into a graywacké. There is a good deal of magnetite showing in the section, and it is much more plentiful in the fine slaty layers than in the graywacké bands. There are two things that this difference in the magnetite content of the slate and graywacké might indicate. One of these is that while clastic and chemical sediments were being deposited at the same time, in the case of the slaty material the deposition was so slow that a larger proportion of chemical sediment was laid down than in the case of the coarser clastic. The other condition is that the iron was deposited in the coarser rock and later removed by waters which could more readily circulate in it than in the slate. This section also contains a little tourmaline in very small broken prisms, and one little garnet was seen.

The Graywackes

Megascopic Characters:—The graywackés are monotonous in character, as the rocks are all of dark gray to brown color, and contain small fragments of quartz and feldspar visible to the naked eye. Sometimes a little pyrite is disseminated through the rock Fractures intersecting at right angles cut these rocks into more or less square blocks, and parting along the bedding planes is frequent. The fracture in some cases is subconchoidal.

Microscopic Characters:—The microscope shows that these rocks are composed of varying amounts of feldspar and quartz. In some cases the quartz fragments form 40 per cent. of the fragments found in the rock, but generally a smaller percentage is present, and the following description is taken as an average example for the district: In the average slide the proportions of the quartz and different types of feldspar were found to be, quartz 25 per cent., plagioclase 10 per cent., and orthoclase 65 per cent. Some of the plagioclase was identified as albite. The relation between the fragments and matrix vary from 25 per cent. matrix and 75 per cent. fragments, to 60 per cent. matrix and 40 per cent. fragments. The fragments are very often little rounded, but, as a rule, much weathered. They generally show more weathering action than the feldspar fragments in the matrix of the agglomerates.

The matrix is composed of sericite, biotite, chlorite, very small fragments of quartz, weathered feldspar, kaolin, and iron oxide. In some places considerable zoisite and epidote occur. Calcite, pyrite, and little crystals of apatite are widely scattered through these rocks. In the development of schistosity, the minerals of the matrix have been crowded and bent around the fragments.

In the study of these graywackés, one is struck by the similarity between them and the cementing material binding the fragments in the tuffs and agglomerates. In fact, it is almost impossible to distinguish the pyroclastics, where the larger fragments are not present, from the graywackés. There is probably no way of separating them but by chemical analysis, and it is doubtful whether this would always distinguish them. Should these graywackés ever be shown to be of pyroclastic origin, it is probable that the slate would prove to be of similar origin, as they grade into one another. In that case the slates would represent the finer tufaceous material of the pyroclastic series.

Fig. 17.—Outcrop of Iron formation rising above the swamp on the southern range.

The Ferruginous Cherts

The ferruginous cherts include the red banded jaspers and silica, or jaspilites of Van Hise, the cherty magnetites and cherty iron carbonates. These three types are all closely related, as they grade into one another, and the latter type is probably the original rock from which the greater part of the other two is derived.

Megascopic Characters:—The jaspilites are crypto-crystalline rocks, with bright red bands of jasper interbanded with and grading into almost pure cherty bands. These bands vary in width from half an inch to almost microscopic sizes. There are frequently bands with fairly coarse silica formed by some of these bands becoming coarsely crystallized, and the glistening surfaces of specular hematite and silica are prominent.

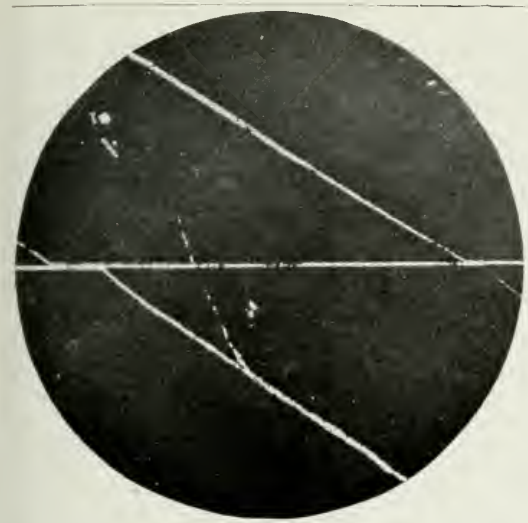


Fig. 1

Fig. 1.—Photomicrograph of thin section 63, showing fracture cleavage in a hematite slate. Elongation has been produced by slipping. The direction of the pressures producing the fracturing and shearing intersects the obtuse angle at which the sets of parallel fractures intersect one another. Natural size X 35.

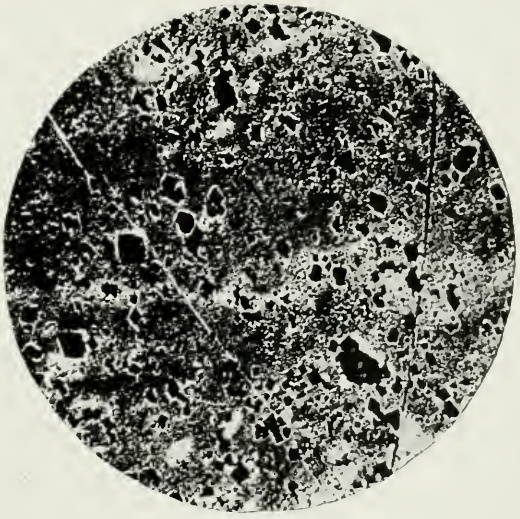


Fig 2.

Fig. 2.—Photomicrograph of thin section 60, showing magnetite crystals in a jasper. The white groundmass is chert and the zones around the magnetite crystals are cherty quartz. This figure illustrates the alteration of siderite to magnetite with a reduction in volume of the iron compound. The rhombs of siderite are replaced by crystals of magnetite, surrounded by a zone of silica. Different stages in the process of alteration may be seen. Natural size X 35.

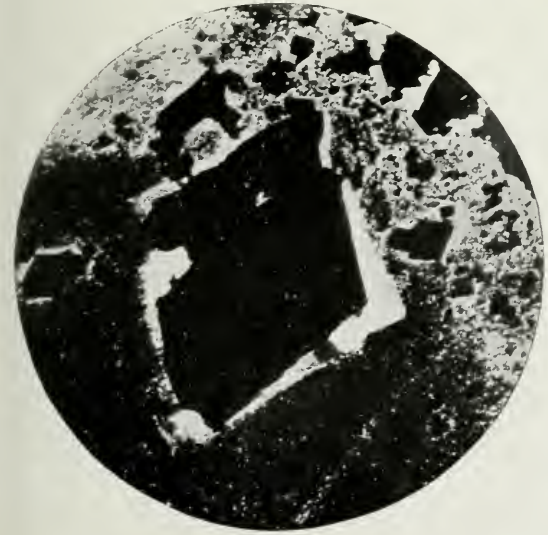


Fig. 3.

Fig. 3.—Photomicrograph of thin section 60. Similar to Fig. 2. Natural size X 225.

PLATE II.

Magnetite may, in some cases, form the principal part of some of the bands, especially where the rock has been subject to great metamorphism. Where the rock is mostly altered to magnetite it is, as a rule, more coarsely crystalline, and the banded structure is not so distinct. Sometimes ribands of slate occur between the bands of jasper and form a very regularly banded rock (Fig. 16).

There are no distinctly banded cherty carbonates in this area,—in fact the carbonates are rather rare here, as the metamorphism has been so intense that they have passed over into the oxides.

The great number of little quartz veins filling fractures all through the jaspers is very characteristic (Fig. 3, Plate I). The fracture is conchoidal to irregular. Some of the hand specimens retain a splendid polish made by the glacier, and others taken along fault planes still have good slickensides.

Microscopic Characters:—Under the microscope the banding of the jaspilites is not so clear cut as in the hand specimen, because in detail these bands usually grade into one another although, in a few cases, a distinct boundary line may be seen. The thin sections are monotonous, in that they present so little variation in mineral content. They are made up of a groundmass of silica crystallized to a greater or lesser degree, with the individual granules of quartz interlocked with one another. The granules usually have irregular outlines unless the crystallization has occurred under the influence of contact metamorphism, when the outlines are, as a rule, clear cut. The more coarsely crystalline silica is found in the bands which are not full of iron oxide, as the iron seems to interfere with the perfect crystallization of the silica, and the fine grained jaspers appear to owe their present condition to the finely disseminated hematite which has prevented the segregation of the silica and its crystallization into coarse granules.

The hematite occurs in little crystals and in specks of sub-microscopic size scattered throughout a silica groundmass. Sometimes these crystals are six-sided but, as a rule, they are somewhat irregular in form. Associated with the hematite are crystals of magnetite, usually euhedral in outline, and varying from almost sub-microscopic size to one-tenth of a millimetre in diameter. These crystals occur scattered all through the fine grained red jasper, or segregated along definite bands.

That much of the magnetite in these rocks is developed directly from siderite is evident from the occurrence of octahedra and other crystal forms of magnetite in rhombic spaces formerly filled with iron carbonate. All stages have been observed in the substitution, from the complete siderite rhombs to the rhombic moulds with a magnetite octahedron surrounded by a zone of cherty silica (Figs. 2 and 3, Plate II). This silica fills the space caused by the reduction in volume of the iron compound, when decarbonation and oxidation occurred with the loss of carbon dioxide. The examples also illustrate the great transfer of silica in these rocks. Siderite is widely distributed through all of the Iron formation rocks, and its alterations can be traced in such a way as to show that it has given rise to the greater quantity of the Iron oxides. Distinct rhombs of siderite, replaced by chlorite, have been found in a slide (No. 56) from the Poplar Lodge region. Calcite is also common, but its relations to fractures makes it appear that this mineral is generally a secondary mineral derived from outside sources, though in some cases it appears to be an original constituent of the rock. Sericite and chlorite very frequently occur dispersed throughout the jaspers, and as the latter approach a slate by an increase in mechanical sediments, green biotite sometimes becomes common. In slide 47, from the southern iron range, there is considerable biotite, parts of it bleached almost colorless. The typical brown pleochroic biotite grades gradually into almost colorless mica. This alteration seems to be due to a weathering process.

Careful observations were made with the view of ascertaining whether clastic quartz occurred in the jaspers. In several cases there were found what appeared to

be clastic fragments, but it is difficult to prove they are such, because during the metamorphic processes the fragments have become partly rounded off and recrystallized. That it is impossible to distinguish a fragment of quartz which has been granulated and partially or entirely recrystallized under dynamo-regional influences, from some granules of crystallized chert, is evident from observations of changes in the quartz fragments in graywackés and the phenocrysts in porphyries. In slates which grade into jaspers one can find a few clastic quartz fragments, and there is no reason why they should not occur in some of the jaspers, but one has no hesitation in saying that clastic quartz is not the source of the great mass of the cherty silica in the Iron formation.

A characteristic feature of the jaspilites is the fine veins of quartz filling openings caused by the development of fracture cleavage. This quartz can be traced to the groundmass of these rocks, and its transfer clearly demonstrates the point which Prof. Leith makes, viz., that in the processes of metamorphism and concentration in the minerals of the Iron formation, the silica is more readily transferred than most of the others. Besides the silica some sericite, calcite, siderite, magnetite, hematite and chlorite are found in these veins, but only sericite, calcite and chlorite are very common. Even these are not so abundant as the quartz in the veins which traverse the jaspers. The magnetite and hematite in these veins are probably due to the alteration of siderite which has been carried in solution.

Genesis of the Iron Formation

There is a great deal of similarity in the Iron formation of all the Keewatin regions, and so much has been written on the subject of the origin of the rocks of this formation, that little can be added to the theories already proposed. In the case under discussion there remains only the application of the observations made in the field to a part or all of these theories. In the Survey reports of Minnesota, the Messrs. Winchell have put forth the theory that these iron-bearing deposits are chemical precipitates from a heated sea existing under conditions postulated by the Nebular hypothesis for the early condition of the earth.[20]

At the present time there is a tendency for geologists to depart from the idea of the existence of these special conditions, and to suppose that in Keewatin time conditions were much more as they have been in later time. With this change of view, the time for the first existence of life on the earth has been pushed back to an earlier date. The leaders among the geologists who have been instrumental in bringing about this change of view are Chamberlin and Salisbury.

What might be considered a modified view of the older theories of the origin of the Iron formation is put forth by Leith in an article on the Iron Ores of Canada[21] in which he expresses the opinion that the pre-Cambrian iron deposits owe their origin, in part at least, to hot igneous rocks contributing iron salts directly to the sea by magmatic waters. Dr. Leith bases his assumptions on the close association of the iron ores with basic extrusive rocks, present in all the systems of rock in which large deposits of banded jasper occur. He further points out that the banded structure of these deposits is unlike any sedimentary rock forming at the present day, and that this structure can be produced by experiment in the laboratory.

From an extensive study of the iron deposits in Lake Superior region, Irving, Van Hise, Leith, Bayley, Spurr, Coleman, Willmott, and others have shown that there are two chief sources for the iron oxides, these being the cherty iron carbonate and the greenalite. The latter mineral was regarded as glauconite by Spurr, but from a careful study of it, Leith has shown that it is not glauconite, but a hydrous silicate of iron without potash.[22]

[20] N. H. and H. V. Winchell, Geol. and Nat. Hist. Surv. of Minnesota, Final Rept., Vol. IV. (1899), p. 547; ditto Bull. No. 6 (1891), pp. 105, 111.

[21] Economic Geol., Vol. III., No. 4, June-July, 1908.

[22] U. S. Geol. Surv., Mon. XLIII.

In the older reports the writers seemed to regard the supply of the silica as the most difficult problem to solve in connection with these banded deposits. Dr. Leith now considers that the silica is more largely transported than the iron compounds during the concentration of the iron ores. Julien has also pointed out that silica is very largely transported during weathering processes.[23] T. Sterry Hunt has found as much as 21 per cent. of soluble silica in the bog ores of Quebec,[24] and in analyses the writer had made from bog ore in the vicinity of the English river of Ontario, over 8 per cent. of soluble silica was found. Clarke has shown that a large percentage of silica exists in two types of waters, those containing much organic matter and those flowing from crystalline rocks.[25] The soluble silica mentioned above is that which has been precipitated from organic compounds, and Van Hise[26] states that much of the silica in the Iron formation is soluble, so there is some similarity between these two types of silica deposits.

It is well known that chert deposits are the product of organic remains and jaspers are known which contain shells of radiolarians.[27] Other agencies for the transport and deposition of silica are hot and alkaline waters.

From the above observations it is clear that several agencies are adequate to supply silica for the iron deposits. The chief among these agencies are life, and hot, or alkaline waters.

For the solution and transportation of the iron of these deposits from the rocks surrounding the basins in which they were formed, a high content of carbon dioxide in the atmosphere and the action of organic acids have been suggested. From the investigations of the bog ores of Sweden and Quebec, and of the solution and transport of iron in other places, the action of organic acids seems to be the predominant agency at work. T. Sterry Hunt, in the analysis already quoted, found over 15 per cent. of organic acids in the bog ore of Quebec, and Julien has given a great many examples of other analyses which go to show that plants play a very large part in the solution and transportation of iron. In analyses of water from the bog ore district near English river, the writer found that as much as one-eighth of a pound of iron was carried by a ton of water. This was in a region where one would not judge that any great amount of iron could be obtained, because the underlying rocks are Laurentian gneiss, and the drift is very largely composed of boulders and pebbles of granite and sand which have few constituents other than quartz and feldspar. As pointed out in an article on that region, appearing in the present report of The Bureau of Mines, the writer has endeavored to show that the physiographic conditions of the area practically control the solution, transportation and deposition of bog iron. If the land has low relief, so that the streams are sluggish and abundant vegetation exists, organic acids are capable of dissolving large quantities of iron salts. As pointed out earlier in this paper, the physiographic conditions existing in Keewatin time seem to have been very favorable for the development of enclosed basins and unfavorable for well developed drainage. Average basic rock contains about 9 per cent. of iron, and in the presence of plants, volcanic rock such as that so common in Keewatin time, will disintegrate very rapidly. It has been shown that in a few years the lavas of Mount Etna have been brought into a condition suitable for vineyards through the organic action of the prickly pear. Some will argue that the weathering of the rocks is not sufficient to supply the great thicknesses of chemical sediments found in these iron deposits, but Prof. Chamberlin has pointed out that it is probable a selective process was carried on during the Keewatin, when the iron salts were leached out and the coarser clastics left on the land. In Huronian time, to which the great beds of clastics belong, the

[23] A. A. Julien's Monographic paper, Proc. Am. Assn. Adv. Sci., 1879, Vol. 28, p. 311.
[24] Geol. of Canada, 1863, p. 511-13.
[25] F. W. Clarke, U. S. Geol. Surv. Bull. 330, p. 84.
[26] 10th Ann. Rept. U. S. Geol. Surv., Pt. I., p. 399.
[27] Radiolarians in the Tithonian Jaspers. Eastman's Translation of Zittel, Vol. 1, p. 46.

drainage conditions had so improved that this coarser type of sediment could be carried. Unless it can be shown that the slates and graywackés in the Keewatin are composed of materials supplied directly to the sea by volcanic action, it must be admitted that sufficient basic rock was weathered to supply a very large amount of iron. If an abundance of plant life can properly be postulated for the Keewatin, it seems to me that the agencies at work upon the earth were adequate to supply the iron and silica for these iron deposits. It is true that the conditions existing in early Keewatin time appear, from the evidence of such enormous volcanic activity, to be very unfavorable to life, but the prolonged period of quiet sedimentation which must have occurred during the deposition of the Iron formation would give an opportunity for the development of living organisms. One would also expect thatt the intrusion of the Laurentian granite would greatly heat the underground water, and that up to the end of the Laurentian time the waters must have been very active chemical agents.

Origin of the Banding

The remarkable banding found in these old deposits is one of the most difficult features to explain. The only deposits forming at the present day which seem quite equivalent to them, are those found around hot springs. In such areas there are deposits which very strongly resemble the banded rocks of the Keewatin, but it is evident that the latter were not deposited by hot springs, because there is no evidence anywhere of the columns and masses which would be formed around the orifices of such springs. During last summer some banded jaspery chert was found filling spaces between fragments of brecciated granite along the contact between the Keweenawan and Laurentian in the Black Sturgeon Lake region, south of lake Nipigon. It could not be proved whether this was a deposit from ordinary cold solutions bearing organic salts, or whether it was related to the diabase sills which are everywhere found intruded between layers of red shale.

The banding in these old rocks has certainly been accentuated by the processes of metamorphism, as one can observe under the microscope how the segregation of quartz and iron oxide into certain bands has taken place. Where the iron is very thickly disseminated through the rock, the crystallization of the silica does not seem to be so coarse and complete as it is in bands where the iron is scarce. This coarser crystallization seems to make the banding more prominent than it otherwise would be. There are, however, clear cut bands of cherty iron carbonate which have every appearance of being original (Fig. 1, Plate IV), and Leith's theory, already mentioned, is the best yet put forth to satisfy the conditions necessary for the production of this banding. Further, the sudden alteration from clastic sediments to beds of well banded jasper, which are in some places as much as 50 feet thick and contain very little clastic material, show that some abrupt change must have taken place in the conditions of deposition, and it seems certain that the deposition must have been rapid or there would be more mechanical sediments in the jasper. The alteration in the coarseness of the mechanical sediments and in their rates of deposition seem to be best explained by changes in climatic conditions.

As to the igneous rocks supplying the iron directly to the sea, there does not seem to be much evidence of that in the Onaman region, unless the acid pyroclastics were the source of the iron. In no place were typical greenstones found in contact with the jaspers except near faults, as a band of slate separates the two rocks. No basic igneous rock was found interbanded with the Iron formation. The jasper in a few places comes in contact with rhyolite, but almost everywhere there is a layer of pyroclastics between the rhyolite and Iron formation, and as a rule slate lies between the jasper and these volcanic fragmental rocks. These pyroclastics seem to have been deposited in water, and there is no iron worth mentioning found in them. If the iron were the direct product of these rocks, one would expect that it would have been laid down as well during the deposition of the pyroclastics as later. There is the possibility, however, of deposi-

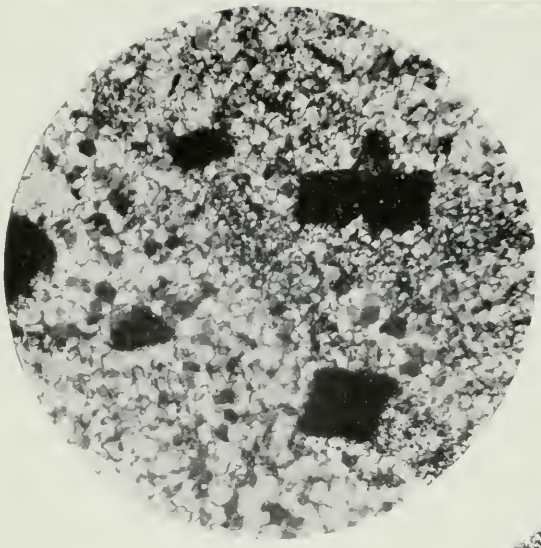


Fig. 1.

Fig. 1.—Photomicrograph of thin section 22. An actinolite-quartz-schist collected near an igneous intrusion. The chert of the Iron formation has crystallized and the rhombs of ankerite have partly or completely altered to actinolite. Fine needles of actinolite may be seen all through the rhombs and radiating from their borders. Natural size X 35; crossed nicols.

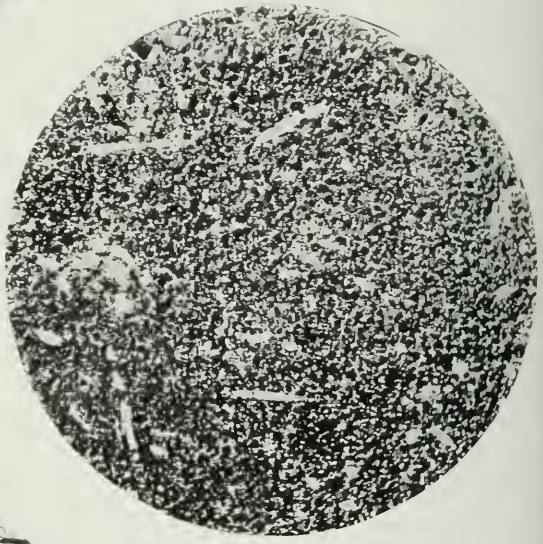


Fig. 2.

Fig. 2.—Photomicrograph of thin section 117. Dumortierite in jasper. The former appears as white crystals, though naturally they are blue. Natural size X 25. With polarizer.

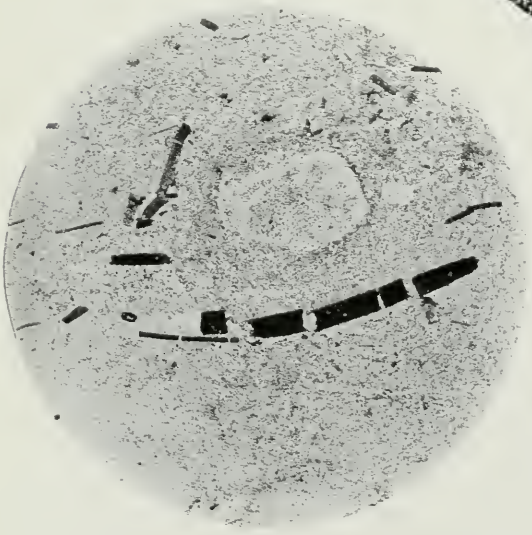


Fig. 3,

Fig. 3.—Photomicrograph of thin section 17, showing tourmaline in rhyolite. A phenocryst of orthoclase occurs near the center of the photo. The tourmaline shows the effects of shearing. Natural size X 35. With polarizer.

tion having occurred and the iron having been later removed by leaching, because of the coarse texture of the rock. On the other hand, if the iron salts were supplied by weathering action, one would expect a period of time to elapse and a deposition of slate to occur before the waters of the lakes would be sufficiently saturated with iron salts to cause precipitation. If the mechanical sediments occurring in the Iron formation could be shown to be of pyroclastic origin,—and, as previously stated, some of them very strongly resemble fine pyroclastics,—it would then be unnecessary to restrict these deposits to enclosed basins, and the salts might have been supplied by rocks poured into the sea at a considerable distance from this area.

From a consideration of the different theories for the origin of these deposits, the writer concludes that the original rocks were cherty iron carbonate and oxide. No sign of greenalite has been found. The materials were supplied to enclosed basins by weathering action under the influence of plant life, and by heated igneous rocks coming in contact with the waters. These rocks supplied salts of iron and the alkalies to the waters. That cherty iron carbonate was the original rock which gave rise to much of the magnetite and hematite is evident from the wide distribution of this mineral in all the Iron formation rocks, and by the transitions between it and magnetite which may be seen in the thin section. (Figs. 2 and 3, Plate II). That part of the hematite has been deposited as limonite, and dehydrated, is suggested by its very close resemblance to some of our bog deposits of the present day. Under the microscope one can see the gradations from a clastic slate with some iron oxide, into a mixture of hematite and minor amounts of mechanical sediment. The composition and texture of the rock are just what one would expect if some of our bog ores were highly metamorphosed. Since the deposition of these rocks they have been subject to extensive metamorphic changes which have developed magnetites and hematites from the carbonates, and crystallized silica from the chert. The banding has, in some cases, been emphasized, but in others, where concentration of the iron has been considerable, the banding has disappeared.

Economic Possibilities of the Onaman District

The Iron formation of this district does not at present contain "pay" ore. There are many bands of jasper and magnetite which in themselves are rich enough in iron to make ore, but, as a rule, a great deal of schist and slate is mixed with them. There does not appear to have been much concentration, as neither the outcrops nor the drill holes which have been sunk show any bodies of rich ore. The rocks are, as a rule, so hard and close-grained that little percolation of water seems to have taken place. No drilling has been done, however, on the southern range, where the best outcrops of jasper occur.

A number of analyses of specimens collected from different parts of the area were made by Mr. N. L. Turner, the Provincial Assayer at Belleville, and a discussion on these follows.

Analysis No. 15. Dried at 100° C.

	Per cent.
Total metallic iron	50.32
Iron in ferrous condition	17.06
Silica	26.85

This analysis was made from a band of magnetite and chert a few inches wide and extending for several rods between bands of slate. A number of other bands such as this could be found in the southern range. It is difficult to trace the longitudinal extension of these bands as they run under the drift and often finger out, but some of them can be traced across good sized outcrops.

Analysis 16. Dried at 100° C.

	Per cent.
Total metallic iron	55.79
Iron in ferrous condition	10.94
Silica	37.10

This analysis was made from jasper collected from an outcrop about 15 feet across and rising out of the swamp. Near the eastern end of the main portion of the southern range (Fig. 18), on the south side of the outcrop, the rhyolite dips under the Iron formation at an angle of 60°, and a large vertical diabase dike cuts across the formation just east of this point, at an angle of 45°. This jasper band is probably more extensive beneath the swamp, and the converging of the rhyolite and diabase tends to form a triangular trough closed at the eastern end. Considering the grade of the ore in this outcrop and the possibility of a basin beneath it, one can regard its vicinity as one of the most favorable spots for drilling on the southern range.

Fig. 18.—Rhyolite dipping under an outcrop of Iron formation.

What appears to be a wider portion of the same band,—it could not be traced continuously on account of drift and irregular folding,—occurs about half a mile farther west, where it is over 50 feet wide and composed of jasper with very little slate interbanded. At this point the total metallic iron content would run from 30 to 40 per cent. At 35 yards west of this wide outcrop the band runs under swamp and cannot be definitely traced to the west, although a band about 100 feet wide, but containing a considerable amount of interbanded slate, occurs west of the swamp.

Analysis 17. Dried at 100° C.

	Per cent.
Total metallic iron	38.83
Iron in ferrous condition	12.9
Silica	50.

This analysis was made from a band of distinctly banded red jasper and magnetite, and represents the iron content of a good deal of the well banded jaspilite, occurring in bands a few feet wide and lying between strips of slate.

From the analyses given above, it will be seen that the southern range does not contain ore which can be worked under present conditions, but it is evident that a considerable amount of low grade material might be obtained by sorting. There is a possibility that drilling might reveal ore in the spot mentioned above, but I should not expect to find any very large body of ore, because of the narrowness of the formation, the apparent shallow depth of the syncline, and the general lack of concentration of the iron in this area. This syncline appears shallow when compared with the great basins of the large workable iron deposits.

On the northern range diamond drilling has been done, by Mr. R. H. Flaherty, on two of the most favorable looking outcrops (Fig. 19). A hole running at an angle of

Fig. 19. Diamond drill at work on the Winter Camp claims.

60° from the horizontal and driven into the face of the hill was sunk 351 feet on the Winter Camp claims. It was drilled just north of a fault plane, where it was thought a concentration of ore might have occurred. Through the kindness of Mr. Flaherty, it was learned that nothing but jasper was found, and that it varied very little from that occurring at the surface.

Another hole was bored on the western member of the Miller claims, to a depth of 139 feet, at an angle of 52° S. It passed through 31 feet of jasper and then struck what was reported as greenstone, but which was probably rhyolite, in part at least, as this rock dips under the Iron formation near this point. The hole shows that the formation is thin at this spot. A specimen collected from this area as a type of some of the heavier jasper and magnetite samples, was found to be dumortierite-magnetite-slate and jasper, the analysis and complete description of which are given under the

section on Dynamo-Regional-Metamorphism. The analysis shows 42.8 per cent. of iron. There is a large amount of well banded jasper in this northern range, but little sign of concentration has been found. The iron content on the whole is low, but so much of the range is concealed from view by drift that one cannot say, until it is more fully prospected, just what some parts of it may produce. As in the southern range, the eastern end is better than the western, which gives no promise of producing ore.

The Laurentian Granite and Gneiss

The Laurentian system is represented in this area by two outcrops, a small one barely rising above the swamp between the two iron ranges, and a large one along the southern border of the district. The latter extends an undetermined distance southward. The granite was not reached on the northern border, but reports from prospectors state that it occurs about seven miles north of Red Paint lake. This rock is widespread in the Red Paint River region, and along the river it is only broken by a few zones of Keewatin rocks. On the eighth portage on this river there is a large mass of attractive porphyritic granite in which the orthoclase crystals are an inch long.

In the district mapped, the granite has been almost entirely altered to gneiss, and it is similar to the great mass of Laurentian gneiss in the other portions of the Archean shield.

A thin section from the outcrop between the iron ranges showed the following characters: The rock is composed predominantly of microcline, with much smaller content of quartz. There is a small amount of green hornblende. The accessory minerals are biotite in very small quantity, magnetite, hematite and sphene. The biotite is partially altered to hematite, magnetite and chlorite. The apatite occurs as little inclusions in the feldspar. There are about forty small crystals of sphene, which occurs in acutely rhombic cross-sections or in prismatic forms with terminal faces. The largest prismatic form is 0.2 mm. by 0.05 mm. in size. This rock is a hornblende gneiss.

Huronian: Hornblende-porphyry

The hornblende-porphyry found here has been classified as Huronian, because a small mass of this rock was found cutting the Iron formation on the southern range and another outcrop is cut by Keweenawan diabase about two miles southeast. These conditions would thus place this rock between that of the Keewatin anad Keweenawan in age. Only these two small outcrops were observed.

The megascopic characters of this rock are: a peculiar pink weathered surface, with dark green blotches an inch long and oval to round in shape, scattered all over the surface; on the fresh surface the rock is seen to be holo-crystalline and finely granular, with a few phenocrysts of hornblende. A few specks of pyrite occur. Some of the feldspar weathers pink and the remainder of the rock is a very dark greenish gray color.

The microscopic characters are shown in thin section 198, in which the rock is composed of green hornblende and oligoclase feldspar. The hornblende is in euhedral and anhedral crystals of three magnitudes, and the fabric is seriate, *i.e.*, there is more or less gradual variation in the size of the crystals. The small hornblendes are, in some cases, completely surrounded by feldspar, and a poikilitic fabric is thus produced. Some of the former mineral is secondary and in places is almost colorless, a characteristic of the changes produced by weathering in these old rocks. This rock might be called a diorite-porphry.

Diorite Dikes

On the Height of Land claims on the northern range, two dikes, 15 inches and 3 feet in width respectively, cut the Iron formation where a trench has been dug across the range. They could only be seen where the formation was stripped. The strike of

the smaller dike is 125°, and that of the larger one 110°, while the strike of the Iron formation is 80°. Their contact effects were seen in the formation of magnetite and granular quartz from the jasper lying close to them. The rock comprising them is badly weathered, and, in the hand specimen, was only identified as a basic rock from the presence of considerable dark mica and other ferro-magnesian minerals. Under the microscope the rock from one of these dikes was found to be so completely altered that no original minerals remained. There is a large number of secondary biotite flakes which are bent and broken, especially where warped around quartz granules. There are numerous patches of calcite, evidently developed from feldspar or hornblende, and associated with the calcite there is considerable free quartz. Much sericite is present in patches arranged as if it had been developed from orthoclase crystals.

Fig 20. Diorite dike cutting jasper on Height of Land claims on the northern iron range

A specimen from the larger dike was found to be sufficiently fresh to show that it was composed of albite crystals closely crowded, together with much secondary calcite and small flakes of biotite. A number of euhedral crystals of pyrite are scattered over the section.

The composition of these rocks corresponds to that of an altered diorite, and it is quite probable that they are of the same age and derived from a magma similar to that which gave rise to the hornblende-porphyry or diorite porphyry described above.

Keweenawan Diabase

It has seemed wise to consider as Keweenawan a series of diabase dikes which cut all the consolidated rocks of the Onaman district. The diabase strongly resembles that of the Keweenawan in other districts, not far removed geographically from the Lake Nipigon basin, which was the scene of great volcanic activity in this period. A

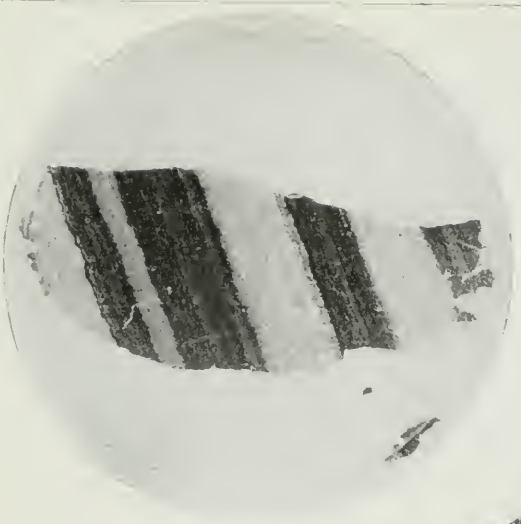


Fig. 1.—Photograph of thin section 211, showing a banded cherty iron carbonate from the Iron formation on Little Long lake. The dark bands are composed almost entirely of magnetite and chert, the lighter bands of iron carbonate and chert. Natural size X 2½.

Fig.

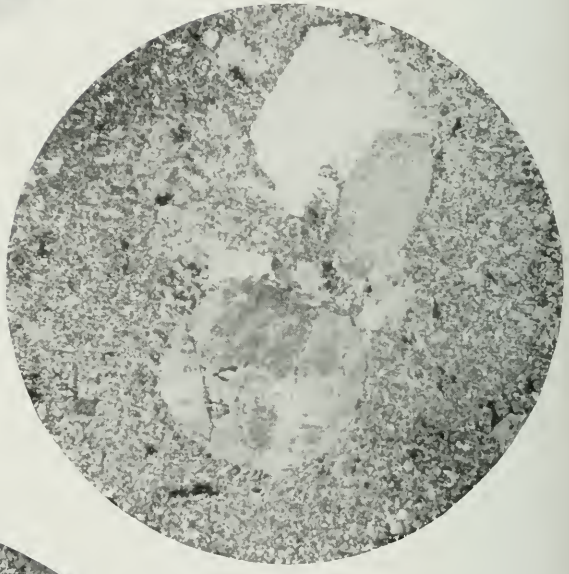


Fig. 2.—Photomicrograph of thin section 168, showing the re-absorption of a microcline crystal by the matrix. The other phenocrysts are not re-absorbed, possibly because they did not form until after the action on the round one occurred, or because they are of a different composition and not taken into solution so readily. Natural size X 22. Crossed nicols.

Fig. 2

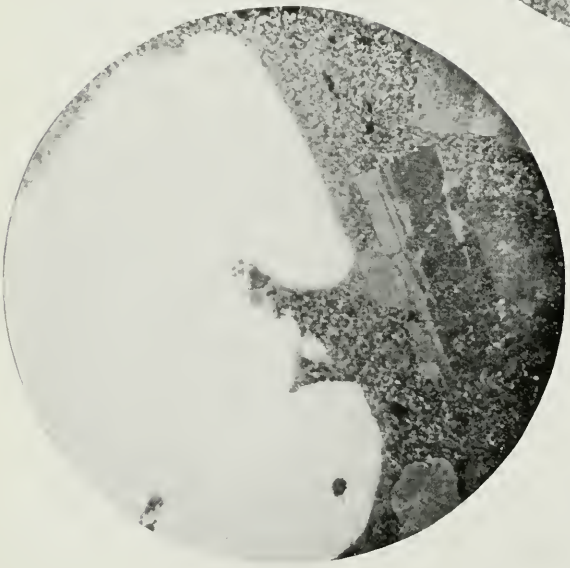


Fig. 3.—Photomicrograph of thin section 196, showing the re-absorptive action of the matrix of a rhyolite porphyry on the quartz phenocrysts. The effect of pressure in producing fracturing in the feldspars may also be seen. Natural size X 22. Crossed nicols.

Fig. 3

PLATE IV.

comparison of these rocks with those collected by Mr. W. H. Collins in the Gowganda district of Ontario shows many similarities. For purposes of comparison and the establishment of petrographic provinces it is desirable that geologists give definite descriptions of the diabase supposed to be of Keweenawan age.

These dikes vary much in width, with a maximum of 150 feet. Their strike is in general northwest by southeast and their dip vertical. Their distribution is widespread, as shown by the accompanying map, and it is probable that some of the scattered outcrops which only extend short distances before being lost in the drift should be connected up with one another. There are a few rather irregular masses, but they are doubtless connected below the surface with some of the dikes, as the latter in some cases expand into irregular masses or break up into numerous thread-like dikes. In places on the eastern portion of the southern range little dikes ramify over considerable areas.

It seems probable that these dikes owe their origin partly to the ease with which fissuring occurred during the adjustment of the rocks which must have occurred in the Nipigon basin after or during the transfer of such great quantities of lava toward the upper levels of the earth's crust. The dikes run in a direction which is roughly tangent to the border of this basin. In other parts of the Nipigon region dikes similar to these served as channels by which the diabase magma rose to form the great sills and sheets of the Keweenawan. These dikes may have served a similar purpose in this area, but there are no remnants of such masses to show that such was the case.

The contact metamorphic effects of these dikes have been inconspicuous. In most places the borders of the dike are very fine-grained, but there is often no observable change in the adjacent rocks. The chief evidence of alteration is found in the great amount of epidote developed in some of the slates and gray-wackés of the Iron formation. In these rocks little stringers of epidote occur, and innumerable microscopic crystals may be found in the thin section from rocks occurring within several feet of the dikes.

Megascopic characters of the diabase:—These rocks comprise a medium grained type of diabase. The feldspars are often yellowish on the weathered surface, as if they were partially altered to some mineral like epidote. Pyrite is a rather prominent constituent. The ophitic structure is not apparent, and the appearance of the rock is therefore more like that of gabbro.

Microscopic characters:—Thin section 199 may be taken as a type section of this rock. It is composed of labradorite feldspar, augite and ilmenite. In most cases the feldspar forms lath-shaped crystals, but the ophitic texture is not so well marked as in many diabases. In some cases the augite crystals are almost euhedral, and it is evident that the feldspar and augite crystals must have originated at about the same time. The augite is almost colorless, or shows a pink to light brown tint. It is generally pretty fresh, but the alteration to uralite may be seen along the borders of many crystals. A crystal of augite has one end composed of a green hornblende with an extinction angle different from that of the augite.

In a thin section from another point the augite is largely gone over into secondary hornblende, and many little epidote crystals are developed within this hornblende. Chlorite is common. The feldspars are much kaolinized, and contain considerable calcite as a weathering product. Pyrite forms an accessory mineral in small amounts.

According to a large number of measurements, the proportion of feldspar, augite and ilmenite in these diabases is approximately 55 per cent. of feldspar, 41 per cent. of augite and secondary hornblende, and 4 per cent. of ilmenite. The specific gravity is 2.88.

Pleistocene Deposits

As one ascends the Red Paint river, high sand banks come into view. At the first portage above lake Nipigon a sand and silt plain, the shallow water deposit of a large glacial lake which covered much of the Nipigon region, stands 75 feet above the lake, and a continuation of this plain may be seen between this portage and the next one, five miles up stream. Proceeding towards the Height of Land, these sand banks, which were so prominent on the lower portion of the river, become much lower and just below the divide irregular hummocks of drift occur. These drift deposits show no evidence of a beach along their lower border, nor do they appear to have been covered by water. As the elevation of these hills is not more than 1,050 feet above the sea, and sand plains extending from lake Nipigon up the Sturgeon river south of

Fig. 21. Dry kettle in terminal moraine along Johnson creek.

the Onaman region reach an elevation of approximately 1,090 feet, it seems evident that the water of the glacial lake must have reached a level higher than the hills on the Red Paint river would indicate. It is possible, however, that warping may have caused the difference of level shown here. Considering the absence of beaches, the grading of the sand plain into hills of drift which do not appear to have been under water, and the fact that shallow water deposits of the glacial lake occur at a higher elevation a short distance south than the water line in this area, it is concluded that the ice must have formed the northern boundary of the lake when it stood at its highest level. Before the ice left this region the outlet of the lake must have been changed so as to permit a lowering of its level. It may be that a local advance of the ice deposited fresh morainic materials on the sand plain after the water retreated from this area.

As the writer has pointed out in a previous article[28], there is some difference of opinion as to which of the glacial lakes is responsible for these extensive sand and silt deposits. Prof. Coleman regards these deposits as belonging to lake Warren[29], while Goldthwait[30] and other writers in the United States do not consider that lake Warren ever covered the lake Superior basin. In the article referred to, Goldthwait has given an historical review of the work done on the Abandoned Shore Lines, and from that it would appear that the shores of lake Warren did not extend to the Nipigon basin and that the deposits above described belonged to lake Algonquin.

Around the head waters of the Red Paint river and for several miles down the north side of Johnson creek there is a series of fine terminal moraine hills which stand

Fig. 22. Kettle lake in terminal moraine along Johnson creek.

out distinctly because they have been completely denuded of vegetation by forest fires. (Fig. 5). These moraines mark the position held by the front of the glacier for a long period, and contain many kettle lakes which may have been due to buried masses of ice melting out after the retreat of the main ice-sheet and permitting a slumping of the overlying sand and gravel (Figs. 21 and 22). As many as five of these kettles, or lakes without outlets, have been included in a single photograph (Fig. 5).

On the south side of Johnson creek another group of four kettles appears in a group of hills which represent the position of a lobe of the ice which extended a little in advance of the main mass.

[28] Geology of the Lake Wendigokan Region. Transactions of the Canadian Institute, Vol. VIII., p. 361.
[29] 17th Rept. Bureau of Mines, 1908, p. 167.
[30] Bull. 17, Wiseonsin Geol. and Nat. Hist. Survey.

The series of morainic hills occurring in this area extends westward for at least ten miles, with a maximum altitude of 1,200 feet, and eastward as far as the eye can reach. In connection with this moraine only two small eskers were seen. They extend, with serpentine outlines, in a southwest direction away from the foot of the hills. The kames are not prominently developed. The drift is composed of sand, gravel and coarse boulders composed of granite, greenstone and a great variety of other rocks, among which small chert pebbles are very common. Around Red Paint lake and the camps on the Height of Land portage, the drift pebbles are whitened with a coating of calcium carbonate. There are two probable sources for this mineral, viz.: the limestones of the Hudson Bay basin, and the calcite so plentiful in the weathered Keewatin greenstones. As this white coating has not been observed in any such quantity in the drift farther south in the region north of lake Superior, it seems more likely that the limestones are the source of it.

The direction of the ice striations, where noted, is, on the average, 60° (N. 60° E.). On some of the jaspers a glassy polish has remained almost perfect until the present day, and shows how little has been the effect of the thousands of years of weathering to which these rocks have been subject since the ice age.

A Recent Deposit; Travertine

Red Paint lake is fed entirely by springs issuing from the drift beneath its surface, as no superficial stream can be seen entering this lake. The name seems inappropriate for the lake, as the water is a charming, deep blue color. This color seems to be due to the lack of earthy sediments in the water and possibly to the presence of white calcium carbonate on the bottom and disseminated through the water. This white sediment must have an influence on the absorption of the rays of light and in the production of the blue color, because Blue lake, in the southern portion of the district, contains some of this sediment and is also remarkably blue. No other lake in the region possesses a similar deposit or anything like such a blue color. The deposit of calcium carbonate, or travertine, in Red Paint lake is at least 20 feet deep at the southeastern end, as a pole can be thrust down into it to that depth. Around other portions of the lake the deposit varies greatly in thickness and may even be lacking. The creek leaving the lake is so saturated with calcium carbonate that it deposits travertine on the roots and stems of plants along its course, and on the bottoms of the upper lakes of the Red Paint river. As already pointed out in the previous section, the source of this mineral is probably the calcium carbonate found on the pebbles of the drift in the surrounding region, and originally derived from the limestones of the Hudson Bay slope. Were this deposit favorably situated, it might be used in the manufacture of cement, but there is no prospect, so far as can be seen at the present time, of its becoming of economic value. Even the coming of the new railroad is not likely to awaken any industrial interest in a region so isolated and so far removed from the centres of population.

Summary

The Onaman Iron Range district covers about 70 square miles and lies between 45 and 50 miles up the Red Paint river, northeast of lake Nipigon. The Keewatin, Laurentian, Huronian, Keweenawan, Pleistocene and Recent rock systems are represented. The Keewatin consists of an older complex series of basic rocks cut and overflowed by an acid series which are in turn overlain by a thin series of pyroclastics grading into sediments. These pyroclastics are overlain conformably by a banded Iron formation, and in one place this formation seems to be cut and overflowed by the acid rocks. The basic rocks consist of both intrusives and extrusives, and are composed largely of gabbros and diabases. The acid rocks consist of rhyolites, rhyolite-porphyries and feldspar porphyries. The former rocks seem to constitute the matrix of the

pyroclastics in small areas. The pyroclastics consist of tuffs and agglomerates, which grade over into conglomerates with waterworn fragments and a sedimentary matrix. The fragments consist almost entirely of rhyolite. The Iron formation occurs in two bands called the northern and southern ranges, the former extending, as indicated on the accompanying map, almost across the area from east to west. The latter range does not outcrop for more than about three miles, but seems to extend for some distance farther under a swamp. The formation is composed largely of red jasper, often well banded, and magnetite. There are considerable deposits of these minerals, but they are interbanded with a large amount of slate and some graywacké. Some tuffs may also be interbedded with these materials. The formation does not at present contain "pay" ore, though much low grade material exists. There is evidence that the original mineral from which a considerable proportion of the hematite and magnetite has been derived was iron carbonate.

The Keewatin rocks have been cut by the Laurentian granite which now exists as a hornblende gneiss, grading, in places, into granite. The Huronian system is represented only by a couple of small outcrops of hornblende-porphyry and possibly two dikes of diorite which cut the Iron formation. The Keweenawan rocks occur as large dikes of diabase which cut across the district in a general north and south direction.

The drift is thick in many parts of the area, and an interesting series of terminal moraines contains numerous kettle lakes along Johnson creek. The sand plains formed in the shallow water of the glacial lake, Algonquin, may be traced from lake Nipigon up the Red Paint river to the Height of Land near its head waters, where the plain appears to be covered by terminal moraine deposits. The drift pebbles on the Height of Land are often coated with calcium carbonate which seems to have been the source of the travertine deposited by streams feeding Red Paint lake.

Two items of interest here are the occurrence of dumortierite in jasper and slate, and tourmaline in rhyolite and rhyolite-porphyry. The dumortierite is a rare mineral and has never before been reported from the iron ranges. The tourmaline is probably secondary in the rhyolite but it seems to be primary in the rhyolite-porphyry, and its association with this type of rock has not been frequently observed in other regions.

IRON FORMATION OF WOMAN RIVER AREA

By R C ALLEN

Recent work by foremost students of the geology of the Lake Superior region has indicated that a genetic relationship exists between the Iron formations and extrusive basic igneous rocks of contemporaneous origin. It has been recognized that the Iron formations are essentially sedimentary rocks, but the question has been raised whether the materials were mainly derived through erosive processes, or whether they were derived more largely through igneous action. Observations by the writer in the Woman River district are in most perfect accord with the latter conception, and inasmuch as this view is contrary to the one generally held, it is believed that a brief consideration of the relations of the Iron formation to the associated igneous rocks will have more than a local significance.

Situation of the Range

The Woman River Iron range, as here designated, is a belt of iron-bearing rocks which extends from the vicinity of the northeast end of Rush lake in the Sudbury Mining Division in a general southwesterly direction for about 11 miles. The belt is crossed by the Woman river at a point about 22 miles almost due north of Ramsay station, and can be reached in two days by canoe from any one of three different points on the Canadian Pacific railway, viz., Biscotasing, Woman River and Rideout. All things considered, the route from Biscotasing is the most desirable. It follows the old Hudson's Bay Company route to Flying Post as far as the northwest arm of lake Opeespeesway, thence down the Opeespeesway river to its junction with the Woman river, thence down the Woman river about a quarter of a mile, whence a good trail leads westward over the range. The following description applies mainly to certain claims designated W.S., 1 to 12 in which is included that part of the range which lies west of Woman river.

West of the Woman river the Iron formation occurs in three main belts. (See map).

Belt 1 begins in the southeast corner of claim W.S. 10, runs northeastward to W.S. 12, across the northeast corner of W.S. 12 into W.S. 11, and then north 700 paces where it is lost in a marsh and completely cut off on the north, east and west by hills of ellipsoidal greenstone. This belt is probably double at the southeast, where it has an extreme width of 300 paces which decreases to about 400 feet at the north end.

Belt 2 begins on the east border of W.S. 10 about 1,320 feet north of the southeast corner of the claim, and runs northward and eastward along the crest and flanks of a high ridge in W.S. 9 and 8 to the north side of W.S. 8, where the ridge ends abruptly in a swamp underlain by greenstone. The maximum width of this belt is about 1,400 feet.

Belt 3 begins north of the marsh in the southeast corner of W.S. 8 and runs north along the east side of this claim and into W.S. 7 for a distance of about 400 paces, where it is cut out by ellipsoidal greenstone and volcanic breccia. The Iron formation reappears about 75 paces west and 1,100 paces north of the southeast corner of W.S. 7, and forms a continuous belt thence northeastward to within about 400 paces of Woman river, where it is again cut out by greenstone.

East of Woman river the Iron formation extends in a more or less continuous belt to the northwest arm of Rush lake.

Geology and Structure of the Range

The rock succession, as developed on that part of the range west of Woman river, from the youngest to the oldest, is indicated in the following table.

Basic Igneous Dikes.	Relative ages not known, but believed to be as shown.
Mica Porphyry.	
Acid Igneous Rocks.	Extrusive and Intrusive.
Iron Formation.	
Basal Greenstones.	

On the northeast end of the range in the vicinity of Rush lake, granite is reported intrusive in the Iron formation.

The strike of the banding in the Iron formation on claim W.S. 8 and northward is on the average about N. 45 degrees east but in Belt 1, it is nearly at right angles to this direction. Locally, the general strike is interrupted by minor folding, which is often accompanied by excessive brecciation. The formation is nearly everywhere in almost vertical position. In Belt 1 the dip is toward the northeast; in W.S. 8 and northward toward the southeast.

The basal greenstones and the Iron formation are intruded by many light colored dikes of rhyolite porphyry. Acid volcanic breccia occupies a considerable area chiefly east of the Iron formation in claim W.S. 8 and northward. In places there are gradational phases between dikes of rhyolite porphyry and the breccia, indicating that the latter rock is an extrusive phase of the former. Near the southeast corner of claim W.S. 7 the breccia is massively bedded and dips about 45 degrees to the northwest, but this is the only locality where bedding was observed in this formation. A peculiar dike rock which has been called mica porphyry intrudes the breccia near the middle of claim W.S. 8. It has a dense very fine grained felsitic ground mass, in which are embedded numerous well developed porphyritic crystals of white mica. Basic dikes intrude the volcanic breccia and the Iron formation but they are much less numerous than the rhyolite dikes.

The Basal Greenstones

The distinguishing general characteristics of the basal greenstones are an epidote green color, their mashed and minutely fractured condition, the abundance of calcite lining the fracture planes in thin films, and the ellipsoidal structure. The ellipsoidal structure is not everywhere present, but its occurrence is so general that a separation of the distinctly ellipsoidal greenstones from the phases in which this structure is absent would be impossible in mapping. Some phases of the greenstone seem to be later than others, but to establish a succession would be extremely difficult. Certain phases which in one locality appear to be in intrusive contact, in another locality not far away may grade into one another almost imperceptibly.

In texture these rocks are usually very dense and fine grained, but occasionally a crystalline structure can be made out without the use of a lens. They are exactly similar to the ellipsoidal greenstones of the Vermilion district of Minnesota and the Crystal Falls district of Michigan, described in Monographs 36 and 45 of the United States Geological Survey, to which the reader is referred for detailed descriptions.

The Iron Formation

The iron formation is made up of finely banded cherty iron carbonate rocks, hematitic, magnetitic, and pyritic cherts, black and red jaspilites, a unique amphibole-magnetite-chert rock, and iron ores.

The Cherty Iron Carbonate Rocks:—Unaltered cherty iron carbonate rocks are present in only a few local areas, but iron carbonate as a mineral is widely distributed in the various phases of the formation. The cherty iron carbonate rocks are finely banded, dense and finely granular textured, gray on fresh surfaces, but weathering to a rusty brown color. In the unaltered phases the iron carbonate occurs in irregular bands in a matrix of finely granular silica. It is most commonly in clear, almost colorless to light yellow grains, but rarely occurs in well defined rhombohedral crystals. Qualitative tests reveal the presence of small amounts of calcium and magnesium, which are doubtless present in combination with the iron carbonate. The appearance of the unaltered iron carbonate rock under the microscope is shown in figure 1.

The Jaspilites:—In the jaspilites, bands of almost pure chert alternate with cherty bands carrying finely disseminated iron oxide in the form of hematite (red jaspilite) and magnetite (black jaspilite). The alternating bands are usually not more than an inch in width. A microscopic examination of these rocks shows clearly that most of the hematite has developed through the oxidation of iron carbonate. There is

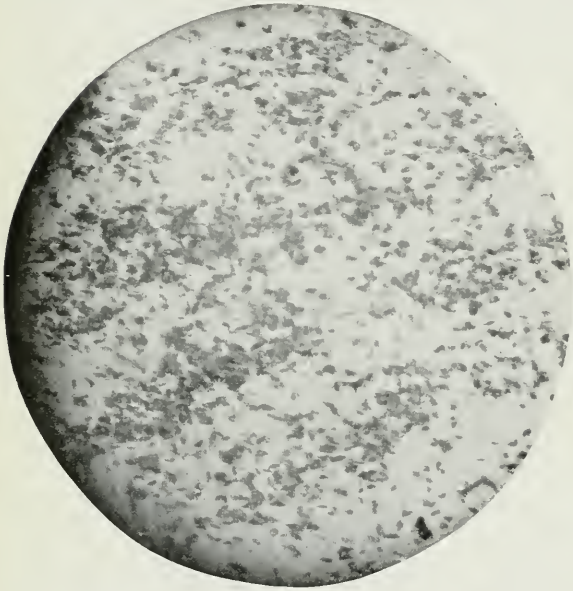


Fig. 1. Cherty iron carbonate rock from claim W S 6, in parallel polarized light. Magnified 15 diameters. The darker areas are iron carbonate, the lighter areas chert.

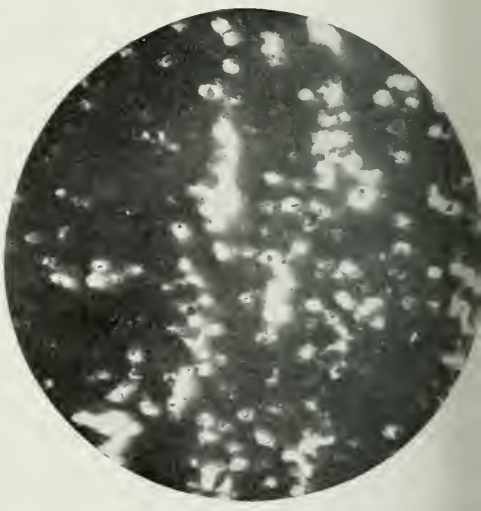


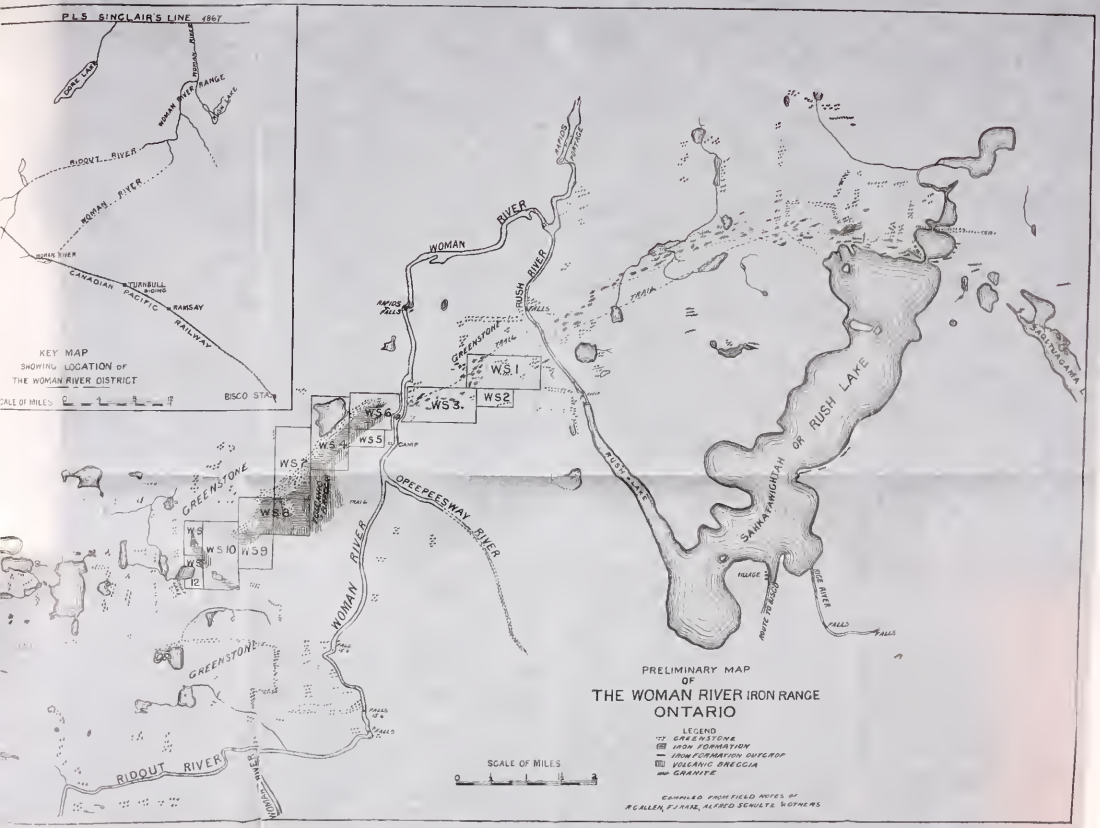
Fig. 2. Hematitic-magnetitic-sideritic chert in parallel polarized light. Magnified 70 diameters. The dark clouded areas are chiefly red hematite with a little iron carbonate in various stages of alteration to hematite. The dark colored grains in the light areas are magnetite.

also evidence in some slides that at least part of the magnetite is secondary, but whether it developed from iron carbonate or hematite is not apparent. Under the anamorphic conditions through which these rocks have passed, magnetite could have formed in the presence of pyrite from either iron carbonate or hematite.[1] In the slides examined magnetite occurs sometimes with iron carbonate and sometimes without it, but when iron carbonate is present magnetite is also found.

In some jaspilites carrying magnetite, hematite and iron carbonate, the magnetite occurs in grains usually showing a tendency toward crystal outlines and surrounded by a more or less circular area in which the only mineral is chert. This phenomenon may be interpreted as indicating the secondary growth of the magnetite grains by a process of absorption of the iron in the areas adjacent to the growing crystals. Under the microscope these rocks have a peculiar mottled appearance as shown in figure 2.

[1] Van Hise, C. R., Monograph, 47, United States Geological Survey, pp. 845-846.

WOMAN
RAPIDS
FALLS
GREENSTONE
TRAIL
W.S.1.
W.S.2.
W.S.3.
W.S.4.
W.S.5.
W.S.6.
CAMP


P.L.S. SINCLAIR'S LINE 1867
LONE LAKE
WOMAN RIVER RANGE
RIDOUT RIVER
WOMAN RIVER
CANADIAN PACIFIC RAILWAY
TURNBULL SIDING
RAMSAY
BISCO STA.
KEY MAP
SHOWING LOCATION OF
THE WOMAN RIVER DISTRICT
SCALE OF MILES
WOMAN RIVER
RAPIDS
FALLS
GREENSTONE TRAIL
RUSH RIVER
WS1
WS2
WS3
WS4
WS5
WS6
WS7
WS8
WS9
WS10
WS11
WS12
CAMP
GREENSTONE
OPEEPEESWAY RIVER
WOMAN RIVER
RUSH LAKE
SAMKAMIOHAN OR RUSH LAKE
VILLAGE
RIDOUT RIVER
PRELIMINARY MAP
OF
THE WOMAN RIVER IRON RANGE
ONTARIO
LEGEND
GREENSTONE
IRON FORMATION
IRON FORMATION OUTCROP
VOLCANIC BRECCIA
GRANITE
SCALE OF MILES
COMPILED FROM FIELD NOTES OF
R.CALLER, P.PAATE, ALFRED SCHULTE BROTHERS

Ferruginous cherts:—Ferruginous cherts make up a very large part of the Iron formation. Here, as in other ranges of the Lake Superior region, these rocks have been formed through the oxidation of the iron carbonate of the cherty iron carbonate rocks. All stages in the process of oxidation of the iron carbonate may be observed under the microscope. It is possible that some of the hematite in the ferruginous cherts is original, but in the slides examined the indications are all in favor of a secondary origin for all of the hematite in these rocks. (Figure 3.)

Amphibole-magnetite rocks:—The amphibole magnetite rocks consist of aggregates in various proportions of three minerals, viz., chert, magnetite, and a fibrous blue amphibole which in its petrographic properties closely resembles riebeckite. It was not found possible to separate the amphibole from the rock for the purpose of chemical analysis. An analysis by Lerch Brothers of Biwabik, Minnesota, of a specimen from claim W.S. 8 which consisted largely of the amphibole mineral with chert and magnetite gave Fe 41.35, SiO_2 34.6, Al_2O_3 .24, CaO .06, MgO .12, S .279, P .017. The

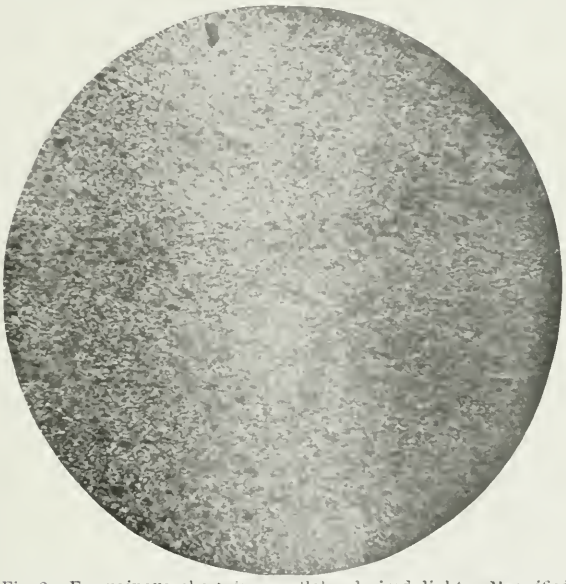


Fig. 3. Ferruginous chert in parallel polarized light. Magnified 70 diameters. The clouded areas are chiefly hematite with iron carbonate in various styles of alteration to hematite. The finely granular texture of the chert is well shown.

specimen was tested for the alkalies by Dr. R. D. Hall of the University of Wisconsin, and these were found present only in traces. The analysis of this specimen indicates that the amphibole is probably mainly an iron silicate.

In claim W.S. 8, where the amphibole is very abundant, it is especially associated with the highly brecciated parts of the Iron formation where it often forms a schistose matrix in which are embedded displaced fragments of chert and jasper. It occurs also with magnetite in rocks which consist mainly of chert. In these rocks it shows no tendency toward parallel arrangement. When present in large amount, the amphibole imparts a blue color to the rock. Microscopic examination of several specimens of the amphibole rocks throws little light on the origin of the amphibole mineral. According to Van Hise amphibole-magnetite rocks have developed on the Penokee-Gogebic range by metamorphism under anamorphic conditions of cherty iron carbonate.[2] There the amphibole is actinolite and grünerite, and with these minerals is associated residual iron carbonate. Iron carbonate has not been observed in asso-

[2] Monograph 19, United States Geological Survey, pp. 257-260.

ciation with the amphibole mineral of the Woman River range, but its absence there is probably due to complete decarbonization of the iron carbonate and conversion of the iron into magnetite and silicate. The occurrence of abundant amphibole in the most highly brecciated parts of the Iron formation is considered strong evidence of such an origin. Frequently the amphibole mineral is associated with extremely minute flakes of mica. The appearance of one phase of the cherty amphibole-magnetite rock under the microscope is shown in figure 4.

Iron Ores:—Locally, particularly in claims W.S. 11 and 12, iron ores occur. On these claims the ore is low grade, running as high as 43 per cent. iron and, as shown by an average of 16 analyses, carrying a phosphorus content of .018. On claim W.S. 8 the most highly ferruginous areas coincide with those that are abundantly amphibole-bearing. Samples from these areas show an iron content varying up to 43 per cent., with an average phosphorous content of .0127. A small amount of sulphur is present as pyrite. An average of 8 determinations gave 1.184 per cent., but these

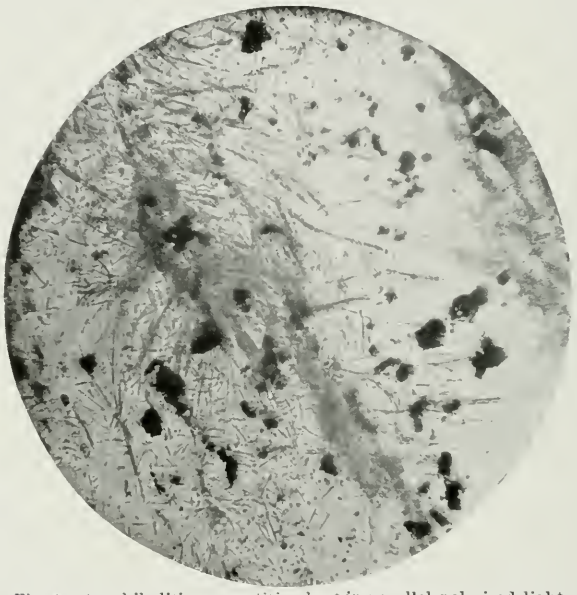


Fig. 4.—Amphibolitic-magnetitic chert in parallel polarized light. Magnified 320 diameters. The amphibole occurs in slender acicular crystals associated with magnetite and chert.

samples were selected for analysis because of their relatively high sulphur content, which makes it certain that the figure stated is higher than the general average.

The occurrences of ore can not be connected with the present topographic and structural features of the range. In Belt 1 and in claim W.S. 8 the ore is in the upper part of the formation, and on hill slopes or under slopes where the dip of the banding and the slope of the rock surface is in the same direction, but these relations seem to be purely accidental. The distribution of the iron in the formation antedates the deep-seated deformation and metamorphism of the rocks, in which both the lean and the more highly ferruginous phases were involved.

Variations in the Mineralogical Character of the Iron Formation:—Great variability in character of the Iron formation both in the direction of strike and across it, is a marked feature of all of the belts, yet in a broad way the range may be divided into several areas, each of which is characterized by the relative prominence of one of the various phases of the formation. In general, ferruginous cherts are dominant toward the southwestern end, and the jaspilites are prominent toward the northeast

in claims W.S. 4, 5, and 6. The amphibole magnetite rocks are abundant in claim W.S. 8, while the unaltered iron carbonate rocks have been found only in claim W.S. 6 and in a few places east of Woman river.

The minerals, iron carbonate, hematite, magnetite, and pyrite, may be present in varying amount in all of the phases of the formation except in the amphibole magnetite rocks, where iron carbonate has not yet been found; however, the number of thin sections examined is too small to warrant the statement that iron carbonate is totally wanting in these rocks. Chert is abundantly present in all the rocks of the Iron formation, and in certain places near its base in claim W.S. 7 it exists almost to the exclusion of all other minerals. The various cherty rocks may be designated as hematitic, magnetitic, pyritic, or amphibolitic, according as one or the other of these minerals is most prominent. Sometimes several of them may be nearly equally developed in the rock, as is the case in the specimen shown in thin section in figure 5.

Fig. 5.—Hematitic-pyritic-sideritic chert in parallel polarized light. Magnified 70 diameters. The hematite is in specular form and shows a marked tendency toward long lath-shaped crystals. The iron carbonate is distinguished from the chert by its high relief. Pyrite is shown in characteristic square section.

The Volcanic Breccia

The pyroclastic character of this rock is plainly shown by its relation to certain dikes of rhyolite porphyry already referred to, and also by its composition and texture. The most prominently developed phase is an aggregate of angular to sub-angular fragments of rhyolite porphyry, embedded in a fine grained matrix of greenish color which is frequently schistose. The fragments vary greatly in size up to six or seven inches in diameter. The fragments of various sizes are mixed in haphazard manner and show none of the sorting effect of wave or current action. From the coarse fragmental phases of the formation there are gradations into normal rhyolite porphyry. This was observed in claim W.S. 8, as mentioned above, and various stages in the process of gradation may be observed in other parts of the field. For instance, near the east line and about 450 paces north of the southeast corner of claim W.S. 7, there is a large outcrop which appears from ordinary inspection to be massive rhyolite porphyry.

On close examination the fragmental structure of this rock is apparent, but the outlines of the fragments are faint and indistinct, and they are in a matrix which is exactly similar to the normal rhyolite porphyry of the massive phases. This rock is undoubtedly a gradational phase between the normal massive white rhyolite porphyry which is in contact with the Iron formation about 150 paces east, and the coarse breccia which is exposed about the same distance northeast, and it seems to be, stratigraphically, between the two. In one outcrop on claim W.S. 7 the breccia is in sharp contact with the Iron formation, but this relation is not general, as these two rocks are frequently separated by rhyolite porphyry. The dip of the breccia was observed in only one place, *i.e.*, near the southeast corner of claim W.S. 7, but the attitude of the formation as a whole may be inferred from its distribution with reference to the Iron formation. It has been noted that the breccia occurs, so far as known, on the east or dip side of the Iron formation, which indicates that the two formations are folded together in at least approximate structural conformity.

The dikes of mica porphyry which cut the breccia near the middle of claim W.S. 8, as mentioned above, are probably practically contemporaneous in age with the rhyolite porphyry and breccia, and the three rocks should perhaps be considered as differentiated phases of a common original magma.

The Iron Formation and the Associated Igneous Rocks

It is the purpose in this paper to avoid a general discussion of the origin of the Iron formation. However, the significance of its physical relationships to the associated igneous rocks will be pointed out in the hope of assisting in the solution of the larger problem of the origin of the Iron formations of the Lake Superior region in general.

For the sake of clearness and brevity, the problem will be stated in the form of four main premisses, viz., (1) the iron formation is essentially a sedimentary rock; (2) the physical relations between the Iron formation and the basal greenstones are those of conformity in the sense that the two formations are not separated in time by a period of subaerial erosion; (3) the Iron formation and the overlying rhyolite porphyry and breccia are conformable in the same sense; (4) the Iron formation is genetically related to the extrusive igneous rocks with which it is conformably associated.

The sedimentary character of Iron formations of the general type herein described has been established beyond doubt in other parts of the Lake Superior region. Without reference to other districts, the sedimentary nature of the Iron formation in this area may be inferred from (1) its banded structure, (2) the presence of iron carbonate as an original mineral, and (3) the parallelism of the individual bands in the rock to each other and to the basal contact plane.

The belief that the relations between the Iron formation and the basal greenstones are those of conformity, is based upon (1) the parallelism of the banding in the Iron formation to the plane of contact with the greenstones, (2) the absence of detrital materials in the Iron formation, or between it and the basal greenstones, (3) the probable sub-aqueous origin of the ellipsoidal greenstones. The contact between the Iron formation and the basal greenstone is abrupt and is parallel to the banding in the Iron formation. This relation has been observed by the writer and others in many natural exposures, and in pits and trenches, and is believed to be general on the range. Under normal conditions an erosional unconformity is evidenced by the occurrence, somewhere at the base of the superjacent series, of mechanical sediments derived from the underlying rocks. The evidence of conformity in the apparent absence of basal clastics might be waived in so small an area, were it not for the fact that such materials are totally wanting in the formation as a whole.

The evidence of conformity offered by the absence of fragmental materials in the Iron formation is in accord with the supposed sub-aqueous origin of the ellipsoidal

greenstones. These rocks are well developed in many areas in the Lake Superior region, and in some localities as in the Mansfield area of the Crystal Falls district of Michigan, they are interbedded with slates in such manner as to leave little doubt of their sub-aqueous origin.

If a sub-aqueous origin for the basal greenstones of the Woman River district be accepted, the difficulties in the way of an understanding of the physiographic relations between them and the Iron formation are largely eliminated. It is conceived that the deposition of the Iron formation quickly followed the extrusion of basic lavas on the floor of an area which was submerged. This would account for the absence of basal detrital materials. The apparent total absence of elastics in the Iron formation may be due to rapid precipitation which might obscure a relatively very small amount of silt, or it may be due in part to physiographic conditions which were unfavorable to the deposition of mechanical sediments.

Unfortunately, there is no absolutely conclusive evidence as to the conformity of the Iron formation and the rhyolite porphyry and breccia formations, but such evidence as there is favors this view. Wherever observed, the contact between the two formations is sharp, like that between the Iron formation and the basal greenstones. The plane of contact is also parallel to the banding in the Iron formation, except where the banding is obscured by brecciation, but the number of observations is insufficient to establish this as a general relation. An objection to the theory of conformity might be offered in the great variations of thickness of the Iron formation in so small an area, but these variations are mainly apparent and not real. For instance, the apparent greatly increased thickness of the Iron formation in Belt 2 is plainly due to crumpling and intrusion.

Igneous Origin of Iron Formation

The belief that the deposition of the Iron formation in this area was closely connected with igneous action is based on observations here and in other areas, but mainly on the unpublished work of Prof. C. K. Leith, which is soon to appear in print; and the full significance of the Woman River area will appear only after the publication of Prof. Leith's work.

As interpreted from the observational facts given above, the physical development of the Woman River section may be briefly stated as follows: extrusions of basic lavas on the floor of a submerged area were quickly followed by the precipitation of the Iron formation. Thus is explained the absence of mechanical sediments between these formations; and the apparent absence of such sediments within the Iron formation itself may be accounted for by a relative rapid precipitation, since this would tend to obscure the presence of very minute amounts of intermixed silt. It is also possible that it may be due in part to physiographic conditions which were unfavorable to the deposition of mechanical sediments. The deposition of the Iron formation was probably terminated by the recurrence of extrusive processes, which produced the rhyolite porphyry and breccia formations.

The basic greenstones at the bottom of the series, the Iron formation in an intermediate position, and the rhyolite porphyry and breccia at the top of the series, are thus thought to be inter-related in origin. The greenstones and the quartz porphyry and breccia formations are probably consanguineous in the sense in which this term is used by Iddings.[3]

The igneous relationships of the Iron formation are too complex for satisfactory statement in brief. It will suffice for present purposes to say that the source of the materials has been referred mainly to the extrusion of magmatic waters following the sub-aqueous outpourings of basic lavas which formed the greenstones. From the

[3] Iddings, Joseph P., Genetic Relationships Among Igneous Rocks, Journal of Geology, Vol. I., p. 842.

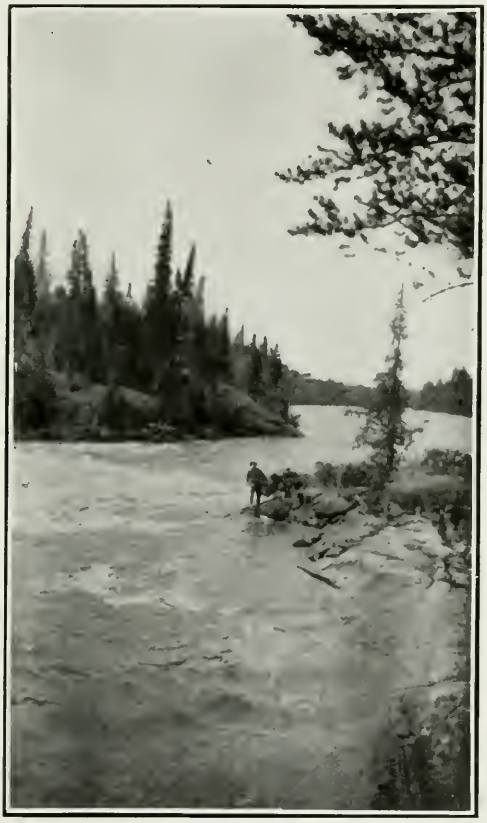
materials thus contributed, the Iron formation was precipitated to form a sedimentary rock. In a sense, then, the Iron formation and the basic greenstones are products of magmatic differentiation, and as the former is very basic and the latter is very acid, they may be considered perhaps as widely differentiated phases of a magma of intermediate composition. If this conception be the correct one, there is in the conformable series of greenstones, Iron formation, and rhyolite porphyry and breccia of this district, a record of more or less continuous igneous activity, and it is not improbable that in a broad sense these three formations are widely differentiated phases of a single parent magma. Whether this be the correct interpretation or not, the writer does not here attempt to pronounce, but in view of the physical relationships of the Iron formation to the igneous rocks of this district the burden of proof is upon those who would deny an essentially igneous origin of the Iron formation.

[4] The Iron formation, on the whole, contains probably 80 per cent. of silica.

LAKE ABITIBI AREA

By M B BAKER

In view of the marked activity in prospecting for gold in the Abitibi district during the summers of 1906 and 1907 it was deemed advisable to have the area geologically mapped. Accordingly in April, 1908, I received instructions from Mr. Thomas W. Gibson, Deputy Minister of Mines for Ontario, to proceed with a party to lake Abitibi and make a geological survey of the Lower lake, and as much of the Upper lake as time would permit, and also to prepare a map of the geology of the district.



On the Abitibi river.

My party consisted of three student assistants from the School of Mining, Kingston. They were N. L. Bowen, M.A., E. L. Bruce and J. S. King, and I cannot speak too highly of the valuable services rendered by all these gentlemen. Most of our work was done by dividing the party and working in pairs, Mr. Bowen taking one man, and I the other. Mr. Bowen must therefore be credited with a large share of the field work.

Route of Access

Proceeding to Matheson, the terminus of the Temiskaming and Northern Ontario railway, we procured canoes and provisions and left on May 29th, proceeding down the Black river. At a distance of 14 miles from Macdougall's Chute, the town of

which Matheson is the station, we reached the junction of the Abitibi river. This part of the journey is easily made, as the stream is simply a deep, quiet river, with scarcely any current, and offering no hindrance to navigation either up or down stream.

On reaching the Abitibi river, however, very different conditions were found. This splendid river, from 80 to 150 yards in width, flows with a very strong current; and in many places there are rapids. Some of these are very treacherous. As the route will be much used in the future, as it has been in the past, by travellers, hunters, and others, and will likely prove an interesting one for tourists, it is perhaps advisable that a rather detailed description of it should be in print. Speaking personally, I would have valued such a description when making the trip myself, and I am sure that other travellers without guides, will experience the same uneasiness in trying to follow the course without some such directions.

Leaving the mouth of the Black river, then, we proceed upstream against a comparatively strong current for a distance of three miles. At the end of this we come to one mile of very fast water, which brings us to the foot of the first portage. This point is known as the Twin falls, for here are two waterfalls about one hundred yards apart, separated by a deep pool at the foot of the upper one. The lower fall has a drop of about six feet through two gaps in a ridge of Keewatin schist. The upper fall is about eight feet. Two short portages on the south shore, with the use of the canoe to cross the pool between, makes the passage of this Twin falls quite easy. Above the falls there are two miles of fast water, followed by one and a half miles of quiet water, which brings us to the foot of the second rapid, called the Black Cat. This is portaged on the north shore by a carry of about two hundred feet. For the next three miles the water is quiet, and at the end of this distance there is a large tributary known as the Misto-ogo river, which is about forty yards wide and enters from the north. This river is navigable for canoes for a distance of thirteen miles, from which point a good road built by the contractors of the Grand Trunk Pacific railway, leads to the construction camps on the right of way. Immediately above the entrance of the Misto-ogo there is swift water, which continues for a mile and a half. Two stiff rapids are met with in this distance. The first is about three-quarters of a mile above the mouth of the Misto-ogo river, and is called the Flat rapids. The portage is about one hundred and fifty yards in length and is on the south bank of the river. About a quarter of a mile farther upstream is another treacherous rapid, called the Crooked rapids. This is a long, rough, and as the name indicates, tortuous, rapid; but it can be passed on the south shore by a carry of two hundred and fifty yards—across the arc of a circle as it were.

About three quarters of a mile of quiet water brings us to the foot of the Island rapids, which gets its name because the stream is divided into two channels, by an island over which the portage of one hundred yards is made. With experienced guides or good canoemen all the portages with the exception of the one at Twin falls are unnecessary up to this point, as the rapids so far mentioned can all be poled. This Island rapid, however, must be portaged in ascending, though it can be run in descending, by keeping close to the left side of the north channel. Above the Island rapid, there are eight miles of quiet water to the foot of the Little Couchiching rapids, which is quite rough. A short lift of thirty yards, on the south shore is all the portage necessary here. Two miles of quiet water follows, to the foot of Couchiching falls, where there is a portage of half a mile on the south shore. Four miles of quiet water at the head of the falls brings us to the outlet at Lower lake Abitibi.

The above description of the canoe route from Matheson station to lake Abitibi will be found of value to those making the trip without guides. A steamer which formerly plied on lake Ontario about Deseronto and was known then as the Ranger, now, however, runs from Macdougall's Chute to the foot of Twin falls. Here a tramway has been built, by the Walsh Forwarding company, over which all freight, etc.,

is trammed to the head of the upper fall. A second steamer from the head of this fall runs to the foot of Couchiching falls, where there is another tramway half a mile in length. From the head of the fall a third steamboat will deliver passengers or freight to any point on lake Abitibi and for a considerable distance up the streams flowing into it. These boats are well equipped for carrying a few passengers, so that ladies made the trip during the summer of 1908 quite comfortably.

The building of the Temiskaming & Northern Ontario railway has made the above described route an easy one. Previously the regular route to Abitibi was by way of lake Temiskaming and the upper Ottawa waters, or what was known as the Quinze route. This was a week's trip, with the same equipment as now requires one and a half days. The Quinze route to the Abitibi country and thence via the Abitibi river and Moose river, to Hudson bay, was established and mapped as early as 1744. This is well shown by a map issued in that year by N. Bellin, (Ingenieur, et Hydrographe de la Marine). But all the country north of lake Nipissing is marked in that map as "entirement inconnu," and it has remained almost unknown till very recently.

Characteristic shore of Abitibi.

As early as 1755 the Hudson's Bay Company established a post at Abitibi, but until the Canadian Pacific railway was built to Mattawa the trade route to Abitibi was via Hudson bay, so that the region between Abitibi and the Great lakes remained unknown except as a hunting ground until recent years. Exploration parties were sent to Abitibi by the Dominion Government under Mr. Walter McOuat, in 1872-3[1] and under Mr. William Ogilvie in 1891.[2] But the country southwest of Abitibi was not much explored till the summer of 1900, when the Ontario Government sent out exploration parties, including surveyors, land and timber estimators and geologists, to report upon the northern region.

I was attached as one of the geologists to party No. 1, whose area embraced Abitibi, and which made a preliminary report on the geology, soil, timber, etc., of the Abitibi area (Report of the Survey and Exploration of Northern Ontario 1900). Last summer was, therefore, my second visit to this area.

Lake Abitibi is made up of two large expanses of water which are known as the Upper or Southern and Lower or Northern lake Abitibi. They are connected by a

[1] Rep. C. G. S., 1872-3.

[2] Report of Exploration Survey to Hudson Bay, by Wm. Ogilvie, 1891.

narrows, about four miles in length, and about two hundred yards in average width. Through this narrows there is a considerable current. Upper lake Abitibi covers an area of about one hundred and ninety square miles, about fifty square miles of it being in the Province of Quebec. The lake is about thirty-three miles long, and varies from three to eighteen miles in width, and has a shore line of about one hundred and fifty miles. It is very shallow as a whole, being rarely over ten feet in depth, and is dotted with islands of which there must be fully four hundred in the Upper lake alone. Lower lake Abitibi covers an area of one hundred and forty-five square miles, and has a shore line of one hundred and fifty miles. With the exception of a long sandy peninsula which stretches out into the middle of the lake, from the south shore, the rest of the body of water is nearly round, being seventeen miles from east to west, as against nineteen miles from north to south in its widest dimensions. This lake is a little deeper than the Upper lake, but is nevertheless quite shallow. It contains over two hundred and thirty islands, rather evenly distributed over the lake. The Lower lake was accurately surveyed during the winter of 1907 by Mr. T. B. Speight, O.L.S., of Toronto, and on his survey the geological map is based. The Upper lake, however, was not surveyed, and consequently the rough compass survey made by our party during the summer is necessarily inaccurate, more particularly in the size and location of the islands. This lake was surveyed during the winter of 1908.

Topography of the Area

The country about lake Abitibi may be described as gently rolling, heavily covered with glacial drift. The rocks are all glaciated, and present the usual low, smooth-topped, polished appearance of the Canadian Archean in general. South of the Upper lake at a distance varying between three and twelve miles is a range of hills which are considerably higher than any of the surrounding country. From the top of one of these one can count fifteen other hills varying in altitude from three hundred and fifty to approximately six hundred feet. With the exception of these hills, the country mapped is quite low and rolling. As is usual in glaciated Archean areas many hollows are occupied by marshes, muskegs and small lakes. The shores of the lake itself are for the most part, low and sloping. Very few steep or cliff-like shores are to be found. Consequently the shore-lines pass off gradually into shallow water, with broad beaches which do not reach a depth of ten feet for a considerable distance from the shore. A main channel or possibly several channels between the various inlets are, however, quite deep. In some places, the captain of the steamboat informed me he had found the water seventy feet deep, but he also mentioned that if he got a few yards away from this channel he would have to feel his way along with a pole.

The generally level character of the country is also well shown by the profile of the Transcontinental railway, where for seventy miles with very few curves, so that irregularities were not avoided, there are not over eight rock-cuts, and the whole profile preserves an astonishingly even character. This railway will touch the Lower lake in three places, and cuts several tributaries flowing into both the Upper and Lower lakes, so that one of the best possible routes of transportation in connection with farming, or tourist travel in this whole district, will be in conjunction with a boat service on the lakes.

The country is well-watered. Many splendid streams with deep, slow-moving water flow into both lakes from all directions. The large streams are navigable in some cases up to eighteen miles, with a lake-going steamer. From the great depth of these streams and the channels in the lake itself, as has been already mentioned, it would appear that the whole area has suffered a comparatively recent depression, and hence many of these streams are in reality drowned channels. Moreover, it has been estimated that a lowering of Couchiching falls five feet by blasting away the rocks

would lower Abitibi lake till it would become little more than a series of winding streams. As showing the topography to be of recent origin, Mr. J. G. McMillan says:[3]

"The area is a plain, in all probability once the bed of a glacial-dammed lake. The only breaks in the general level are the depressions caused by the erosion of streams, a few isolated hills of the "roche moutonnées" type and some sand and gravel ridges of a morainic nature, which rise a few feet above the general level. Midway between the rivers of the region, are some depressed tracts, once the beds of shallow lakes, but now filled with peat and moss to a depth of four to twelve feet. It is in these muskeg areas that most of the tributaries of the larger rivers have their origin . . . . Erosion has not gone on to a marked extent . . . . Everywhere the valleys have a characteristic "V" shape. At a short distance from the rivers, usually about ten chains, the general level of the plain is reached; while the tributaries entering the main streams have valleys usually not greater than ten chains in width. At no point is there a valley wider than half a mile."

Raft of logs on Abitibi.

Soil and Timber

Over almost the whole of the area there is a good sandy clay loam, which will be described later as the Saugeen clay. This clay is so mixed with sand and so free from large boulders, that it affords a splendid agricultural soil. In some places, however, the clay will prove to be rather fat or strong to be of much use in agriculture. Such clay is found in the low swampy areas already mentioned. These will be avoided because of their wet character, so that it may be said that the area as a whole is admirably suited for farming, an industry which will no doubt give a great future to this and a much extended area to the west and southwest, in northern Ontario. The exploration surveys made in 1900 show that there are some sixteen million acres in northern Ontario which does not differ materially from the area under discussion. The timber is principally pulpwood, the trees being balsam, spruce, poplar and birch. Small clearings around the Hudson's Bay Company's posts and more particularly along the right of way of the Transcontinental railway have shown that the soil will grow practically anything that can be grown in the agricultural parts of older Ontario.

The various resident engineers of the Transcontinental have made numerous experiments not only with cereals, but with vegetables, and almost every vegetable that has been tried has grown well; even tomatoes have been ripened on the vines, while oats, wheat, barley, and excellent hay have been grown about the stables at these camps.

[3] 14th Rep. B. of M., 1905, Part 1., p. 185.

Gold

Gold was reported as occurring in lake Abitibi by Mr. R. W. Coulthard, in his report in the Exploration Survey of Northern Ontario in 1900, where assays of $1.40 a ton are given. The area did not attract attention, however, till 1906, when the rush of prospectors to northern Ontario, induced by the Cobalt boom, carried many of them farther afield, some following the water routes as far as Abitibi. During the summers of 1906 and 1907 every rock outcrop on the shores of this lake or on islands was staked as a "discovery of valuable mineral." Regarding this movement Dr. W. G. Miller, writes:[4]

"There are three areas in northeastern Ontario which have attracted the attention of prospectors for gold during the last two seasons. These are Larder lake, Abitibi lakes, and Nighthawk lake . . . . The deposits on the shores and islands of the Lower and Upper Abitibi lakes visited by the writer in August last are different from those described by Professor Brock and Mr. Cole on Larder and Nighthawk lakes respectively. The chief point of resemblance is that the same green mineral is found in some of the deposits at Abitibi as that in the deposits of the other two lakes. Mosher Bros. and others did considerable prospecting on the Abitibi

Stringers of quartz in dolomite.

lakes in 1906. During last winter a shaft seventy-five feet in depth was sunk on a vein on a small island, which lies five or six miles north of the north end of the narrows which connect Lower Abitibi lake with the Upper Abitibi lake. The work on this vein in Lower Abitibi lake is the most systematic which has thus far been done on any of the deposits in the vicinity of the lakes. A little work has been done on a deposit in the south bay of the same lake and at a few points elsewhere."

With the discovery of gold by Mosher Bros. a rush took place to this lake. Hundreds of claims were staked out, many of which disappeared with the melting of the ice in the spring, because more than one claim was staked in snow and ice on the lake, and when the ice melted both the stake and "claim" disappeared. This is but one evidence of the indiscriminate staking that goes on when a rush of prospectors takes place to any area.

In further description of the one good find made by Mosher Bros., Dr. Miller, referring to a little island known as Shaft island.. numbered B.C. 173, on which the mining was done, says:

"The auriferous quartz vein on Shaft island varies in width from about four feet to a few inches. It has a vertical dip with strike east and west, and cuts a massive igneous

[4] 16th Rep. B. of M., Part I., p. 219.

rock which may be called diabase. This rock has a somewhat fresh appearance and seems to belong to the newer series of eruptives, similar to that of the post-Middle Huronian diabase of the Cobalt area. This Abitibi diabase, like that of Cobalt, carries quartz as a characteristic constituent. Iron pyrites together with a little copper pyrites and a dark colored zincblende occur in the quartz vein. Fine gold is frequently visible in the quartz. The vein cuts across the island for a distance of over two hundred feet, and disappears into the water on both shores."

To the above description I would add but little. The diabase is here in contact with Keewatin greenstones. In many places it contains inclusions of the Keewatin, which clearly shows that it is later in age. Examined microscopically, the diabase from lake Abitibi shows no differences as compared with the same rock from the Cobalt area. The quartz vein mentioned already as cutting across island 173 reappears on island No. 106 which lies to the southwest. In addition to the minerals already mentioned as occurring in this vein, some pyrrhotite and calcite were found. The quartz is quite sugary in character, and is well banded in many places, showing the distinctive characteristics of a fissure vein. It is quite strongly mineralized with iron pyrites

On Shaft island.

and chalcopyrite. Cutting the diabase, and therefore sufficiently later to represent at least the end action of the intrusion, is a series of aplitic and also lamprophyric or dark colored dikes. But the vein cuts these just as freely as it does the diabase, proving that the vein must have been formed even later than they. At the south end of Shaft island the Keewatin greenstone is in place.

The equipment on this property is quite complete, and consists of sleep-camps and assay office, with blacksmith shops, steam-hoisting plant, steam-drills, a twenty horse power boiler, and good pumps. The value of the ore too, is quite high, but the ore body is small. As already mentioned, it varies from four inches to four feet, changes in width being quite abrupt. The ore would need to be rich to form a producing property.

In Dr. Miller's description above cited he mentioned a second type of gold deposit from lake Abitibi in the following words[5]:

"The types of gold deposit seen on the Abitibi lakes by the writer are essentially of two kinds: (1) that of Shaft island in Lower lake Abitibi: (2) those of the south shore and the islands of Upper Lake Abitibi. . . . . The half dozen deposits examined occur in rock of Keewatin age. These rocks here consist essentially of

[5] 16th Rep. B. of M., Part I., pp. 219, 220.

green schists, which are cut by dikes of fine grained granite or porphyry, varying in width from a few inches to fifteen feet or more. They have been shattered, narrow cracks running across them, characteristically transversely from wall to wall. These cracks are filled with quartz, and there are also at times lenses and irregular masses of quartz, replacing the dike material, or enclosed between it and the wall rock. Fragments of the dikes are frequently cemented by quartz, thus forming a breccia. The dike material is at times changed to sericite schist. The dikes have been impregnated with iron pyrites which is now altered, to a considerable extent, to iron oxide. The pyrites appears to be the gold-bearer. Colors can be obtained by panning the dikes, but the highest fire assay from samples taken by us gave only $3.40 per ton. Copper pyrites is at times associated with the iron pyrites."

To this description I would only add that these veins are for the most part merely stringers, and unless one found many of them closely associated so that the whole mass could be worked, they would be of little worth owing to their low content of gold. A series of assays made from picked samples gave in no case higher than $4.00 per ton, which is a low value even in a large deposit of ore. To the above two types of gold-bearing veins I would add two others. First, quartz veins in Laurentian granite; second, quartz veins and small quartz stringers in a rusty weathering dolomitic rock of Keewatin age.

On the west shore of what is known as South bay (a glance at the map accompanying this Report will show the position) and near the point marked 48 A, in an exposure of pink hornblendic granite of Laurentian age, there is a vein of quartz, varying from five inches to two feet in width. This vein carries considerable iron pyrites and copper pyrites. It has been staked and developed to some extent by Mosher Bros. A shaft about thirteen feet deep has been sunk and machinery has been brought to the property, but not yet erected. A good camp has been built, together with stables and blacksmith shop. This quartz vein is enclosed entirely in Laurentian granite, and there is no other rock in the immediate vicinity of the property. A picked sample of the ore assayed $4.00 to the ton. This, however, is too low a value for so small a vein to be of economic importance.

The second type of deposit is that of quartz veins and stringers in the so-called rusty weathering dolomite. This type of occurrence has been already described by Prof. R. W. Brock in his report on Larder Lake where he writes as follows[6]:

"The most interesting rock from an economic standpoint near Larder Lake is The rusty weathering dolomite (?) About sixty per cent. of the rock consists of lime-magnesia-iron carbonate, the remainder of quartz and a soft green talcose silicate, probably serpentine. The origin of the rock is as yet a little uncertain. Certain dikes, when squeezed and altered, produce a rock which bears a strong resemblance to it, but its occurrence with slates and phyllites and with the cherts—undoubted sedimentary rocks—as a conformable band with them, over a wide stretch of country, and its apparent composition, render it much more probable that it is an altered, stratified, ferriferous dolomite, probably forming a member of the Iron formation. This rock especially where cut by the porphyry or pegmatite . . . . is traversed by innumerable stringers of quartz which in places are gold-bearing."

The occurrence at Abitibi is on the point numbered 16 A along the east shore of the Lower lake. It is held by the Big Pete Mining Company. The description given by Prof. Brock and quoted above, applies so exactly to the deposit at 16 A, Lake Abitibi, that little need be added. Here the dolomite is also cut by a porphyritic dike as mentioned by Prof. Brock, and small stringers of quartz cut both the dike and the schistose dolomite. In a few cases the stringers extend from one formation across the contact into the other, but more often the stringers, whether in the dike or in the schistose dolomite, are cut off at the line of contact, and do not extend into the

[6] 16th Rep. B. M., Part I., p. 207.

adjoining formation. (See illustration.) An assay of this deposit showed less than $1 to the ton, and it would not appear that this occurrence is of economic value.

Immediately south of this claim are three others, held by the same company. On these are quartz stringers, which cut the Keewatin. A little development work in the shape of a shaft and open cuts had been done at the time of our visit, and a diamond drill was in process of erection on the property, by which the veins were to be tested at depth. What the results of this work are I have been unable to learn, but assays of picked samples from the shafts and open cut work were not very promising. The veins were quite large and highly mineralized with iron and copper sulphides, and with pyrrhotite, and assays of this material showed traces of gold, but not in economic quantity.

From the foregoing descriptions it will be seen than gold-bearing quartz-veins found in the Abitibi area occur in rocks of three ages, namely, (1) quartz-veins, and small stringers in the Keewatin greenstones, in some cases following the schistosity, and in others cutting across it; (2), quartz-veins and stringers in the Keewatin rusty-

Quartz stringers in rusty-weathering dolomite dying out at contact line.

weathering dolomites; (3), quartz-veins in Laurentian granite; (4), quartz-veins in the post-Middle-Huronian diabase. This latter type is the most productive in the Abitibi area.

Geology

A glance at the map accompanying this Report will show that, aside from the unconsolidated post-Cainozoic deposits, the rocks of the area are of three ages, namely, the Keewatin, the Laurentian, and the post-Middle Huronian. It is not my intention to follow the outlines of these areas in detail. It is scarcely necessary to mention that the outcrops of the various formations are by no means as continuous as shown on the map, but it was thought advisable to make the distribution as complete as the many outcrops would suggest, so as to give a map of use to prospectors and others who would not possess the technical knowledge necessary to supplement an incomplete map showing only the actual outcrops. Moreover, the heavy burden of glacial drift covering this area makes it impossible to actually trace the various contacts, and they have been put in approximately by connecting the outcrops of like formations, governed somewhat by the topographical features as well.

A study of the texture of the rocks of the district, their structural relationships in the field, and their relative ages as denoted by contacts, divides them into the following ages in descending order:

Name.	Rocks.
Post-Glacial	Clays, sands, gravels, peat and marl.
Glacial	Saugeen clay, Boulder clay.
Post-Middle Huronian	Quartz-diabase—Quartz-gabbro—Lamprophyric and aplitic dikes.
Laurentian	Granites, pegmatites granite porphyry.
Keewatin	An igneous complex composed of schistose greenstones together with porphyries and various other more or less metamorphosed representatives of essentially volcanic rocks, infolded with this igneous complex is a sedimentary series consisting of dolomites, usually rusty-weathering, graphitic slates, jaspilites and fragmental material.

Keewatin

As in other districts where the Keewatin is widely distributed, it presents in the Abitibi area an almost endless variety of phases. Chief amongst these is ellipsoidal structure, highly developed, particularly on the weathered surface. I have never seen this so common as in the Keewatin rocks on the south shore of Upper lake Abitibi. Another of the characteristics is the abundant development of hornblende schists, with wavy foliations of the bands. Reference to the map will show that the Keewatin is very widely distributed in this area. On the Upper lake, for example, it forms the south shore from end to end, and extends inland as far as we were able to proceed. It is also very widely developed on the north shore of the Lower lake and down the Abitibi river.

The Keewatin presents the usual wide variation shown by this series in other places. It seems on the whole to resemble most closely the same formation in the Larder Lake area, and almost every word written by Prof. Brock concerning the Keewatin formation in Larder lake, would be equally applicable here. Possibly the commonest type in the Keewatin is the typical green chlorite schist, but the black hornblende schists are also very abundant.

On the east shore of the lake the slow process by which the formation of hornblende schist has occurred, is clearly shown. Just north of point 31 A there is a contact of granite with a light colored phanerite. This rock consists of hornblende with feldspar, which when examined with a microscope is seen to be almost entirely plagioclase, and the rock could be very properly classed as an acidic diorite. As we proceed north along the shore, however, it changes, quite gradually. At first it becomes gneissoid, but this structure soon gives way to a schistose phase and finally in the vicinity of the Aylen river, it passes into a perfect amphibolite schist, which shows in many places by the peculiar twists and foliations, that it owes its origin to a shearing and metamorphism of the above described diorite.

That this series is undoubtedly older than the Laurentian is shown by the fact that at the contacts the Laurentian cuts it and includes fragments of it. In one place, several fragments broken off from the adjoining hornblende diorite are included in a granite dike, and the places from which they had broken are easily seen. These fragments exhibit the same structure, composition, and gneissoid character of the surrounding rock, showing clearly that the Keewatin at this particular point had become gneissoid before the intrusion of the granite. This would imply an appreciable period between the formation of the diorite and the intrusion of the Laurentian granite, since sufficient time must have elapsed to allow the Keewatin to take on a gneissoid structure. Other evidence will be given later to show that the Laurentian did not follow immediately on the igneous Keewatin, but that there was a lapse of time between the formation of much of the Keewatin and the intrusion of the Laurentian into it.

Chrome Iron Ore in Keewatin

About the middle of the east shore of Northeast bay in Lower Lake Abitibi, just south of point 16 A., and associated closely with the hornblende schistose series already described, is a strongly magnetic rock, which at first sight appears to be a very basic dike. Upon collecting samples of it, however, and examining these upon my return, I found that the rock possessed all the appearances of an altered peridotite. Large crystals of olivine had apparently altered completely to a secondary fibrous mineral, which appeared to be unmistakedly serpentine. Scattered through the rock was a black oxide of iron, which suggested the possible presence of chromite, in that the rock as a whole resembled typical dunites. Under the microscope the rock appeared to be composed of about three-fourths fibrous serpentine, pseudomorph after olivine Scarcely a vestige of olivine is left. In some cases the serpentine fibres extended almost across the space originally occupied by the olivine. In other cases they seem to have formed at right angles to cracks or to project inward from the periphery.

The black oxide of iron occurs both in distinct crystals and in irregular grains, and in bands outlining the original olivine crystals, sometimes also in streaks amongst the fibres of serpentine, as if along cleavage cracks of the olivine. Filling the spaces between the pseudomorphs, and to some extent mixed with its fibres, is a small percentage of a colorless mineral with bright interference colors, which suggested calcite, but on later chemical analysis the scarcity of lime indicated that the mineral is probably magnesite. Other minerals present in the rock, are talc in small flakes and veinlets, hematite in reddish particles, and chlorite scattered indiscriminately through the section.

Chrome-bearing rocks have been known in the Lake Abitibi area, or reported at least from there as early as 1873. In his report of that year[1] Mr. Walter McOuat, gives the following description of an occurrence:

"Off a prominent point about the middle of the west side of the Lower lake there is a small island not more than six or eight chains long, which is composed of a dark green, rather soft rock with splintery fracture, and resinous lustre and weathering a dull white. It is so strongly magnetic that our compasses were found to be quite useless on this island. This rock proved to be serpentine . . . . and was found to contain chromic iron."

A search of this shore by our party during the last summer failed to locate such an occurrence. We did find, however, an island in this position which contained the typical Keewatin Iron formation, to be described later, but no such occurrence as is reported by Mr. McOuat could be found.

Referring to the deposit directly east of the Iron formation, and already mentioned as occurring on the east side of the lake, a chemical analysis of samples of it shows the rock to be unique in its high percentage of chromic oxide. Suspecting for the reasons already given that this rock was an altered peridotite, I entrusted the analysis of it to Mr. H. T. White, B.A., a graduate student of the School of Mining, and had him make a special study of the rock during the past winter. The results of these analyses are here given with a comparison of several others, of similar rocks from various localities. Peridotites are characterized by the presence of chromic oxide, and with rare exceptions is it found to be less than 0.25 as a minimum and up to 3.55 as a maximum percentage. A series of twelve analyses given by Vogt all lie within this range, but this rock from Abitibi has no less than 6.72 per cent. of chromic oxide. Further than this, it carries a percentage of 14.13 per cent. of other iron oxides, so that it stands in great contrast with the others in this regard. A complete analysis

[1] Rep. C. G. S., 1872-3.

of the rock, however, as given below, will show that in other respects it is practically identical with the peridotite family as a whole, particularly the sub-group dunites.

——	I.	II.	III.	IV.	V.	VI.
SiO_2	35.05	34.59	41.89	44.99	40.11	40.18
Al_2O_3	.73	2.39	trace	5.91	.88	1.35
Cr_2O_3	6.72	.38	.58	.25	.18	1.41
Fe_2O_3	9.05	trace	trace	3.42	1.20	10.97
FeO	5.08	8.66	7.39	8.30	6.09	.....
CaO	.54	3.62	.06	8.79	.11	.....
K_2O. Na_2O	.....	.....	.82	1.65	.....	.....
MgO	33.09	32.25	49.13	21.02	48.58	43.84
CO_2	1.54	.....	.....	.....	.....	.....
H_2O	8.47	17.52	.35	3.82	2.74	2.01
	100.27	99.41	99.12	98.15	99.99	99.76

I. Peridotite from Lake Abitibi.
II. Peridotite from Pigeon lake, Montreal river. (C. G. Sur. 1876-77 p. 843.)
III. Peridotite, variety dunite, from North Carolina. (N. C. G. S. 1905.)
IV. Peridotite from Michigan.
V. Peridotite from North Carolina.
VI. Dunite from North Carolina.

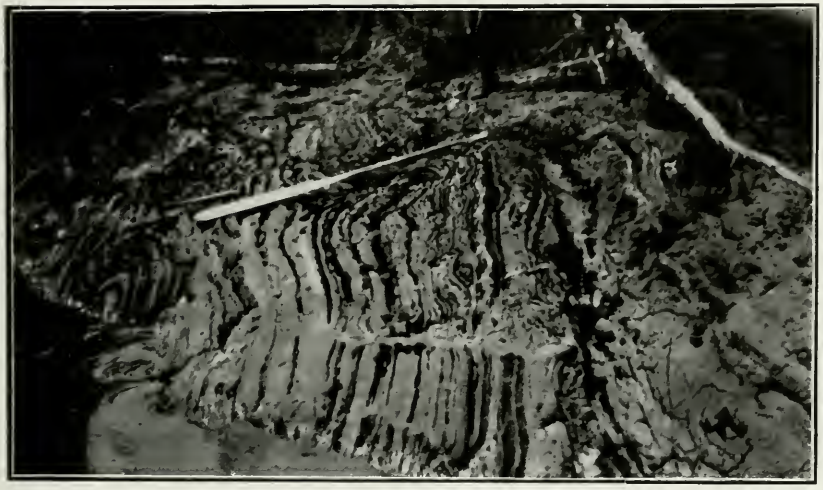
It will be seen aside from the specimens from lake Abitibi, that the highest percentage of chromic oxide is 1.41, and this is the highest found in a number of analyses. The peridotites from Maryland, for example, seldom show over 0.5 per cent. of chromic oxide. The specimen from Abitibi running 6.72 per cent. is therefore exceptional. The part of the intrusion from which the sample is taken, however, has often much to do with the percentage of Cr_2O_3, which shows a tendency to segregate near the contact of surrounding rocks. Chromite almost always occurs associated with serpentine, which has resulted from the decomposition of such basic rocks as contain olivine, hornblende, or pyroxene in abundance. This does not mean, however, that the chromite is necessarily a secondary product. While chromite is often produced in the alteration of these basic minerals, much more of it is original in the rock magmas, from which these basic rocks crystallize, just as magnetite is found in gabbroic magmas as an original constituent. According to Pratt (A. I. M. E. February, 1899), chromite is concentrated by being the first mineral to crystallize out, and gets close to the walls of surrounding rocks, or is carried in bands near to these rocks as a result of convection currents, so that when prospecting for chromite one should search near the border of peridotite masses, that is near, or at, its contact with surrounding walls. In this way may occur isolated pockets or bunches of ore, not connected with each other, or with the internal mass. If then, the sample be taken from such an occurrence it will assay higher in chromite than usual. In the case of this rock, however, as I have already mentioned, I did not suspect it to be peridotite, nor was I aware of the presence of chromium until making a laboratory examination of the material collected, and I feel safe in saying that this particular specimen was a representative one of the rock outcrop.

The outcrop was not over sixty feet in width, and probably 250 feet in length, although it may have much greater dimensions than these, and as its economic bearing was not suspected, it was not given detailed examination by our party during the past summer. The existence of such chrome-bearing rocks in Ontario may well encourage us to investigate them a little further. As has been already mentioned, all deposits of chrome iron ore have this same association, but other minerals of greater value are also found associated with the same rocks. The valuable deposits of asbestos found in Quebec are in this class of rocks, and I may add that since returning from the north, a specimen has been sent to me by a member of one of the Transcontinental

survey parties, as having been found in that district, which does carry a little vein of asbestos over half an inch wide.

In addition to asbestos and chromite, the valuable deposits of platinum in Russia, are in similar peridotite rocks. Platinum has also been found amongst the alluvial collections of the Chaudiere river, and is believed to have been formed from the peridotite rocks of Quebec, although the platinum has not been found in place. Platinum has also been found in peridotite rocks in the Similkameen district of British Columbia.

Furthermore, the corundum deposits of North Carolina all occur in these peridotite rocks. Consequently, having shown the presence of peridotite amongst our Keewatin series of Northern Ontario, it would be well for prospectors to keep these points in mind, and in searching for the more valuable minerals not to overlook these highly economic deposits of a different kind. From the explanation and sketch given above we can readily understand the apparently unconnected pockets from which stringers often run off; the widening and the pinching out of pockets; the grading of good chrome ore into the barren country rock, etc. Experience has shown, that in looking



Jaspilite on Abitibi.

for chromite, the prospector should confine his energies to a search of the contact or at least near the contact of peridotite or serpentine masses with the surrounding rocks, and he should always keep in mind the possibility of any or all of these other economic products so commonly associated with the peridotites.

On account of the irregularity and disconnected character of the chromite ore bodies and the smallness of not a few of them, mining this ore has always been rather hazardous. Any fair-sized body of ore, however, if favorably situated as regards transportation, should warrant exploitation on account of the possibilities of the presence of one or more of these valuable by-products. Chromic oxide, itself, should be as high as 50 per cent. to make the ore valuable, and every per cent. over this is bonused by buyers, but every per cent. below is penalized. Just now, the attention of prospectors and mining men generally is so much concentrated on the silver and gold ores of Ontario that the base metals are being neglected.

Keewatin Sediments

In addition to the great volume of chloritic and hornblendic schists and the great variety of Typical Keewatin greenstones, we find at lake Abitibi another series of Keewatin rocks that are extremely interesting and, as yet, puzzling. They consist

of a fragmental series made up of graphitic slates, cherty bands, and a coarse fragmental series, the fragments of which show distinctly on weathered surfaces, and from their shape give apparently evidences of water action. This series is very closely associated with the rusty weathering dolomite in some places, and in other places with the typical Keewatin jasper-magnetite series, like that of the Lake Superior region.

About the middle of the west shore of Lower lake Abitibi on island No. 14, and on the mainland immediately north of that, are two outcrops of the jaspilite Iron formation. The formation here is very much tilted and folded as shown by the illustration. The dip of the formation is practically vertical and the strike is 23° north of east. This is the general strike of a whole series of fragmental rocks which are found at the northerly side of this Lower lake, and will be described hereafter. The Iron formation consists of alternate bands of magnetite with silica, and is the typical Lake Superior sedimentary Iron formation which has been described by Van Hise, Leith, Bayley and others. It is similar in character to the Iron formation found in Ontario in the Temagami area, Boston township, Hutton township, and the district east of lake Nipigon. In discussing this latter area Dr. Coleman states[8]:

"The Iron formation is the highest or almost the highest part of the Keewatin .The materials of the Iron formation in the Nipigon region are always silica in some form, and an oxide of iron, magnetite or hematite, never siderite, nor sulphides, as in the Michipicoton region. There are two types of the formation, one consisting of interbanded quartzitic or cherty silica, with magnetite: the other of jasper with hematite, but there are mixtures of the two varieties in many places."

The occurrence on lake Abitibi is of the first type, viz., interbanded quartzite with magnetite. In describing the occurrence of peridotite above, I mentioned a reference by Mr. McOuat to an occurrence of iron ore near the west side of this lake, and suggested that possibly the outcrop on this island was the one referred to by him. The magnetite at least is so abundant here as to affect the compass very seriously. An analysis of the ore, however, failed to reveal any chromic oxide, so that it is quite possible that some other location is covered by his description.

This jaspilite Iron formation, as in other places, is not yet possible as an iron ore, for the percentage of iron scarcely ever exceeds 38 and without further concentration it cannot be used. Moreover, the outcrop is only about 60 feet in width: the length could not be determined. A heavy covering of soil prevented tracing it on the shore itself, and an excursion up the Dokis river, which crosses the strike of this formation, failed to show any exposure of it. To the east on other islands it was not to be seen. Its chief interest therefore lies in its association with the rusty-weathering dolomite and other sedimentary rocks whose description will follow, and helps to confirm the opinion that not only is the Keewatin made up of igneous greenstones, and their metamorphic representatives, but also a series of sedimentary rocks, many of which may prove to be ordinary sediments and chemical precipitates. The association on this same island of the Iron formation with a small exposure of what appears to be the rusty-weathering dolomite further helps to confirm the opinion that this latter rock is a metamorphosed limestone of pre-Laurentian age, and coincides in age relationship, as well as in general association, with the Grenville limestones, described by Dr. W. G. Miller, in the eastern part of Ontario.

Not only are there jaspilite sediments, and the dolomite limestone closely associated, but a third series of fragmental rocks is also found, that look in every way like a series of squeezed and sheared conglomerates, whose pebbles are compressed and drawn out parallel to the general schistosity of the series, striking about N. 67° E.

Many of the fragments are distinctly seen to be of volcanic rocks, and none of them are granite. Whether these fragments represent squeezed and altered breccias,

[8] 17th Rep. B. of M., p. 143.

or whether they are water-worn fragments of a previously existing volcanic series is difficult to say.

That this series is older than the Laurentian granite, is shown by the following facts: (1) The granite, pegmatite, and granite porphyry dikes cut this series, as shown about points 19 A and 21 A. (2) It is free from granite pebbles, or granite fragments, although containing many easily recognizable Keewatin greenstone fragments. The lack of these granite pebbles cannot be attributed to a scarcity of this formation in the district, for as the map shows, it is very abundant. (3) Many of these fragments are enclosed in the granite dikes and pegmatites, for example at 21 A. (4) In many places the Laurentian series cuts it. (5) In many cases it is completely metamorphosed to a schist, which resembles in every way the typical Keewatin schists, and its origin is completely concealed unless indicated by its surroundings. (6) It is in many cases intimately associated with undoubted Keewatin rocks, many of which show the typical ellipsoidal structure on exposed surfaces. (7) On Island No. 113 this fragmental series contains recognizable pieces of the adjoining Keewatin which show spheroidal structure. (8) In some places very highly metamorphosed, this rock grades imperceptibly into typical Keewatin with its torsion cracks and its compact fine-grained uniform texture.

On the other hand, it is evidently younger than much of the Keewatin, for it shows many fragments of these rocks. Certain fragments, for example, show clearly that they are from an andesite porphyry. This is particularly well seen, by a microscopic study. The ground mass of the porphyry shows a feldspathic fine-grained character, with much chlorite and calcite, and scattered through this, are distinct phenocrys of feldspar. They are much decomposed now to saussurite, but the shape of the original crystals is well preserved, and in many places even the albite twinning can still be seen distinctly. The rock, therefore, contains fragments of an original andesite porphyry, which represents pieces of the old Keewatin volcanic series. The fragments show in many places a sheared and drawn-out character, producing a laminated gneissoid structure and pass imperceptibly into typical Keewatin schists, whose origin could not be decided except from their association with the fragmental material.

I have already mentioned the close association of these rocks with the jasper-magnetite series. It has been shown above that in the case of the Keewatin hornblende schists there was sufficient lapse of time between the formation of the original Keewatin diorite and the intrusion of the Laurentian granite, to allow the diorite to take on a gneissoid structure.

Concerning the possibility of a fragmental series of pre-Laurentian age in this part of Ontario, Dr. Miller, has said[9]:

"In two or three instances pebbles in the Lower Huronian appeared to be conglomerate, that is, they seemed to indicate that there had been a conglomerate series before the Lower Huronian was laid down. It would appear, however, that these pebbles and boulders come from the pseudo-conglomerates, namely, Keewatin dikes, which hold partly dissolved rounded fragments of rocks through which they have cut. . . . It is well however, to consider the possibility of a fragmental series in this district older than what is here called the Lower Huronian. The Keewatin undoubtedly contains some sedimentary material, shown by the jasper-magnetite bands. The writer believes that these sedimentary bands should be classed with the Grenville series, which is found in much greater volume in southeastern Ontario. He would place the Grenville sedimentary series between the Keewatin and Lower Huronian in age."

Again in his report on Larder Lake, Prof. Brock says[10]:

"The Keewatin rocks form the oldest and most disturbed formation at present recognized. These rocks were formed during a very extended portion of geological time, and under changing geological conditions. It is more than probable that this series should be subdivided into several formations, for some of the rocks are very

[9] 16th Rep. B. of M., Part II., pp. 48, 49.

[10] 16th Rep. B. of M., Part I., p. 208.

much newer than others, and have been subjected to much less alteration. Some disturbed and squeezed conglomerates intimately related to the Keewatin . . . . seem to belong to this formation, and if so, mark unconformities which might be utilized to subdivide the Keewatin. The subdivision is rendered difficult however, by the degree of metamorphism, and the disturbances through igneous intrusions. . . . A long time interval elapsed between the Keewatin and Lower Huronian, during which the Keewatin was a land surface subjected to heavy erosion. This erosion produced a topography not unlike that of this country at the present day. . . . Erosion and transportation must then have greatly exceeded atmospheric weathering, for the Keewatin surfaces and hills were swept bare of rotted rock, before the Huronian was deposited on them."

About four miles up the Low Bush river, which enters at the northwest part of Lower Lake Abitibi, is another rock which may be possibly connected with the highly metamorphosed fragmental series. On Lot 6 in Concession 4, of the township of Bowyer, there is an outcrop of micaceous schist, which has a rusty brown, weathered surface. This outcrop shows only in low water, being entirely covered most of the year by water and not being visible on either shore. The schist stands almost vertically with its upturned edges presenting a knife-like character. It strikes almost east and west, thus preserving the general strike of all this fragmental series. An examination under the microscope shows that the schist is made up of abundant brown flakes of mica, and granular quartz, all of which has become pressed into a typical quartz-mica-schist. Scattered abundantly through it, is untwinned staurolite, brown in color, and in fresh, well-defined crystals. The staurolite is filled with innumerable microscopic inclusions of quartz, but is perfectly fresh and unaltered itself. These small crystals of staurolite with their perfectly formed crystal faces are clearly seen under the microscope and also with the naked eye. The rock resembles perfectly, those staurolite schists so often produced from the alteration of argillaceous sandstones or other clay-holding sediments.

Laurentian

The Laurentian in this district is represented almost entirely by hornblende granites, and in some places where quartz is practically absent the rock becomes a hornblende syenite. This series is intruded in the Keewatin, and is therefore later. Many good contacts can be seen both of the massive granite and of granitic, pegmatitic, or granite porphyry dikes, coming off from granite masses proper, and cutting the Keewatin, for example, along the shore of the Lower lake from point 17 A to 22 A, again along the shore from 28 A to 33 A, and again from 44 A to 47 A. On the north shore of the Upper lake, on the Quebec side of the boundary line, and on Mistaken island, many excellent contacts can be seen. Hence there is no possible doubt that this granitic series is later than the Keewatin. Moreover, it is cut in many places by fresh quartz diabase, the post-Middle Huronian, and is therefore older than these rocks. It is in every respect like the acidic intrusives called Laurentian by all authors. Good contacts of the later diabase cutting Laurentian granite can be seen about 44 A, 42 A and Islands 226, 227, 173 and 174. There is an enormous development of the Laurentian as shown by the accompanying map. It is nearly all hornblende granite, which shows on microscopic study a coarse-grained, hypidiomorphic mixture of common green hornblende, much altered feldspar, and abundant quartz. The feldspar has so completely altered on the surface to kaolin that pseudomorphs of kaolin after feldspar are very distinctly seen. This white kaolin together with the quartz in many places give the rock a very light color, so that narrow dikes of it are readily taken, at a short distance, for quartz veins, and all such are staked as discoveries of "valuable mineral in place" by the over-zealous prospector. The hornblende is often segregated, and is for the most part quite fresh. Some fibrous pieces resemble actinolite in character. In other pieces, however, the large characteristic prismatic angle of 124° is well marked. The hornblende is very abundant, but no biotite was seen either in the hand specimens, or in the rock sections examined under the micros-

cope. The quartz is in large distinct grains. It surrounds both the feldspar and the hornblende when in contact, and therefore crystallized last in the process of solidification.

The Laurentian granite forms the whole of the north shore of the Upper lake, and extends north as shown by the map to and beyond the Transcontinental railway, where several outcrops are seen and where rock cuts will have to be made. Just over the boundary line in the Province of Quebec, the formation changes, and the contact of the Laurentian with the Keewatin greenstone series is easily seen.

I have already called attention to a contact of the Laurentian with the Keewatin on Mistaken island, near the north shore at the entrance to the long bay which leads up to the Okikodosik river. An interesting point in connection with the granite is the gold-bearing quartz vein which was mentioned as occurring in it at point 48 A. This has been already described, and is only re-mentioned here because of occurring entirely in Laurentian granite away from any greenstone contacts.

The various dikes coming away from the granite and cutting the Keewatin greenstone present some interesting aspects. Many of them are beautifully porphyritic, The large phenocrysts of feldspar in a pink or gray groundmass are very characteristic, and afford some of the prettiest examples of granite porphyry that one could find. Accompanying the pegmatitic phases of these dikes, are the minerals iron pyrites, copper pyrites, pyrrhotite, and specularite. A good example of this can be seen south of the Big Pete mining claim near point 16 A. Here the quartz is so segregated as to produce what would easily be taken for a quartz vein. But a little search will show the presence of feldspars, which would show that this occurrence is more likely a dike. Moreover, this particular dike carries traces of gold on assay, hence the mistake of staking these for veins is easily made. A similar case is afforded by the so-called "white-dikes" of the Boundary district of British Columbia, which were long taken for quartz veins, and being actually gold-bearing, although in small amount, enticed the prospectors of that country to develop them at great expense of time and money, to no real purpose. Prof. Brock has called attention to the same character in the Laurentian pegmatite dikes of the Larder Lake area.

Since no Lower Huronian has been recognized in the Abitibi area, it is impossible to decide definitely whether the granite here called Laurentian is older than the Huronian or not.

Lower Huronian

The lower Huronian quartzites, slates and conglomerates, so abundantly present in the Cobalt and Larder Lake areas, do not occur about Lake Abitibi so far as could be determined. Certainly, no such conglomerates and quartzites as represent this age in the above mentioned districts are to be found here, and if any do occur, they are so profoundly metamorphosed as to be indistinguishable from the Keewatin. This does not seem likely, however, as the Lower Huronian conglomerate is so characteristic over a widespread area. In his report on Larder Lake, Prof. Brock has pointed out that although the Laurentian is represented there by dikes only, yet the Lower Huronian conglomerate is the typical granite-rich accumulation with which all are familiar who have seen this series in northern Ontario. I have already pointed out that granite of Laurentian age is very abundant at lake Abitibi and yet not a pebble of granite is to be found in the fragmental series of lake Abitibi already described. The typical granite-holding conglomerate of the Lower Huronian occurs abundantly as far north as Bourke's station on the Temiskaming and Northern Ontario railway, and within thirty miles of the area here described, but was not seen nearer. With the great development of granite about lake Abitibi, we would expect to find any later conglomerate filled with pieces of it, so I feel justified in saying that the Lower Huronian does not occur in this area, nor yet the Middle Huronian, the next formation above the Laurentian being the post-Middle Huronian diabase-gabbro series of intrusives.

Post-Middle Huronian

Cutting both the Keewatin greenstones and the fragmental series, and also the Laurentian granite series is a group of basic intrusives representing for the most part dioritic and gabbroic magmas. In the accompanying map the areal distribution is shown, and is relatively large. The rocks are, for the most part, quartz-diabase, in every way like those of the Cobalt area. In other places, however, the rock is very coarse-grained and presents all the phases of a typical gabbro, or in others a quartz-gabbro, which is a rather rare rock. In many places dikes of diabase come off from the larger main masses and form good contacts against the Keewatin or Laurentian series. In some cases there are a number of contact metamorphic minerals. For instance, about 26 A on the east shore of Lower lake Abitibi we have a first-class example. Here the intrusive series has disturbed the Keewatin greenstone very much, and many minerals the results of contact metamorphism have been formed. In a highly schistose groundmass, examples of actinolite, garnet, epidote, iron pyrites, and almost solid masses of hornblende are found along the contact. A narrow border, fine-grained in character, occurs along the edge of the dikes, while the diabase itself farther from the contact is quite coarsely crystalline or even pegmatitic in character. A microscopic examination of this diabase series shows that it is exactly like the intrusions of the same age in the Cobalt area, and the description of the rocks as given by Mr. C. W. Knight in the Bureau of Mines Report for 1907, page 60, would stand for this series. The diabase as well as the coarser gabbro-like series does not show, in hand specimens, anything of the ophitic texture, but under the microscope this structure is found to be present in both the fine-grained and coarse-grained rocks. The grain of the rock at any one locality is very uniform, and only occasionally, as in cases like that cited above, is there any marked variation in its characteristic coarseness.

The main point of interest in connection with this basic series is the presence of free silica, which is not at all a common thing in such basic intrusions. They are therefore quartz-diabases. A thin section will show plagioclase feldspar occurring in relatively narrow rods, almost always showing albite twinning lamellae. The extinction angles as well as the chemical analysis show that this feldspar belongs near the basis end of the series, or is practically labradorite. It is usually quite fresh even in surface pieces of the diabase.

A second mineral almost equal in importance is augite, a monoclinic pyroxene, in large distinct crystals. It is of a pale brownish color, and is pentrated by and in some cases actually surrounds the laths of feldspar. This mineral is abundantly present in both the diabase and gabbro-like series. Other minerals, quartz and a few grains of biotite, are sparingly present. Some usually occur. The biotite, however, is never a prominent constituent, and the quartz is usually present in micro-pegmatitic intergrowth with feldspar, although not always so.

In the case of the very coarse grained gabbro-like rocks, an examination under the microscope shows that the rock while originally made up of the same constituents as the diabase has suffered much by alteration. The plagioclase is in larger block-like crystals and is now almost all changed to saussurite. The augite has suffered change to uralite, a secondary hornblende, and about the only fresh constituent to be seen in this rock is the quartz, which is again in micro-pegmatite intergrowth with the feldspar as before. A few grains of magnetite and biotite are the only other fresh constituents. The shape of the crystals and the relation of the plagioclase to the augite is the same as that in the diabase, that is to say, the plagioclase crystals clearly formed before the augite, and therefore now penetrate it. This, then, is the same structure as found in the diabase and is called ophitic, so that we have not a gabbro, but a rock of gabbroic character possessing ophitic texture. Mr. Knight reports similar occurrences in the Cobalt area, page 63, Bureau of Mines Report 1907. It is very interesting to note how uniform is the character of this post-Middle Huronian intrusive series throughout its widespread distribution.

In the Temiskaming district it has been shown that the post-Middle Huronian series has a very intimate relation to the ore deposition both by fracturing the existing rocks, and by bringing the ore solutions themselves to the spaces so formed. In the Abitibi area, however, while the fracturing must also have taken place, there does not seem to have been the accompanying ore deposition. A great deal of prospecting had been done in this area previous to our visit, and an examination of all the claims staked, together with our own study of the formations, does not justify the expectation that there was any appreciable ore concentration accompanying the diabase intrusion. A series of twelve assays for gold and three for silver from the most likely looking veins, many of which showed mineralization in the shape of pyrites, failed to give more than a trace of gold, and no silver. The one exception to this statement has already been referred to as the Mosher vein, on Shaft island, No. 173. Here the vein is a typical fissure vein, filled with a gangue of quartz carrying free gold, and a few sulphides. It cuts the diabase, but it may, or may not have any genetic connection with this rock. I have already referred to another fissure vein which was also

Residual boulders from glacial deposits

gold-bearing, and which cuts Laurentian granite distant from a diabase contact. As yet we are not justified in claiming that the diabase intrusion, though the same as that for the Cobalt region, is associated with any appreciable ore deposition in the Abitibi area.

Glacial

In the Abitibi area there are no rocks younger than the post-Middle Huronian diabase except Glacial and recent deposits.

Resting directly on the polished and striated rock surfaces everywhere are great accumulations of glacial drift, or of sorted glacial drift. Many of the islands of the lake are made up of a clean polished rock base, on which is a heap of rounded boulders, washed entirely free from the finer material of the drift, so that now only a heap of coarse immovable boulders remain. All the finer material has been carried away to form banks of clay, of sand, or of gravel, which occur at various places about the shores. This condition is well shown in the illustration. The latest of the glacial accumulations is the Saugeen clay. This clay, which is a sorted and washed glacial clay, is made up of a series of interstratified bands of rich reddish brown clay, with bands of gray or greenish gray sand or shell marl. In some places, the bands are only

slightly calcareous, while at others the gray bands are almost entirely calcium carbonate. Regarding this clay Dr. Miller says[11]:

"The soil is essentially a well-banded clay . . . . Outcrops of solid rock, in many cases representing hill-tops which project through the clays, are seen. North of the height of land, however, is a large agricultural area estimated at sixteen million acres and known as the great clay belt, in which exposures of solid rock are few in number. The clay on both sides of the height of land is pretty uniform in character. . . . . It will be seen that the lime and magnesia are rather high. This is owing to the alternate bands containing considerable marl."

A full report of the general character of the Saugeen and other clays of Ontario, was prepared by me for the Bureau of Mines[12] in which a detailed description of this clay can be had by those desiring it. It is sufficient to add here, that this clay forms great banks about lake Abitibi, and these banks differ in no way from those described from other parts of Ontario, as given in the report mentioned above. In age I would place it as near the close of that Glacial period, for it appears to have been

On Abitibi waters.

formed from the flow and ebb about the edge of the retreating or melting glacier, and each two bands, that is a band of clay with a band of sand together represent the accumulation of one year. During the warmer or summer months, any increased flow of water from the edge of the glacier would carry the clay farther out, as well as the sand, while in the winter months, when the flow of water had lessened, a layer of clay and sand would be deposited nearer to the margin, and this process would be repeated year after year for many years, as shown by the great number of bands in the accumulation. The gradual recession in a northerly direction, as the ice front slowly retreated, would account for the great thickness of this clay. The few stones found in the clay, and they are very few, would be caused by small pieces of floating ice dropping imprisoned stones on melting. The presence of sand or marl as alternate thin bands with this clay renders the whole mass rather mild in character, and accounts for its loamy nature, making it valuable for agriculture.

The only formations occurring above the Saugeen clay are the recent accumulations of shell marl and peat, found so abundantly in the many land-locked lakes over this area. The great muskegs so prevalent in this north country, have been already

[11] 14th Rep. B. of M., Part II., pp. 26, 27.

[12] 15th Rep. B. of M., Part II.; Clay and the Clay Industry of Ontario.

mentioned in the earlier part of this report, and in these the accumulations of peat varying from two to fifteen feet have filled up the shallow lakes, the floors of which are Saugeen clay. In preparing the right of way for the Transcontinental railway many fine sections of peat underlain by marl and both of these underlain by Saugeen clay are to be found. In every case the Saugeen clay preserved the general characteristics already described.

This Saugeen clay really constitutes the chief resource of the Abitibi area, and one might add of the northern part of Ontario in general. As already pointed out, the close mixture of clay and sand so characteristic of this clay wherever found, renders it on exposure to the air a mild loamy soil, which will be eminently suitable for agricultural purposes. Some of the splendid farms near Barrie, Walkerton and Huntsville in older Ontario, as well as some of the newer ones about Englehart, and other clearings along the Temiskaming and Northern Ontario railway, show the great value of this soil for agricultural purposes. It has been already stated that the most of this north country is heavily covered by soil, so that its future will be an agricultural rather than a mining one. Vegetables and cereals of almost every kind have already been successfully grown in the small clearings about the "residencies" along the Transcontinental railway, and with further clearing of the timber and removal of the moss, the country will be much warmer, and its agricultural future assured.

There are many outcrops of rock about the shores and on the islands of these two lakes. They have been thoroughly prospected, but the mineral deposits, as already stated, are very small and for the most part extremely low grade. It does not appear, therefore, that this immediate area offers much inducement to the prospector. The region has been surveyed into townships. The excellent soil, and splendid transportation by water and rail should ensure a prosperous future for agriculture.

LAKE OJIBWAY; LAST OF THE GREAT GLACIAL LAKES

By A P COLEMAN

Introduction

Most of Canada east of the Rocky Mountains drains northward or northeastward in such a way that when the upper parts of the river valleys were set free by the retreating ice front toward the end of the Glacial period, the present outlets were still blocked, producing a series of great glacial lakes draining to the southward. The earliest of these lakes, covering large parts of Alberta between the front of the Keewatin ice and the Rockies, have been little studied and have not received names. The rich silty soil round Edmonton and southward towards Calgary was deposited on the bed of such lakes.

Later came lake Agassiz, hemmed in by the united fronts of the Keewatin and Labrador glaciers, with its outlet through the Red River valley into the Mississippi, the source of the fat clay soil of the Winnipeg region. This lake has been studied by Mr. Tyrrell and other Canadian geologists towards its northern limits, and has been mapped in Manitoba and the states to the south by Mr. Warren Upham.[1]

A southeastern bay of lake Agassiz extended into Ontario as far as Rainy lake, its silt deposits making the excellent farm lands of the Rainy River district.

After lake Agassiz was drained by the parting of the two great ice sheets, as melting progressed a very complex series of glacial lakes occupied in succession the basins of the present Great lakes. In Ontario they included lake Warren, the oldest and highest, lake Algonquin, covering most of the beds of the present lakes, and lake Iroquois occupying the Ontario basin.[2] The flat clays laid down on the bottom of these lakes furnish much of the best farming fruit growing land in Old Ontario.

The northern boundary of lake Algonquin was formed by the watershed toward Hudson bay, the Labrador ice sheet probably halting behind this barrier for a long time. At length the ice withdrew toward the northeast, and lake Algonquin probably extended a bay to the north of the watershed. A still farther retreat put an end to lake Algonquin by opening the Nipissing-Mattawa-Ottawa outlet, when the water sank to the Nipissing level, and the bay to the north of the watershed became a separate lake draining ultimately by the valley of the upper Ottawa and lake Temiskaming into the river fed by the Nipissing Great lakes, which must have been far larger than the present lower Ottawa.

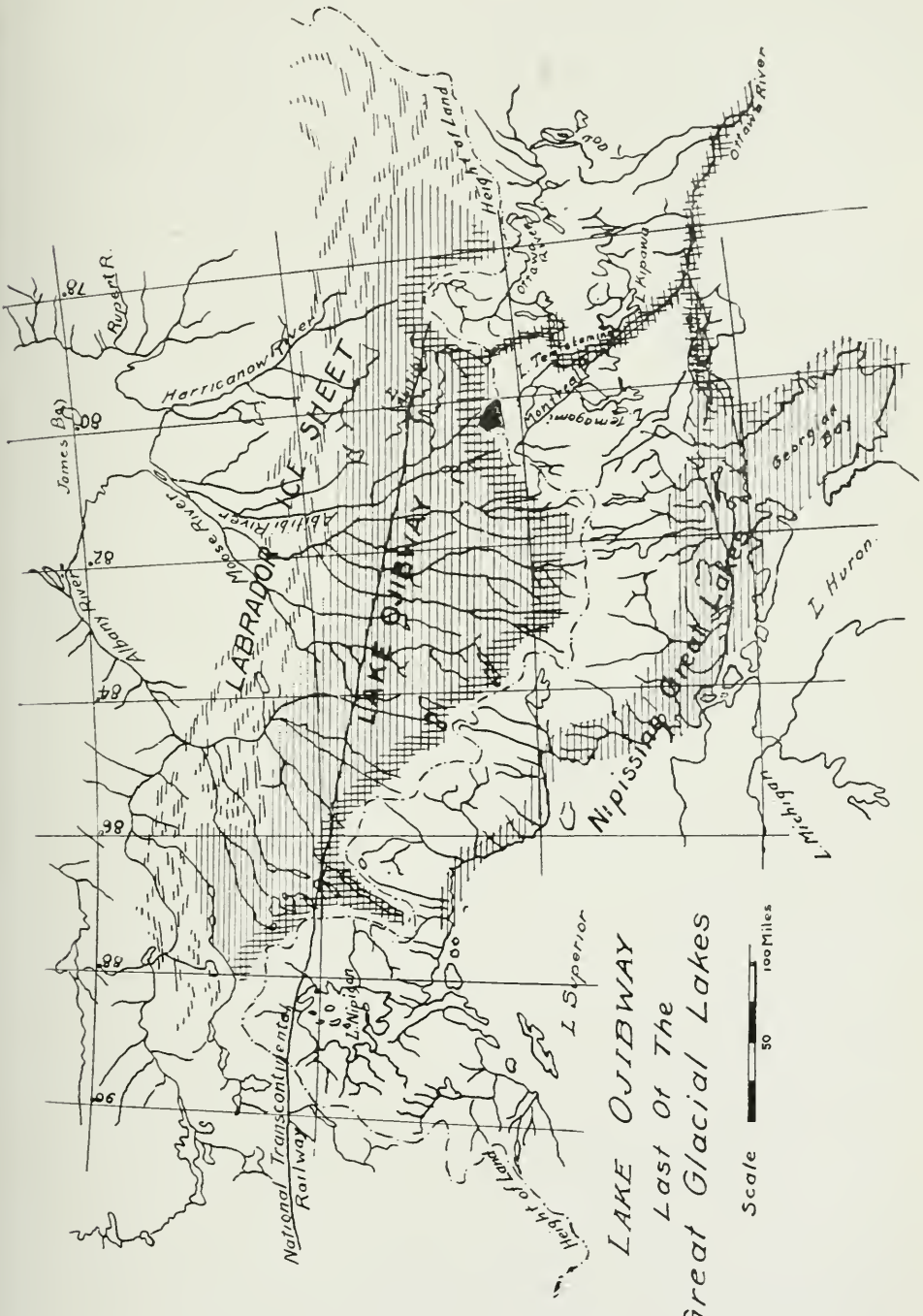
It is proposed to name this last ice-dammed body of water "Lake Ojibway" from the tribe of Indians sparsely scattered over the region it once occupied. Like all the other glacial lakes, this also deposited silt and clay of much practical value to the farmer, forming the "clay belt" of northern Ontario and Quebec, soon to be threaded by the National Transcontinental railway.

Though lake Ojibway has never been carefully mapped and its abandoned shores may not for a long time be known in detail, its general outlines have been pretty well determined by surveys and explorations in northern Ontario, mainly carried out by the Bureau of Mines; but its bounds within the Province of Quebec are less certain.

When the ice blocking the northward flowing rivers finally departed, lake Ojibway was drained, leaving as remnants the Abitibi lakes and many other smaller bodies of water in the clay belt. Probably only a few thousand years have elapsed since this last of the glacial lakes came to an end, and in many parts of its bed the drainage is still imperfect, leaving wide stretches of swamp and muskeg.

[1] U. S. Geol. Sur., Monograph XXV.

[2] 13th Rep. Bur. Mines, p. 225, etc.


LABRADOR ICE SHEET
LAKE OJIBWAY
Nipissing Great Lakes
Harricanaw River
Rupert R.
James Bay
Albany River
Abitibi River
Moose River
Temagami
L. Timiskaming
L. Nipigon
L. Superior
L. Huron
Georgian Bay
Ottawa River
Height of Land
National Transcontinental Railway
LAKE OJIBWAY
Last of The
Great Glacial Lakes
Scale
50
100 Miles

Lake Algonquin and Region North of Watershed

The last of the generally recognized glacial lakes is Algonquin, whose northern beaches have been more or less studied by Prof. Lawson[3], Dr. Spencer[4], Mr. Taylor[5], and the present writer[6]. Its northern shores along the Hudson Bay watershed have been greatly split up by differential elevation of the region toward the northeast, and range from about 1,000 to more than 1,400 feet above the sea in various places. No doubt a considerable part of the northeastward elevation occurred during the lifetime of lake Algonquin, which is thought to have been the most permanent of the glacial lakes.

It was long ago observed by Spencer and Taylor that the higher Algonquin beaches imply a water level considerably above certain cols or low passes crossing the watershed between the Great lakes and James bay; and it was thought at first that the whole region might have stood at sea level, so that the raised beaches were of marine origin. This view was soon given up, however, when Mr. F. B. Taylor, who has done such excellent work on these old water levels, proved that the beaches do not run north of the cols.

There are several of these low passes between the basins of the Great lakes and the Hudson Bay slopes; and these may be taken up from west to east, since they were probably set free in this order as the ice front shifted toward the northeast.

The most westerly col of which much is known is at the headwaters of Red Paint river, northeast of lake Nipigon. Railway levels give this divide an elevation of 1,046 feet above the sea. As terraces of lake Algonquin 20 miles to the south reach 1,100 feet it is evident that its waters would have crossed the divide at this point if there had been no barrier. The actual divide is occupied by extensive morainic deposits with many kettle-shaped basins partly occupied by small lakes. These basins were probably formed by the thawing of buried masses of ice, proof that the ice front then stood at the divide.

The next col which has been studied lies between Jackfish on lake Superior and Long lake, where the watershed takes an extraordinary bend southwards, reaching a point only 22 miles from lake Superior. As determined by aneroid the divide between Black river, flowing into lake Superior, and Long lake is about 1,040, considerably below terraces of lake Algonquin to the north and east. The divide and the shores of Long lake itself, 1,013 feet above sea, show indistinct beach deposits, so that one may conclude that the ice which occupied the col during the earlier stages of lake Algonquin left this basin as a long narrow bay at a later period.

Beaches such as would be formed in a great lake like Algonquin are lacking on the divide between Long lake and the headwaters of Pic river, where the elevation is only 1,018 feet; though moraines, kames and eskers occur, evidently the combined work of glacier ice and water.

The Missinaibi col, between the headwaters of that river flowing into Hudson bay and Dog lake belonging to the Lake Superior drainage, was the first to attract attention because of its position close to the Canadian Pacific railway. Mr. Taylor examined it years ago, expecting to find sea beaches or terraces crossing over toward Hudson bay, but failed to discover them and therefore came to the conclusion that the Algonquin water was a lake with ice filling the northward depressions and blocking the outlet towards the Ottawa valley. The elevation of the Missinaibi pass is about 1,090 feet, somewhat higher than those mentioned before; but there are beaches up to 1,330 or even 1,400 feet within 20 or 30 miles to the southwest, which would imply a broad strait not less than 240 feet deep, if the beaches were formed at sea level.

From Missinaibi southeastwards the watershed rises, reaching in places elevations of 1,400 or 1,500 feet; but old beaches, probably of lake Algonquin, are found here and

[3] Geol. Sur. Minn., 20th Ann. Rep., pp. 182, etc. [4] History of the Great Lakes, pp. 64, etc. [5] Am. Geol. Vol. XX., 1897, pp. 119-128; also Vol. XVIII, pp. 118, etc. [6] 14th Rep. Bur. Min., 1905, Part III., pp. 103-106.

there not much below the summit. Pardee on the Canadian Pacific railway has an elevation of 1,528 feet, and the watershed a little to the east reaches 1,538, the highest point recorded on this part of the railway. Chapleau, 14 miles farther east, is on the Hudson Bay side of the watershed, and the small flat plain on which the village stands may be a terrace representing an extension of lake Algonquin beyond the divide at an elevation of 1,418 feet. Whether this terrace-like flat really belongs to the Algonquin beaches is however doubtful.

At Turnbull siding (1,390 feet) the railway turns to the southeast while the watershed goes on to the east at elevations not much lower so far as determined by aneroid.

Cartier, 80 miles southeast, is on a well formed gravel terrace at 1,381 feet, and similar lake deposits are found at Geneva lake a little to the west rising somewhat higher[7]. These were formerly thought to have been formed by lake Warren, but later work by American Pleistocene geologists makes it probable that they represent the highest levels of lake Algonquin.

Similar terraces rising above 1,300 feet reach from 40 to 50 miles north of Cartier at the headwaters of Spanish, Onaping and Wahnapitae rivers, and on Meteor lake, along the watershed. The elevation (by aneroid) of the Meteor Lake terraces is 1,420 feet. Here there are numerous kettle lakes and empty basins probably formed by the melting of buried ice blocks at the margin of the retreating Labrador sheet, similar to those found along other parts of the divide.

Beyond Meteor lake the watershed trends northeast and sinks to lower levels, reaching only 1,050 feet where crossed by the Temiskaming and Northern Ontario railway, once more rises for a distance, and then sinks to about 930 feet between the headwaters of Ottawa river and lake Abitibi.

Still farther to the east, in the Province of Quebec, the elevation of the watershed rises again, so that the lowest point is where the northward extension of the Temiskaming valley joints the depression of lake Abitibi.

Characteristic terraces extend along the southeast side of the divide from the point where it bends northward, and also stretch along the northwestern side at corresponding levels, conclusive evidence that here at its eastern end the ice had withdrawn far enough to permit lake Algonquin to pass the summit and occupy part of the Hudson Bay slope. For example, beginning at the Meteor Lake terraces (1,420) and going south along the Vermilion placers, sand and gravel plains occur at various levels, down to 1,047 feet, west of lake Wahnapitae. Going north from Meteor lake there are sand plains at various levels down to 1,100 near Mattagami post.

The highlands of the watershed formed therefore a somewhat broad peninsula stretching northeast.

There came a time when the Temiskaming, Ottawa and St. Lawrence valleys were abandoned by the ice, which had hitherto stretched all the way to the Thousand Island region, imprisoning lake Algonquin on the north and lake Iroquois on the south. These two glacial lakes were drained and the waters north of the divide sank by stages to the level of the Temiskaming outlet, giving rise to the separate lake, here named Ojibway.

Among these earlier outlets before the Temiskaming valley was freed from ice, the only one which has received much attention is that of the Vermilion placers, where gold bearing gravels may be followed southwards for 40 miles from the region of Meteor lake to an old bay of lake Algonquin[8].

[7] 14th Rep. Bur. Mines, 1905, part III., p. 103. [8] 10th Rep. Bur. Mines, 1901, pp. 151-159.

Deposits Formed in Lake Ojibway

From what has gone before it will be seen that sand and gravel beds were formed at various levels north of the Hudson Bay watershed as soon as the ice began to withdraw. As it was much thicker than elsewhere on the low ground between lakes Abitibi and Temiskaming, it was, no doubt, later in vanishing, and we may imagine various water levels resulting each lower than the last, until the final level at something over 930 feet was reached.

In the shallow water along the south shore of the lake coarser materials, gravel and sand, would accumulate, while in the deeper water silt and fine mud would be laid down; but since the position of the shore shifted northward as the lake was drained to lower levels, we should expect to find frequently the coarser sediments, sand, etc., overlying stratified clay. This is exactly what is found, and references have been made to these lake deposits by various geological explorers, though without giving the lake a name.

Broad stretches of clay have long been known from northern Ontario, having been noted as early as 1870, '71 and '72 by Dr. Bell[9] and Mr. McOuat[10], the latter referring briefly to the flat clay land north of lake Temiskaming and round lake Abitibi. Survey parties running base lines for the Crown Lands Department of Ontario have extended our knowledge of the clay and loam deposits between the river valleys. Mr. E. M. Burwash and Dr. Parks, accompanying such parties as geologists in 1896, '98 '99, and 1900, reported large areas of stratified clay, Dr. Parks calling attention to the fact that the belt of clay passes southward into sand.[11]

The sending out by the Department of Crown Lands in 1900 of ten exploring parties, each accompanied by a geological assistant, gave final proof of a wide expanse of good clay soil, mostly lake deposit, estimated to cover 15,680,000 acres or 24,500 square miles[12].

In 1901 my own work showed that lake gravels extend across the watershed and that sand flats descend northwards for 30 or 40 miles near lake Mattagami, etc.[13] Details in regard to the distribution of these lake deposits will be found in the reports referred to above, and it will not be necessary to mention more than a few of them.

The Abitibi Region

The clay deposits at the north end of lake Temiskaming are pale gray or whitish and well laminated, evidently old lake deposits and rise, so far as I can discover the levels, to about 775 feet above sea near Haileybury, or about 200 feet above the present lake; while at North Cobalt there is a sand terrace at 865 feet. As noted by McOuat in 1872, these stratified clays extend north to the watershed, rising at least to 930 feet, and enclose the upper and lower Abitibi lakes, reaching about 30 feet above these bodies of water.[14] In some places between Temiskaming and Abitibi lakes, however, he finds the clay overlain by sand, and points of Archean rock project through it.

In 1896 Mr. Burwash, as geologist to Mr. Niven's base line survey party, found first sand (at mile 100) then sand above and clay beneath (to mile 109) with stratified clay about Night-hawk lake and to the end of mile 120. This region is about 40 miles southwest of Lower Abitibi lake. Going southeast of this toward Matachewan stratified sand and gravel were encountered, evidently shore deposits.[15]

Dr. Parks accompanied Mr. Niven on the northward extension of this meridian line, and describes stratified clay rising 40 or 50 feet above Night-hawk river, and

[9] Geol. Sur. Can., Vol. 1870-71, p. 350. [10] Ibid., Vol. 1872-3, p. 134. [11] 9th Rep. Bur. Mines, 1900, p. 142.
[12] Rep. of the Survey and Exploration of Northern Ontario, 1900. [13] 10th Rep. Bur. Mines, 1901, pp. 211, etc.
[14] G. S. C., 1872-3, pp. 133-4. [15] 6th Rep. Bur. Mines, 1896, pp. 177-183.

mentions stratified clay and sand at various points to the north.[16] In the following year he continued this work, and our knowledge of a considerable part of the southern boundary of the clay belt is due to his observations.

In 1904 Mr. G. F. Kay calls attention once more to the stratified materials, clay, sand, and gravel, in the Night-hawk Lake region, and referred them to glacial lakes, stating that "there is no doubt, however, judging from the wide distribution and heights of these stratified deposits that the lakes were of considerable extent. While the laminated clays were being laid down in the bottoms of these lakes, the sands and gravels were being deposited along the shores or near the margin of the ice sheet."[17] Mr. H. L. Kerr examined part of the region in greater detail two years later, and speaks of the stratified sand and clay as deposited in glacial lakes.[18] None of these writers, however, gave the old lake deposits any very careful study.

Lake Deposits on the T. & N. O. Railway

During the past summer I had opportunity to visit a few localities along the line of the Ontario government railway where cuttings or river valleys give sections of the Pleistocene deposits. On the line between North Bay and Cobalt a number of terraces are to be seen, belonging probably to the Nipissing Great lakes. North of Cobalt the line rises to the Hudson Bay watershed at mile 178, and then descends to Matheson and Cochrane, the latter at the junction with the National Transcontinental railway some distance west of lake Abitibi and about midway in the clay belt as mapped by the Department of Crown Lands.

Going north from Cobalt, one encounters flat clay terraces at Haileybury, New Liskeard and Uno Park stations at levels that run from 642 to 776 feet, all probably belonging to the Nipissing Great lakes. The clay is beautifully stratified in thin layers of paler and darker materials, no doubt laid down in moderately deep water. Entirely similar clay occurs on the other side of lake Temiskaming near Ville Marie in Quebec. Good illustrations of the appearance of the New Liskeard clay are given in Prof. Miller's report on the Cobalt Region.[19] Red bricks are made from it near the station at New Liskeard. Bluish, well stratified clay is to be seen near Earlton also, in the bank of a creek, while at Heaslip and Englehart there are terraces of this clay at levels of 700 to 720 feet. Just south of Englehart there is a railway sandpit, showing 10 or 15 feet of stratified sand over clay.

Beyond this the grade rises rapidly, and no undoubted terraces or water levels were seen until Dane was reached, a point 1,034 feet above the sea, not far south of the watershed, according to the railway levels. Along this part of the line the underlying rock frequently rises above the drift, sometimes as hills hundreds of feet high with bare cliffs, while boulder clay is to be seen frequently in the valleys.

At Dane a railway gravel pit shows coarse kame materials rising to 1,060 or 1,070 feet, but growing finer and better stratified to the northwest, where the pit shows somewhat evenly bedded silt, sand, and gravel, apparently deposited in a lake and rising to about 1,050, the highest beach-like materials observed along the line. Beautifully stratified clay shows in the ditch just south of the temporary station at 1,034 feet.

Along the road to Larder lake 6 miles east of Dane there is a broad flat of stratified clay at about 1,020, undoubtedly a lake deposit; and a sand plain still farther east, six miles from Larder lake, at 1,070 or 1,080 feet is clearly water laid. Underlying the sand in stream valleys one sees well stratified silt and then clay. There are also patches of sandy and gravelly till in the lee of rocky projections, and near White river, two or three miles west of Larder lake, there is a kame, so that we have the usual mixture of morainic and water laid materials near the watershed.

[16] 8th Rep. Bur. Min., 1899, p. 175, etc. [17] 13th Rep. Bur. Min., 1904, Part I., p. 115. [18] 15th Rep. Bur. Min., 1906, Part I., p. 131, etc. [19] 16th Rep. Bur. Min., 1907, Part II., pp. 34-35.

Continuing north from Dane there are a few clay plains of small size, apparently lacustrine, but also areas of boulder clay and kame-like sand and gravel. North of mile 181 lake sand rises 10 feet above the track, and at Bourke's (mile 182) laminated clay with sand above may be seen rising to 1,040 feet, the waterlaid and ice-laid materials alternating.

Beyond the watershed at mile 183 flats of sand and clay, with boulder clay also here and there, occur all the way to Matheson (mile 205), where the typical plain of the clay belt begins at a level of 890 feet above the sea. The stiff blue clay makes very adhesive mud after a rain on the steep roads down to Black river, where most of the village is situated. It is finely stratified with layers half an inch or less in thickness.

In this region along the river valley the clay plain is greatly cut up by side streams showing 50 feet or more of the laminated clay absolutely free from stones, evidently laid down in fairly deep water.

North of Matheson no trains were running at the time of my visit, but railway men and prospectors report similar thick stratified clay with a few slight ridges of sand resting on it in places. Scarcely any rock is to be seen along the line north of mile 183; but at Matheson itself the river falls over a cliff of greenstone. Beyond Matheson rock is not reported.

The clay plain to the north of Matheson remains nearly horizontal as far as Cochrane near Abitibi river, where the Temiskaming and Northern Ontario railway joins the National Transcontinental railway. It is stated that in preparing the foundations of the bridge across the Abitibi river the stratified clay was found to be very thick.

Drift near Long Lake

Long lake lies not far from the western limit of the clay belt, its southern end being only 26 miles north of Jackfish bay on lake Superior. It occupies a long southward bend of the Hudson Bay watershed, which in one place comes within 22 miles of the waters of lake Superior.

There are no striking beaches round the shores of Long lake, perhaps because its valley formed only a very narrow bay of lake Ojibway with very little reach for wave action.

At the southern end of the lake, where the portage comes in from the Black river route, a small sand terrace rises 15 feet above the lake, but this cannot be followed to the north, and may be morainic. The shore of the lake is of well rounded pebbles and boulders up to a foot in diameter, evidently water formed and not simply morainic.

Going down the lake a few ill-defined sand terraces are seen, and some esker-like ridges project into it. Where the axis of the lake bends from northwest to north there are fairly distinct sand terraces rising 30 feet above the lake, *i.e.*, 1,043 feet above the sea.

About one quarter of the way down the lake the sand changes to silt of a yellowish white color, well stratified in some places, but of rather uneven surface, rising sometimes 40 or 50 feet above the water. As the lake widens northwards these terraces diminish in frequency, showing only in bays, and finally disappear altogether. The silt is probably of morainic origin, since in some places it contains stones.

At the north end of the lake, near its outlet into Kenogami or English river, there are considerable areas of lake deposits both sand and clay. The clearing near the old Hudson's Bay post and the new post of Revillon Brothers shows sandy soil rising ten or fifteen feet as a terrace on the east side of the lake. The new post of the

Hudson's Bay Company on the west side is on a low flat of clay rising from three to ten feet above the lake, well stratified in darker and lighter layers an inch thick. The soil is good and is cultivated in a small way.

The terraces at the outlet of Long lake have an elevation of 1,025 to 1,030 feet, and hills of granite and other Archean rocks rise through them.

West of Long lake the country is swampy or muskeg with many small lakes showing little solid rock and no sand or clay; but on Little Long lake boulder clay and morainic ridges are seen, with a few terraces which may be lacustrine. One near a narrows was found to be 23 feet high and to consist of silty sand at the bottom, followed by coarse sand with a thin sheet of gravel on top. The surface is undulating, and suggests a lake deposit at the edge of an ice sheet.

Going down English river northward from Long lake a clay flat is crossed at the Long portage, but this is at least partly of boulder clay, and below a falls at the fourth portage there is a vague terrace at an elevation of 980 feet as determined by aneroid. Most of the river shore to this point, about 15 miles below Long lake, is low, only muskeg showing except at the rapids, where moraine or bed rock comes to the surface.

The general impression obtained is of deposits formed in a small lake with little wave action. Probably the sand and clay terraces were made when the ice front stood not many miles away to the north at an early stage of lake Ojibway; or they may have been formed in a narrow bay stretching northward from lake Algonquin.

Where the National Transcontinental crosses English river south of Pine lake 15 or 20 miles beyond the point reached by my party, the level of the river is 765 feet, and of the land to the east 817 feet, indicating a considerable fall below the fourth portage, if my aneroid determinations are correct.

The two regions just described, along the T. and N. O. railway, and near Long lake and river, are the only ones which I have personally studied, but they are probably typical of the southern margin of the clay belt region as a whole. The lower tracts to the north appear to have the general character of the clay plain north of Matheson. Though this region has been crossed at many points by geological and surveying expeditions, so that there are numerous references to the occurrence of clay or sand or loam in various parts of it, there are scarcely any detailed accounts to draw on for a description of the drift of the region. Very often general statements are made as to clay or loam, but no definite account of the materials, *e.g.*, as to whether the clay is stratified or boulder clay, and whether the sand is in plains or terraces or as esker ridges or kames.

Under the circumstances we may assume that the deposits in the area mapped by the Department of Crown Lands as the "Clay Belt" are in the main lacustrine and represent the deeper water deposits of lake Ojibway, though in parts the clay may be till not much re-arranged by water, and in still others may be unaltered boulder clay. Very frequently, in the parts visited by myself, the stratified clay overlies boulder clay, and one may conclude that the "rock flour" produced by the ice sheets is the source of the clay distributed over the old lake bottom.

While clay covers much of the surface there are tracts of sandy loam or of sand, and numerous areas of muskeg hiding the drift deposits beneath. Undoubtedly also there are hills or ridges of Archean rocks rising at many points, though, according to the reports, making up a relatively small proportion of the surface.

Toward the northwest of the area flat lying limestone, dolomite, or shale of Paleozoic age underlies the drift in some places; and the limestones have improved the soil by adding to the amount of lime present.

Size of Lake Ojibway and Character of its Shores

It has already been suggested that the waters north of the Hudson Bay watershed probably began as a narrow strip, at first as a bay of lake Algonquin, later as a separate lake at lower levels until the level of the outlet between lakes Abitibi and Temiskaming was reached. It is evident that the area covered by the lake must have been quite variable, so that an estimate of its dimensions at any given time would be hard to make. Its greatest extent at any particular stage could not have exceeded the total area of lake deposits found north of the watershed, and may never have reached those dimensions.

The outlines of the clay belt in Ontario are known roughly, and the width of stratified sand and gravel to the south, representing shallow water and shore deposits is known in a few places. How far the lacustrine clays, etc., extend east of lake Abitibi within the province of Quebec is unknown, but they may be assumed to cover the space below 1,000 feet as shown on the relief map included in the Atlas of Canada.

Within Ontario lacustrine beds extend from north of lake Nipigon to the Quebec boundary, a distance of more than 400 miles in a direction somewhat south of east (110°); and possibly 50 or 60 miles should be added within the Province of Quebec, making a length of about 470 miles. The greatest known breadth of the deposit, somewhat east of north from lake Mattagami, is 160 miles. The average breadth is probably less than half of this, say 70 miles, giving an approximate area of 33,000 square miles. As its maximum extent the area may have been about that of lake Superior. The greatest depth, so far as known, was not more than 500 feet, near the edge of the glacier.

Little can be said of the northern shore of lake Ojibway except that its waves beat upon the rapidly thawing front of the ice. Its southern shore was varied, partly low and marshy, partly cliffs of Archean rock. There was a long narrow bay occupying the present basin of Long lake, and a broad bay with many rocky islands where the watershed bends southwards near the Canadian Pacific railway. The outlet was between rocky walls in a region where hills rise 600 feet or more above the old water level.

Outlets of the Lake

It has been mentioned earlier that the waters ponded in front of the Labrador ice sheet probably had more than one outlet, beginning with comparatively high levels near Meteor lake, and shifting eastward as the ice withdrew from point to point until the low pass between lakes Abitibi and Temiskaming was set free. The earliest outflow seems to have been in the direction of the Vermilion placers, running from near Meteor lake at an elevation of about 1,400 feet as shown at present towards what are now the head waters of three rivers, the Vermilion, the Wahnapitae and the Montreal. At the earliest stage of all there was probably no river, the water north of the watershed standing at the same level as that in lake Algonquin on the south.

Where the successive lower outlets were placed has not yet been determined; but one seems to have lasted a considerable length of time at a little above 1,000 feet, since sand and gravel terraces and deltas occur at about this level on the line of the T. and N. O. railway a little north of the watershed, along lake Mattagami, and near Long lake.

The lowest outlet southwards was in Quebec a little east of the Ontario boundary, between Mattawagogig or Island lake, draining into Abitibi, and Opasatika lake draining into the Quinze lakes near the headwaters of Ottawa river. There has been no careful study of this low pass, which McOuat described briefly in the Geological Survey report for 1872-3.[20] From his account and from a reference by Professor Parks

[20] p. 123.

in the Geological Survey's Summary Report for 1904[21] it appears that the height-of-land portage is at least in part, over Huronian conglomerate, with comparatively high hills not far off. Sand and gravel and clay are mentioned as occurring in the region, but without sufficient detail to settle their character, as morainic or lacustrine.

The elevation of the pass is rather uncertain, McOuat giving it as 305 feet above Temiskaming, which he estimates at 612 feet above sea level, amounting to 915 feet. But later determinations of Temiskaming give from 592 to 578 feet at different stages, which would put the watershed at say 897 feet. On the other hand McOuat estimates that the portage is 60 feet above lake Abitibi, which is 877 feet above sea level at high water mark according to the latest railway surveys, giving 937 feet or somewhat less as the elevation. This outlet is now between 935 and 940 feet above the sea, according to Mr. White, Dominion geographer, which brings it about 100 feet below the present level of the higher shores of lake Ojibway referred to above. There has been, however, a large amount of differential elevation toward the northeast, as shown by the shores of lake Algonquin and the Nipissing Great lakes to the southwest, so that even the beaches from 1,000 to 1,050 feet may have been formed while the lake drained at its lowest outlet, and something should also be allowed for the depth of water in the river flowing out at this point.

At last there came a time when the melting ice front gave access to James bay, and lake Ojibway was drained. Probably the broad lobe of the Labrador ice sheet occupying the shallow bed of James bay was greatly thinned during the existence of lake Ojibway, and the last remnants may have disappeared very rapidly.

While the present sand and gravel deposits of the south shore of lake Ojibway stand 1,000 feet or more above the sea, they were formed at a much lower level, not more probably than 500 feet above the sea, which at that time reached as far up the Ottawa valley as lake Coulonge, where marine fossils have been found. There was a somewhat steep fall from the outlet to lake Temiskaming, and a gentler descent for the rest of the way to tide water.

Limits of Marine Submergence

When the ice vanished the whole region stood several hundred feet lower than now, and the sea reached 100 miles or more to the south and west of the present shores of the bay. Whether any portion of the bed of lake Ojibway was covered by the sea is uncertain. The marine deposits found along the various rivers are not known to extend to higher levels than about 450 feet as determined by Dr. Bell, while the fresh water clays and sands have not been described as reaching so low an altitude. If we take the northern limit of the clay belt mapped by the Department of Crown Lands as the northern boundary of the lake, the area covered by marine waters nowhere overlapped the old lake bottom except along the lower part of the Ogoki valley.

The enlarged James bay consisted of very shoal and muddy water, much like that of the present bay, where in many places canoes have to keep miles from shore to find a navigable depth.

At present most of the gently sloping plain surrounding James bay is covered with muskeg, owing to the poorly developed drainage, and except along the drier banks of the rivers is of a very hopeless character. There appear to be sand and gravel terraces northward of the clay belt however in some places, as along the Abitibi river between the long portage and Sextant rapids,[22] which would indicate successive stages in the rise of the land after the burden of ice was removed. Whether the James Bay region has continued to rise during historic times is a contested point. Dr. Bell favoring this view and Mr. Tyrrell opposing it.

On the accompanying map the southern limit of marine shells so far as known is indicated, the boundary being taken chiefly from various reports by Dr. Bell.

[21] p. 220.

[22] G. S. C., 1902-3, pp. 233-9A., W. J. Wilson.

CLASSIFICATION AND NOMENCLATURE OF ONTARIO DRIFT

BY A P COLEMAN

The word "drift," as applied to the loose materials of the Pleistocene, is always used in the singular in America; though from the variety and complexity of the deposits grouped under the term, the English usage of "drifts," in the plural, might seem more appropriate.

In the Province of Ontario the drift deposits are extraordinarily complex in their relationships as now worked out, and correspondingly difficult to correlate and classify. The only serious attempt to bring them within the limits of a classification is that of the Geology of Canada,[1] where a map is given with colors for subdivisions named partly from localities and partly from characteristic fossils. The scheme is as follows:

III.

Shell marl, calcareous tufa, peat.
Ochres, bog iron and manganese ores.
Modern alluvions.

II.

Western Canada.	*Eastern Canada.*
2. Algoma sand. Artemesia gravel. Saugeen fresh water clay and sand.	2. Saxicava sand.
1. Erie clay.	1. Leda clay.

I.

Boulder formation or glacial drift.

This classification was cautiously put forward and was evidently not looked on as final, though it served a useful purpose in the earlier studies of our Pleistocene geology. Now, however, it has become a serious stumbling block, since it is not based on real relationships either of time or origin. Its basis is lithological rather than geological, and even the lithology does not always hold.

The lowest division, the "boulder formation or glacial drift," is now known to be far from a unit, since boulder clays of three or four ages occur in the Province. The subdivisions of No. II., so far as eastern Ontario are concerned, are fairly satisfactory; but those of western Ontario are badly confused, each of them containing deposits of several different origins and ages.

At the time when the classification was framed, the long and complicated Pleistocene history of the region had not been worked out, and the lithological method adopted was, of course, the only possible one.

Now, however, the broad lines at least of the history are well known, and it is certainly desirable to arrange a classification in accord with the historical facts.

[1] 1863, pp. 887-917.

Pleistocene History of the Region

Glacial and Interglacial Periods

The series of events in the Pleistocene history of the region of the St. Lawrence and the Great lakes may be rapidly run over in order to furnish a basis for constructing a suitable classification of the deposits themselves.

In Ontario the last division of the Paleozoic and the whole of the Mesozoic and Cenozoic are a blank, up to the beginning of the Pleistocene, which may be dated at the advance of the earliest ice sheets of the Glacial Period.

It is probable that the vast mantle of weathered materials resulting from the long dry land conditions has been completely removed by the glaciers advancing from the north and northeast, and is now represented only in the immense drift deposits of southern Ontario and the states to the south. Up to the present no remnant of preglacial deposits later than the Devonian is known.

The succession of ice advances has not been worked out so completely for Ontario as for the northern United States, where the different sheets of till with their intervening soils or stratified interglacial beds have been pretty satisfactorily distinguished, partly by their order of superposition and partly by the more or less complete weathering of the boulder clay.

So far as known the oldest ice advance recorded in Ontario, that which formed the till overlying the Hudson shale at Toronto, corresponds to the Illinoian of the American geologists. After this comes the great interglacial period of the Toronto formation; followed by a glacial advance probably corresponding to the Iowan. Then another interglacial break intervenes, worked out especially by Dr. A. W. G. Wilson, which may be called the Clarke Interglacial Period from a locality where he found it well developed. The last of the ice advances is apparently without doubt the Wisconsin, which has left the main imprint on the topography of the region.

It will be seen from the above outline that the "boulder formation" or "glacial drift," as shown along lake Ontario is very complex in origin, and must really be split up into several formations resting more or less unconformably on one another, and requiring for their deposit a lapse of time running probably into hundreds of thousands of years.

The history as given above applies especially to the region of Toronto and Scarboro' Heights, where the main succession has been worked out by Dr. Hinde[2] and the present writer[3] and the later part largely by Dr. Wilson.[4]

An almost equal complication is found along the north shore of lake Erie, where in many places cliffs of 100 or 150 feet disclose 2 or 3 beds of boulder clay with one or two interglacial beds; and also in the results of well drilling in the southwest peninsula.

It may be taken for granted that the last glacial deposit in all its manifestations, as boulder clay, morainic ridges or kame gravels, belongs to Wisconsin time.

Glacial and Post-Glacial Lakes

As the Wisconsin ice sheet slowly thawed from Ontario, various bodies of water followed up the glacial front, first lake Warren over part of the basins of the Upper lakes, then lake Algonquin covering most of their area, while lake Iroquois occupied the basin of lake Ontario for at least part of the time; and finally the Nipissing Great lakes, no longer ice-dammed, covered practically the same area as lakes Superior, Michigan and Huron.

[2] Trans. Can. Inst., Vol. VIII., Part I., pp. 11-21. [3] Canadian Journal, Apr. 1877, pp. 3-28. [4] Interglacial Periods in Canada, Mexican Geol. Congress.

When the ice had completely left the St. Lawrence region, the land stood much lower than now, and eastern Ontario was covered by an expansion of the Gulf of St. Lawrence as far as Brockville on the St. Lawrence and lake Coulonge on the Ottawa. Its waters rose above the level of what is now lake Ontario, which was however kept fresh by the large volume of water poured in by Niagara river. Professor Fairchild has named this body of water Gilbert gulf.

All these bodies of water formed appropriate deposits; gravel bars and beaches along the shores, especially cutting off bays, stratified sand on lower slopes, and laminated clay in the deeper waters. As the successive lakes sank to lower and lower levels, by the change of outlets and the continuous uplift of the land to the northeast, it is evident that the deep water deposits of the older lakes would be buried beneath those of the later ones, but that the shore deposits, especially along the north shore, represented roughly by the divide between the Great lakes and James bay, would have a different order of succession, the highest being the oldest and the lowest the youngest. The marine deposits of eastern Ontario are still lower and on the whole the youngest of all, though they probably began before the end of the Nipissing Great lakes. Ultimately, as the land rose to the northeast, lake Ontario was cut off from the Gulf of St. Lawrence, which slowly withdrew to its present position, and modern conditions began.

Events since the formation of lake Ontario may be looked upon as recent. They include the cutting of river valleys, the formation of deltas, the filling of small lakes with sediment or peat, etc.; and correspond to division III. in the Geology of Canada.

Nomenclature and Correlation of Pleistocene Deposits

From the historical sketch given above it will be seen that our drift includes at least three sheets of boulder clay, two sets of interglacial sands and gravels, the shore and deeper water deposits of four extinct lakes, and in eastern Ontario marine deposits. In the classification given in the Geology of Canada the last subdivision, that of the marine deposits, is perhaps sufficiently provided for in the terms "Leda clay" and "Saxicava sand"; though possibly certain shell-bearing gravels containing saxicavas, formed upon or against morainic or kame-like ridges in eastern Ontario, might receive a separate name.

The freshwater and glacial deposits however are quite inadequately treated. The "Boulder formation" may be looked on as representing the Wisconsin, or last, sheet of till; but the earlier boulder clays and the interglacial beds are not distinguished at all.

The term Erie clay is applied in the Geology of Canada to a blue clay, partly stratified, but referred to as almost always containing pebbles and stones, often striated. In the field it seems to have included interglacial, partly stratified glacial, and also post-glacial, lacustrine clays, which, from the description have the common features of being blue and calcareous, often with too much lime to burn for brick. In origin, these clays include deposits made in several of the glacial lakes, such as Iroquois and Algonquin.

The Saugeen clay seems from its description to be weathered lacustrine clay, brown and burning to red brick. In some places it is merely the upper 3 feet or so of weathered clay above the blue unweathered Erie clay; in others it is said to be unconformable and to have a bed of sand between it and the Erie clay. From the localities mentioned it must be of several different ages. In the map of "Superficial Deposits" no color is assigned to the Saugeen clay, which is evidently looked on as simply the upper section of the stratified Erie clay.

The Artemesia gravel as mapped includes partly kame gravels of the morainic ridges crossing southern Ontario, and partly old beach gravels, especially of lakes Warren and Algonquin.

The Algoma sand consists mainly of old delta sands, etc., of lake Algonquin and the Nipissing Great lakes, but probably includes also some overwash deposits from the front of the Wisconsin glacier.

Classification

It is probably best to discard all the terms used in the 1863 classification rather than to try to adjust them to new meanings, and the writer suggests that names derived from the ice sheets and bodies of water which formed the deposits be used instead. The following scheme is framed with that in view:

	In S. Western Ontario.	In E. Ontario.
	Recent Deposits.	*Recent Deposits.*
Lacustrine	Nipissing clay, sand, and gravel. Algonquin clay, sand, and gravel. Iroquois clay, sand, and gravel. Warren gravels.	Marine: Saxicava sand and gravel. Leda clay.
Glacial	Wisconsin moraines. " till.	Wisconsin moraines. " till.
Interglacial	Clarke interglacial sands and clays.	
Glacial	Iowan till.	
Interglacial	Toronto formation: Scarboro beds. Don beds.	
Glacial	Illinoian till.	

The Illinoian and Iowan till sheets and the two interglacial deposits are well displayed along the north shore of lake Ontario, and probably occur also along lake Erie, but have not been distinguished elsewhere in Ontario.

In most cases we already have sufficient information to place any given Pleistocene deposit in its proper position in the classification just outlined, and the system is flexible enough to provide for new advances in our knowledge.

For Ontario north of the Hudson Bay watershed the classification would have to be modified in certain ways. Resting on boulder clay of Wisconsin age we have shore formations of lake Ojibway—Ojibway gravel and sand—to the south, merging northwards into Ojibway clay; beyond which are the marine clay deposits below 450 or 500 feet above James bay.—Leda clay or James Bay clay, as it may be called. The peat beds overlying the Ojibway freshwater and James Bay marine clays may be looked on as belonging to recent times, and so hardly require a separate formational name.

At present it might be difficult to prepare a map showing these various Pleistocene formations for all Ontario, but there is information enough at hand to map the Great Lakes region with fair completeness except where Algonquin Lake deposits have been overlain by later sands and clays of the Nipissing Great lakes. In that part of Old Ontario the relations must be very complex.

End of Part I.

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EIGHTEENTH ANNUAL REPORT

OF THE

BUREAU OF MINES, 1908

VOL. XVIII. PART II.

CONTENTS

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2. THE SOUTH LORRAIN SILVER AREA.

By A. G. BURROWS.

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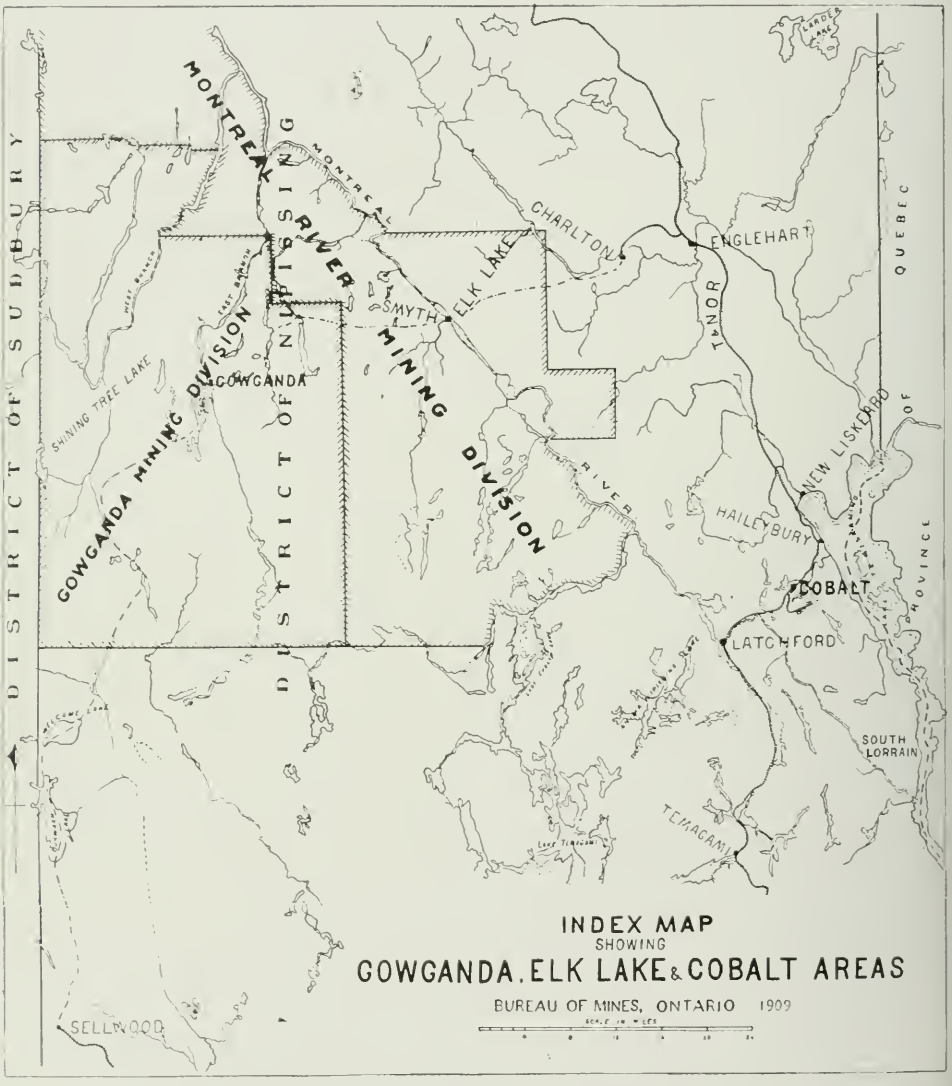
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SHOWING
GOWGANDA, ELK LAKE & COBALT AREAS
BUREAU OF MINES, ONTARIO 1909

The Gowganda and Miller Lakes Silver Area

By A. G. Burrows

Late in July, 1908, the writer was instructed by the Provincial Geologist to proceed to the newly found silver area in the vicinity of Miller lake and examine it geologically. Mr. W. F. Battersby and Mr. G. H. Lloyd acted as assistants and rendered efficient service.

After the promising areas in the vicinity of Elk lake, on the Montreal river, had been fairly well staked, prospectors pushed farther to the north and west, seeking other areas of promising rocks. During the summer of 1907, a belt of diabase was discovered to the west of Bloom lake, and extending south by Wigwam, Lost and Calcite lakes and north toward the East branch of the Montreal river. Smaltite and its associated bloom were found on a number of claims in that year, but very little indication of native silver. In the following winter and spring, discoveries of native silver were made to the southwest of Leroy lake on the Leroy claims, and to the northwest of Miller lake. During the summer of 1908, native silver was found on several claims around Bloom

The Post Office, Gowganda, April 1909.

lake and between this lake and Miller lake. The most important finds, however, were those in the vicinity of Miller lake, where silver occurring in rich shoots, was found in the massive form on the Gates, Blackburn and Bonsall properties.

Later in the summer other promising finds were made on the Mann, Boyd-Gordon and other claims to the west of the northwest arm of Gowganda lake, and west of the south end of the lake on the McIntosh-McLaughlin and Reeve-Dobie claims. Unfortunately there was no opportunity to examine the country to the west of Gowganda lake

before the snow came. Following these discoveries there was a rush to the Gowganda area, and hundreds of claims have been staked to the west, towards Shining Tree lake, which is on the boundary of Nipissing and Algoma. Much staking was also done to the south of Calcite lake—in Lawson, Corkill and adjoining townships.

Situation and Means of Access

Gowganda lake, which may be called the centre of this new mineralized area, is almost directly west and a little south of the township of James, which is on the Montreal river. It is part of the water system of the East branch, a tributary of the Montreal river. The lake lies along the line of the townships of Milner and Nicol. A townsite has been established on the northeast bay of the lake and is known as Gowganda. Surveyed in February the town now has a population of several hundred.

The district is reached during the winter by two roads, one from Sellwood the present terminus, north of Sudbury, of the Canadian Northern railway, distant about 70 miles from Gowganda, and another from Charlton, on the branch line from Englehart on the Temiskaming and Northern Ontario railway, a distance of 54 miles. During

Charlton Depot, Terminus of branch line of T. & N. O. R. from Englehart, March 1909.

the past winter both these roads were taxed to their utmost in transporting supplies, mining machinery, etc., to the new camps At one time, it is estimated, there were 650 teams hauling freight and passengers on the Charlton road alone, and on the Sellwood road over 200 teams. On the Charlton road the freight charges were at first $2.50 per hundred pounds, but this was increased toward the end of the season to $4.50, and just before the break-up $100.00 per load was charged for the trip to Gowganda.

To meet the needs of the district a wagon road is being laid out from Elk lake to Gowganda, and this will be utilized in conjunction with the steamboat lines from Latchford to Elk lake. The steamboat route is about 50 miles in length, and in this distance three portages are made—at Pork Rapids, Flat Rapid and Mountain Chute.

The canoe route to Gowganda is by way of the Montreal river. Small gasoline launches may be utilized as far as Indian Chute, beyond which canoes must be used, following the main Montreal river to the junction of the East branch, and this latter stream directly to Gowganda. There is a shorter and more travelled route by a one and a half mile portage from the Montreal river, at a point about 12 miles above the town of Smyth, into Stony creek, and following up this stream to Stony lake and a chain of smaller lakes connected by short, rapid streams, to Portage lake. At the north end of this lake a 50-chain portage westerly brings one to the East branch. Everett, Miller and Leroy lakes are best reached by travelling south on Portage lake and following the route by way of Bloom lake. The portage routes referred to are shown on the accompanying geological map.

A good trail by way of Leroy and Miller lakes connects Lost and Gowganda lakes. Another trail, one and a half miles long, connects Miller and Everett lakes. From the west end of Everett lake a trail may be followed to Obuskong lake.

On the Charlton-Gowganda winter road, first roadhouse west of Silver Lake, April 1909.

The East branch of the Montreal river from Smoothwater lake to the main Montreal river has been described by Dr. Robt. Bell in the Report of the Geological Survey of Canada (1875-76,) and again by Mr. J. L. R. Parsons in the Report of Survey and Exploration of Northern Ontario (1900). Gowganda is called Lady Dufferin lake in Dr. Bell's report.

Topography

The surface of this area is very rough and broken. Rocky ridges and swampy depressions are characteristic of much of the country. Over a great part of the surface there are the usual glacial and other superficial deposits, consisting chiefly of sand and gravel, which support a good growth of spruce, jack pine, poplar, birch and balsam. In limited areas there is also white and red pine. Much of the area between Lost, Wigwam and Bloom lakes and Gowganda has been partially burned over during the past year.

In the area between the west branch of the Montreal river and Long Point lake the main ridges have a north and south trend. In this distance there are several chains of lakes and streams which divide the main ridges. The water of this area flows

to the north toward the Montreal river. The chains of lakes include: (1) Gowganda, Burke, Edith and Obuskong lakes; (2) Calcite, Lost, Wigwam and Bloom lakes; (3) Long Point, Eagle, Pike, Birch and Portage lakes. The waters of the last two chains drain into the Montreal river by way of Stony lake and Stony creek.

In a general way it is also found that the diabase occurrences have their greater extension in a north and south direction.

Classification of the Rocks

The rocks of this area include a number of types from the post-Middle Huronian to the Keewatin, and may be tabulated as follows:—

POST-MIDDLE HURONIAN

Diabase

Igneous Contact.

HURONIAN

Quartzite, arkose, greywacke, conglomerate and slate.

Great Unconformity.

LAURENTIAN

Granite, syenite, gneiss, intrusive into the Keewatin but not into the Huronian.

Igneous Contact.

KEEWATIN

An igneous complex, consisting generally of altered basic igneous rocks, together with some acid porphyries.

On the Charlton-Gowganda road. An open spot on Lost lake.

Winter road across Gowganda lake with the town in the distance, April 1909.

A street scene in Gowganda, March 1909.

A street in Gowganda, April 1909.

Post-Middle Huronian Diabase

In the exploration of the Montreal river and Temagami Forest Reserve areas it has been found that the discoveries of native silver are confined chiefly to the diabase, unlike the area at Cobalt, where the great majority of silver finds have been made in the conglomerate. In this north country, however, it is not wise to overlook the conglomerate and Keewatin areas, for important finds have been made in these formations in the vicinity of Miller lake, and notably on the Blackburn claim, where a vein carrying smaltite and native silver has been found in the conglomerate, near a contact with the diabase. It is reported on reliable authority that native silver has been discovered in the Keewatin area immediately east of Leroy lake.

In appearance and texture the diabase of this new area is quite similar to that of Elk lake, Cobalt and South Lorrain, and all are evidently of the same age. It is usually very fresh in appearance and rather coarse-grained where the outcrop is of any extent. Where very coarse-grained it is usually called gabbro by the prospectors.

Dog team on Gowganda lake.

Much of the diabase in the extensive area to the southwest of Bloom and Wigwam lakes has the appearance of a large sill or sheet. On the southeast shore of Shanty lake the relationship with the Huronian slate is clearly seen. Along the south line of M. R. 723, the diabase lies directly on the slate with almost horizontal contact. The line of contact is hardly recognizable where the formations are fused together, but within a few feet in a vertical direction the diabase assumes its normal appearance. To the south toward Irene and Sigs lakes the diabase is elevated in a range, several hundred feet in height, but on these lakes similar slate is seen at a lower level, and it would seem that it bears a like relationship to the diabase on Shanty lake. There is no evidence of a surface flow in the diabase. South of Irene lake there are some patches of conglomerate lying directly on the diabase.

Much of the diabase associated with the Keewatin greenstones and porphyries to the southwest of Everett lake occurs in dike form, usually striking north and south. The rock is usually finer-grained than in the larger areas, and the diabasic texture is more prominent.

A thin section of a diabase from the north line of H. F. 204, shows a typical ophitic texture. The plagioclase (labradorite) occurs in rods set in the augite, which is partially altered to green hornblende. Quartz in micrographic intergrowth with feldspar fills the interstices.

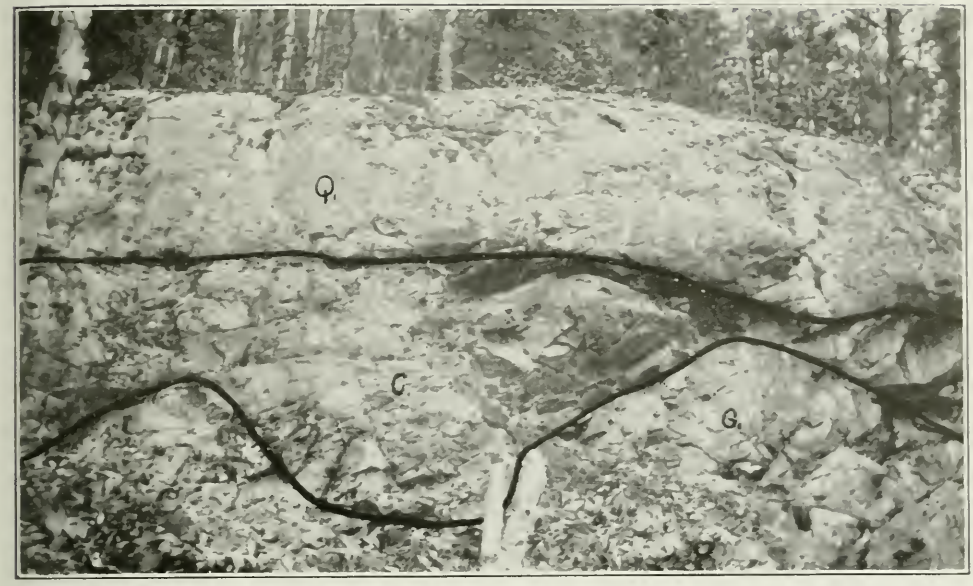
The descriptions of the diabase in Dr. Miller's report on the Cobalt area apply to the diabase of this area, and the reader is referred to that report for an extended description of a number of sections from different localities.

In the vicinity of Lost lake, particularly to the west, there is an extensive development of a reddish phase of the diabase. It is always associated with the normal diabase and in places would appear to shade into this latter rock. It occurs in a number of shades of red and brown, and is at times almost indistinguishable from the normal diabase. Some of the darker varieties have a diabasic texture and the light red varieties are quite granitic in appearance with abundant free quartz. A micropegmatic intergrowth of quartz and feldspar is very prominent in several sections of this acid phase. In composition and appearance much of the more acid portions are very similar to the narrow aplite dikes, which in portions of the area are found

mineralized with native silver. On the east side of Lost lake and on the south line of M. R. 679 this acid phase is prominent. A section of a rather coarse-grained, reddish brown sample is seen to be largely composed of a micrographic intergrowth of quartz and feldspar, which is developed around stout phenocrysts of acid plagioclase. On the outer edge of the intergrowth are grains of quartz. In very minor quantity the ferromagnesian mineral is seen to be chlorite.

At a number of points are dikes of porphyritic diabase with phenocrysts of plagioclase up to two inches in length. A striking example occurs on the north line of E. D. 2, to the north of Bloom lake, where in a dark diabasic matrix are thickly studded crystals of light-colored, finely striated plagioclase. It is also seen on the east side line of H. F. 208, and the south line of M. R. 1059, south of Everett lake.

About 200 yards south of Bloom lake and near the creek, the diabase intrudes Laurentian granite. It may be seen intruding Keewatin schist at Cartwright's camp on Everett lake.



Photo—W. F. Battersby.

Contact of Laurentian and Huronian, east shore of Bloom Lake.
(G) granite, (C) angular and rounded fragments of granite, (Q) quartzite.

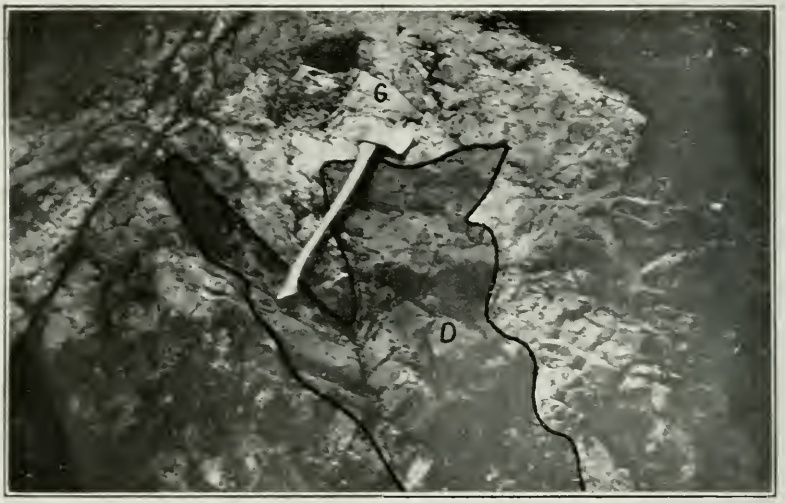
Photo—W. F. Battersby.

Contact of Huronian slate (H) and post-middle Huronian diabase, (D) Bulsh Lake.

Huronian

The rocks of this formation occur over a considerable part of this area, and consist of greywacké, conglomerate, slate, quartzite and arkose. In the unmapped portion between Bloom and Wigwam lakes and Silver lake these rocks are prominent, as seen along the winter road from Hubert lake to Bloom lake, and the road from Silver lake to Wigwam lake. These rocks are comparatively undisturbed and the prevailing dip is easterly at a low angle. On the east shore of Bulsh lake the slates dip to the south as well as to the east. On the west shore of this lake, in a small area, the slates have been much broken and recemented in a mosaic-like form.

Much of the area between Everett and Miller lakes is a conglomerate, shading into quartzite in places. Along the east side of the Laurentian shown to the north of Everett lake, there is usually a thin strip of conglomerate, which, near Bulsh lake, is overlain to the east by quartzite and slate in ascending order. North of Bloom lake the slates, which strike N. 20° W., are overlain by coarse boulder conglomerate, which has an extensive development to the northeast of the lake and at its outlet.



Photo—W. F. Battersby.

Granite (G) intruded by post-middle Huronian diabase (D) south of Bloom Lake.

The area immediately east of Bloom and Wigwam lakes is largely reddish quartzite and arkose. Farther south, reddish slates are prominent. Medium-grained arkose, of different colors, is seen to the northwest of Calcite lake. At one place translucent quartz and pinkish feldspar are the prominent minerals.

In the vicinity of lake Irene, to the east, the chief rock is reddish banded slate. About one mile east of the northwest corner of Lawson on the west shore of a small lake, the slate is very ferruginous, showing on analysis 7 per cent. of soluble ferric oxide. To the west this passes gradually into a normal slate.

Laurentian

The formation has a great development to the west of Bloom lake, from the East branch southward to Everett lake. Toward the north the rock is a rather coarse, reddish, hornblende granite. In thin section it is seen to be a hypidiomorphic mixture of quartz, orthoclase, acid plagioclase and green hornblende, with a little sphene, apatite and magnetite as accessory minerals. Toward the south the quartz becomes deficient and the rock passes into a hornblende syenite, which is seen around

Everett lake. Just east of Cartwright's camp on Everett lake the syenite intrudes the banded Keewatin hornblende rocks. There is much intermingling of the two formations and the line of contact is not marked. Both these formations are cut by dikes of later diabase. About a mile and a half south of Miller lake a small area of Laurentian occurs, consisting of a porphyritic syenite with phenocrysts of feldspar. This rock is older than the Huronian, as the quartzite in the vicinity carries fragments of the syenite. In thin section much of the feldspar is in idiomorphic crystals, some of which show a zonal structure due to the regular arrangement of included minerals. The ferromagnesian mineral is green hornblende, and there is a little biotite, partially altered to chlorite. Quartz is present in small grains. Reddish granite occurs in small areas on the east and west shores of Bloom lake, south of the narrows. On the east side it is cut by some narrow dikes of diabase. The narrow band of granite to the east of Bloom lake is overlain by Huronian quartzite.

To the west of Shanty lake a small area of hornblende gneiss is seen.

Photo—W. F. Battersby.

Keewatin (K) intruded by diabase (D) east of Cartwright's camp, Everett Lake.

Keewatin

The formation is represented for the most part by basic igneous rocks, more or less metamorphosed. They are both massive and schistose. Where schistose or banded, the rocks are always found to be highly tilted, and for this area some of the fine-grained varieties may be thus distinguished from similar rocks in the Huronian, which lie at a comparatively low angle. The schists are often crumpled and folded, and in places pass into more massive varieties.

A somewhat massive rock is seen to the north of Miller lake, and has a greenish weathered surface. A sample of this rock from the south line of R. S. C. 87 shows in thin section to be essentially fibrous and scaly green hornblende. To the east of this lake there is much hornblende and chlorite schist. These older rocks are much intruded by dikes of diabase, which are difficult to distinguish as to age.

To the west of Leroy lake, the greenstone is much altered and has a dull green color and mottled appearance. A section of a rock from the shore shows much chlorite, epidote in grains and veinlets, fibrous hornblende and other secondary minerals. Part

of the rock is schistose. On the north side of a small lake just west of Leroy lake the banded rock has a strike of N. 65° E., and dips 70° N. This schist passes gradually into a massive greenstone.

Altered Feldspar Porphyry

About three-quarters of a mile south of Leroy lake some of the rock is an altered porphyry, much sheared and schistose in part. The phenocrysts of plagioclase are much crushed and broken. The ground mass is granular quartz and feldspar. To the west of this occurrence a small belt of very fissile green chlorite schists is seen, cut by small veins of white quartz.

Hornblende Schist and Amphibolite

To the southwest of Everett lake there are both schistose and massive Keewatin rocks. Just east of Cartwright's camp the rock is banded, breaking in plates nearly an inch in thickness. A section of the rock shows green fibrous hornblende to be the predominating mineral, with grains of epidote and zoisite and a little chlorite. The rock may be called a hornblende schist. Much of the more massive rock in this area appears to be Keewatin diabase and amphibolite. The rocks are cut by dikes of the later diabase.

Porphyry

About one mile southwest of Everett lake there is a considerable development of an ashy gray and white weathering felsitic rock. In some parts it is partially metamorphosed and in others quite massive. At times it is possible to see phenocrysts of quartz in hand specimens. A sample from the south line of R. S. C. 123, under the microscope, shows most of the phenocrysts to be quartz, with corroded and rounded outlines, and partially crushed. Some very ragged outlines of plagioclase are also seen. The ground mass is granular quartz and feldspar with small patches of chlorite. Much of the rock is evidently a quartz porphyry.

About one-quarter of a mile to the south a small outcropping of banded iron formation is to be seen.

The porphyries are much cut by dikes of diabase with strike about north and south.

Working Properties

In the early part of April, 1909, the writer visited the new camp, to see what development had been done at the various properties. Owing to the distance from the railway, much time was spent by the operators in obtaining camp supplies, machinery, etc., over the winter roads from Sellwood and Charlton. Commodious camp buildings have been erected at many of the properties. Almost all the necessary supplies were obtained before the breakup.

The installation of power plants and mining machinery was being proceeded with at several properties. Some mining, consisting in sinking shafts and making open cuts, had been accomplished and at most of the claims visited, some shipping ore had been bagged.

To the west of Gowganda lake all the discoveries examined are in the diabase, which occurs as a narrow band, intruding rocks of the Huronian.

The following is a description of several of the most promising properties in this area:

To the Northwest of Miller Lake

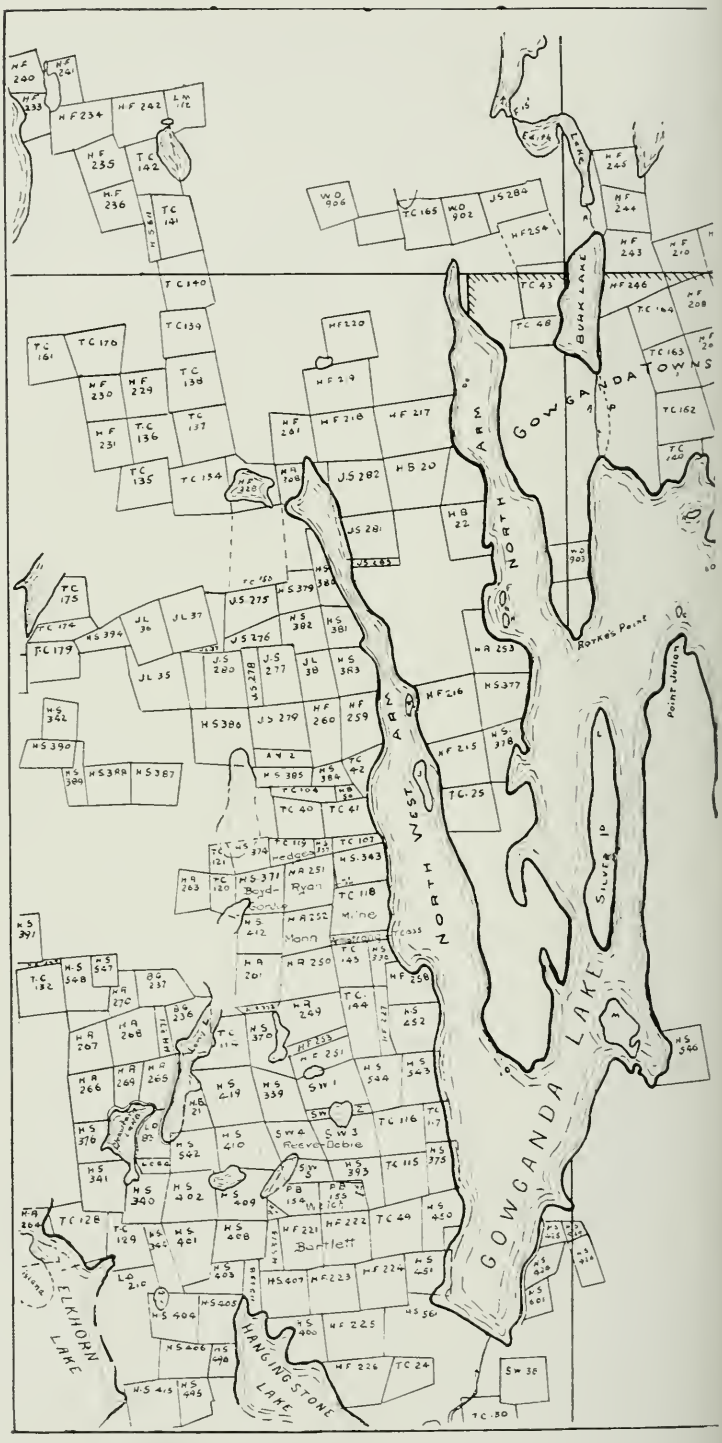
On R. S. C. 82, 83 and 84, known as the Bonsall claims, there are several veins carrying native silver. Most of the work had been done on a vein which crosses the line between 82 and 83. At the main shaft the vein has a strike of N. 42° E. In a pit about 50 feet to the east, it is seen to bend to the north. This vein has been stripped for about 100 feet and at several points showed native silver. On the surface

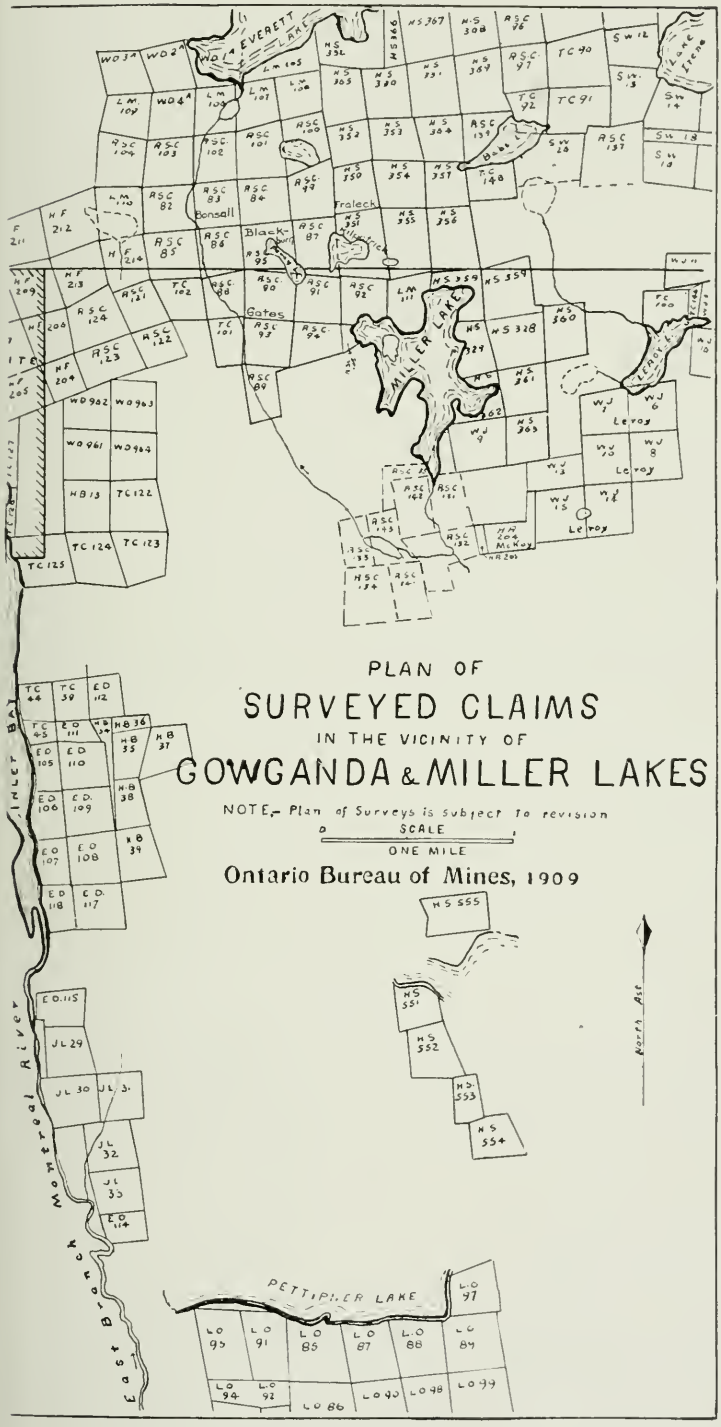
the silver appears to be highly crystallized, and occurs in a black decomposed substance, evidently an oxidation product of cobalt and nickel ores. The vein would average about an inch in width. A shaft, (8 × 5 inside the timbers), had been sunk about 25 feet. The vein dips to the northwest, at a high angle, and the diabase appeared to be much broken. The vein is not uniformly strong, but is broken in places. Some rich ore was showing at the bottom of the shaft at the southwest end. In the pit, which was about 9 feet deep, two veins are seen. The south vein strikes N. 63° E., and widens in places

Open cut Blackburn claim, northwest of Miller Lake, April 1909.

to four inches. The ore is smaltite, niccolite, native bismuth and some native silver. The gangue is chiefly calcite with some quartz. To the north of the pit, the vein showed for a few feet, some very rich ore, consisting of silver and smaltite, about 2½ inches in width. From these veins about 30 sacks of shipping ore (apparently high grade) had been taken.

On R. S. C. 84 a shaft has been sunk about 22 feet on a vein which showed native silver on the surface. The rock at the veins is post-Middle Huronian diabase.


GOWGANDA LAKE
NORTH ARM
WEST ARM
BURNT LAKE
GOWGANDA TOWNS
Rotke's Point
Point Julian
SILVER I.
ELKHORN LAKE
HANGINGSTONE LAKE
Bartlett
Reeve-Debie
Wilcox
Boyd-Ryan
Hedges
Mann
Milne


PLAN OF
SURVEYED CLAIMS
IN THE VICINITY OF
GOWGANDA & MILLER LAKES
NOTE.- Plan of Surveys is subject to revision
SCALE
ONE MILE
Ontario Bureau of Mines, 1909
EVERETT LAKE
MILLER LAKE
Bonsall
Tralee
Black
Gates
LEASE
Leroy
INLET BAY
Montreal River
East Branch
PETTIPIER LAKE
North Arm

On these properties a 4-drill compressor plant was being installed.

On R. S. C. 85 (Blackburn) veins have been found in the conglomerate, as well as in the diabase. An open cut, about 75 feet in length, had been made on the vein in the conglomerate. This vein, with strike N. 43° W. is on the hanging wall. It dips about 70° to the southwest, and would average about an inch in width. In places it widens to from 4 to 6 inches. Native silver has been found at points in the vein, associated with smaltite, and occurs as sheets and nuggets, some of the latter being several inches in length. The conglomerate near the vein is thickly studded with pebbles and boulders.

On a narrow vein in the diabase, toward the west side of the claim, a shaft had been sunk to a depth of about twenty-two feet. About 30 sacks of shipping ore had been taken from the workings on this property.

Two 3-drill compressors were being installed on the property.

On R. S. C. 90, (Gates claim), two shafts had been started on veins showing native silver. These veins or fissures had been trenched for several hundred feet, and occur in the diabase. The silver ore occurs in bunches, associated with smaltite, at points along the vein. The chief gangue is calcite. The east vein has a strike of N. 5° E., and, in the cut for the shaft, appeared to be about 3 inches in width. The other vein to the west strikes N. 25° E. at the shaft. Here it is rather strong and on the foot wall shows a width of about four inches in places. On the hanging wall is another vein of calcite and quartz about 2½ inches in width, showing some silver and smaltite.

Two 50-h.p. boilers and a six-drill compressor were being installed.

On H. S. 350 and 351 (Fraleck and Kilpatrick claims) is a strong smaltite-niccolite vein, which is probably the best defined vein in the camp. At one point there is a width of 13 inches of massive smaltite and niccolite. The fissure narrows in both directions from this widest point. The vein strikes N. 6° E. A twenty-foot shaft had been sunk on the Fraleck claim near the line. An abundance of cobalt and nickel bloom was taken from the surface of the vein. Small crystals of chloanthite are seen in some of the ore.

The rock in the vicinity is conglomerate, but immediately at the vein it has more the appearance of a quartzite. This vein or crack has been trenched for several hundred feet.

Properties West of Gowganda Lake

On H. S. 371 ((Boyd-Gordon) more mining had been done than on the other claims. On this property there are several veins, showing silver and smaltite, and with nearly east and west strike across a diabase ridge. A shaft had been sunk 42 feet on what is known as No. 3 vein. This vein strikes N. 85° E. at the shaft. The shaft is a 11×9 two-compartment. Ore was taken from three veins which showed in the shaft. These were not continuously rich in ore or constant in width. An open cut was made on the veins to the west of the shaft, with the following dimensions: Length 54 feet, width 6 feet, and height 17 feet. From these working about ten tons of shipping ore had been sacked. Some of this ore, examined by the writer, appeared to be high grade. One fissure or crack has been traced a distance of 250 feet.

Two 50 h.p. locomotive boilers and a six-drill compressor were being installed.

On H. R. 252 (Mann claim) the main vein is well exposed on the side of a bluff, with strike N. 82° E., and with dip almost vertical. The vein at this point is about 3 inches in width and at places shows a rib of native silver about one inch in width through the centre of it. The gangue has been leached from the surface of the vein, and slabs and nuggets of silver have been obtained quite free from other minerals. The vein appears to be the richest along the face of the bluff. Silver has been obtained at points over a distance of 100 feet. At 50 feet from the bluff a shaft had been sunk to a depth of 25 feet. This shaft was not examined by the writer.

Mining machinery, Boyd-Gordon, Gowganda Lake, April 1909.

Camp at Boyd-Gordon, Gowganda Lake, April 1909.

On the north, or Ryan claim, H. R. 251, a shaft had been sunk on what is reported to be a continuation of one of the Boyd-Gordon veins. About 50 sacks of ore had been obtained from the development of these claims.

A small steam plant, consisting of two 25-h.p. boilers and four steam drills, was being installed on this property.

On T. C. 119 (Hedges claim) a vein or fissure with strike N. 58° E., and about one inch in width has been traced several hundred feet. At one point for about ten feet, where it could be seen, the vein showed massive smaltite, in parts of which there was disseminated silver.

On T. C. 118 (Milne claim) the main vein or fissure strikes northwest, and had been traced about 150 feet. It appeared to be richest at the southeast end, where a pit about 8 feet deep had been sunk. In this pit for a few feet the vein is very rich in silver, which showed as a rib in the calcite. Here the vein is from one to two inches in width. In part of the vein the silver is replaced by argentite. At the northwest extension of the vein a shaft had been sunk about 15 feet, and a little silver was found.

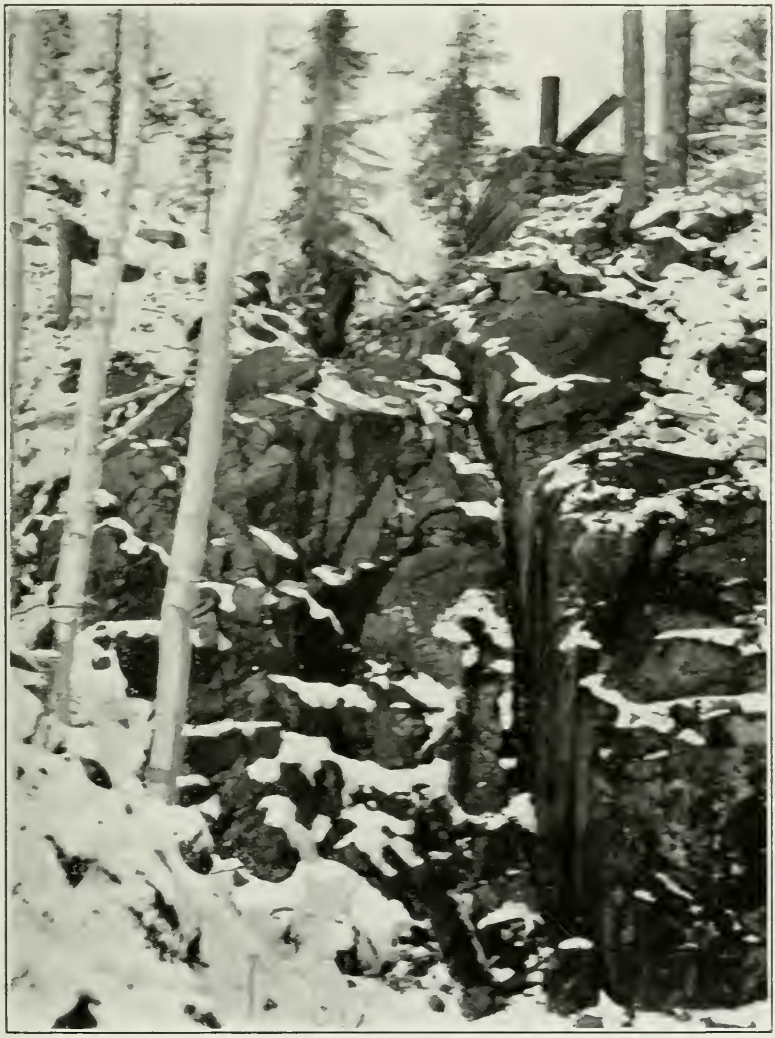
On H. S. 335 (Armstrong fraction) the pit where the vein might be seen, was filled with water.

Open cut. Boyd-Gordon, shaft in back ground, April 1909.

On claim H. F. 221, which is one of the Bartlett Mines group, some development had been done. Two 80-h.p. boilers and a 12-drill compressor plant were being installed on the property.

Where the shaft is to be sunk, a cut about 11 feet in length, 7 feet in width and 8 feet in depth had been made. The vein as shown in the cut has a strike of east and west, and could be seen at each end, and at the bottom showed some very high grade ore. In the small space where it was possible to examine the vein it appeared to be rather irregular, occurring as a number of rich shoots. At the bottom of the cut was a shoot about 3 inches in width and about 2 feet in length. Similar shoots or lenses were seen at the ends of the cut. To the southwest of the shaft, about 15 feet, was a rich showing of silver and smaltite exposed for a few feet. Some high grade ore had been sacked.

On S. W. 5, one of the Reeve-Dobie group, very little mining had so far been done. One shaft had been sunk about 15 feet, on a narrow vein, with strike N. 47° W. and showing some native silver and smaltite. To the east of this on another vein, with strike N. 40° W., a pit was down about 6 feet. In the pit were exposed several stringers carrying native silver and smaltite. Some very rich ore had been taken from



No. 1 vein, Mann mines, Gowganda Lake, April 1909.

this pit. About 100 feet above the pit, where the vein was exposed, there was about an inch in width of massive silver and smaltite ore. Below the pit about 200 feet there was exposed, for a few feet, a showing about 3 to 4 inches in width of exceedingly rich ore, from which a sheet of silver about the size of a hand protruded.

A ten-drill compressor plant was on the property, ready for installation.

On Leroy Lake

To the southwest of Leroy lake considerable development work has been done on the group of Leroy claims. A number of veins has been uncovered, which show in places some native silver. These veins have a strike of N.E. to S.W. and occur in the diabase.

Two shafts were down 50 feet and two others about 25 feet.

Conclusions

Considering the number of claims, on which high grade silver ore is to be seen, one must admit that this new area has possibilities. Up to the present time, however, there has not been sufficient development work for one to make any definite statements as to the future. The deepest shafts are not down over fifty feet, and no drifting on the

Mining machinery, Reeve-Dobie, Gowganda Lake, April 1909.

veins has been done. Any statements must be confined to the appearance of the shafts, surface indications and the amount of ore already taken out.

At several of the properties, high grade ore was seen in the shafts or pits. The veins are usually narrow, but widen in places to several inches, and in several instances were seen to pinch out in a few feet in depth or in horizontal extension. There is also a tendency for the high grade ore to be segregated in bunches over a few feet. This will necessitate considerable dead work in following tight cracks and lean portions of veins to other rich bunches or shoots.

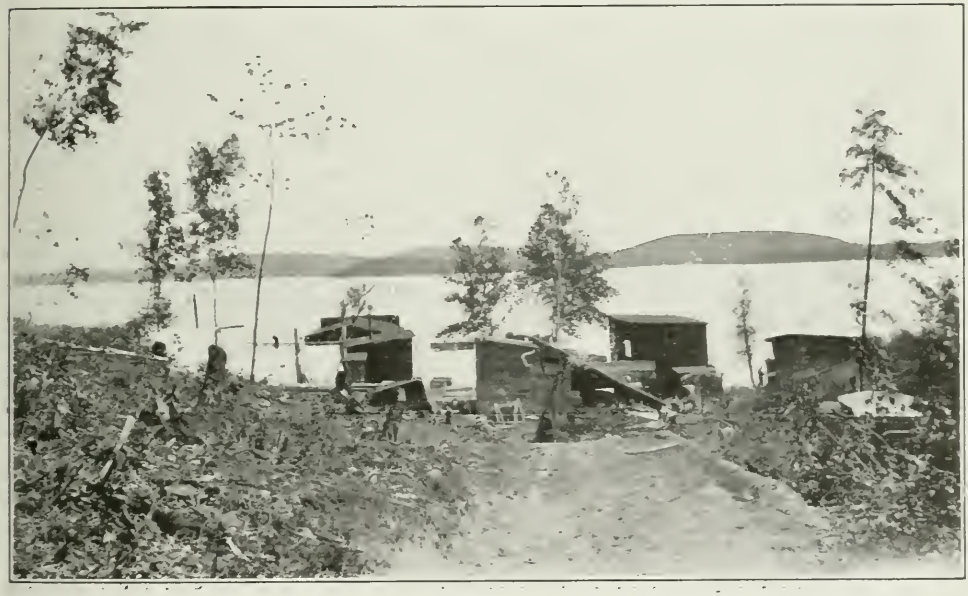
Costs per ton of ore will be much higher than in the Cobalt camp, and it will take some months' work to prove what profit can be made in working the veins so far discovered.

South Lorrain Silver Area

By A. G. Burrows

In May, 1908, the writer was instructed by the Provincial Geologist, to examine that portion of the unsurveyed area in the District of Nipissing, which lies south of the township of Lorrain, and north of the Montreal river. For this area, the name "South Lorrain" introduced by the prospectors, has been officially accepted. This area, together with five concessions of Lorrain township, are shown geologically colored on one map sheet. The mapping of Lorrain was completed by Mr. Jas. Bartlett and Mr. R. B. Stewart. The remarks in this report are confined to that portion known as South Lorrain.

This area first attracted attention in December, 1907, when a very promising discovery of native silver was made on a claim now known as the Keeley mine (H. R. 19). A rush followed this discovery, and soon almost the whole area was under staking as mining claims.



"666" on Lake Temiskaming, at the end of the Keeley mine road, July 1908.

The central portion of South Lorrain is about sixteen miles southeast of the town of Cobalt. The camp is most easily reached during the open season, by steamer from Haileybury, from which town it is distant about twenty-two miles. Communication is continued during the winter, over a sleigh road on lake Temiskaming. A government wharf has been constructed just north of the townsite of Sixty-six. From the latter place, a good wagon road extends westerly, by way of Loon lake, a distance of three miles, to the Keeley mine. Another road has been built by the Ontario government, just north of the wharf, and opens up another stretch of country. From these roads, old timber roads or trails may be followed to any part of the area. Lumbering has been carried on for years, so that almost all the pine has been removed. During the past season, serious forest fires destroyed much timber, which would have been suitable for mining purposes.

Topography

The surface of the country is very rough and hilly, and many small lakes lie in the depressions. The shore line is bold, and the hills rise abruptly from the lake. The

hills and ridges are very conspicuous surface features, and are generally found to consist of one geological formation. In consequence, the contacts are usually in the valleys and covered. This fact is well exemplified by a glance at the map, which shows almost all the lakes to lie in contact planes.

In following the road from lake Temiskaming to the Keeley mine, there is almost a continuous ascent. The shaft at the Keeley mine has an elevation of 571 feet and the bridge south of Loon lake an elevation of 323 feet. These elevations are relative to the level of lake Temiskaming on July 15th, 1908, when the water in the lake was higher than the average. The high water elevation of lake Temiskaming is 592 feet above sea level.[1]

Prospectors at Loon Lake, South Lorrain, July 1908.

Classification of Rocks

In this area, the formations are found to conform to the scheme proposed by Dr. W. G. Miller for the Cobalt area. The writer did not, however, see any unconformity between the quartzite-arkose series and the conglomerate-slate of the Huronian formation.

GLACIAL AND RECENT

Boulder-clay, sand, gravel, etc.

Great Unconformity.

POST-MIDDLE HURONIAN

Diabase.

Igneous Contact.

HURONIAN

Quartzite, arkose, conglomerate, slate, breccia.

Great Unconformity.

LAURENTIAN

Syenite, granite, intrusive into the Keewatin, but not into the Huronian.

Igneous Contact.

KEEWATIN

An igneous complex, chiefly basic igneous rocks together with acid porphyries.

[1] Dictionary of Altitudes. Department of Interior, Ottawa.

Glacial and Recent

Over considerable of the area, there is a covering of drift, carrying the usual glacial boulders. On the summits of the ridges, the drift is sometimes very deep. The rock exposures are usually found along the slopes of the hills, where the drift is thinner. On the shore of lake Temiskaming just south of the townsite, the fine-grained green rocks well preserve the glacial striæ. On the main shore, just opposite a small rocky island, the striæ are very striking, and are due south (magnetic). At other points along the shore, there is a little variation to the east or west of south.

In the cutting of the government road just east of H. R. 69, the clay shows a stratified arrangement. Clay hills are seen along the shore of the lake, to the mouth of the Montreal river. Five miles up the river, the clay hills are very high and much cut by deep ravines.

The total distribution of the drift is not shown on the map, but only where the working out of the contacts was seriously interfered with.

Photo—W. B. Macpherson.

Overlooking Lake Temiskaming from hill south of "666," South Lorrain.

Diabase (Post Middle-Huronian)

This formation has its greatest development in the central portion of the area, extending westward from lake Temiskaming, around the north end of Loon lake, southwest to the east side of Trout lake, and north almost to the Lorrain boundary. In this area it occurs as a very prominent ridge. A smaller area is seen in the northwest portion, where it is associated with the quartzite. In appearance and texture the diabase is very similar to that described in Dr. Miller's Report on the Cobalt Area, Third Edition, and is essentially a quartz-diabase. A thin section of diabase taken from near the contact with the Keewatin on Claim R. L. 471, shows a distinctly ophitic texture. Laths of plagioclase (labradorite) are embedded in a groundmass of augite, which is partially altered to greenish hornblende. Quartz in micrographic intergrowth with feldspar fills the interstices. A few grains of biotite and magnetite are also present. The feldspar is unusually fresh in the section.

A marked occurrence of the diabase is a dike, about five chains in width and traceable for two miles, intruding the quartzite. This may be seen east of G. F. 26,

and a short distance south of the Lorrain boundary. The dike is very fine-grained on either side, and towards the centre has the normal diabase appearance.

There are smaller patches of diabase in the basic Keewatin areas, and these are difficult to distinguish as to age. Some of them are undoubtedly of the same age as the post-Huronian diabase, but, owing to the difficulty of separation from the other rocks, are not shown on the map. A thin section of a diabase associated with the Keewatin on R. L. 468 shows rather fresh plagioclase set in the augite. The latter is greatly altered to green hornblende (uralite). Some grains of quartz are seen in the section.

Along the north line of G. F. 12 there is a reddish granitic rock, which is apparently of the same age as the diabase, and a separation from the same magma.

Contact with the Huronian

Just north of the Keeley mine road, and west of Loon lake, on G. F. 13, the intrusive diabase (to the west) overlies the Huronian slate, at a high angle.

Huronian

The predominating rocks are conglomerates and quartzites. The southern part of the area is composed essentially of conglomerates, varying considerably in appearance. The usual variety is that containing subangular and rounded boulders of granite, syenite and greenstone of varied size, in a groundmass of greenish chloritic material At the "Notch" of the Montreal river, the rock is a greywacké conglomerate. A peculiar conglomerate is seen about one-half a mile south of Oxbow lake. Here the boulder inclusions are very few, and the surface shows rounded, pea-like inclusions, harder and darker than the surrounding rock. South of Trout lake on H. R. 163, in a high rounded hill, coarse boulder conglomerate overlies well-banded slate. At the south end of the same lake and to the east, conglomerate and slate overlie the Keewatin, which shows in a bluff, and at a higher level than these in the post-Huronian diabase.

Greywacke

Just west of the No. 3 post of H. R. 34 is an outcrop of greywacké which overlies the Keewatin and is overlain to the west by conglomerate.

The greywacké, in thin section, is seen to consist principally of orthoclase, finely twinned plagioclase and calcite, and in subordinate amount, chlorite and quartz. A fragment of greenstone was noticed in the section. This greywacké, which is very deceptive in appearance, was mistaken by prospectors for fine-grained diabase.

Quartzite and Arkose

The quartzite and arkose have a great development in the north and west portions of the area. They are varied in color and texture, but are usually rather medium-grained, and the lines of stratification are not very noticeable. The prevailing colors are greenish, grayish, and reddish, and, in this area, the green variety is usually rather friable, whereas the red variety is hard and compact. These varieties seem to pass gradually one into the other on the same ridge. The chief constituents are quartz and feldspar, which are occasionally present in large angular fragments. The green color is due to the presence of sericite, an alteration product of feldspar, and was first noticed in the sea-green quartzites along the shore of lake Temiskaming. When the rock is coarse it is difficult to distinguish in the field from granite, particularly when the red feldspar is present.

In this area the prevailing dip of the Huronian rocks is to the west, varying to the northwest. Near the No. 1 post of L. O. 144, the slates dip to the west at an angle of 20 degrees. One mile west along the Keeley road from lake Temiskaming, and on H. R. 30, the slate and quartzite strike northeast and southwest and dip to the

northwest. In the northwest portion of the area, near the No. 4 post of T. C. 77, the slates and quartzites dip to the southeast.

A breccia *in situ* is seen just east of No. 1 post, R. S. C. 68. It is composed entirely of small angular fragments of greenstone, which is seen in place to the south. This is the lowest portion of the Huronian seen in this area.

West of the Keewatin area, which is shown to the north of Trout lake, the Huronian rocks have been laid down in the following order. The Keewatin is usually overlain by a conglomerate, sometimes slaty. Above this, there is a narrow band of reddish banded slate, rather quartzose toward the upper portion, and overlying the latter there is a large area of quartzites and arkoses, with very little evidence of stratification. The breccia, mentioned above, was only noted at the one point in a very small outcrop.

Laurentian

The Laurentian is represented in the northeast portion of the area, by a reddish hornblende syenite, in which flesh-colored feldspar and greenish black hornblende are easily recognized. In thin section, in addition to the orthoclase, there is abundant acid plagioclase and microcline. The hornblende is the common green variety, very pleochroic, and shows the distinctive prismatic cleavage and angles of the amphiboles. Quartz is present in smaller grains than the feldspar, and is not prominent enough for a granite. Sphene and magnetite occur as accessory minerals.

Throughout the syenite are rather rounded patches usually darker in color, but which are composed of the same constituents. These are basic secretions from the original magma, formed during the process of cooling. There are also some very small patches which are apparently remnants of a conglomerate formerly overlying the syenite.

Where the syenite comes in contact with the Keewatin to the south, it is found to be younger, enclosing fragments of the greenstone, and occasionally intruding, for some distance, the older rock. On L. O. 153 the syenite is intruded by a very basic trap dike, ten feet wide and striking east and west.

Keewatin

The rocks of this series occur in several isolated areas. They are usually altered basic igneous rocks, both massive and schistose. The largest exposure extends N. N. E. from Trout lake for two miles. These are, in great part, greenish weathering rocks. The most typical portion is fine-grained, with a slaty appearance when fractured. Throughout the fine-grained rock are bands of coarser varieties, now much altered to amphibolite.

Just south of Loon lake on H. R. 57, the Keewatin is represented by very coarse massive amphibolites, which are highly mineralized with magnetite and iron pyrites.

Quite different in appearance from those above mentioned are the metamorphosed rocks three-quarters of a mile south of Loon lake, and extending from H. R. 114 to lake Temiskaming. These are seen as highly tilted bands, with a general strike a little north of east and almost vertical dip to the north. At the west end of this belt the prominent rock is light colored, weathering to an ashy gray. When freshly broken it has almost a cherty appearance and is exceedingly fine-grained. Locally it is much twisted and crumpled. Thin sections of two samples of this rock showed the original character to be entirely destroyed. The constituents are exceedingly fine-grained and secondary, consisting of quartz, feldspar, chlorite and hornblende or mica.

Folded in the bands of this schistose rock are small dikes of light colored porphyries, showing phenocrysts of reddish feldspar.

A thin section from one of these dikes, near the No. 1 post of H. R. 114, shows phenocrysts of orthoclase and plagioclase, traversed by numerous small veinlets of epidote and hornblende. The groundmass is a granular mixture of feldspar and quartz, with needles of hornblende. Other dikes of porphyry are much fresher in appearance and seem to be younger in age.

On following this belt to the east, the rocks become darker in color and more chloritic. On H. R. 186, is a typical chlorite schist, striking E. N. E., and dipping to the N. N. E. at a high angle. This rock breaks into curved cleavage plates, and is traversed by numerous small torsion cracks, filled with calcite. On H. R. 119 and 120 the schist is intruded by a large dike of white weathering porphyry with colorless phenocrysts of feldspar and quartz.

Small veins of quartz, impregnated with iron pyrites cut the schist in this vicinity. On H. R. 140 one of these carries low values in gold.

There is a belt of somewhat similar Keewatin rocks immediately south of Oxbow lake.

A scene on Lake Temiskaming, showing landing place in South Lorrain.

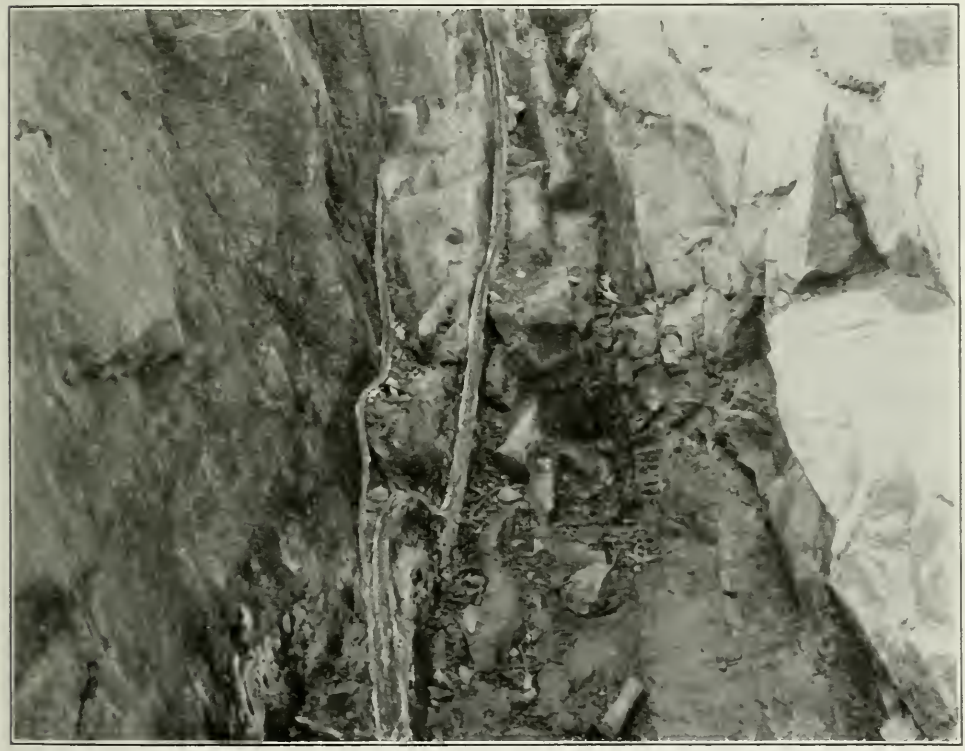
Keewatin West of Point Fine

The formation consists principally of rusty, metamorphosed, basic igneous rocks, which may now be classed as amphibolites. In several thin sections, the ferromagnesian mineral is shown to be green secondary hornblende. Just north of No. 1 post of R. L. 469, the amphibolite is much intersected by veinlets of rusty quartz and iron pyrites. These veinlets stand out very strikingly as a ribbed structure from the dark rock. A thin section of the rock shows it to consist of small rods and patches of green hornblende, partly in parallel arrangement, grains of epidote and clear secondary feldspar. The original character of the rock is obliterated. On H. R. 74 much of the rock is very fine-grained and intersected by veinlets of epidote and iron pyrites. A thin section shows the rock to be an alteration of a fine-grained diabase, as the ophitic texture is shown clearly in the rods of altered plagioclase. The albite twinning in the feldspar is occasionally seen. The augite has been altered entirely to green hornblende. A coarser grained rock, outcropping near the No. 1 post of R. L. 465, has resulted from

the alteration of a gabbro. The feldspar is now altered to saussurite minerals, and the pyroxene has changed to a very pleochroic green hornblende, now showing with ragged outline and bent forms. Only occasionally in this belt do the rocks show a schistose structure.

Discoveries

The principal discoveries have been made near the line of contact of the post-Middle-Huronian diabase and the Keewatin in the area to the north of Trout lake. Along this contact, usually within a quarter of a mile, discoveries of native silver or smaltite have been made in both formations. The Wettlaufer veins are in the diabase, whereas the Keeley veins are in the Keewatin. Toward the north end of this belt the discoveries so far consist of smaltite and niccolite. Small showings of native silver have



A vein showing in pit on the Wettlaufer property, South Lorrain, October 1908.

been found in other isolated areas of the Keewatin or diabase. The writer does not know of any discoveries of native silver in the conglomerate or quartzite, although both these rocks are seen in contact with the post middle-Huronian diabase. In this respect the conglomerate of South Lorrain resembles that around Elk lake, in which no native silver discoveries, as far as is known, have been made.

In the following is a description of a few of the promising veins on some of the properties:—

On the Wettlaufer claim, H. R. 85, there have been found three parallel veins with a strike N. E. and S. W. Of these, the two northerly veins have rich shoots showing native silver in sheet form, while the south vein carries smaltite with low silver values. The veins are narrow, but parts of them attain a width of six inches. Flake silver is shot into the diabase wall rock from one to three inches. The distance

from the north to the south vein is about ninety feet. A shaft is being sunk on the north vein and the intention is to crosscut to the other veins.

At the Keeley mine, H. R. 19, considerable development has been done. At the shaft on the main vein, No. 1, the strike is S. 62° E. The silver occurs in wire form, flake-like sheets and hair-like tufts, associated with smaltite in a gangue of quartz and calcite. Quartz is very prominent in the vein, and is associated with the best values.

The following additional information is supplied by Major Boyd Magee, superintendent of the property. "The main shaft on the original discovery has been sunk to a depth of 133 feet. At the 65-foot level, 220 feet of drifting has been done on the vein, and about 60 tons of shipping ore have been taken out and bagged. The shaft is in the Keewatin formation. Dikes of old diabase have been encountered. At a depth of 130 feet, a crosscut is being driven to catch the main vein which dipped from the shaft at a depth of 78 feet. Associated with the ore is more or less cobaltite. A sulphide of copper and silver, probably stromeyrite, has been found in the No. 1 vein. No. 3 shaft sunk on a cobalt vein has run into shipping ore at a depth of 30 feet."

Horse Whim, Haileybury Silver Mining Co., South Lorrain, 1908.

A sample of massive ore from a vein near the west side line of this property, analyzed by Mr. N. L. Turner, Provincial Assayer, shows it to be smaltite-chloanthite, with the following composition:

Cobalt	10.00%
Nickel	8.16%
Arsenic	68.72%
Sulphur	.42%
Silver	8.7 oz. per ton.

On H. R. 21 there are several calcite veins and one of them has shown on development native silver. This vein is near the east side line and strikes abont N. N. E. A shaft has been sunk to a depth of 40 feet. The gangue is calcite, which has a very fine

cryptocrystalline texture, associated in bands with quartz and decomposed material. Leaf silver, in small flakes, has been found across the vein, associated with smaltite, copper pyrites and native bismuth. Minute crystals of chloanthite are scattered through the gangue.

On H. R. 16 (Haileybury Silver Mining Company) the original discoveries were smaltite and niccolite. A sample of the massive ore has the following composition:

Cobalt	15.92%
Nickel	11.18%
Arsenic	60.38%
Silver	trace.

Photo—W. B. Macpherson.

Old timber road, South Lorrain.

The vein has a strike of S. 20° E., and dips 70° to the east.

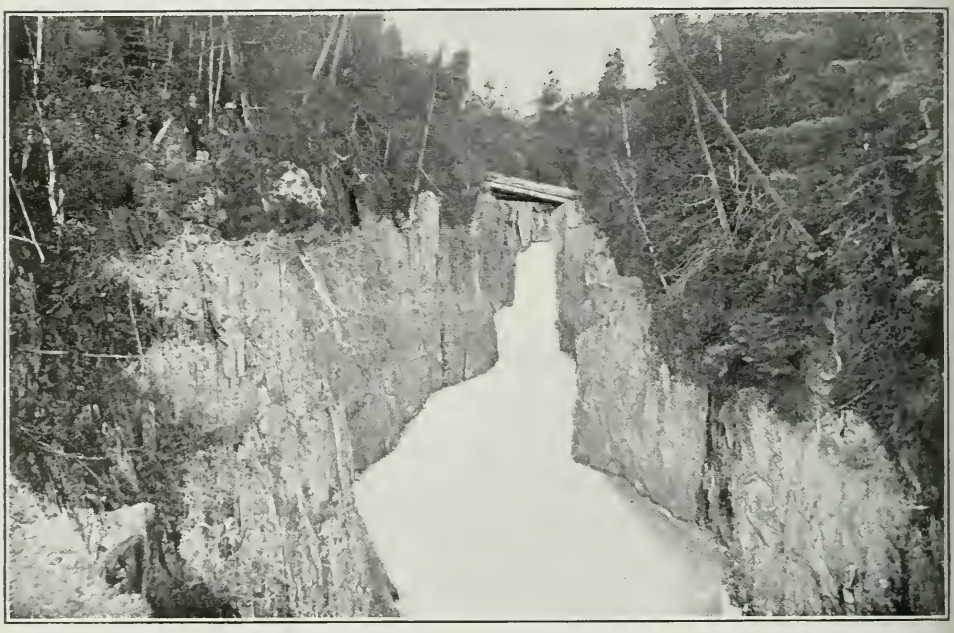
On this vein a shaft has been sunk to a depth of 100 feet, and about 15 tons of massive smaltite have been obtained. Only 17 feet of drifting have been done at this level. The chief vein filling is calcite and decomposed material.

Later a vein showing native silver was discovered on the south half of the claim. The silver is associated with smaltite. A shaft has been sunk on the vein to a depth of 75 feet. At this level drifting was carried 40 feet to the northeast and 40 feet to the southeast. The veins on this property are in the Keewatin.

On H. S. 42 (Forneri claim) there is a vein about 3 inches in width, with strike N. N. E., and occurring in the conglomerate. The vein material is smaltite and copper pyrites in calcite and quartz. A surface sample on assay showed no silver values. A shaft has been sunk to a depth of 75 feet. At 35 feet the vein dipped from the shaft. It is reported that silver values were obtained on assay at 14 feet depth.

On R. L. 471, near the east side line, there is a strong vein of massive smaltite, on which a shaft has been sunk 65 feet. The vein is in the Keewatin.

On H. R. 106, adjoining Trout lake on the northeast, a five by seven shaft has been sunk 50 feet on a calcite vein carrying smaltite.



Geological Survey of Canada, A. E. Barlow.

The Notch, near mouth of Montreal River.

On T. C. 73 there is a shaft down 40 feet on a calcite vein with disseminated smaltite and copper pyrites. These veins have not proved to carry appreciable silver values. The rock is the later diabase.

On H. R. 69 (Maiden claim) there has been extensive development work. Near the east side line, a tunnel has been driven from the base of a hill a distance of 206 feet on a calcite vein. At 100 feet a winze has been sunk to a depth of 60 feet. The vein in places has a width of 12 inches. Smaltite and niccolite are found in bunches in the vein. Low silver values are reported to have been obtained on assay. On vein No. 2 to the west a tunnel has been driven 176 feet. The vein filling is chiefly calcite with smaltite and niccolite in portions of the vein, 5 to 7 inches in width. The veins are in the Keewatin just north of the contact with the later diabase, and strike a little east of north.

On H. R. 14, near the west side line, some native silver has been obtained in a narrow vein in the diabase.

On T. C. 71, east of Loon lake, a tunnel has been driven 100 feet on a strong calcite vein about a foot in width.

At other parts of this area there has been considerable prospecting, consisting of trenching and sinking of small pits and shafts. Calcite veins are the most common type, the calcite being usually associated with more or less quartz, and carrying smaltite and niccolite occasionally. These latter minerals have been found on a number of claims in well-defined veins.

Aplite dikes which are characteristic of many of the silver showings in the township of James and vicinity are of little importance in South Lorrain.

The writer is indebted to several gentlemen associated with this area for information regarding their respective properties. Mr. H. T. Routley, O.L.S., gave the data on elevations mentioned in this report.

Mr. W. B. Macpherson and Mr. W. F. Battersby successively acted as assistants in the field.

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ANNUAL REPORT

OF THE

Inspector of Division Courts

FOR THE

PROVINCE OF ONTARIO

FOR THE YEAR

1909

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To His Honour

LIEUTENANT-COLONEL THE HONOURABLE J. M. GIBSON, K.C.,
Lieutenant-Governor of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to Your Honour the Report of the Inspector of Division Courts, of the Province of Ontario for the year ending 31st December, 1909.

Respectfully submitted,

J. J. FOY,
Attorney-General.

Toronto, January 25th, 1910.

SIR,—I have the honour to submit herewith, to be presented to His Honour the Lieutenant-Governor, the Report of the Inspector of Division Courts, for the year ending 31st December, 1909.

I have the honour to be, Sir,

Your obedient servant,

J. B. MACDONALD,

Inspector.

To the Honourable J. J. FOY, K.C., M.P.P.,
Attorney-General, Toronto.

ANNUAL REPORT

OF THE

Inspector of Division Courts

FOR THE

Province of Ontario

FOR THE YEAR ENDING 31st DECEMBER, 1909.

Toronto, Feb. 7, 1910.

To His Honour The Honourable JOHN MORISON GIBSON, K.C.,
Lieutenant-Governor of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to submit the Annual Report upon the Division Courts of the Province, for the year ending 31st December, 1909.

CONTENTS.

Table A.—Embraces a full report of the business transacted in the Division Courts of the Province during the year.

These returns are carefully tabulated under their respective headings for each Court.

Table B.—Gives a complete list of the officers of the Courts and their post office addresses.

Table C.—Gives similar information in respect to Bailiffs.

Table D.—Gives a complete description of the territorial boundaries of the different divisions, together with the names of the Judges and officers of the Crown, for the several Counties and Districts. The Division Court Tariff of Fees will also be found in the last pages of the report.

NEW COURTS.

During the year 8 additional Courts were established as follows:—

3 in the District of Nipissing, at Elk Lake City, Englehart and Cochrane.

1 in the District of Haliburton, at Dorset.

1 in the County of Lincoln, at Grimsby.

2 in the County of Peterborough, at Havelock and Keene.

1 in the County of Oxford, at Tavistock.

And one Court in the County of Renfrew (Calabogie) was abolished.

The new District of Kenora, embracing part of the territory formerly included in the Rainy River District, was also created, and Division Courts continued at Kenora and Wabigoon.

The District of Rainy River being thus changed, has now three Courts only, as shown in list.

As many of the offices as could be visited during the year were carefully inspected and a detailed report of the inspections is on file in this Department for reference.

All of which is respectfully submitted.

I have the honour to be,

Your Honour's obedient servant,

J. B. MACDONALD, *Inspector.*

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Algoma	1	521	18,658 27	13	825 46	4	535 88	9,287 19	9,715 86	107 21	487
	2	96	3,611 34	6	353 78	2	12 00	2,074 57	2,086 57	.....	94
	3	117	4,116 45	1	29 50	7	3 75	1,185 20	1,136 25	48 95	111
	4	47	1,931 92	6	139 65	1	26 05	1,273 70	1,299 75	.....	46
	5	234	8,816 51	11	995 30	5	219 81	3,529 42	3,194 67	554 56	225
Brant	1	742	27,094 15	32	1,507 85	42	389 72	7,783 58	8,023 46	149 84	693
	2	108	3,909 24	8	191 64	6	7 22	1,443 83	1,441 30	9 75	97
	3	66	2,035 33	1	1 21	6	1 00	671 68	659 82	11 86	62
	4	69	1,779 89	7	118 82	14	72 35	717 94	697 94	20 00	66
	5	25	843 63	3	50 61	1	70	386 63	380 63	6 70	23
Bruce	1	143	4,310 02	26	1,944 30	3	....	1,488 82	1,488 82	.....	138
	2	67	2,565 76	12	759 84	.....	.....	2,927 34	1,998 77	28 37	61
	3	92	4,226 80	2	42 28	2	95 65	1,690 63	1,284 20	406 43	90
	4	38	1,759 01	3	148 42	5	.....	962 29	921 29	41 00	37
	5	97	3,953 45	10	349 20	3	45 00	1,742 24	1,722 24	20 00	90
	6	9	280 46	4	259 30	.....	.....	404 76	394 76	10 00	.....
	7	78	2,920 79	5	183 95	1	.....	1,694 17	1,694 17	.....	77
	8	324	12,402 94	23	1,183 30	36	.....	6,289 84	6,278 99	10 85	294
	9	27	862 56	4	302 60	1	50 85	589 44	638 69	1 60	27
	10	74	2,815 68	2	68 87	4	.....	675 54	640 28	35 26	61
	11	81	2,237 58	2	129 21	1	.....	1,164 05	1,164 05	.....	42
	12	96	3,098 27	9	520 91	1	.....	551 69	551 69	.....	89
Carleton	1	2,074	87,618 36	59	3,935 97	547	796 67	24,088 55	23,776 55	1,108 67	1,808
	2	57	2,887 35	2	72 26	1	.....	955 24	955 24	.....	50
	3	56	1,917 61	7	720 46	5	6 00	1,314 79	1,320 79	.....	52
	4	27	1,308 15	4	341 26	5	63 63	539 41	589 25	13 76	29
	5	52	2,240 69	3	49 42	.....	.....	908 34	908 34	.....	47
	6	71	3,088 57	11	564 30	2	.....	1 949 25	1,934 06	15 19	64
	7	49	1,254 56	1	178 26	2	10 92	744 97	739 87	16 02	49
Dufferin	1	186	7,695 58	10	497 88	10	512 07	2,229 27	2,231 01	2 91	181
	2	202	6,139 21	15	1,096 60	19	245 98	2,810 54	2,508 06	301 88	107
	3	19	395 25	9	493 36	.....	....	259 65	259 65	.....	19
	4	6	86 13	.....	.....	.....	....	20 00	20 00	.....	6
	5	115	5,101 18	11	549 86	8	.....	2,040 56	2,040 56	.....	115
Elgin	1	292	10 952 97	51	2,289 32	28	88 44	4,939 65	4,495 04	444 01	272
	2	32	1,059 68	11	368 23	3	.....	642 66	642 66	.....	30
	3	1,208	36,137 60	43	1,512 31	132	3 85	14,459 86	14,463 71	.....	1,159
	4	98	3,412 29	13	505 91	11	13 00	2,167 20	2,154 20	13 00	105
Essex	1	33	848 96	6	457 04	7	.... .	445 62	404 83	40 79	33
	2	162	4,571 56	18	949 94	24	101 25	1,790 69	1,689 57	101 12	155
	3	94	3,847 66	28	1,533 57	7	58 68	2,494 98	2,511 26	42 40	88
	4	123	3,423 87	9	531 55	55	10 37	2,317 09	2,283 62	43 84	114
	5	155	6,296 28	9	465 56	23	38 32	1,370 15	1,288 96	81 91	137
	6	36	1,268 40	3	137 25	6	31 10	863 30	805 02	58 28	35
	7	602	18,522 21	52	502 35	382	213 08	9,969 21	9,863 97	105 24	550
	8	191	6,720 46	13	736 96	14	188 00	3,125 63	3,138 68	174 15	177
	9	45	1,656 50	6	280 29	7	2 45	922 59	857 46	65 13	49
	10	4	140 09	.....	.....	.....	....	120 35	115 35	5 00	4

A.

to the 31st day of December, A.D. 1909, inclusive, shewing:

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 174, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.	$ c.		$ c.			$ c.	$ c.
34				111						3	15 00			1,017 55	
6			2	13										172 80	218 92
6				32											154 61
1				4	1	6 00				2	10 00	1		111 77	127 97
14				42										498 05	152 89
49	15	2	3	179				25 48		3	18 00	5	1	1,364 65	542 06
11				30	1	11 00		4 04		3	22 00			234 65	114 89
3				19	1	12 00		2 26				1		110 10	56 12
1	5			18	2	25 00		1 42				2		147 20	91 80
2				5	1	12 00		89						58 60	44 70
5				40				3 98				3		216 77	245 26
6				11				2 76		1	2 00			164 01	109 37
4				26				2 6						179 85	
6				10				2 16						96 65	57 25
5	1			16				3 05				2		207 28	173 77
				1				18						24 85	
1				7				2 60						184 90	138 46
30	12			74	1	1 00		13 50				5		758 40	420 68
				10				03						59 00	27 58
6				14	1	12 00		2 89				1		145 87	
4				35				2 20						151 10	75 78
7				17										190 20	
150			1	340				81 37	5 66 13	7	12 00	20	8	4,830 65	822 76 1,012 44 1,215 60
8				6				3 36						129 31	90 90
9				13				3 27		1	5 00			121 74	111 26
3				2				1 28				1		64 35	60 39
5				6				2 24						108 90	74 11
7				12				3 13						160 45	134 68
				13				75				2		111 20	
15	2			53	1	11 00		7 56						408 95	259 71
13	1			54				6 2						444 66	354 44
				3				33						32 25	60 25
				3				6						12 97	9 93
19				29	1	12 00		5 79		1	10 00	1		302 50	119 62
16	6		1	71	2	27 00		10 36		1	5 00	6		701 75	548 99
2	2			10	1	12 00		1 07						101 95	49 89
49	5	2	2	361	2	23 00		29 95	68 89	2	12 00	35		2,344 45	1,120 09
4	2		2	21				2 86				3		237 15	279 32
								54						89 63	68 32
7	5		1	51				4 15				5		361 15	170 39
5	2	1		18				3 60						271 81	149 63
7	1			54	1	11 00		3 54		2	18 00	13		383 65	234 60
16	1		1	38				6 52		2	15 00	4	1	403 45	241 86
1	2			4				1 24		1	6 00			119 00	93 69
42	5		7	350	3	24 00		15 22		3	35 00	70	3	1,951 94	524 02 766 48
12	2			31				6 71				1		465 50	226 03
3	3			8				1 80		2	9 55			120 05	134 35
								12						14 44	28 00

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Frontenac	1	835	27,520 15	31	1,843 14	147	122 77	8,868 18	8,939 59	71 41	767
	2	40	612 17	4	93 74	.....	1 54	211 08	159 19	53 43	40
	3	51	1,798 36	5	225 35	.....	.....	884 11	884 11	.....	49
	4	113	4,151 81	5	217 66	11	16 50	2,252 86	2,240 80	12 00	119
	5	34	1,406 81	.....	.....	2	.....	631 44	570 69	60 75	31
	6	69	3,457 50	3	306 65	4	.....	1,005 01	1,005 01	.....	53
	7	51	1,155 73	13	525 18	6	.....	397 98	342 29	.....	50
Grey	1	593	17,110 80	26	1,308 87	53	50 00	7,654 68	7,585 78	70 90	563
	2	219	8,960 21	26	1,554 12	6	34 18	4,801 76	4,804 36	31 58	200
	3	248	8,797 10	6	501 23	27	.....	4,112 97	4,112 97	.....	148
	4	66	2,370 40	5	418 63	4	14 72	1,486 27	1,500 99	.....	61
	5	175	7,557 25	16	1,014 96	11	151 30	4,953 35	4,878 84	74 51	173
	6	44	1,232 73	7	327 43	1	.....	1,127 57	1,127 57	.....	42
	7	77	2,591 86	2	79 88	4	.....	545 05	545 05	.....	69
	8	95	3,093 54	6	376 11	10	167 99	1,414 56	1,445 24	137 29	93
Haldimand	1	73	3,243 46	5	98 37	16	164 21	757 42	870 99	50 64	81
	2	83	3,285 60	5	385 54	16	.....	1,063 53	1,021 25	42 28	73
	3	245	6,454 56	20	888 41	51	291 33	3,472 93	3,496 40	267 86	238
	4	107	4,103 00	5	343 00	1	14 95	1,551 25	1,476 08	90 12	102
	5	14	337 18	5	283 91	.....	.....	169 86	169 86	.....	14
Haliburton	1	73	2,164 14	5	179 39	2	45 87	560 88	536 56	70 19	75
	2	53	2,445 21	6	166 26	3	6 07	1,475 40	1,478 97	2 50	46
	3	50	1,376 16	5	234 51	5	.....	667 27	660 17	7 10	47
	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halton	1	126	4,165 88	12	680 19	15	29 17	1,917 30	1,600 91	345 56	118
	2	89	3,499 58	9	400 72	12	4 42	1,298 59	1,303 01	.....	95
	3	117	3,478 66	3	179 91	3	.....	1,745 36	1,680 56	35 02	113
	4	70	3,306 53	17	372 51	15	.....	1,167 85	1,167 85	.....	66
	5	30	646 91	2	181 55	10	.....	419 81	419 81	.....	39
	6	35	1,742 42	7	408 40	.....	.....	404 16	394 01	19 10	28
Hastings	1	613	18,034 64	23	1,243 47	51	226 85	6,326 35	6,291 32	261 88	378
	2	69	2,551 58	11	1,066 80	5	43 51	1,664 23	1,619 50	88 24	64
	3	6	247 60	2	398 70	.....	197 89	197 89	.....	.....	6
	4	157	4,827 61	12	412 95	.....	52 70	2,284 38	2,212 24	72 15	150
	5	110	2,787 66	7	341 10	17	13 73	1,477 49	1,468 53	22 69	107
	6	141	4,241 96	8	621 98	6	74 41	2,585 06	2,575 77	9 25	135
	7	104	2,425 11	10	365 78	10	30 84	1,827 07	1,832 06	25 85	103
	9	230	7,310 69	24	412 20	15	63 75	3,809 01	3,750 51	58 50	259
	10	167	4,358 30	5	93 61	1	45 00	1,971 12	2,002 12	14 00	131
	11	67	2,245 93	19	1,354 43	3	65 75	1,332 87	1,220 31	178 31	62
	12	127	4,858 28	8	627 59	10	.....	2,449 45	2,337 47	111 98	121
Huron	1	222	7,087 82	12	491 58	14	105 78	2,416 11	2,439 93	81 96	152
	2	202	3,310 00	15	1,255 47	35	171 14	2,871 48	2,808 77	233 84	140
	3	125	4,527 40	15	873 25	4	.....	2,001 70	1,986 12	15 68	90
	4	49	2,200 46	5	358 30	3	49 00	303 87	305 87	47 00	46
	5	66	2,156 10	3	257 55	3	14 00	424 81	414 75	24 06	61
	6	20	1,045 60	3	191 03	.....	.....	560 99	560 99	.....	17
	7	16	594 85	3	82 38	2	.....	155 68	155 68	.....	15
	8	152	3,536 86	15	1,166 71	13	159 23	1,863 44	1,629 17	393 50	147
	9	27	930 44	3	385 66	.....	.....	555 05	562 65	.....	24
	10	27	1,155 32	3	250 34	1	.....	655 86	655 86	.....	23
	11	35	1,633 64	2	199 99	6	5 74	1,083 63	1,078 63	5 00	31
	12	26	885 67	10	52 92	5	111 38	1,185 26	1,296 64	.....	28

A.—Continued.

to the 31st day of December, A.D. 1909, inclusive, etc.—Continued.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 174, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.	$ c.		$ c.			$ c.	$ c.
50	1	.....	1	287	.....	.....	....	24 98	.....	3	15 00	20	.....	1,661 55	59 70
.....	.....	.....	.....	20	.....	.....	....	33	.....	.....	.....	.....	.....	63 79	710 97
2	..	.....	.....	12	.....	.....	....	1 76	.....	.....	.....	.....	.....	96 46	.....
5	.....	.....	.....	22	.....	.....	....	3 86	.....	1	5 00	1	.....	228 79	133 21
5	.....	.....	.....	7	.....	.....	....	1 67	.....	.....	.....	.....	.....	60 75	218 06
8	.....	.....	.....	8	.....	.....	....	3 53	.....	.....	.....	.....	.....	147 70	.....
1	.....	.....	1	19	.....	.....	....	1 00	.....	1	10 00	.....	.....	113 60	94 95
															126 87
30	4	25	1	210	2	23 00	....	14 79	.....	.....	.....	19	.....	1,373 43	760 00
19	3	.....	.....	17	.....	.....	....	9 69	.....	1	5 00	.....	.....	568 94	444 35
20	5	.....	.....	75	.....	.....	....	8 69	.....	2	15 00	2	.....	568 20	254 74
5	1	.....	.....	16	.....	.....	....	2 61	.....	.....	.....	.....	.....	155 53	170 41
11	3	.....	.....	21	3	30 00	....	6 25	.....	1	5 00	2	2	456 85	508 42
2	3	.....	1	18	.....	.....	....	95	.....	.....	.....	.....	.. ..	118 40	179 15
6	.....	.....	.. ....	31	.....	.....	....	2 61	.....	.....	.....	.....	.....	119 05	100 11
2	2	.....	.....	30	.....	.....	....	2 24	.....	.....	.....	1	.....	250 15	165 00
5	3	.....	.....	12	.....	.....	....	3 38	.....	1	5 00	3	... ..	182 05	105 40
9	.....	.....	1	34	.....	.....	....	3 30	.....	1	10 00	3	.....	186 23	93 64
7	2	.....	.....	90	.....	.....	....	4 96	.....	1	10 00	19	.....	554 84	363 51
4	2	.....	3	19	2	10 00	....	3 53	.....	2	15 00	6	.....	234 33	204 44
.	.....	.....	.....	3	1	12 00	....	24	.....	.....	.....	.....	.....	34 04	26 00
.....	.....	.....	.....	18	.....	.....	....	1 17	.....	.....	.....	.....	.....	124 60	134 24
7	2	.....	.....	4	.....	.....	....	2 80	.....	3	15 00	1	.....	175 58	45 43
3	1	.....	.....	13	.....	.....	....	1 53	.....	2	10 00	.....	.....	152 20	104 48
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
8	1	.....	.....	30	.....	.....	....	3 74	.....	1	5 00	5	1	318 00	91 65
6	.....	.....	.....	25	1	10 00	....	2 91	.....	.....	.....	1	.....	202 00	105 30
4	.....	.....	.....	37	.....	.....	....	3 10	.....	.....	.....	.....	.....	*87 65	.....
2	.....	.....	.....	18	.....	.....	....	2 82	.....	.....	.....	6	.....	248 85	73 48
1	.....	.....	.....	15	.....	.....	....	67	.....	.....	.....	.....	.....	71 47	43 00
5	.....	.....	.....	11	.....	.....	...	2 75	.....	.....	.....	.....	.....	70 02	84 40
27	3	.....	.....	208	2	23 00	...	15 75	.....	1	2 00	2	.....	1,341 10	660 40
5	.....	.....	.....	12	.....	.....	....	2 54	.....	.....	.....	.....	.....	198 48	239 73
.....	1	.....	.....	2	.....	.....	....	18	.....	.....	.....	.....	.....	20 00	23 17
7	.....	8	.....	51	.....	.....	....	4 48	.....	.....	.....	.....	.....	289 65	182 86
3	1	.....	.....	33	.....	.....	....	1 86	.....	.....	.....	2	.....	230 55	129 35
4	.....	.....	.....	35	.....	.....	....	3 92	.....	.....	.....	.....	.....	228 00	215 56
1	.....	.....	.....	35	.....	.....	....	1 48	.....	.....	.....	1	.....	239 30	71 98
11	2	.....	1	49	1	12 00	....	6 49	.....	3	13 00	1	.....	542 86	327 65
3	.....	.....	.....	39	.....	.....	....	3 99	.....	.....	.....	.....	.....	250 10	182 86
5	.....	.....	.....	14	.....	.....	....	2 36	.....	.....	.....	.....	.....	155 00	316 39
5	1	.....	.....	26	.....	.....	....	4 28	.....	.....	.....	.....	.....	329 45	350 26
13	2	..	.....	76	.....	11 00	....	6 64	.....	3	15 00	1	.....	480 15	206 60
12	.....	.....	.....	58	2	25 00	....	5 88	.....	2	10 00	1	.....	449 35	241 50
12	.....	.....	.....	23	.....	.....	....	4 98	.....	.....	.....	.....	.....	270 10	81 24
3	.....	.....	.....	5	.....	.....	....	2 28	.....	.....	.....	.....	... ..	88 95	68 59
5	.....	.....	.....	20	.....	.....	....	1 93	.....	.....	.....	.....	.....	149 35	96 33
2	.....	.....	.....	2	1	12 00	...	1 11	.....	.....	.....	.....	.....	45 02	46 29
1	.....	.....	.....	8	.....	.....	..	34	.....	.....	.....	.....	.....	64 42	24 18
5	1	.....	1	58	1	11 00	....	3 08	.....	.....	.....	4	1	328 60	257 43
3	.....	.....	.....	3	.....	.....	....	1 17	.....	.....	.....	1	.....	53 90	*114 28
4	.....	.....	.....	5	.....	.....	....	1 33	.....	.....	.....	1	.....	56 40	32 93
4	.....	.....	.....	4	1	12 00	....	1 84	.....	1	5 00	.....	.....	74 94	83 83
1	.....	.....	.....	3	1	12 00	....	97	.....	.....	.....	1	.....	99 50	91 73

* Part of year only.

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Kenora	1	544	19,881 60	8	494 10	3	1,059 84	9,623 04	9,406 04	1,276 84	515
	2	65	4,355 29	10	561 61	1	.....	1,646 58	1,646 58	.....	55
Kent..	1	536	21,297 00	45	2,727 89	168	299 68	7,682 97	6,313 46	1,369 51	289
	2	195	6,793 26	13	640 68	41	42 30	4,219 68	4,197 49	114 49	176
	3	65	1,880 72	7	197 98	.....	38 05	1,198 12	1,178 22	57 95	61
	4	133	4,432 81	8	521 43	33	40 41	2,492 16	2,494 75	37 82	80
	5	321	8,654 13	22	1,359 74	59	382 95	4,871 34	4,671 86	582 43	310
	6	69	2,134 63	8	370 18	7	22 00	896 20	828 00	90 20	71
	7	234	9,706 73	13	440 48	13	162 39	4,495 01	4,608 77	48 63	220
Lambton.....	1	696	18,149 48	26	1,128 71	96	.....	9,392 68	8,800 37	592 31	673
	2	80	2,501 60	13	528 71	3	7 00	1,272 53	1,248 68	23 85	76
	3	40	1,375 34	14	428 70	9	12 80	938 40	938 40	12 62	36
	4	71	2,280 19	10	405 01	9	.....	906 30	906 30	.....	68
	5	56	1,687 77	2	62 66	2	5 35	609 04	596 19	18 20	55
	6	18	877 77	3	43 98	.....	.....	204 25	203 25	1 00	17
	7	27	1,094 29	2	61 28	1	2 05	385 66	351 98	35 73	24
	8	172	6,198 76	16	1,014 54	24	38 59	3,015 70	3,028 97	25 32	163
	9	87	1,263 17	7	91 10	3	22 31	987 03	992 07	17 27	85
Lanark.....	1	204	7,588 23	10	604 87	24	60 80	2,176 49	2,178 99	58 31	191
	2	34	1,901 46	6	404 88	.....	34 75	525 72	497 28	63 19	29
	3	253	7,864 00	4	223 42	83	4 00	3,002 80	2,987 55	19 25	311
	4	526	17,088 43	35	1,029 13	61	106 70	5,468 52	5,172 17	295 85	531
	5	148	4,309 82	12	730 62	3	.....	1,744 36	1,744 36	.....	141
Leeds and Grenville	1	625	13,971 68	15	869 44	35	313 53	7,705 93	7,821 76	197 70	600
	2	233	5,985 93	11	443 77	13	81 50	2,833 27	2,823 29	71 48	229
	3	175	7,113 82	4	95 65	19	166 42	1,365 93	1,371 94	160 41	184
	4	154	4,919 39	6	401 50	9	438 39	2,692 58	3,019 64	111 33	143
	5	112	4,186 42	7	383 22	.....	83 87	2,045 91	1,997 98	47 93	112
	6	125	4,404 76	8	598 49	8	7 16	2,192 23	2,116 90	82 49	123
	7	44	1,637 18	10	804 10	2	20 84	926 96	859 00	88 80	41
	8	103	4,794 52	13	991 12	7	.....	1,654 94	1,654 94	.....	91
	9	49	1,770 53	2	156 98	4	5 54	861 32	865 86	1 00	50
	10	29	683 02	2	15 37	2	35 67	519 40	498 43	20 97	31
	11	26	567 06	1	19 60	1	.....	195 87	195 87	.....	26
	12	23	742 53	2	84 60	.....	.....	623 05	623 05	.....	.....
Lennox and Addington....	1	180	5,544 48	3	160 36	621	36 18	1,607 61	1,586 36	57 43	171
	2	25	780 98	1	38 52	6	22 00	441 47	353 48	109 99	25
	3	13	134 16	2	54 94	3	.....	82 43	82 43	.....	.....
	4	47	2,112 40	.....	.....	7	23 89	629 39	597 06	56 22	49
	5	44	1,321 06	6	387 45	5	18 56	609 39	609 39	18 56	42
	6	27	930 49	4	106 11	2	32 27	726 88	725 43	33 72	25
	7	76	2,559 99	4	124 46	7	114 37	1,290 88	1,405 25	.....	73
	8	40	1,049 48	6	143 28	1	15 49	877 85	887 34	6 00	40
	9	29	806 25	2	161 30	.....	.....	384 90	380 00	4 90	27

A.—Continued.

to the 31st day of December, A.D. 1909, inclusive, etc.—Continued.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 171, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c	$ c.		$ c.			$ c.	$ c.
29	.....	.....	.....	105	.....	.....	....	.....	.....	.....	.....	.....	.....	1,395 70	401 30
10	.....	.....	.....	10	.....	.....	...	.....	.....	.....	.....	.....	.....	134 20	91 32
30	5	.....	3	87	2	20 00	....	18 16	.....	3	30 00	55	2	1,464 96	400 16 / 448 70
15	1	.....	.....	58	2	12 00	1	7 86	.....	.....	.....	14	.....	369 55	317 49
4	.....	.....	.....	21	.....	.....	....	1 81	.....	.....	.....	.....	.....	150 80	84 98
6	3	.....	.....	44	2	24 00	1	3 60	.....	...	.....	11	1	361 70	173 58
11	5	.....	3	105	2	16 50	1	6 85	.....	1	2 00	13	.....	784 95	350 07
7	1	.....	.....	20	.....	.....	..	2 71	.....	.....	.....	.....	.....	155 69	.....
27	5	.....	1	55	1	12 00	....	11 37	.....	2	10 00	3	.....	491 51	433 30
21	7	.....	2	269	3	34 00	....	14 72	.....	.....	.....	23	.....	1,303 05	670 74
4	.....	.....	.....	.....	1	11 00	....	3 55	.....	.....	.....	.....	.....	151 70	135 99
4	.....	.....	1	9	.....	.....	....	1 45	.....	.....	.....	1	.....	129 80	142 28
3	.....	.....	2	22	.....	.....	....	1 56	.....	.....	.....	1	.....	151 30	162 49
3	.....	.....	.....	23	1	12 00	....	1 90	.....	.....	.....	.....	.....	92 75	.....
2	1	.....	.....	3	.....	.....	...	70	.....	.....	.....	.....	.....	36 78	30 50
3	.....	.....	.....	8	2	20 00	....	1 23	.....	.....	.....	1	.....	64 75	68 89
9	.....	.....	.....	41	.....	.....	....	5 82	.....	3	20 00	6	.....	417 70	501 14
2	.....	.....	.....	35	.....	.....	..	1 16	.....	.....	.....	.....	.....	114 35	127 01
12	1	.....	.....	63	.....	.....	...	6 81	.....	.....	.....	15	1	530 10	95 22 / 256 24
5	.....	.....	.....	4	.....	.....	....	2 09	.....	.....	.....	.....	.....	71 60	69 41
29	.....	.....	.....	106	.....	.....	....	8 09	.....	2	15 00	19	.....	634 40	66 76 / 260 68
62	.....	.....	.....	169	.....	.....	....	23 01	.....	.....	.....	5	.....	1,067 15	575 57
7	.....	.....	.....	57	.....	.....	....	3 55	.....	.....	.....	.....	.....	291 40	272 90
21	.....	7	.....	319	.....	.....	....	13 24	.....	.....	.....	2	2	1,018 40	291 62 / 219 25
4	2	.....	.....	76	.....	.....	....	4 24	.....	.....	.....	.....	.....	349 25	295 42
10	3	.....	.....	67	.....	.....	1	4 84	.....	.....	.....	1	.....	394 29	253 08
11	.....	.....	.....	41	.....	.....	....	5 59	.....	.....	.....	.....	.....	386 50	330 77
7	.....	.....	.....	24	.....	.....	....	3 85	.....	.....	.....	.....	.....	240 65	110 04
10	.....	.....	.....	24	.....	.....	....	4 54	.....	.....	.....	.....	.....	303 80	259 15
3	.....	.....	.....	16	.....	.....	....	1 41	.....	.....	.....	.....	.....	114 85	127 73
11	1	.....	1	23	.....	.....	....	4 89	.....	.....	.....	1	.....	316 91	160 31 / 101 49
4	.....	.....	2	16	.....	.....	....	1 71	.....	.....	.....	.....	.....	112 25	84 48
.....	.....	.....	.....	8	.....	.....	....	55	.....	.....	.....	.....	.....	58 95	96 29
.....	2	.....	.....	12	.....	.....	....	33	.....	.....	.....	2	1	51 93	46 32
.....	.....	.....	.....	2	.....	.....	....	63	.....	.....	.....	.....	.....	45 90	67 76
9	1	.....	.....	59	.....	.....	....	4 80	.....	.....	.....	17	.....	452 30	247 90
.....	.....	.....	.....	5	.....	.....	....	57	.....	.....	.....	.....	.....	58 81	.....
.....	.....	.....	.....	5	.....	.....	....	18	.....	.....	.....	.....	.....	20 85	15 17
5	.....	.....	.....	9	.....	.....	....	2 09	.....	.....	.....	.....	.....	121 50	62 41
2	.....	.....	.....	16	.....	.....	....	1 22	.....	.....	.....	1	.....	95 15	46 80
2	.....	.....	.....	7	.....	.....	....	92	.....	.....	.....	1	.....	68 52	46 29
2	.....	.....	.....	16	.....	.....	1	2 13	.....	.....	.....	2	.....	203 95	115 46
.....	6	.....	1	10	.....	.....	....	60	.....	1	5 00	2	.....	95 13	106 81
2	.....	.....	.....	11	.....	.....	....	.....	.....	...	.....	.....	.....	53 29	43 99

TABLE

Return of Division Court business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Lincoln	1	43	1,582 71	6	130 83	2	2 00	625 42	625 42		42
	2	554	15,966 22	28	1,318 26	41	149 82	7,235 23	7,161 90	223 15	537
	3	73	2,780 15	16	687 75	9	13 20	1,609 17	1,599 54	32 83	71
	4	66	3,109 63	14	966 67	6	158 16	1,957 39	2,091 71	24 84	59
	5	New Court.									
Manitoulin 1	1	83	3,745 02	3	107 52	2	48 88	1,459 39	1,478 74	29 53	76
	2	79	2,805 50	6	554 43	2	5 07	1,532 42	1,532 42	5 07	78
	3	38	1,487 59	4	152 67			519 97	519 97		35
	4										
Middlesex	1	2,061	75,433 55	50	3,215 12	72	657 05	24,832 77	24,824 89	664 93	1,915
	2	102	2,985 81	5	212 18			1,344 40	1,341 97	2 43	65
	3	48	1,747 17	12	566 57	1		539 75	485 50	54 25	45
	4	31	1,006 58	7	261 98	2		621 09	621 09		31
	5	62	1,937 62	17	796 04	1	4 12	920 26	924 68		58
	6	115	4,541 98	5	348 39	11	68 87	1,815 85	1,853 60	31 12	107
	7	65	1,859 85	4	192 69			833 27	833 27		62
	8	15	352 81	5	379 25			179 97	165 97	14 00	15
	9	570	9,776 51	12	687 18	91	127 28	3,944 20	3,778 20	166 00	561
Muskoka	1	252	8,720 35	12	633 64	14	103 54	3,673 35	3,554 85	118 50	183
	2	90	3,894 14	9	265 41	3	43 95	2 608 08	2,614 46	37 57	84
	3	129	4,777 63	16	1,853 11	20	34 88	2,324 20	2,283 04	41 16	96
	4	37	1,892 51	13	784 80	4	43 00	1,157 03	1,200 03		33
Nipissing	1	222	8,657 95	25	1,108 81	5	187 79	3,673 39	3,760 47	100 71	218
	2	77	3,370 31	6	465 58		1 77	2,563 47	2,537 87	25 60	72
	3	551	23,167 55	39	2,731 83	15	200 53	11,542 78	11,572 32	170 99	511
	4	New Court.									
	5	30	1,284 46	3	121 12	2	9 00	368 01	374 01	3 00	26
	6	New Court.									
	7	1,012	58,691 97	79	5,200 21	89	989 55	14,969 39	14,987 88	971 06	893
	8	New Court.									
Norfolk	1	144	5,085 31	19	1,390 55	29		1,592 25	1,567 25	25 00	135
	2	38	1,384 02	8	650 54	2	10 00	283 69	293 69		37
	3	22	683 87	3	63 81	1	6 12	358 15	364 15	12	23
	4	44	1,614 60	10	480 15	3	75 59	750 05	711 20	114 44	34
	5	24	604 95	3	89 50	2		372 81	372 81		24
	6	150	4,081 77	10	422 61	44		2,210 59	2,210 59		145
	7	49	1,027 80	16	500 03	7		399 46	399 46		49
	8	21	595 14	4	136 50	2		179 46	165 96	13 50	21
Northumberland and Durham	1	123	4,342 63	9	452 39	6	29 65	1,985 17	1,952 07	62 75	117
	2	34	1,162 03	3	120 60		24 27	1,214 25	1,198 09	40 43	34
	3	317	8,573 56	8	687 75	8		3,690 74	3,659 59	36 15	6
	4	84	2,350 92	13	722 35	2	82 09	972 77	876 12	178 74	78
	5	204	5,175 42	1	28 90	11	14 60	2,181 45	2,204 68	6 00	197
	6	30	1,163 88	2	74 00	2		324 31	324 31		29
	7	118	4,473 60	6	332 60	26	38 55	1,512 10	1,521 80	28 85	112
	8	134	3,336 00	4	285 00	24	8 00	832 05	787 68	44 37	129
	9	99	3,155 53	8	307 61	7		1,853 81	1,853 81		97
	10	47	1,641 09	5	227 96	12		576 46	576 16		38
	11	148	4,714 67	15	561 34	27	9 03	1,674 15	1,565 68	117 50	140

A.—Continued.

to the 31st day of December, A.D. 1909, inclusive, etc.—Continued.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 174, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.	$ c.		$ c.			$ c.	$ c.
1	3	.....	.....	8	.....	.....	....	1 30	.....	.....	.....	2	.....	108 93	.....
15	4	.....	.....	176	.....	.....	....	12 92	.....	3	17 00	.....	.....	1,059 80	599 69
12	3	.....	.....	22	.....	.....	....	1 82	.....	.....	.....	.....	.....	217 90	130 09
7	1	.....	.....	7	.....	.....	....	3 19	.....	.....	.....	.....	.....	207 55	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	.....	10	.....	.....	....	.....	.....	.....	.....	1	.....	202 40	164 43
3	1	.....	3	16	.....	.....	....	.....	.....	.....	.....	.....	.....	145 95	110 64
3	.....	.....	1	11	.....	.....	....	.....	.....	1	5 00	.....	...	60 05	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	16 50	18 89
132	16	.....	4	639	5	73 00	....	67 84	424 11	11	65 00	6	.....	4,120 55	1,295 97
5	.....	.....	.....	32	.....	.....	....	3 44	.....	.....	.....	.....	.....	170 83	.....
3	.....	.....	.....	14	.....	.....	....	1 71	.....	.....	.....	.....	....	134 59	81 84
2	.....	.....	.....	11	.....	.....	....	98	.....	.....	.....	.....	.....	77 80	62 96
4	1	.....	.....	17	.....	.....	....	1 93	.....	.....	.....	.....	.....	122 05	126 51
8	3	.....	.....	19	.....	.....	....	4 28	.....	.....	.....	.....	.....	263 00	135 70
3	2	.....	.....	20	1	12 00	....	1 65	.....	.....	.....	1	.....	117 55	109 16
.....	1	.....	.....	7	1	12 00	....	49	.....	.....	.....	.....	.....	37 19	74 57
9	.....	.....	4	266	1	12 00	...	6 19	.....	.....	.....	5	.....	952 03	360 00
20	1	.....	.....	48	.....	.....	....	.....	.....	.....	.....	1	.....	514 68	278 69
6	2	.....	1	13	.....	.....	....	.....	.....	.....	.....	2	.....	222 15	109 28
10	.....	.....	2	20	.....	.....	....	.....	.....	.....	.....	2	.....	251 50	289 44
4	.....	.....	.....	5	.....	.....	....	.....	.....	.....	.....	.....	.....	93 95	132 06
4	.....	.....	1	19	.....	.....	....	.....	.....	.....	.....	2	....	452 25	267 84
1	4	.....	.....	10	.....	.....	....	.....	.....	.....	.....	.....	.....	168 89	186 53
40	1	.....	.....	90	.....	.....	....	.....	.....	5	13 00	4	.....	1,498 60	711 13
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
4	.....	.....	.....	9	.....	.....	....	.....	.....	1	5 00	.....	.....	94 55	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
119	7	.....	.....	52	.....	.....	....	.....	136 86	3	11 00	29	.....	2,684 30	1,403 62
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	.....	38	2	24 00	....	4 47	.....	.....	.....	5	.....	375 75	226 50
6	.....	.....	.....	8	.....	.....	....	1 38	.....	.....	.....	.....	.....	75 75	58 07
.....	.....	.....	.....	6	.....	.....	....	48	.....	.....	.....	1	.....	55 85	53 89
1	1	.....	1	9	1	12 00	....	1 37	.....	.....	.....	.....	.....	82 55	114 90
.....	.....	.....	.....	5	.....	.....	....	42	.....	.....	.....	.....	.....	58 45	68 76
5	.....	.....	1	47	.....	.....	....	3 33	.....	.....	.....	8	.....	295 10	289 51
.....	.....	.....	.....	17	.....	.....	....	81	.....	.....	.....	1	.....	124 90	102 11
17	.....	.....	.....	4	.....	.....	....	42	.....	.....	.....	.....	.....	42 45	20 77
5	1	.....	.....	35	.....	.....	....	3 99	.....	.....	.....	4	.....	313 22	177 33
.....	.....	.....	.....	3	.....	.....	....	87	.....	.....	.....	1	.....	83 40	85 72
12	.....	.....	4	156	.....	.....	1	5 49	.....	.....	.....	.....	.....	496 97	105 35
6	.....	.....	.....	18	.....	.....	....	2 28	.....	.....	.....	1	.....	303 50	.....
7	.....	.....	.....	62	.....	.....	....	4 54	.....	.....	.....	1	1	328 35	205 93
1	.....	.....	.....	8	.....	.....	....	91	.....	.....	.....	2	.....	78 62	.....
5	.....	.....	.....	33	2	19 00	....	3 75	.....	1	5 00	15	.....	276 35	252 29
5	.....	.....	.....	47	1	12 00	....	2 10	.....	2	10 00	1	.....	36 13	182 86
2	1	1	.....	19	.....	.....	....	2 51	.....	.....	.....	5	.....	206 67	153 69
6	3	.....	.....	11	1	13 00	....	1 67	.....	1	5 0	1	.....	168 90	97 19
8	.....	.....	.....	40	.....	.....	....	4 61	.....	.....	.....	.....	.....	32 45	.....

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Ontario	1	179	6,865 23	21	1,065 16	10	6 00	1,281 52	1,224 06	57 46	164
	2	75	2,211 18	9	509 94	14	.....	1,362 96	1,362 96	.....	72
	3	56	2,048 20	2	133 12	2	134 75	856 01	856 01	.....	57
	4	170	6,520 04	8	448 89	3	.....	1,582 77	1,488 51	94 36	155
	5	80	3,097 91	15	785 64	6	.....	2,147 82	2,140 30	7 52	75
	6	29	1,292 59	4	353 06	1	.....	703 01	703 01	....	26
	7	20	666 96	7	468 84	4	.....	58 66	54 66	4 00	20
Oxford.....	1	509	16,692 50	21	956 80	49	285 06	11,311 27	11,302 17	294 16	474
	2	100	2,704 70	10	601 81	7	90 08	2,871 00	2,960 66	42	88
	3	102	3,587 99	9	612 86	6	.....	3,087 99	3,087 99	.....	60
	4	132	3,319 88	12	526 82	24	77 47	2,734 85	2,713 57	21 28	125
	5	341	10,539 65	14	420 47	18	16 36	5,735 69	5,839 30	133 97	327
	6	266	9,674 43	23	1,042 88	32	69 05	4,223 01	4,109 78	182 28	250
	7	New Court.....		.....	.....	.....	.....	.....	.....	.....	.....
Parry Sound....	1	218	7,322 66	10	448 38	6	31 91	3,553 47	3,270 96	282 51	207
	2	17	1,513 45	2	131 74	1	5 44	463 54	463 54	....	9
	3	9	.....	1	34 20	.....	98 19	144 45	240 35	2 29	8
	4	119	4,037 13	14	885 40	9	10 00	2,413 08	2,324 13	98 95	116
	5	51	1,966 49	2	63 00	2	10 00	899 00	909 00	.....	47
	6	102	4,623 38	6	101 19	3	.....	350 35	303 04	27 31	82
	7	108	4,816 13	14	587 95	11	4 00	1,258 05	1,200 77	41 28	91
Peel	1	103	5,549 03	8	473 10	10	31 85	2,376 34	2,310 57	97 62	86
	2	61	2,866 61	9	603 72	3	.....	1,093 93	1,093 93	.....	58
	3	34	738 57	6	371 63	5	.....	490 22	490 22	.....	3
	4	41	1,893 61	7	421 60	2	.....	1,245 17	1,245 17	.....	39
Perth	1	462	17,498 70	30	1,088 85	94	117 45	7,059 06	7,071 06	103 45	416
	2	246	6,618 24	35	2,338 68	34	50 00	4,456 09	4,501 09	....	235
	3	207	8,167 48	14	797 70	29	10 43	2,562 36	2,565 24	7 55	180
	4	58	2,433 51	.....	.....	5	.....	803 36	803 36	.....	53
	5	53	2,458 47	10	704 19	2	.....	1,869 70	1,869 70	.....	47
	6	259	9,797 62	26	619 75	27	.....	4,452 11	4,452 11	.....	238
Peterborough....	1	525	17,474 26	20	762 88	63	.....	7,948 16	7,948 16	.....	494
	2	90	2,026 41	12	855 70	10	104 22	1,289 25	1,233 35	160 12	87
	3	56	2,099 83	7	232 23	2	10 00	931 88	857 20	84 68	51
	4	9	223 67	13	865 36	.....	.....	109 04	109 04	.....	.....
	5	New Court.....		.....	.....	.....	.....	.....	.....	.....	.....
	6	New Court.....		.....	.....	.....	.....	.....	.....	.....	.....
Prescott and Russell	1	43	1,439 40	2	237 36	4	.....	645 90	645 90	.....	4
	2	85	2,742 52	3	131 13	2	.....	630 41	630 41	.....	81
	3	46	1,884 41	.....	.....	2	15 40	837 49	812 49	40 00	44
	4	102	4,176 21	1	77 97	10	.....	1,216 76	1,216 76	....	95
	5	24	1,275 56	2	148 52	.....	61 86	794 25	856 11	.....	19
	6	53	2,832 65	7	209 00	6	.....	1,591 95	1,586 95	5 00	72
	7	116	3,834 30	.....	.....	143	.....	1,883 89	1,872 29	11 60	247
	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	9	66	2,543 04	.....	.....	2	16 00	917 84	926 84	6 98	60
	10	153	5,768 22	4	186 41	17	103 74	2,513 49	2,496 49	17 00	166
	11	91	3,047 85	9	554 25	5	.....	1,952 37	1,896 92	55 45	87

A.—Continued.

to the 31st day of December, A.D. 1909, inclusive, etc.—Continued.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 174, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.	$ c.		$ c.			$ c.	
15	.....	.....	.....	37	.....	.....	...	6 75	.....	.....	.....	.....	.....	375 75	368 18
3	2	.....	.....	20	.....	.....	....	1 86	.....	.....	.....	2	.....	203 30	192 72
1	2	.....	.....	14	2	24 00	....	1 90	.....	.....	.....	.....	.....	147 40	156 57
15	.....	.....	.....	52	1	10 00	....	6 78	.....	.....	.....	.....	.....	341 56	266 28
5	1	.....	.....	10	.....	.....	....	2 71	.....	1	5 00	.....	.....	219 26	.....
3	.....	.....	.....	4	.....	.....	....	1 33	.....	.....	.....	.....	.....	51 11	36 15
.....	.....	.....	.....	4	.....	.....	....	45	.....	.....	.....	.....	.....	71 30	127 33
32	3	.....	1	142	2	22 00	3	16 07	.....	2	10 00	11	1	1,127 00	886 95
12	4	.....	.....	32	5	47 00	....	4 38	.....	.....	.....	3	.....	216 95	207 77
15	.....	.....	.....	27	1	12 00	....	6 12	.....	.....	.....	.....	.....	185 66	275 00
7	2	.....	.....	48	2	23 00	1	3 37	.....	.....	.....	.....	.....	288 20	258 00
14	.....	.....	.....	132	3	28 00	....	9 17	.....	2	7 00	2	.....	748 40	404 84
16	.....	.....	.....	60	1	11 00	....	8 77	.....	.....	.....	11	.....	551 50	374 18
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
11	4	.....	1	31	.....	.....	1	.....	.....	.....	.....	1	.....	507 00	250 36
8	1	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	1	1	61 12	96 38
1	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	19 08	.....
3	.....	.....	.....	14	.....	.....	....	.....	.....	1	5 00	3	1	306 47	277 38
4	.....	.....	.....	14	.....	.....	....	.....	.....	.....	.....	.....	.....	88 98	106 41
8	1	.....	.....	11	.....	.....	....	.....	.....	.....	.....	1	.....	218 31	.....
15	.....	.....	.....	21	.....	.....	....	.....	.....	.....	.....	.....	.....	225 80	205 57
17	.....	.....	.....	13	1	12 00	....	6 50	.....	.....	.....	1	.....	256 65	173 93
4	.....	.....	.....	10	1	17 00	....	2 81	.....	.....	.....	.....	.....	177 66	.....
3	.....	.....	.....	8	.....	.....	....	1 47	.....	.....	.....	.....	.....	85 67	90 07
2	.....	.....	.....	6	1	12 00	....	1 55	.....	.....	.....	.....	.....	94 64	99 09
46	1	.....	.....	113	.....	.....	...	18 97	.....	3	15 00	16	5	1,155 90	688 07
11	.....	.....	1	65	1	9 00	....	6 18	.....	1	5 00	1	.....	797 05	396 16
22	2	48	.....	59	.....	.....	....	9 12	.....	.....	.....	6	.....	432 35	224 58
4	.....	.....	.....	13	.....	.....	....	2 73	.....	.....	.....	1	.....	119 30	66 80
5	.....	.....	.....	8	1	12 00	....	3 07	.....	.....	.....	1	.....	116 00	123 77
21	.....	.....	.....	68	1	12 00	....	10 14	.....	1	5 00	7	.....	610 11	259 70
22	3	.....	.....	124	1	8 00	....	15 24	.....	4	22 50	14	1	1,188 65	666 93
3	.....	.....	.....	17	.....	.....	....	2 55	.....	.....	.....	1	.....	218 25	200 00
5	1	.....	.....	13	.....	.....	....	2 12	.....	1	5 00	.....	.....	142 85	.....
.....	.....	.....	.....	2	.....	.....	....	15	.....	.....	.....	.....	.....	31 64	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	13	.....	.....	....	1 78	.....	.....	.....	2	.....	103 51	51 63
4	.....	.....	.....	19	.....	.....	....	2 41	.....	.....	.....	2	.....	153 02	62 36
2	1	.....	.....	5	.....	.....	....	1 61	.....	.....	.....	1	.....	101 95	74 13
6	.....	.....	.....	15	.....	.....	....	3 76	.....	5	27 00	2	.....	253 70	145 60
2	.....	.....	.....	3	.....	.....	....	1 13	.....	.....	.....	.....	.....	57 84	.....
3	.....	.....	.....	10	.....	.....	....	2 66	.....	.....	.....	2	.....	139 18	92 33
9	.....	.....	.....	77	.....	.....	....	6 30	.....	.....	.....	6	1	596 12	201 53
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	.....	20	.....	.....	....	2 16	.....	1	3 00	1	.....	146 00	63 64
8	.....	.....	2	48	.....	.....	....	4 36	.....	.....	.....	6	.....	374 10	207 63
4	2	.....	.....	16	.....	.....	....	2 74	.....	.....	.....	.....	.....	188 48	188 49

* Part of year only.

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Prince Edward..	1	649	15,743 92	12	421 79	230	1,252 26	6,312 93	6,882 50	685 69	589
	2	13	156 25	.....	.....	4	.....	140 47	140 47	.....	13
	3	6	75 24	2	152 93	2	.....	70 60	70 60	.....	6
	4	4	113 85	9	238 67	4	.....	68 09	68 09	.....	4
	5	56	1,174 90	1	.....	6	8 32	340 64	333 75	15 21	53
	6	10	221 94	2	....	2	4 00	290 45	294 45	....	10
	7	13	598 65	.....	.....	2	.....	293 76	246 65	47 11	15
	8	1	57 94	.....	.....	.....	..... .	23 52	23 52	.....	1
Rainy River	1	140	6,778 71	10	529 87	3	155 89	1,513 19	1,544 78	124 30	128
	2	104	2,973 10	2	210 45	9	103 95	1,866 00	1,914 65	55 30	110
	3	95	3,948 05	1	.....	.....	238 41	1,712 53	1,829 02	121 92	89
Renfrew	1	259	11,739 07	5	156 77	7	.....	2,021 11	1,925 62	95 49	235
	2	33	1,371 57	2	41 06	1	8 48	257 60	259 08	7 00	29
	3	256	8,436 72	15	662 62	14	51 06	3,266 98	3,305 98	12 06	234
	4	357	9,389 85	14	978 42	25	171 00	4,034 67	3,911 43	294 24	342
	5	89	3,464 03	3	94 15	7	25 00	2,419 65	2,408 13	11 52	38
	6	125	5,154 32	12	596 14	3	12 00	2,381 58	2,382 67	10 91	115
	7	110	5,147 74	9	518 25	6	25 10	1,859 31	1,840 46	18 85	98
Simcoe.....	1	539	17,042 52	20	991 55	58	5 25	6,687 50	6,643 64	49 11	533
	2	110	3,794 85	3	207 95	7	46 62	2,059 18	2,011 99	93 81	102
	3	113	6,098 32	15	875 79	5	46 91	3,119 95	2,994 33	172 53	84
	5	244	8,243 30	6	422 90	9	312 42	3,271 20	3,392 04	191 58	233
	5	94	3,615 05	3	215 69	9	26 00	1,062 22	1,018 40	69 82	89
	6	249	8,873 27	21	1,101 72	24	115 02	4,045 34	4,035 63	124 73	259
	7	57	2,586 53	10	553 70	2	5 27	310 59	310 59	5 27	36
	8	125	5,732 63	10	509 40	10	109 71	2,302 28	2,200 86	101 42	109
	9	403	11,016 85	33	1,927 51	62	89 38	7,981 54	7,950 56	120 36	393
	10	156	6,032 92	22	1,256 94	19	55 55	3,186 53	3,218 89	23 19	107
Stormont, Dundas and Glengarry	1	84	2,544 84	.....	.. . .	9	13 30	973 09	974 39	12 00	69
	2	230	9,018 46	8	67 25	13	181 08	1,269 91	1,179 93	89 98	198
	3	468	12,709 43	21	1,188 31	112	127 00	4,741 17	4,562 17	179 00	456
	4	155	5,259 30	10	380 59	10	.....	1,235 79	1,162 25	73 72	148
	5	129	3,488 20	3	132 57	26	350 17	1,053 13	1,042 55	360 75	149
	6	72	1,183 40	5	188 98	5	30 31	925 88	897 83	28 05	66
	7	67	1,507 02	4	98 50	.....	31 19	1,138 68	1,146 68	23 19	67
	8	204	7,322 66	9	629 99	5	66 23	3,380 11	3,341 82	104 52	195
	9	46	1,624 89	.....	.....	.....	.....	922 77	922 77	....	44
	10	152	7,747 65	8	314 62	9	219 62	3,176 08	2,941 80	92 68	131
	11	84	3,230 42	9	629 63	6	59 47	2,320 43	2,360 00	19 90	72
	12	127	4,260 71	7	543 68	8	.....	1,716 08	1,634 09	81 99	123
Sudbury	1	681	28,141 00	17	1,013 00	10	1,349 23	11,942 23	12,150 34	841 12	628
	2	60	2,352 04	4	270 46	.....	70 00	599 86	543 36	56 50	56
	3	160	3,754 35	5	274 96	.....	305 96	1,967 25	2,127 46	145 75	145
	4	59	3,051 44	3	234 66	3	.....	709 72	709 72	.....	46
Thunder Bay....	1	896	40,002 95	39	2,038 78	8	462 17	15,322 46	14,849 29	473 17	772
	3	993	44,552 68	16	1,305 77	100	545 60	17,148 19	16,920 58	773 21	936

A.—Continued.

to the 31st day of December, A.D. 1909, inclusive, etc.—Continued.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $80.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $80.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 171, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.			$ c.			$ c.	$ c.
17	2	.....	.....	270	.....	.....	....	5 92	.....	.....	.....	12	.....	1,353 10	.....
.....	.....	3	.....	5	.....	.....	....	.....	.....	.....	.....	.....	.....	34 95	680 70
.....	.....	.....	.....	2	.....	.....	....	03	.....	.....	.....	.....	.....	17 70	17 95
.....	.....	.....	.....	.....	.....	.....	....	12 00	.....	.....	.....	.....	.....	35 90	.....
2	2	.....	.....	17	.....	.....	....	1 49	.....	.....	.....	.....	.....	114 15	41 08
.....	.....	.....	.....	4	.....	.....	....	15	.....	.....	.....	.....	.....	26 61	12 36
.....	.....	.....	.....	3	.....	.....	....	30	.....	.....	.....	.....	.....	30 35	19 22
.....	.....	.....	.....	.....	.....	.....	....	03	.....	.....	.....	.....	.....	4 73	4 92
11	.....	.....	2	18	.....	.....	....	.....	.....	3	30 00	1	.....	371 00	.....
3	.....	.....	2	32	.....	.....	....	.....	.....	.....	.....	1	.....	240 95	244 95
6	.....	.....	.....	12	.....	.....	....	.....	.....	.....	.....	.....	.....	156 90	50 20
24	8	.....	.....	43	.....	.....	....	4 75	.....	.....	.....	1	.....	286 20	254 44
4	.....	.....	.....	8	.....	.....	....	.....	.....	.....	.....	.....	.....	65 40	51 20
13	9	.....	.....	62	.....	.....	....	8 14	.....	.....	.....	1	.....	250 28	269 91
14	.....	.....	.....	114	.....	.....	....	8 49	.....	1	5 00	4	.....	758 40	312 70
7	1	.....	.....	21	.....	.....	....	3 78	.....	.....	.....	3	2	204 11	.....
8	1	.....	.....	27	.....	.....	....	4 40	.....	1	10 00	.....	.....	276 91	157 00
12	.....	.....	.....	13	.....	.....	....	5 37	.....	.....	.....	2	.....	267 72	196 83
26	1	.....	.....	182	.....	.....	....	14 80	.....	1	5 00	17	.....	1,212 79	355 75
7	.....	.....	.....	21	1	12 00	....	3 88	.....	.....	.....	2	.....	373 75	178 24
16	.....	.....	2	13	.....	.....	....	6 46	.....	1	5 00	1	1	277 85	365 77
18	2	.....	3	32	3	36 00	....	8 81	.....	.....	.....	.....	.....	447 65	342 26
6	.....	.....	.....	12	1	35 00	....	3 24	.....	1	5 00	2	1	197 30	147 08
10	1	.....	.....	72	.....	.....	....	6 03	.....	2	10 00	3	.....	594 03	393 27
8	.....	.....	.....	6	.....	.....	....	3 15	.....	2	10 00	.....	.....	103 37	119 76
15	5	.....	.....	16	1	12 00	....	6 64	.....	1	5 00	1	.....	310 10	182 93
13	1	.....	1	162	.....	.....	....	9 43	.....	....	.....	20	.....	882 25	611 72
9	.....	.....	.....	40	.....	.....	....	4 67	.....	.....	.....	7	1	296 50	285 30
6	.....	.....	.....	22	.....	.....	....	2 52	.....	2	10 00	.....	.....	149 13	102 69
22	.....	.....	1	44	.....	.....	....	9 39	.....	.....	.....	.....	.....	585 29	224 46
12	.....	.....	1	162	.....	.....	....	10 23	.....	2	10 00	22	1	1,151 50	622 89
7	.....	.....	.....	40	.....	.....	....	3 97	.....	1	5 00	1	.....	323 15	308 57
6	.....	.....	.....	.....	.....	.....	....	3 06	.....	.....	.....	.....	.....	.....	149 22
5	.....	.....	.....	26	.....	.....	....	2 56	.....	.....	.....	2	.....	198 75	93 92
.....	2	.....	.....	28	.....	.....	....	90	.....	.....	.....	.....	.....	142 90	122 47
10	.....	.....	2	54	.....	.....	....	6 96	.....	1	5 00	2	1	412 60	297 16
2	1	.....	.....	13	.....	.....	....	1 37	.....	.....	.....	.....	.....	86 97	47 28
19	3	.....	.....	23	.....	.....	....	6 98	.....	.....	.....	1	.....	355 77	281 82
8	.....	.....	.....	13	.....	.....	....	4 22	.....	1	5 00	2	.....	181 76	242 48
4	.....	.....	.....	30	.....	.....	....	3 22	.....	1	8 00	1	.....	220 10	383 28
53	5	.....	5	162	1	12 00	....	.....	.....	.....	.....	3	.....	1,150 84	.....
4	.....	.....	.....	11	.....	.....	....	.....	.....	1	5 00	.....	.....	103 37	171 88
15	.....	22	.....	20	.....	.....	....	.....	.....	.....	.....	.....	.....	312 85	275 00
9	.....	.....	.....	3	.....	.....	....	.....	.....	2	20 00	.....	.....	137 64	123 78
113	.....	.....	2	123	.....	.....	....	.....	.....	.....	.....	.....	.....	1,877 22	668 09
57	.....	.....	.....	104	.....	.....	....	.....	.....	2	10 00	.....	.....	1,458 60	1,024 81

TABLE

Return of Division Court Business from the 1st day of January

Name of County, United Counties, or District.	Number of Divisions.	Number of suits entered exclusive of transcripts of judgments and judgment summonses.	Amount of claims entered exclusive of transcripts of judgments and judgment summonses.	Number of transcripts of judgments received from other Courts.	Amount of claims received by transcripts of judgments from other Courts.	Number of judgment summonses issued.	Balance of cash in Court from the previous year.	Total amount of suitors' money paid into Court.	Total amount of suitors' money paid out of Court.	Balance of cash in Court.	Number of suits entered where the amount claimed does not exceed $100, exclusive of transcripts of judgments from other Courts.
			$ c.		$ c.		$ c.	$ c.	$ c.	$ c.	
Victoria	1	21	845 88	4	271 31	.....	30 00	434 54	434 54	.....	20
	2	61	2,167 86	5	326 80	8	.....	667 34	667 34	.....	66
	3	63	2,002 06	3	122 80	9	3 80	743 94	722 74	25 00	69
	4	17	556 97	5	341 93	.....	.....	614 82	614 82	.....	15
	5	347	14,561 68	20	1,369 52	50	45 03	5,093 88	5,047 44	46 44	316
	6	37	1,407 40	2	270 72	7	3 75	688 41	688 41	3 75	35
	7	42	1,865 94	1	46 68	.....	60 13	981 51	966 05	15 46	37
Waterloo	1	633	24,851 37	34	7,505 33	99	44 33	5,903 15	5,847 05	56 10	702
	2	175	3,526 50	14	739 80	11	60 55	3,071 96	2,996 17	75 79	82
	3	509	12,400 02	17	736 63	79	.....	7,982 35	7,982 35	.....	494
	4	74	2,627 04	4	81 02	6	266 24	1,328 03	1,482 39	101 88	75
	5	64	2,012 21	4	274 51	6	.....	1,147 38	1,147 38	.....	61
	6	76	2,794 58	7	419 25	5	.....	1,099 66	1,099 66	.....	76
	7	22	886 29	1	16 58	.....	20 56	155 19	159 12	16 63	19
Welland	1	588	19,302 34	28	543 24	63	284 09	7,319 14	7,546 41	56 77	557
	2	35	1,576 02	9	508 24	6	.....	883 35	875 31	8 04	23
	3	147	5,606 40	6	189 65	16	7 50	1,688 60	1,641 50	47 10	138
	4	343	12,995 47	38	2,175 03	31	732 41	6,615 12	6,363 22	903 37	319
	5	27	857 94	3	197 67	3	17 73	520 17	488 27	31 90	26
	6	37	1,140 54	.....	....	2	.....	748 11	748 11	.....	35
Wellington	1	798	25,565 34	24	1,079 82	146	63 48	8,862 00	8,869 76	55 72	758
	2	13	321 00	1	13 87	.....	5 98	255 52	261 50	.....	13
	3	8	209 24	2	165 99	2	.....	317 67	317 67	.....	8
	4	55	2,028 95	10	618 87	6	2 00	1,213 68	1,178 31	35 37	49
	5	48	1,565 99	1	70 09	4	.....	702 60	702 60	.....	46
	6	34	907 02	9	764 52	3	17 79	743 62	708 87	52 54	33
	7	55	1,878 06	17	723 82	6	4 87	1,104 27	1,109 14	.....	58
	8	111	5,901 50	16	752 35	16	13 11	1,758 88	1,766 49	5 50	93
	10	86	3,450 78	9	206 78	7	110 13	1,039 89	976 57	63 32	77
	11	100	4,879 21	9	457 36	5	36 94	2,251 98	2,215 83	73 69	87
Wentworth	1	1,117	40,750 14	37	3,041 39	52	413 61	8,936 85	8,779 72	570 74	945
	2	87	3,062 52	8	384 06	4	.....	1,472 67	1,472 67	.....	84
	3	18	803 33	4	281 72	.....	.....	473 05	464 65	8 40	15
	4	56	1,737 38	7	201 98	4	13 00	639 59	640 68	4 91	59
	5	34	926 26	1	100 10	1	.....	745 85	745 85	.....	.....
	7	5	184 42	.....	.....	1	.. ..	37 48	37 48	.....	5
	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	9	1,340	40,492 31	14	987 67	39	584 46	14,690 36	14,972 58	266 24	1,291
York	1	3,720	228,620 29	97	5,684 95	466	2,352 12	31,909 40	33,599 28	662 24	3,403
	2	114	4,440 82	9	391 73	6	.....	2,214 40	2,214 40	.....	104
	3	67	1,833 11	12	403 48	5	.....	1,868 63	1,868 63	.....	64
	4	182	8,648 55	33	1,713 78	26	106 57	3,888 33	3,909 49	85 41	168
	5	60	2,687 33	7	319 98	3	41 41	1,686 96	1,662 90	65 47	46
	6	94	2,019 91	16	376 24	6	.....	2,463 65	2,396 15	67 50	75
	7	52	2,187 44	5	296 79	4	30 60	966 59	963 59	3 00	47
	8	522	17,848 13	32	2,004 29	100	208 79	6,377 53	6,434 99	151 33	501
	9	77	2,464 44	7	286 21	26	103 40	1,317 30	1,357 70	63 00	76
	10	3,603	167,602 74	63	3,433 27	475	1,291 05	39,357 01	39,113 76	1,534 30	3,251
Total	337	61,397	2,255,437 90	3,507	190,071 13	7,523	27,416 45	859,727 05	850,778 41	29,112 92	56,245

* Part of year only.

A.—Concluded.

to the 31st day of December, A.D. 1909, inclusive, etc.—Concluded.

Number of suits entered where claim does not exceed $200.	Number of actions for tort, where the amount claimed does not exceed $60.	Number of personal actions, where the parties consent thereto in writing and the amount claimed does not exceed $100.	Number of actions of replevin, where the value of the goods or other property or effects distrained, taken or detained, does not exceed the sum of $60.	Number of suits entered for claims not exceeding $10.	Number of jury trials by juries summoned.	Amount paid to jurors summoned.	Number of jury trials by jurors called in pursuance of section 174, D.C.A.	Amount payable to County Treasurer for "Division Court Jury Fee Fund."	Amount of fees and emoluments payable to the Honourable the Treasurer for the use of the Province.	Number of instances in which the Judge has allowed costs to be taxed for Counsel, Attorney or Agents' fees.	The amount of costs so taxed.	Return of judgment debtors ordered to be committed.	The number of such debtors actually committed.	Clerks' returns of emoluments.	Bailiffs' returns of emoluments.
						$ c.		$ c.			$ c.			$ c.	$ c.
1	.....	.....	.....	6	.....	.....	....	73	.....	.....	.....	... ..	.....	46 61	28 30
2	2	.....	1	12	.....	.....	....	1 73	.....	.....	.....	2	.....	141 81	136 43
2	.....	.....	1	19	.....	.....	....	1 59	.....	.....	.....	2	.....	135 45	120 00
2	.....	.....	.....	3	.....	.....	....	73	.....	.....	.....	.....	. .	53 24	40 25
31	3	.....	.....	53	1	11 00	....	15 00	.....	5	34 00	13	1	917 35	332 15
1	1	.....	.....	10	.....	.....	....	97	.....	.....	.....	1	.....	105 35	72 28
4	4	.....	.....	9	.....	.....	....	1 66	.....	1	5 00	.....	.....	74 00	....
23	3	.....	.....	198	.....	.. ....	....	15 54	.....	1	5 00	17	3	1,417 67	542 21
3	.....	.....	.....	90	.....	.....	....	2 64	.....	.....	.....	.....	.....	328 80	191 09
15	1	.....	.....	242	.....	.. ....	....	9 78	.....	.....	.....	23	.....	1,000 40	308 87
5	.....	.....	1	23	1	12 00	....	2 66	.....	.....	.....	1	.....	153 34	112 45
3	5	.....	.....	16	.....	.....	....	1 77	.....	...	.....	2	.....	135 15	149 74
5	.....	.....	.....	24	.....	.....	....	2 71	.....	.....	.....	1	.....	176 60	120 83
3	.....	.....	.....	6	.....	.....	....	93	.....	.....	.....	.....	.....	46 49	17 30
28	.....	.....	1	170	1	10 00	....	16 16	.....	2	10 00	15	2	1,294 65	701 07
3	.....	.....	.....	8	.....	.....	....	1 54	.....	.....	....	1	.....	89 20	125 64
9	.....	.....	.....	31	....	.....	....	5 25	.....	.....	.....	2	.....	295 00	347 05
22	1	.....	.....	80	1	.....	....	11 73	.....	.....	.....	6	.....	873 85	653 07
1	.....	.....	.....	7	.....	.....	....	70	.....	.....	.....	1	.. ...	66 84	.....
2	.....	.....	.....	10	.....	.....	....	1 07	.....	.....	.....	.....	.....	76 24	.....
40	7	.....	1	249	1	12 00	....	22 03	.....	.....	.....	40	3	1,898 25	71 78
.....	.....	.....	.....	6	1	12 00	....	21	.....	.....	.....	.....	.....	28 17	637 83
.....	.....	.....	.....	1	.....	.....	....	12	.....	.....	.....	1	.....	22 66	11 72
6	.....	.....	.....	18	1	11 00	....	2 22	.....	.....	.....	1	.....	152 45	6 22
2	.....	.....	.....	14	.....	.....	....	1 26	.....	.....	.....	1	.....	83 39	105 57
1	.....	.....	.....	7	.....	.....	....	79	.....	.....	.....	1	.....	79 75	61 93
3	2	.....	.....	10	1	10 00	...	2 20	.....	.....	.....	.....	.....	171 10	53 67
17	.....	.....	1	10	1	12 00	...	6 27	.....	2	10 00	2	.....	304 54	138 05
8	1	.....	.....	18	1	12 00	....	3 85	.....	.....	.....	.....	.....	162 20	200 92
12	.....	.....	1	17	.....	.....	....	4 91	.....	1	8 00	.....	.....	266 60	114 11
66	16	.....	4	289	2	16 00	....	36 15	144 04	11	66 00	6	1	2,730 22	178 51
3	2	.....	.....	23	3	35 00	....	2 25	.....	.....	.....	.....	.....	200 65	1,024 62
1	.....	.....	.....	2	.....	.....	....	73	.....	.....	.....	.....	.....	39 55	.....
1	.....	.....	.....	17	1	12 00	...	1 30	.....	.....	.....	.....	.....	116 37	113 11
.....	.....	.....	.....	7	..	.....	....	63	.....	.....	.....	.....	.....	63 60	45 06
.....	.....	.....	.....	1	.....	.....	....	12	.....	.....	.....	.....	.....	8 07	.....
.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
48	4	.....	5	439	.....	.....	....	32 89	195 11	4	18 00	4	.....	2,975 55	1,156 20
317	45	.....	27	576	4	12 00	....	155 72	844 52	23	115 72	243	.....	6,222 65	3,670 96
10	2	.....	.....	25	.....	.....	....	4 42	.....	1	5 00	1	.....	292 60	248 51
3	2	.....	21	.....	.....	.....	....	1 71	.....	.....	.....	2	.....	131 48	89 96
11	11	.....	2	43	1	31 00	....	7 21	.....	1	5 00	6	.....	474 70	411 55
6	1	.....	.....	7	.....	.....	....	2 55	.....	.....	.....	.....	.....	145 60	90 19
11	.....	.....	.....	8	.....	.....	....	4 23	.....	.....	.....	2	.....	228 60	.....
4	.....	.....	.....	6	.....	.....	....	2 26	.....	.....	.....	2	.....	131 35	.....
19	5	.....	3	115	.....	.....	....	14 91	.....	.....	.....	23	1	1,202 90	734 17
.....	.....	.....	.....	21	.....	.....	....	1 66	.....	1	5 00	7	1	118 65	.....
322	27	.....	13	606	1	21 00	....	165 61	843 35	24	118 00	192	.....	6,216 75	4,379 07
3,943	430	121	175	15,059	121	1,362 50	11	1,692 08	3,222 91	228	1,294 77	1,601	52	.....	.....

TABLE B.

LIST of Division Court clerks, their post office address, their county or district and number of division in which their Courts are situated, for the Province of Ontario, up to the 31st December, 1909, inclusive. (Lists corrected up to date of printing.)

County and District.	No. of Division.	Clerk.	Post office address.
Algoma	1	F. A. King	Sault Ste. Marie
	2	T. Sullivan	Bruce Mines
	3	Thos. Dodds	Thessalon
	6	W. F. Adams	Richard's Landing
	7	John Muncaster	Blind River
Brant	1	James C. Spence	Brantford
	2	Jas. Smiley	Paris
	3	S. B. Laurason	St. George
	4	W. F. Miles	Burford
	5	Walter E. Hooker	Scotland
Bruce	1	N. Crawford	Walkerton
	2	John K. McLean	Teeswater
	3	Joseph Barker	Kincardine
	4	J. C. Gibson	Paisley
	5	J. A Chapman	Port Elgin
	6	A. Nelson	Tiverton
	7	J. R. Vandusen	Tara
	8	J. H. Fielding	Wiarton
	9	Angus Martyn	Ripley
	10	Jonn Pettigrew	Lion's Head
	11	W. J. Little	Lucknow
	12	C. E. Biehn	Chesley
Carleton	1	J. R. Armstrong	Ottawa
	2	Wm. McElroy	Richmond
	3	Jas. H. Wilson, Jr.	Carp
	4	Matthew Riddell	Galetta
	5	John Kerr	North Gower
	6	W. C. Cameron	Metcalf
	7	W. A. Mason	Hintonburg
Dufferin	1	Joseph Pattulo	Orangeville
	2	Thos. Reburn	Shelburne
	3	A. Ferris	Stanton
	4	Robt. Orr	Mono Mills
	5	M. G. Varcoe	Grand Valley
Elgin	1	E. C. Monteith	Aylmer
	2	John McIntyre	St. Thomas
	3	John McIntyre	St. Thomas
	4	Samuel Maccoll	Dutton
Essex	1	C. F. Pequegnot	Sandwich
	2	G. E. Pulford	Amherstburg
	3	Geo. Pearce	Kingsville
	4	C. Bell	Oxley
	5	Geo. A. Morse	Leamington
	6	H. Taylor	Belle River
	7	Joseph D. A. Deziel	Windsor
	8	Wm. Laing	Essex
	9	A. J. Brown	Comber
	10	Jno. Watt	Scudder

List of Division Court Clerks.—Continued.

County and District.	No. of Division.	Clerk.	Post office address.
Frontenac	1	W. H. Carson	Kingston
	2	J. F. Latherland	Cataraqui
	3	J. W. Davies	Sydenham
	4	H. McMullen	Verona
	5	C. M. Van Luven	Battersea
	6	A. W. Buell	Sharbot Lake
	7	W. McGregor	Arden
Grey	1	Benjamin Allen	Owen Sound
	2	Archibald Davidson	Durham
	3	H. P. Heming	Meaford
	4	W. L. Tyson	Clarksburg
	5	W. J. Bellamy	Flesherton
	6	Wm. J. Winter	Chatsworth
	7	Duncan Campbell	Hanover
	8	Richard L. Stephen	Markdale
Haldimand	1	James McGregor	Caledonia
	2	B. Humphrey	Cayuga
	3	T. Armour	Dunnville
	4	C. E. Bourne	Jarvis
	5	Robert E. Johnson	Canboro'.
Haliburton	1	Geo. A. Rogers	Minden
	2	G. Bemister	Haliburton
	3	Stephen Kettle	Ursa
	4	E. A. Remey	Dorset
Halton	1	Wm. Panton	Milton
	2	A. Hillmer	Oakville
	3	C. C. Roe	Georgetown
	4	R. J. McNabb	Acton
	5	Wm. Fraser	Campbellville
	6	Ed. Donkin	Burlington
Hastings	1	F. M. Clark	Belleville
	2	W. Greer	St. Ola
	3	V. B. Randall.	Shannonville
	4	F. A. Bartlett	Tweed
	5	Thomas Y. Clute	Stirling
	6	Dennis Gillen	Madoc
	7	Thos. Donnelly	Deseronto
	9	G. J. Chadd	Trenton
	10	J. C. Bowen	Marmora
	11	James Haryatt	Maynooth
	12	W. N. Simmons	Bancroft
Huron	1	James Yates	Goderich
	2	J. C. Greig	Seaforth
	3	H. C. Rance	Clinton
	4	John Karney	Brussels
	5	R. N. Creech	Exeter
	6	James Whyard	Dungannon
	7	Jno. Tippett	Bayfield
	8	Alex. Ross	Wingham
	9	Thomas Brown	Wroxeter
	10	A. F. Hess	Zurich
	11	Wm. Lewis	Crediton
	12	Thos. Code	Blyth

List of Division Court Clerks.—Continued.

County and District.	No. of Division.	Clerk.	Post office address.
Kenora	1	E. Appleton	Kenora
	2	Fred Deacon	Wabigoon
Kent	1	W. B. Wells	Chatham
	2	Arthur McKinlay	Ridgetown
	3	James T. Smith	Dresden
	4	J. W. Gibson	Blenheim
	5	Charles B. Jackson	Wallaceburg
	6	Jos. Dillon	Bothwell
	7	Arthur A. Wilson	Tilbury
Lambton	1	A. F. Wade	Sarnia
	2	Wm. McLeay	Watford
	3	Jas. McIntyre	Florence
	4	Wm. W. Stover	Sombra
	5	Thomas L. Jones	Forest
	6		Thedford
	7	John McCrea	Mooretown
	8	W. G. Fraser	Petrolea
	9	Richard Code	Alviston
Lanark	1	R. Jamieson	Perth
	2	W. A. Field	Lanark
	3	A. R. G. Peden	Carleton Place
	4	James H. Ross	Smith's Falls
	5	P. C. Dowdall	Almonte
Leeds and Grenville	1	I. J. Mansell	Brockville
	2	Jno. F. Graham	Prescott
	3	S. McCammon	Gananoque
	4	S. J. Law	Kemptville
	5	W. H. McCrea	Merrickville
	6	N. L. Phelps	Delta
	7	Cyrus A. Wood	Toledo
	8	L. S. Lewis	Newboro'
	9	E. J. Purcell	Athens
	10	C. W. McLean	Spencerville
	11	John Haley	North Augusta
	12	Charles Tennant	Mallorytown
Lennox and Addington	1	A. Knight	Napanee
	2	Fred W. Armstrong	Bath
	3	Joseph B. Allison	Adolphustown
	4	Jno. H. Patterson	Newburgh
	5	Robert Cox	Enterprise
	6	J. A. Timmerman	Odessa
	7	James Aylesworth	Tamworth
	8	J. M. Dafoe	Flinton
	9	W. J. Slater	Denbigh
Lincoln	1	Samuel Shearer	Niagara-on-the-Lake
	2	A. H. Trapnell	St. Catharines
	3	Thos. Pearson	Smithsville
	4	C. E. Riggins	Beamsville
	5	W. W. Kidd	Grimsby
Manitoulin	1	A. Hall	Gore Bay
	2	David McGilvery	Little Current
	3	F. P. Denison	Manitowaning
	4		Cockburn Island

List of Division Court Clerks.—Continued.

County or District.	No. of Division.	Clerk.	Post office address.
Middlesex	1	J. W. McIntosh	London
	2	Wm. J. McRoberts	Parkhill
	3	R. H. Collins.	Lucan
	4	J. H. Matthews	Delaware
	5	G. Wilson	Glencoe
	6	John H. McIntosh	Strathroy
	7	Edward Thomas Shaw.	Dorchester Station
	8	Walter R. Westlake...	Arva
	9	F. H. Whetter	London
Muskoka	1	Charles Bard	Bracebridge
	2	W. N. Moody	Gravenhurst
	3	J. R. Reece	Huntsville
	4	Fred D. Stubbs	Port Carling
Nipissing	1	A. W. Smith	Sturgeon Falls
	2	John McMeekin	Mattawa
	3	M. W. Flannery	North Bay
	4	John Johnston	Elk Lake
	5	J. A. Levesque	Bonfield
	6	William Hugh	Englehart
	7	Paul A. Cobbald	Haileybury
	8	S. L. Bradley	Cochrane
Norfolk	1	Charles E. Freeman	Simcoe
	2	Abraham A. Tobin	Waterford
	3	Hy. McKnight	Teeterville
	4	E. A. Buchner	Courtland
	5	M. J. McColl	Vittoria
	6	Arthur P. Barrett	Port Rowan
	7	Watson Park	Fairground
	8	W. Francis Tibbetts	Port Dover
Northumberland and Durham	1	John Moorecraft	Bowmanville
	2	L. B. Davidson	Newcastle
	3	S. Purser	Port Hope
	4	W. S. Givens	Millbrook
	5	J. C. Rosevear	Cobourg
	6	Geo. Cuthbert.	Grafton
	7	H. S. Keyes	Colborne
	8	B. C. H. Becker	Brighton
	9	H. J. Walker	Warkworth
	10	Wm. Little	Wooler
	11	Ed. C. West	Campbellford
Ontario	1	E. L. McDonell, pro tem.	Whitby
	2	M. Gleeson	Greenwood
	3	J. W. Burnham	Port Perry
	4	R. J. Moore	Uxbridge
	5	Geo. Smith	Cannington
	6	James Gordon	Beaverton
	7	D. Leonard	Atherly
Oxford	1	V. L. Francis	Woodstock
	2	Chas. K. Curry.	Drumbo
	3	A. S. Herd	Embro
	4	M. L. Bushell	Norwich
	5	Neil G. Gunn	Ingersoll
	6	John C. Ross	Tillsonburg
	7	W. S. Russell	Tavistock

List of Division Court Clerks.—Continued.

County or District.	No. of Division.	Clerk.	Post office address.
Parry Sound	1	W. J. Jones	Parry Sound
	2	John Fletcher	McKellar
	3	A. A. Young	Rosseau
	4	Walter Sharp	Burk's Falls
	5	Harry Snuggs	Magnetawan
	6	F. J. Williams	Powassan
	7	John Harper	Sundridge
Peel	1	John Clarke	Brampton
	2	H. H. Shaver	Cooksville
	3	J. K. Leslie	Caledon
	4	John McDonald	Bolton
Perth	1	D. B. Burritt	Stratford
	2	J. Dougherty	Mitchell
	3	Richard Shepherd	St, Mary's
	4	G. Brown	Shakespeare
	5	Thomas Trow	Milverton
	6	Wm. Bright	Listowel
Peterborough	1	Francis James Bell	Peterborough
	2	J. L. Squires	Norwood
	3	W. Sherin	Lakefield
	4	Wm. Gallon	Apsley
	5	W. A. McMaster	Havelock
	6	J. C. Read	Keene
Prescott and Russell	1	E. A. Johnson	L'Orignal
	2	P. S. Paquet	Vankleek Hill
	3	Napoleon Labross	St. Eugene
	4	D. Viau	Plantagenet
	5	J. S. Cameron	Cumberland
	6	A. Carson	Russell
	7	J. A. D. Landriault	Hawkesbury
	8	.....	Fournier
	9	F. W. Langrell	Alfred
	10	Moise Rochon	Clarence Creek.
	11	Peter Stewart	South Indian
Prince Edward	1	Fred Slavin	Picton
	2	J. McQuoid	Milford
	3	Charles H. Wright	Demorestville
	4	William H. C. Robin	Ameliasburg
	5	H. A. Jolley	Wellington
	6	C. H. Saylor	Bloomfield
	7	A. S. Burr	Consecon
	8	B. E. Harrison	Waupoos
Rainy River	1	W. H. Elliott	Fort Frances
	2	B. L. Phillips	Emo
	3	D. K. McGregor	Rainy River
Renfrew	1	J. H. Leach	Pembroke
	2	Hugh S. Miller	Beachburg
	3	George Eady, Jr.	Renfrew
	4	John R. Tierney	Arnprior
	5	C. Blackburn	Eganville
	6	J. R. Warren	Cobden
	7	P. J. Harrington	Killaloe Station

List of Division Court Clerks.—Continued.

County or District.	No. of Division	Clerk.	Post office address.
Simcoe	1	W. C. McLean	Barrie
	2	R. E. Stevenson	Bradford
	3	Jos. Wright	Beeton
	4	D. C. Barr	Collingwood
	5	A. Craig	Craighurst
	6	F. Webber	Orillia
	7	Angus Bell	New Lowell
	8	D. A. Lee	Alliston
	9	W. J. Martin	Penetanguishene
	10	J. R. Russell	Coldwater
Stormont, Dundas and Glengarry	1	G. H. Macgillivray	Williamstown
	2	Hugh R. Macdonald	Alexandria
	3	G. A. Milden	Cornwall
	4	Geo. Sampson	Aultsville
	5	Jas. N. Eastman	Morrisburg
	6	Jas. Collison	Iroquois
	7	M. J. Cleland	South Mountain
	8	D. G. McMillan	Finch
	9	Duncan C. McRae	Bridge End
	10	W. G. Bolster	Chesterville
	11	D. McIntosh	Strathmore
	12	John D. McIntosh	Dominionville
Sudbury	1	J. K. McLennan	Sudbury
	2	A. LeBarge	Chelmsford
	3	J. C. McMillan	Webbwood
	4	E. A. Wright	Warren
Thunder Bay	1	R. E. Mitchell	Port Arthur
	3	T. W. Rutledge	Fort William
Victoria	1	Arch. Campbell	Woodville
	2	Edward D. Hand	Fenelon Falls
	3	G. W. Taylor	Bobcaygeon
	4	W. H. Kennedy	Omemee
	5	Elias Bowes	Lindsay
	6	J. F. Cunnings	Oakwood
	7	A. C. Graham	Victoria Road
Waterloo	1	Fred. Rohleder	Berlin
	2	James D. Webster	Preston
	3	Edward D. Wilkins	Galt
	4	F. H. McCallum	New Hamburg
	5	C. W. Parsill	Linwood
	6	Wm. H. Winkler	St. Jacobs
	7	A. E. Watson	Ayr
Welland	1	John M. Livingston	Welland Station
	2	Joseph Henderson	Marshville
	3	Jos. Clark	Ridgeway
	4	Jos. G. Cadham	Niagara Falls Sth
	5	D. J. C. Munro	Thorold
	6	Jas. E. Neff	Port Colborne

List of Division Court Clerks.—Concluded.

County or District.	No. of Division.	Clerk.	Post office address.
Wellington	1	Thos. J. Day	Guelph
	2	Wm. Nicoll	Morriston
	3	L. R. Guild	Rockwood
	4	John Brownridge	Fergus
	5	Thomas Young	Erin
	6	Henry Clark	Elora
	7	John Lunz	Drayton
	8	R. T. Smith	Arthur
	10	John Livingston	Harriston
	11	J. C. Wilkes	Mount Forest
Wentworth	1	H. T. Bunbury	Hamilton
	2	F. D. Suter	Dundas
	3	Hugh Thompson	Waterdown
	4	H. M. McPherson	Orkney
	5	J. C. Moore	Stoney Creek
	7	G. T. Neal	Glanford
	8		Binbrook
	9	C. H. Peebles	Hamilton
York	1	A. McL. Howard	Toronto
	2	Robert J. Corson	Markham
	3	Thos. F. McMahon	Richmond Hill
	4	K. N. Robertson	Newmarket
	5	F. G. Tremayne	Sutton West
	6	M. F. Doyle	Schomberg
	7	E. W. Brown	Woodbridge
	8	John Hamshaw	Toronto Junction
	9	J. H. Richardson	West Hill
	10	E. H. Duggan	Toronto

TABLE C.

List of Division Court Bailiffs, their Post Office Address, the County or District and Number of Division in which their Courts are situated, for the Province of Ontario, up to 31st December, 1909, inclusive. (Lists corrected up to date of printing.

County or District.	No. of Division.	Bailiff.	Post office address.
Algoma	1	T. J. Bowers	Sault Ste. Marie
	2	Chas. Hamilton	Bruce Mines.
	3	Isaac Leach	Thessalon
	6	A. Kitchen	Carterton, St. Jos. Is.
	7	Jno. Graham	Blind River
Brant	1	Jno. M. Dyckman	Brantford
	2	Horace Huston	Paris
	3	J. H. Cornell	St. George
	4	Robt. Balkwill	Burford
	5	A. M. Malcolm	Scotland
Bruce	1	Ezra Briggs	Walkerton
	2	John Farquharson	Teeswater
	3	George G. Collins	Kincardine
	4	Alex. Fraser	Paisley
	5	J. J. George	Port Elgin
	6	Gore Leggett	Tiverton
	7	Charles A. Richards	Tara
	8	H. G. Trout	Wiarton
	9	Thos. Long	Ripley
	10	A. C. Bridge	Lion's Head
	11	R. J. Cameron	Lucknow
	12	Jno. Beatty	Chesley
Carleton	1	E. Lavoie	Ottawa
		D. Mulligan	Ottawa
		E. T. Van Nierop	Ottawa
	2	John Hemphill	Richmond
	3	Wm. Falls	Carp
	4	George Owens	Antrim
	5	Wesley Hicks	Kars
	6	Ed. J. Murphy	Metcalfe
	7	A. Wilson	Hintonburg
Dufferin	1	J. Morrison	Orangeville
	2	John Reburn	Whitfield
	3	Jno. Armstrong	Earnscliffe
	4	Thos. McCandless	Mono Mills
	5	John W. Rounding	Grand Valley
Elgin	1	W. W. White	Aylmer
	2	John McKenzie	St. Thomas
	3	John McKenzie	St. Thomas
	4	A. McKellar	Dutton

List of Division Court Bailiffs, etc.—Continued.

County or District.	No. of Division.	Bailiff.	Post office address.
Essex	1	Alois Master	Sandwich
	2	John Pettypiece	Amherstburg
	3	James Wigle	Kingsville
	4	Arthur T. Munger	Harrow
	5	Wm. Roach	Leamington
	6	John D. Renaud	Belle River
	7	F. St. Louis	Windsor
		Clement Reaume	Windsor
	8	James Johnston	Essex
	9	Leon Souchereau	Stoney Point
	10	R. Piper	Pelee
Frontenac	1	Hiram Davis	Wolfe Island
		Chas. G. Clarke	Kingston
	2	Thos. Guess	Cataraqui
	3	S. Joyner	Sydenham
	4	E. A. Tallen	Verona
	5	E. F. Dennee	Inverary
	6	W. J. McCormic	Plevna
		W. Thomlison	Sharbot Lake
	7	John E. Hays	Arden
Grey	1	Robt. Taylor	Owen Sound
	2	Wm. Sharp	Durham
	3	E. J. McDonald	Meaford
	4	Geo. Mitchell	Clarksburg
	5	John Wright, Jr.	Flesherton
	6	James Dudgeon	Chatsworth
	7	Henry Prast	Hanover
	8	W. J. Pickell	Markdale
Haldimand	1	James Thorburn	Caledonia
	2	Robert Walker	Cayuga
	3	Wm. McIndoe	Dunnville
	4	F. Hartwell	Jarvis
	5	Harvey Ricker	Canboro
Haliburton	1	R. C. Garrett	Minden
	2		Haliburton
	3	J. M. Pickens	Ursa
	4	Angus McKay	Dorset
Halton	1	J. A. Fraser.	Milton
	2	Alex. McCleary	Oakville
	3	J. L. Wilson	Georgetown
	4	John Lawson	Acton
	5	Ephraim Chapman	Campbellville
	6	Hiram Laud	Burlington
Hastings	1	Joshua Duffin	Belleville
	2	R. Casement	St. Ola
	3	W. E. Pearsall	Shannonville
	4	W. H. Davis	Tweed
	5	A. McCutcheon	Stirling
	6	C. St. Charles	Madoc
	7	A. P. Brown	Deseronto
	9	H. Mumford	Trenton
	10	O. R. Jones	Marmora
	11	P. M. Gunter	Maynooth
	12	James McCaw	Bancroft

List of Division Court Bailiffs, etc,—Continued.

County or District.	No. of Division.	Bailiff.	Post office address.
Huron	1	G. C. Black	Goderich.
	2	James McNamara	Seaforth.
	3	D. Dickenson	Clinton.
	4	E. Crich	Brussels.
	5	Alex. Devitt	Exeter.
	6	James Mallough	Dungannon.
	7	Thomas W. Cameron	Bayfield.
	8	G. A. Phippen	Wingham.
	9	John Brethauer	Wroxeter.
	10	C. Eilber	Zurich.
	11	J. Beanes	Crediton.
	12	Richard Somers	Blyth.
Kenora	1	R. B. Donkin	Kenora.
	2	Thomas Hatch	Dryden.
Kent	1	Charles J. Moore	Chatham.
		A. Wells	Chatham.
	2	J. N. Wilson	Ridgetown.
	3	Alex. Cuthbert	Dresden.
	4	H. B. Marshall	Blenheim.
	5	Thos. Forham	Wallaceburg.
	6	John Eachran	Thamesville.
	7	M. Dillon	Merlin.
Lambton	1	Rich. Macdonald	Sarnia.
	2	J. F. Elliott	Watford.
	3	J. W. Bilton	Florence.
	4	N. Cornwall	Sombra.
	5	Joseph Burney	Forest.
	6	W. E. Molloy	Thedford.
	7	Ed. Harkness	Mooretown.
	8	Geo. Pearce	Petrolea.
	9	Jno. A. Cummings	Alvinston.
Lanark	1	P. J. Lee	Perth.
		Wm. J. Wilson	Perth.
	2	Robt. White	Lanark.
	3	Max McPherson	Carleton Place.
		J. McPherson	Carleton Place.
	4	John R. Polk	Smith's Falls.
	5	John Slattery	Almonte.
Leeds and Grenville	1	Ed. Young	Brockville.
		Matthew White	Brockville.
	2	Charles H. Row	Prescott.
	3	Edward M. Hiscocks	Gananoque.
	4	Michael Sweeney	Kemptville.
	5	Jno. Wilson	Merrickville.
	6	J. W. Russell	Delta.
	7	R. Richards	Frankville.
	8	H. S. Foster	Newboro.
		R. W. Leech	Westport.
	9	H. C. Phillips	Athens.
	10	Jas. P. Lawrence	Spencerville.
	11	W. H. Love	North Augusta.
	12	W. J. Mallory	Mallorytown.

List of Division Court Bailiffs, etc.—Continued.

County or District.	No. of Division.	Bailiff.	Post office address.
Lennox and Addington	1	Z. Ham	Napanee
		Geo. Greer	Napanee
	2		Bath
	3	R. H. Hawley	Dorland
	4	S. E. Sagar	Newburgh
	5	M. H. Switzer	Enterprise
	6	Geo. Watts	Odessa
	7	P. F. Carscallen	Tamworth
	8	George Sedore	Flinton
	9	Chas. P. Stein	Denbigh
Lincoln	1	Robert Chapman	Niagara-on-the-Lake
	2	Richard E. Boyle	St. Catharines
	3	A. D. Lacy	Smithville
	4	W. E. Tufford	Beamsville
	5	D. E. Swayzie	Grimsby
Manitoulin	1	Thos. Griffith	Gore Bay
	2	John Ramesbottom	Little Current
	3	John A. Shields	Manitowaning
	4		Cockburn Island
Middlesex	1	Jas. W. Hevey	London
	2	J. Hall	Parkill
	3	N. Ryan	Lucan
	4	Henry Eldidge	Delaware
	5	James Poole	Glencoe
	6	T. F. Hawkin	Strathroy
	7	W. H. Shaw	Dorchester Station
	8	Thos. A. Shoebotham	Arva
	9	C. H. James	London
Muskoka	1	R. E. Armstrong	Bracebridge
	2	Chas. Richardson	Gravenhurst
	3	A. R. Corbett	Huntsville
	4	W. Killen	Port Carling
Nipissing	1	H. Kinch	Sturgeon Falls
	2	Aime Jodouin	Mattawa
		John E. Whitten	Whitney
	3	D. McIntyre	North Bay
	4	C. M. McCarthy	Elk Lake
	5		Bonfield
	6	James Kennedy	Englehart
	7	J. Latchford	Liskeard
	8	L. Boutin	Cochrane
Norfolk	1	John Allgeo	Simcoe
	2	Orlando H. Duncombe	Waterford
	3	J. H. Boyce	Windham
	4	W. Cameron	Courtland
	5	Chas. A. Duncan	Vittoria
	6	Plewis Pierce	Port Rowan
	7	Robt. N. Smith	Fair Ground
	8	S. L. Butler	Port Dover
Northumberland and Durham	1	M. Munday	Bowmanville
	2	Jas. Coleman	Newcastle
	3	John Carson	Port Hope
	4	Jas. Francey	Millbrook
	5	A. R. Eagleson	Coldsprings
	6	T. B. Finley	Grafton
	7	G. M. Peebles	Colborne
	8	Jno. A. Marshall	Brighton
	9	William Love	Warkworth
	10	F. Ellis	Wooler
	11	R. Lowery	Campbellford

List of Division Court Bailiffs, etc.—Continued.

County or District.	No. of Division.	Bailiff.	Post office address.
Ontario	1	B. F. Campbell	Brooklyn
	2	S. H. Stevenson	Brougham
	3	Jos. Baird	Manchester
	4	J. Steiner	Uxbridge
	5	Lachlin McBain	Cannington
	6	W. S. Glassford	Beaverton
	7	M. T. Harris	Brechin
Oxford	1	Benj. Hobson	Woodstock
	2	L. S. Kennedy	Richwood
	3	J. A. McKay	Embro
	4	Arthur Catton	Norwich
	5	Wm. Dundas	Ingersoll
	6	Joseph Thompson	Tillsonburg
	7	C. Strahm	Tavistock
Parry Sound	1	J. H. Tully	Parry Sound
	2	R. S. Jackson	McKellar
	3	Wm. Atkinson	Rosseau
	4	Isaac Wilson	Burk's Falls
	5	S. Walton	Magnetawan
	6	Jno. Lang	Powassan
	7	J. P. Johnson	Sundridge
Peel	1	John W. Smith	Brampton
	2	Wm. Henry Rutledge	Cooksville
	3	D. McArthur	Caledon
	4	Thos. Barons	Bolton
Perth	1	D. W. Forbes	Stratford
	2	John Coppin	Mitchell
	3	Wm. Box	St. Mary's
	4	Jno. S. Gabel	Shakespeare
	5	F. W. Guenther	Milverton
	6	Jacob Seaburger	Listowel
Peterborough	1	Thomas Laplante	Peterborough
	2	F. J. Stewart	Norwood
	3	.....	Lakefield
	4	Wm. Peters	Lasswade
	5	R. J. Grahame	Havelock
	6	Thos. McIntyre	Keene
Prescott and Russell	1	S. W. Wright	L'Orignal
	2	I. Labrosse	Vankleek
	3	Michael Kelly	St. Eugene
	4	John A. Peltier	Plantagenet
	5	.....	Cumberland
	6	Thos. Yonge	Russell
	7	S W. Wright	L'Orignal
	8	Dolphis Maranda	Fournier
	9	H. Larocque	Alfred
	10	John A. Dent	Rockland
		Moise Laviolette	Clarence Creek
	11	A. E. Hall	South Indian

List of Division Court Bailiffs, etc.—Continued.

County or District.	No. of Division.	Bailiff.	Post office address.
Prince Edward	1	S. A. Ruttan	Picton
	2	G. N. Ostrander	Milford
	3	George Farrell.	Demorestville
	4	A. Harvey	Ameliasburg
	5	J. E. Lane	Wellington
	6	J. W. Branscombe	Bloomfield
	7	Herman W. Weeks	Consecon
	8	E. A. Williams	Waupoos
Rainy River	1	Robt. Bolton	Fort Frances
	2	J. P. Kelly	Emo
	3	George Simpson	Rainy River
Renfrew	1	Geo. McDonald	Pembroke
		Hudson Smith	Pembroke
	2	L. O. Christman	Beachburg
		John Beaupre	Beachburg
	3	John Devine	Renfrew
	4	John Warnock, jr.	Arnprior
	5	Wm. Luloff	Eganville
	6	Jno. Jardine.	Cobden
	7	Jno. Roche..	Killaloe Sta.
Simcoe	1	John Weymouth	Barrie
	2	W. Simpkin	Bradford
	3	M. J. Casserly	Tottenham
	4	A. W. S. Cunningham	Collingwood
	5	James Martin	Hillsdale
	6	George Reeve	Orillia
	7	Wm. Switzer	New Lowell
	8	John R. Arnold	Alliston
	9	Ed. E. J. Hewson	Penetanguishene
	10	G. A. Abbott	Coldwater
Stormont, Dundas and Glengarry	1	John Burgess	Williamstown
	2	H. C. Weir	Alexandria
	3	W. S. Smith	Cornwall
	4	J. P. Ferguson	Osnabruck Centre
	5	Jacob Hopper	Morrisburg
	6	G. E. Shaver	Iroquois
	7	Andrew Redwood	South Mountain
	8	Archibald McIntosh	Finch
	9	K. A. McDonell	North Lancaster
	10	E. Merkley	Chesterville
	11	Chas. W. Kahala	Avonmore
	12	Donald J. Robertson	Maxville
Sudbury	1	C. Gravelle	Sudbury
	2	Henry Jourdin	Chelmsford
		Thos. Lonergan	Chapleau
	3	Alex. McRae	Webbwood
	4	J. H. Boyd	Warren
Thunder Bay	1	A. Clavet	Porth Arthur
		Jno. H. Reid	Schreiber
	3	A. Inman	Fort William

List of Division Court Bailiffs, etc.—Continued.

County and District.	No. of Division.	Bailiff.	Post office address.
Victoria	1	S. Dumond	Woodville
	2	E. Mark	Fenelon Falls
	3	W. Mitchell	Bobcaygeon
	4	Geo. Griffin	Omemee
	5	Peter Mitchell	Lindsay
	6	Wm. J. McCullough	Oakwood
	7		Kirkfield
Waterloo	1	W. H. Gottfried	Berlin
	2	W. A. Bolduc	Preston
	3	Levi Bawtinheimer	Galt
	4	Henry Gerth	New Hamburg
	5	Benj. J. Ballard	Hawkesville
	6	Benj. J. Ballard	Hawkesville
	7	Jas. G. Watson	Ayr
Welland	1	J. C. Nixon	Welland
	2	Jno. Haymes	Marshville
	3	Jno. R. Huffman	Ridgeway
	4	Jas. Jones	Niagara Falls South
	5	R. C. Higgins	Thorold
	6	Hy. Leslie	Port Colborne
Wellington	1	Jno. Ogg	Guelph
		Wm. Young	Guelph
	2	Jno. Ogg	Guelph
	3		Rockwood
	4	Wm. M. Frank	Fergus
	5	Peter McGill	Erin
	6	J. W. Love	Elora
	7	Wm. Richards	Drayton
	8	O. D. White	Arthur
	10	Henry Torrance	Clifford
	11	Thos. Ryan	Mount Forest
Wentworth	1	John Hunt	Hamilton
	2	Alex. Misener	Dundas
	3		Waterdown
	4	Alex. Misener	Troy
	5	J. F. Felker	Stoney Creek
	7	Jas. Thompson	Binbrook
	8	Jas. Thompson	Binbrook
	9	J. Greenfield	Hamilton
York	1	Chas. Synge	Toronto
	2	M. C. Selby	Locust Hill
	3	Ed. Dixon	Headford
	4	A. E. Widdifield	Newmarket
	5	Peter Grant	Sutton
	6	E. Frisby	Aurora
	7	J. W. Ryndress	Woodbridge
	8	A. Kaake	Weston
	9	Jos. Skelton	Scarboro
	10	Frank Woods	Toronto

TABLE D.

DIVISION COURTS, LIMITS OF THE RESPECTIVE DIVISIONS IN THE PROVINCE OF ONTARIO, AND JUDICIAL OFFICERS.

ALGOMA.

F. W. Johnston, Judge, Sault Ste. Marie.
Edward O'Connor, J.J., Sault Ste. Marie.
M. McFadden, County Crown Attorney and Clerk P., Sault Ste. Marie.

1.—Bounded west by Thunder Bay District, 85th parallel of west longitude and east by Barr River, including all the islands in front.

2.—Bounded west by Barr River and east by the westerly boundary of the Townships of Thessalon River, Kirkwood, Bridgeland, and Houghton, and by said boundary line of the last three named townships produced northerly.

3.—Bounded west by the westerly boundary of the Townships of Thessalon River, Kirkwood, Bridgeland and Houghton, and the boundary line of the last named three townships, produced northerly, and on the east by the eastern boundary of the Township of Sprague, produced northerly.

6.—Consisting of St. Joseph's Island.

7.—To include the following territory—commencing at a point in the boundary line between the townships of Lewis and Sheddon, produced south to the shore of Lake Huron, thence west, including the village of Cutler and Johns' Island, to a point on the north shore of Lake Huron, between the Townships of Bright and Thompson, produced to the northern boundary of the said District of Algoma; thence east along the said northern boundary of the said District of Algoma to a point in the boundary line between the said Townships of Lewis and Sheddon, produced northerly, then south along said boundary line, between the said Townships of Lewis and Sheddon, produced northerly to the place of beginning.

BRANT.

A. D. Hardy, Judge, Brantford.
A. J. Wilkes, C.C.A. and C.P., Brantford.

1.—The City of Brantford and that part of the township of Brantford not included in the other divisions hereinafter described. The Townships of Onondaga and Tuscarora and that part of the Township of Brantford lying south of the main road from Brantford to Hamilton and east of Fairchild's Creek.

2.—The Town of Paris and that part of South Dumfries west of the line between lots 18 and 19, and that part of the first concession of the Township of Brantford lying west of a continuation of the last-mentioned line.

3.—The remainder of the Township of South Dumfries and of the first concession of the Township of Brantford.

4.—The ten northern concessions of the Township of Burford, and all that part of the 2nd, 3rd, 4th and 5th concessions of the Townships of Brantford, west of the line between lots numbers 10 and 11, and that portion of the Kerr tract west of the continuation of the last-mentioned line.

5.—The Township of Oakland, the four southern concessions of the Township of Burford and lots numbers 1 to 5, inclusive, in the ranges east and west of the Mount Pleasant Road, in the Township of Brantford, adjoining the Township of Oakland.

BRUCE.

Wm. Barrett, Judge, Walkerton.

A. B. Klien, J.J., Walkerton.

Thomas Dixon, C.C.A. and C.P., Walkerton.

1.—The Town of Walkerton and the Township of Carrick and the Township of Brant, south of the 12th concession, in the lots up to No. 26, and south of the 10th concession, in lots 26 to 34, inclusive.

2.—The Village of Teeswater, the Townships of Culross and Greenock south of the 12th concession.

3.—The Town of Kincardine, the Township of Kincardine, lying south of the 10th concession.

4.—The Village of Paisley, and that part of the Township of Brant lying north of 11th concession and west of lot 26. That part of Greenock lying north of concession 11; lots 26 to 35, inclusive, in the 8th, 9th, 10th, 11th, 12th, 13th and 14th concessions of the Township of Bruce; and Saugeen, east of a line between lots 28 and 29, and south of the proportion of the town line between Aaron and Elderslie to the Saugeen River. All Elderslie lying west of the 25th side line and south of the 12th concession. And also that part lying north of concession 11 and west of lot 17.

5.—All of the Township of Amabel lying north of the 10th concession, Port Elgin and Southampton, and all Saugeen not in No. 4, and Arron, west of the line between lots 10 and 11, north of Arran Lake and its outlet, and Amabel, south of concession 11, and west of concession C, and concessions 8, 9 and 10.

6.—The Village of Tiverton and all the Township of Bruce, except that part included in No. 4, and all Kincardine north of the 9th concession.

7.—Tara and all Arran, not in No. 5, and all Elderslie, not in Nos. 4 and 12, and Amabel, south of the 8th concession and east of concession lettered C.

8.—The Town of Wiarton, the Township of Albemarle and that part of Amabel not in Nos. 5 and 7.

9.—The Township of Huron.

10.—The Townships of Eastnor, Lindsay, and St. Edmunds.

11.—Lucknow and the Township of Kinloss.

12.—Chesley and those parts of Brant and Elderslie not included in Nos. 1, 4 and 7.

CARLETON.

D. B. McTavish, Judge, Ottawa.

R. D. Gunn, J.J., Ottawa.

J. A. Ritchie, C.C.A. and C.P, Ottawa.

1.—Comprising all the City of Ottawa and the Township of Gloucester, to lot 15, inclusive, Rideau Front, and concessions 1 and 6, inclusive, Ottawa Front and the islands in the Ottawa River opposite thereto.

2.—The Township of Goulbourne, the 8th, 9th and 10th concessions of the Township of Marlborough, all the Township of Nepean south of the River Goodwood, and the 4th, 5th and 6th concessions thereof north of the same river to the boundary line between lots 20 and 21 in the last mentioned concession.

3.—The Township of Huntley and the Township of March, except lots 1 to 5, inclusive, in concessions 1, 2, 3 and 4 thereof.

4.—The Townships of Fitzroy and Torbolton.

5.—The Township of North Gower, Long Island in the Rideau River, and 1st, 2nd, 3rd, 4th, 5th, 6th and 7th concessions of Marlborough.

6.—The Township of Osgoode, the 6th, 7th and 8th concessions Ottawa Front, and from lots 16 to 30, inclusive, of the Rideau Front of the Township of Gloucester.

7.—The Township of Nepean, except the City of Ottawa, and part of the said Township lying south of the River Goodwood and concessions 4, 5 and 6, north of the River Goodwood to the boundary line between lots 20 and 21 in the said last mentioned concessions, and, including also lots 1 to 5, inclusive, in concessions 1, 2, 3 and 4, in the Township of March.

DUFFERIN.

T. A. M. McCarthy, Judge, Orangeville.

W. J. L. McKay, C.C.A. and C.P., Orangeville.

1.—The Town of Orangeville, the Township of East Garafraxa and all that portion of the Township of Amaranth lying south of the southern boundary of lot No. 26, in each concession in the Township of Amaranth.

2.—The Village of Shelburne, the Township of Melancthon, and all that portion of the Township of Amaranth lying north of the southern boundary of lot number 26, in each concession of the Township of Amaranth.

3.—The Township of Mulmur.

4.—The Township of Mono.

5.—The Township of East Luther.

ELGIN.

C. W. Colter, Judge, St. Thomas.

C. O. Z. Ermatinger, J.J., St. Thomas.

A. McCrimmon, C.C.A. and C.P., St. Thomas.

1.—The Townships of Bayham, Malahide and South Dorchester.

2.—The Townships of Southwold and Yarmouth (except the City of St Thomas).

3.—The City of St. Thomas.

4.—The Townships of Aldborough and Dunwich.

ESSEX.

M. A. McHugh, Judge, Sandwich.

G. Smith, J.J., Sandwich.

J. H. Rodd, C.C.A. and C.P., Windsor.

1.—Town of Sandwich and Township of Sandwich East.

2.—Town of Amherstburg and the Townships of Alden and Anderdon.

3.—The Village of Kingsville, and all that part of the Township of Gosfield not included in Division No. 8.

4.—The Township of Colchester South, and all Colchester North south of the 9th concession, exclusive of the said concession, and the lots on both sides of Maiden Street.

5.—Township of Mersea and Village of Leamington.

6.—The Township of Rochester, the Village of Belle River, the first concession of the Township of Maidstone, and all north of the Middle Road in the said Township of Maidstone.

7.—Town of Windsor, the Town of Walkerville, and all of Sandwich East north of the Talbot Street range.

8.—The Town of Essex, and all of the Township of Maidstone lying west of the first concession and south of the Middle Road; so much of Sandwich East as is south of Talbot Street, including the lots on both sides of said street to Nos. 306 and 307; all of Colchester north of the 9th concession, including said concession and lots on both sides of Maiden Street, and all that part of Gosfield lying north of concession 6, and extending as far east from the limits between Gosfield and Colchester as lots No. 12, including such lot in each concession north of concession 6, inclusive.

9.—The Townships of Tilbury West and Tilbury North.

10.—The Township of Pelee.

FRONTENAC.

C. V. Price, Judge, Kingston.

J. L. Whiting, C.C.A. and C.P., Kingston.

1.—City of Kingston, Township of Garden Island, Wolfe Island, Howe Island, and part of the Township of Pittsburg.

2.—Cataraqui, the Township of Kingston and the Village of Portsmouth.

3.—Loughboro', the Townships of Loughboro' and Bedford.

4.—Verona, Townships of Portland and Hinchinbrooke.

5.—Sunbury, the Township of Storrington and part of the Township of Pittsburg.

6.—The Townships of Olden, Oso, Barrie, Clarendon, Palmerston, Miller, Canonto, and South Canonto.

7.—The Township of Kennebec.

GREY.

W. J. Hatton, Judge, Owen Sound.

C. H. Widdifield, J.J., Owen Sound.

J. Armstrong, C.C.A. and C.P., Owen Sound.

1.—The Town of Owen Sound, the Village of Brooke and the Townships of Derby, Keppel, Sarawak and Sydenham.

2.—The Town of Durham, the Township of Egremont, and those portions of the Township of Bentinck, Normandy and Glenelg as follows:—That part of the Township of Bentinck lying east of the line between lots 30 and 31 in the 1st, 2nd and 3rd concessions south of the Durham Road, and in concessions 1, 2 and 3 north of the Durham Road, and east of the line between lots 15 and 16 in concessions 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 thereof. That part of the Township of Normanby lying east of the line between lots 20 and 21, in the 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, and 18th concessions, and all of the Township of Glenelg, excepting that portion lying east of the line between lots 10 and 11 in the 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, and 15th concessions thereof.

3.—The Town of Meaford, the Township of St. Vincent, and that part of the Township of Euphrasia, lying west of the line between the 6th and 7th concessions, and north of the line between lots 15 and 16.

4.—The Township of Collingwood and the east half of the Township of Euphrasia, excepting that part thereof lying between the 4th and 5th concessions and south of the lots between 12 and 13, and east half of the Township of Osprey.

5.—The Township of Proton, the west half of the Township of Osprey, and those parts of the Township of Artemesia consisting of the ranges of lots lying

parallel to the Toronto and Sydenham Road, and south of the line between lots 130 and 131, and concessions 1, 2 and 3, south of the Durham Road, and 1, 2, 3, 4, 5 and 6 north of the said Durham Road, and those portions of concessions 7, 8 and 9 lying east of the ranges of lots parallel with the Toronto and Sydenham Road, and those portions of concessions 10, 11, 12, 13, and 14 lying east of the line between lots 30 and 31.

6.—The Township of Sullivan and the Township of Holland, excepting those portions of concessions 9, 10, 11 and 12 lying south of the line between lots 15 and 16, and those portions of concessions 7 and 8 west of the ranges of lots lying parallel with the Toronto and Sydenham Road, and the ranges of lots lying parallel with the Toronto and Sydenham Road and south of the line between lots 50 and 51

7.—All the lots from 1 to 30, inclusive, in the three concessions south and the three concessions north of the Durham Road in the said Township of Bentinck, and all the lots from 1 to 15, inclusive, in the 12th concession, from the 4th to the 15th concessions, inclusive, of the said Township of Bentinck, and all the lots from 1 to 20, inclusive, in all the concessions from 4 to 18, inclusive, in the Township of Normanby aforesaid.

8.—All the lots from 51 to 130, inclusive, in all the concessions parallel to and being northeast and southwest of the Toronto and Sydenham road, in the Townships of Artemesia, Glenelg and Holland aforesaid; all lots to the westward of the dividing line between lots 30 and 31, in all the concessions from 10 to 14, inclusive, and all the lots from 1 to 5 in the 7th, 8th and 9th concessions, inclusive, which lie to the southwest of the third concession, southwest of the said Toronto and Sydenham road, in the said Township of Artemesia; all the lots from 1 to 15, inclusive, in concessions 5 and 6, and all the lots from 1 to 15, inclusive, in the concessions from 7 to 12, inclusive, in the Township of Euphrasia; all lots south of the allowance for road between lots 15 and 16, in the 9th, 10th, 11th and 12th concessions, and from lots 25 to 30, inclusive, on the 7th concession, and lots 28, 29 and 30 in the 8th concession of the said Township of Holland; and all the lots lying east of allowance for road between lots 10 and 11 in all the concessions from 7 to 15, inclusive, in the Township of Glenelg.

HALDIMAND.

G. B. Douglas, Judge, Cayuga.

J. A. Murphy, C.C.A., and C.P., Cayuga.

1.—Comprising the Township of Seneca except the first and second concessions, the Young Tract, and the property of the late Richard Martin and the late Robert Weir; all of the Township of Oneida, except the first range north of the Cayuga line, the Dennis tract, and the lots southerly of the said tract, and the Village of Caledonia.

2.—Comprising the Township of North Cayuga, except that portion thereof lying northeast of the side line between lots 12 and 13, and 1st and 2nd concessions of the Township of Seneca, except that portion thereof lying northeast of the side line between lots 12 and 13, the Young tract, and the lands of the late Robert Weir and Richard Martin, Esquires, in the said Township of Seneca, the first range of Oneida north of the Cayuga line, also the Dennis tract and river lots lying south, and the Townships of Rainham and South Cayuga.

3.—Comprising the Townships of Moulton, Sherbrooke and Dunn, and the Town of Dunnville.

4.—Comprising the Township of Walpole, and the Village of Hagersville.

5.—Comprising the Township of Canboro', that portion of North Cayuga lying east of the side line between lots 12 and 13, and those parts of the 1st and 2nd concessions of the Township of Seneca lying northeast of the side line between lots 12 and 13.

COUNTY OF HALIBURTON.

(Annexed to Victoria for Judicial Purposes.)

J. E. Harding, Judge, Lindsay.
H. McMillan, J.J.
A. P. Devlin, C.P. and C.C.A., Lindsay.

1.—The Townships of Glamorgan and Snowden, except that portion of both included in the third division, and all of the Township of Snowden, Lutterworth, Minden, Anson, Stanhope, Hindon.

2.—The Townships of Dysart, Guilford, Harburn, Dudley, Harcourt and Bruton, and that portion of Monmouth not included in the third division.

3.—All the rest of the territory comprising Township of Monmouth (except lots 1 and 19 inclusive), in the 13th, 14th, 15th, 16th and 17th concessions; the south 12 concessions of the Township of Glamorgan, and from lot 21, inclusive, to the eastern boundary in the south six concessions of Snowden.

4.—The Townships of Shelbourne, McClintock, Livingstone, Lawrence, Nightingale, Havelock, Eyre and Clyde.

HALTON.

T. A. Gorham, Judge, Milton.
W. I. Dick, C.C.A., and C.P., Milton.

1.—All the territory comprised in the new survey of the Township of Trafalgar, and the first ten lots in concessions 1, 2, 3, 4, 5 and 6 in the Township of Esquesing, and the first five lots in concessions 7, 8, 9, 10 and 11 in the said township.

2.—That part of the Township of Trafalgar known as the Old Survey.

3.—All the rest of the territory comprised in concessions 8, 9, 10 and 11 in the Township of Esquesing not comprised in the first division.

4.—All the rest of the territory comprised in concessions 1, 2, 3, 4, 5 and 6, Township of Esquesing.

5.—The Township of Nassegaweya.

6.—The Township of Nelson.

HASTINGS.

G. E. Deroche, Judge, Belleville.
E. B. Fralick, J.J., Belleville.
P. J. M. Anderson, C.C.A., and C.P., Belleville.

1.—To comprise the City of Belleville and the Township of Thurlow; also all that portion of the Township of Sidney, lying south of the 8th concession and east of the line between lots 18 and 19.

2.—Comprising the Township of Wollaston, Limerick and Cashel, and the six northerly concessions of the Township of Tudor and Grimsthorpe, and all those parts of the Township of Lake, in all the concessions thereof lying north of lots 21 in said concessions, all in the County of Hastings.

3.—The Township of Tyendinaga, except that part called Deseronto.

4.—The Township of Hungerford.

5.—All that part of the Township of Sidney which lies to the north of the 8th concession, and to the east of lot No. 6, in each concession north of the 8th concession, and all that part of the Township of Rawdon which lies to the south of the 9th concession, and that part of the Township of Huntingdon south of the 5th concession; also Block A and lots 1, 2, 3, 4, 5 and 6, in the 8th and 9th concessions of the Township of Sidney heretofore forming part of the 2nd division, together with all that portion of the Township of Sidney lying north of the 7th concession, and east of the line between lots 6 and 7.

6.—The Township and Village of Madoc, all that part of the Township of Huntingdon, north of the 6th concession of said township, and all of the Townships of Tudor and Grimsthorpe, except the northerly six concessions of each of the said townships.

7.—The Village of Desoronto.

9.—The Town of Trenton, and all that part of the Township of Sidney which lies to the west of lot 7 in each of the concessions of the township, including Mill Island. Also, all of said Township of Sidney lying south of the 8th concession and west of the line between 18 and 19, and east of the line between lots 6 and 7.

10.—The Township of Marmora, that part of the Township of Lake lying south of lots 22 in all the concessions thereof, and all that part of the Township of Rawdon which lies north of the 8th concession thereof.

11.—The Townships of Herschell, Monteagle, Carlow, Bangor, Wicklow and McClure.

12.—The Townships of Faraday, Dungannon and Mayo, and the Village of Bancroft.

HURON.

B. L. Boyle, Judge, Goderich.
Philip Holt, J.J., Goderich.
Chas. Seager, C.C.A., and C.P., Goderich.

1.—Comprising the Town of Goderich, that part of the Township of Goderich to the north of the Cut Line and the Huron Road until the same meets the road allowance between the 13th and 14th concessions, then back along the Huron Road to its junction with the Cut Line, then west by the road allowance between concessions 11 and 12 to the River Maitland, then along the River Maitland to Goderich, together with the Township of Colborne.

2.—Comprising the Township of McKillop, the town of Seaforth, and all that portion of the Township of Tuckersmith not included in the third division.

3.—Comprising all that portion of the Township of Hullett south of the blind line between the 7th and 8th concessions, of the Township of Hullett, that part of the Township of Goderich not included in Nos. 1 and 7, 1st, 2nd, 3rd and 4th concessions, Township of Stanley 1st and 2nd concessions, Township of Tuckersmith, L.R.S., north of lot 15, and that portion west of side road between lots 25 and 26, H.R.S., and Town of Clinton.

4.—Comprising the Township of Grey, all of the Township of Morris east of side road between lots Nos. 10 and 11 (which is not included in No. 12), and the Village of Brussels.

5.—Comprising the Townships of Usborne and the Village of Exeter.

6.—Comprising the Townships of Ashfield and all West Wawanosh, except that portion east of Maitland River.

7.—Comprising the Township of Goderich, south of Cut Line and Huron Road until the same joins the road between the 12th and 14th concessions of the Town-

ship of Goderich; thence along the said concessions until the same joins the River Bayfield, all Stanley not included in No. 3 and the Village of Bayfield.

8.—Comprising the Village of Wingham, the Township of Turnbury, all that part of East Wawanosh not included in No. 12, and all of the Township of Morris not included in Nos. 4 and 12.

9.—Comprising the Township of Howick and the Village of Wroxeter.

10.—Comprising the Township of Hay.

11.—Comprising the Township of Stephen.

12.—Commencing at the northeast angle of the Township of Hullett, thence southerly along the easterly boundary of the said Township of Hullett to the blind line between the 7th and 8th concessions of said township, thence westerly along said line to the western boundary of the township, thence northerly along the westerly boundary of the township to the Maitland River at the southeastern corner of the Maitland Block, thence along the said river northerly till the western boundary of East Wawanosh is reached, thence northerly along said westerly boundary to the road running between the 6th and 7th concessions of said Township of East Wawanosh, thence easterly along said road to the easterly limit of said township, thence northerly along the gravel road to the road running between the 5th and 6th concessions of the Township of Morris, thence easterly along said road to the line between lots 10 and 11, thence southerly along said line between the 6th and 7th concessions, thence easterly along said line to the line between lots 15 and 19, thence southerly to the boundary line between the Townships of Morris and Hullett, thence easterly to the place of beginning, including the Village of Blyth.

DISTRICT OF KENORA.

T. W. Chapple, Judge, Kenora.

P. E. Mackenzie, C. Atty. and C.P., Kenora.

1.—To comprise all that part of the said District lying west of a line commencing at Pickerel Rapids on Cedar and Manitou Lakes, and extending northward parallel with the sixth meridian line to the northern boundary of the District.

2.—To comprise all that part of the said District lying east of the eastern boundary of the said First Division.

KENT.

Archibald Bell, Judge, Chatham.

John L. Dowling, J.J., Chatham.

H. D. Smith, C.C.A., and C.P., Chatham.

1.—The First Division to consist of the Town of Chatham and that part of the Townships of Dover East and West to the south of the 12th and 13th concession line of the Township of Dover East, and that part of the Township of Chatham south of the 12th and 13th concession line, and west of the side roads between lots 12 and 13, from the first mentioned 12th and 13th concession line to the 5th and 6th concession line, and all south of the said 5th and 6th concession line of said township; that part of the Township of Harwich north of 5th and 6th concession line, by the easterly boundary; that part of the Township of Raleigh north of the 16th concession to the west side road between lots 12 and 13 north to the 6th and 7th concession line, and all of the said township north of the said last mentioned line, and that part of the Township of Tilbury East, north of the 4th concession.

2.—The Second Division to consist of that portion of Township of Howard south of the 2nd and 3rd concession line by the eastern boundary (known as the

Botany Road), and that part of the Township of Orford south of the 10th and 11th concession line of said township.

3.—The Third Division to consist of all that part of the Gore of Camden lying west of the 10th and 11th concession line, and that part of the Township of Camden lying west of the side line between lots 6 and 1; the Village of Dresden, and that part of the Township of Chatham north of the 5th and 6th concession line and east of the side roads between lots 12 and 13.

4.—The Fourth Division to consist of that part of the Township of Harwich south of the 5th concession of the eastern boundary, and south of the 3rd concession by the western boundary, and that part of Raleigh south of the 15th concession and east of the side road between lots 12 and 13 and the road to the shore through lot 146 on the Talbot road.

5.—The Fifth Division to consist of the Village of Wallaceburg, the Gore of Chatham and that part of the Township of Chatham northwest of the 12th and 13th concession line, and west of the said roads between lots 12 and 13, and that part of Dover East lying north of the 12th and 13th concession side road.

6.—The Sixth Division to consist of that part of the Township of Howard north of the Botany Road aforesaid, and that part of the Township of Oxford north of the 10th and 11th concession line, the Township of Rone, the Township of Bothwell, the Village of Thamesville, and that part of the Gore of Camden east of the 10th and 11th concession line, and that part of the Township of Camden east of the side line between lots 6 and 7.

7.—The Seventh Division to consist of that part of Tilbury East south of the 3rd concession, the Township of Romney, and that part of the Township of Raleigh south of the 6th and 7th concession line, and west of the side road between lots 12 and 13, in the said township, and the road through lot 147 on Talbot Road.

LAMBTON.

D. F. McWatt, Judge, Sarnia.

A. E. Taylor, J.J., Sarnia.

J. P. Bucke, C.C.A., and C.P., Sarnia.

1.—The external boundaries of the Township of Sarnia and the Town of Sarnia.

2.—The external boundaries of the Township of Warwick, including that portion of the Village of Arkona south of the township line.

3.—The external boundaries of the Townships of Euphemia and Dawn.

4.—The external boundaries of the Township of Sombra.

5.—The external boundaries of the Township of Plympton.

6.—The external boundaries of the Township of Bosanquet, including that portion of the Village of Arkona north of the township line.

7.—The external boundaries of the Township of Moore.

8.—The external boundaries of the Township of Enniskillen.

9.—The external boundaries of the Township of Brock.

LANARK

W. S. Senkler, Judge, Perth.

E. G. Malloch, C.C.A., and C.P., Perth.

1.—The Town of Perth, and the Townships of Drummond, Bathurst, South Sherbrooke, Burgess North, and that part of the Township of Elmsley North, north of the Rideau River, within the County of Lanark, and west of lot No. 12 in each concession. The sittings of said court to be held in the Town of Perth.

2.—The Second Division to consist of the Village of Lanark, and the Townships of Lanark, Dalhousie, Darling, Lavant and North Sherbrooke. The sittings of said court to be held at the Village of Lanark.

3.—The Third Division to consist of the Town of Carleton Place and the Township of Beckwith, and the first six lots in the first seven concessions of Township of Ramsay. The sittings of said court to be held in the Town of Carleton Place.

4.—The Township of Montague, the Town of Smith's Falls, and that part of the Township of North Elmsley, from lot No. 1 to lot No. 12, in each concession, both inclusive, not within the limits of the Town of Smith's Falls. Sittings at Smith's Falls.

5.—The Township of Pakenham, the Town of Almonte, and the Township of Ramsay, with the exception of the first six lots in the first seven concessions of the said township. Sittings at Almonte.

LEEDS AND GRENVILLE.

H. S. McDonald, Judge, Brockville.

E. J. Reynolds, J.J., Brockville.

M. M. Brown, C.C.A., and C.P., Brockville.

1.—To consist of the 1st, 2nd, 3rd, 4th, 5th, 6th and 7th concessions and broken front of the Township of Elizabethtown, and the concession roads between them.

2.—To consist of the 1st, 2nd, 3rd, 4th and 5th concession, and broken front and that part of the 6th, 7th and 8th concessions from the town line of Edwardsburg to lot No. 18, inclusive, of the Township of Augusta, and the concession roads between them.

3.—To consist of the 1st, 2nd, 3rd, 4th and 5th concessions and broken front of the Townships of Leeds and Lansdowne, respectively, and the concession roads between them.

4.—To consist of the Township of South Gower, the Township of Oxford from the west side line of lots No. 11 in all the concessions of the eastern boundary of the township, and the gore of land between South Gower, Oxford and Edwardsburg.

5.—To consist of the Township of Wolford (except the 7th and 8th concessions and the allowances of roads within and between them), lots No. 1 to 10, inclusive, in the 2nd, 3rd, 4th, 5th, 6th, 7th and 8th concessions of the Township of Oxford, and allowances of roads within and between them.

6.—To consist of the Townships of Bastard and Burgess, and those parts of the Townships of Leeds and Lansdowne, on the north side of the rear of the 5th concession in each respectively.

7.—To consist of the Townships of Kitley and Elmsley.

8.—To consist of the Township of North Crosby and South Crosby.

9.—To consist of that part of the Township of Escott and Yonge, in rear of the 4th concession of Yonge, and in rear of the 6th concession of Escott; that part of the Township of Elizabethtown, in rear of the 7th concession of and west of lot No. 18 in the 8th, 9th, 10th and 11th concessions, and the allowances for roads embraced therein.

10.—To consist of the Township of Edwardsburg.

11.—To consist of that part of the Township of Augusta in rear of the 5th concession and west of lot No. 18 in the 6th, 7th and 8th concessions; the whole of the 9th and 10th concessions of the Township of Augusta; the Gore between the Townships of Oxford, Wolford and Augusta; that part of the Township of Elizabethtown

in rear of the 7th concession, and east of the commons, between lots No. 18 and 19 in the 8th, 9th and 10th concession; the 7th and 8th concessions of the Township of Wolford; lots No. 1 to 10, inclusive, in the 9th and 10th concessions of the Township of Oxford; and the allowance for roads embraced therein.

12.—To consist of the 1st, 2nd, 3rd and 4th concessions and broken front of the Township of Yonge; the 1st, 2nd, 3rd, 4th, 5th and 6th concessions and broken front of the Township of Escott, and the allowances for roads embraced therein.

The said 1st, 2nd, 3rd and 12th divisions shall respectively embrace and comprehend within their lines those portions of the River St. Lawrence and islands therein, within the exterior lines of which such portions of said river and islands would lie and be, if such exterior side lines were produced and extended in that direction to the utmost limits of the Province.

LENNOX AND ADDINGTON.

Jas. H. Madden, Judge, Napanee.

H. M. Deroche, C.C.A., and C.P., Napanee.

1.—The Town of Napanee, Township of Richmond, all that part of North Fredericksburg and Adolphustown, lying north of Hay Bay, and all that part of North Fredericksburg lying north of Big Creek.

2.—Comprises 1st concession of Ernestown, the Village of Bath, the Township of Amherst Island, and the 2nd, 3rd, and 4th concessions of the said Township of Ernestown, from the west limits thereof to the west limit of lot No. 21 in each concession.

3.—Township of South Fredericksburg and all that part of North Fredericksburg and Adolphustown not included in Division No. 1.

4.—1st, 2nd and 3rd concessions of the Township of Camden and the Village of Newburg.

5.—All that part of the Township of Camden not included in Division No. 4.

6.—All that portion of the Township of Ernestown not included in the limits of Division No. 2.

7.—Township of Sheffield.

8.—Townships of Kaladar, Anglesea and Effingham.

9.—Townships of Abinger, Ashby and Denbigh.

LINCOLN.

R. B. Carman, Judge, St. Catharines.

M. Brennan, C.C.A., and C.P., St. Catharines.

1.—The Town and Township of Niagara.

2.—The Township of Grantham (including the City of St. Catharines), the Villages of Merritton and Port Dalhousie and the Township of Louth.

3.—The Townships of Caistor and Gainsborough and the 9th concession of the Township of Grimsby, including the 1st and 2nd ranges as part of the said concession.

4.—The Village of Beamsville and the Township of Clinton.

5.—The Village of Grimsby, the Township of North Grimsby, and the Township of South Grimsby, except that portion included in the Third Division.

DISTRICT OF MANITOULIN.

C. E. Hewson, Judge, Gore Bay.

A. G. Murray, C.A., and C.P., Gore Bay.

1.—The Town of Gore Bay, the Townships of Gordon, Allan, Campbell, Mills, Burpee, Robinson, Dawson, The Islands, Barrie, Clapperton and the Duck Islands, and that part of the Township of Billings lying west of the road allowance between lots 15 and 16 in the several concessions thereof, and so much of the Township of Carnarvon as lies west of Lake Mindemoya and north of the line between the 6th and 7th concessions thereof.

2.—The Town of Little Current, the Township of Howland and those parts of the Townships of Sheguindah and Bidwell lying north of the line between the 6th and 7th concessions of Sheguindah and the 4th and 7th concessions of the Township of Bidwell, and the 6th and 7th concessions of the line between lots 17 and 18 in the Township of Billings, and the adjacent islands lying north and east of the said Townships, except the Clapperton Island.

3.—Manitowaning, the Townships of Assiginack, Tehkummah and Sandfield, and those parts of the Township of Sheguindah lying south of the line between the 4th and 5th concessions of the Township of Bidwell and the 6th and 7th concessions of the Township of Billings to the line between lots 17 and 18 of said township, and the Township of Carnarvon, except so much of the same as lies west of Mindemoya Lake, and all that part of Manitoulin lying east of the Township of Assiginack, Manitowaning and South Bays and the islands adjacent thereto.

4.—Cockburn Island.

MIDDLESEX.

Talbot Macbeth, Judge, London.

Edward Elliott, J.J., London.

J. B. McKillop, C.C.A., and C.P., London.

1.—That part of the City of London lying to the west of Maitland street with that portion of the Township of London lying south of the line between the 4th and 5th concessions and west of the said street, produced northerly on a line in the same direction to the line between the said 4th and 5th concessions, and with that portion of the Township of Westminster lying west of the main road leading south from Clark's Bridge, across the Thames, south to the line between the 1st and 2nd concessions, and westerly to the line between lots 42 and 43, and extending northerly to the River Thames, and also including the Village of London West.

2.—The Villages of Parkhill and Ailsa Craig, the Townships of East Williams and West Williams, and that portion of the Township of Lobo lying north of the line between the 11th and 12th concessions, and east of the lines between lots Nos 12 and 13.

3.—The Townships of McGillivray and Biddulph and the Village of Lucan.

4.—The Township of Delaware, with that portion of the Township of Westminster west of the line between lots 30 and 31 in the 2nd concession, then southerly on the line between lots 20 and 21 to the southerly limit of the township, including all west of said line, and also including all that portion of the front of said Township of Westminster lying west of the line between lots Nos. 42 and 43, not included in the first division, with that portion of the Township of Caradoc lying south of the line between the 5th and 6th concessions to the River Thames, and with that portion of the Township of Lobo lying south of the line between the 6th and 7th concessions, to the River Thames.

5.—The Township of Ekfrid and Mosa, including the Villages of Wardsville, Newbury and Glencoe.

6.—Townships of Adelaide and Metcalfe, the Town of Strathroy, with that portion of the Township of Caradoc lying north of the line between the 3rd and 4th concessions, with that portion of the Township of Lobo which lies north of the 6th concession and west of the line between lots 12 and 13 of the said township.

7.—The Township of North Dorchester, north and south of the River Thames, that portion of the Township of West Nissouri which lies south of the line between lots 14 and 15, and with that portion of the Township of Westminster lying south of the line between the 1st and 2nd concessions and east of the line between lots 30 and 31 in the 2nd concession and thence east of the line between lots 20 and 21, continued south to the southerly limit of the said Township of Westminster.

8.—All that portion of the Township of London which lies north of the line between the 4th and 5th concessions, that portion of the Township of Lobo which lies north of the line between the 6th and 7th concessions, and east of the line between lots 12 and 13 to the line between the 11th and 12th concessions and with all that portion of the Township of West Nissouri which lies north of the line between lots 14 and 15.

9.—All that part of the City of London lying east of Maitland Street; that part of the Township of London, lying north of the line between the 4th and 5th concessions and east of the said street, produced northerly or in a line in the same direction to the line between the said 4th and 5th concessions and that part of the Township of Westminster lying north of the line between the 1st and 2nd concessions, and east of the main road leading south from Clarke's Bridge across the Thames.

DISTRICT OF MUSKOKA.

W. C. Mahaffy, Judge, Bracebridge.

Thomas Johnson, C.A., and C.P., Bracebridge.

1.—The Village of Bracebridge and the Townships of Macaulay, McLean, Ridout, Monck and Caldwell, concessions 1, 2, 3, 4, 5, 6, 7, 8 and 9 in the Townships of Stephenson, Bruce and Franklin, and that part of the Township of Watt situated east of lot 21, in the several concessions thereof; and concessions 7, 8, 9, 10, 11, 12 and 13 in the Townships of Muskoka and Draper.

2.—The Village of Gravenhurst, the Townships of Morrison, Ryde and Oakley, and concessions 1, 2, 3, 4, 5 and 6 of the Townships of Muskoka and Draper.

3.—The Village of Huntsville, the Townships of Stisted, Chaffey and Sinclair, and concessions 10, 11, 12, 13 and 14 in the Townships of Stephenson, Brunel and Franklin.

4.—The Township of Wood, Medora and that part of the Township of Watt situated on the west of lot 11 in the several concessions thereof.

DISTRICT OF NIPISSING.

Jos. A. Valin, Judge, North Bay.

H. D. Leask, J.J., North Bay.

A. G. Browning, C.A., and C.P., North Bay.

1. To be composed of the Townships of Springer, Field, Badgerow, Caldwell, and all that part of the District of Nipissing which is situated west of the line between the Indian Reserve and the Township of Widdifield, produced south to the

boundary of the said District, and north to the north-east bounary of the Township of Gooderham, and south of the said line marking the northern boundary of the said Township of Gooderham and its production to the North-western boundary of the Township of Pardo.

Sittings of the Court Sturgeon Falls.

2.—To be composed of the Townships of Mattawan, Olrig, Calvin, Papineau, Lauder, Pentland, Boyd, Osler, McLaughlin, Canisby, Sabine, Lyell, Airy, Murchison, and Robison, and all that part of the District of Nipissing situated east of the line between the Townships of Bonfield and Calvin, produced south to the provisinal County of Haliburton and east of the line between the Townships of Phelps and Olrig, produced north to the Ottawa River.

Sittings of the Court Mattawa.

3.—To be composed of the Townships of Widdifield, Merrick, Mulock, Phelps, Ferris, Chisholm, Ballantyne, Wilkes, Biggar, Paxton, Butt, Devine, Hunter, McCraney, Finlayson, Peck, and all that part of the District of Nipissing situated west of the line between the Townships of Phelps and Olrig, produced north to the Ottawa River, thence along the Ottawa River to the north-east angle of the Township of Wyse, thence along the line marking the northern boundary of the said Township of Wyse, produced westerly to the eastern boundary of the First Division, thence south along the eastern boundary of the First Division to the southern boundary of the District.

Sittings of the Court, North Bay.

4.—To be composed of so much of the District as lies south of the southern boundary of the Townships of Langmuir, Blackstock, and Timmons, produced easterly to a point which shall meet the line between the Townships of Eby and Otto, produced northerly and west of the line between the Townships of Eby and Otto, produced north to a point where the line of production of the south boundary of the Townships of Langmuir, Blackstock and Timmons, and produced southerly to the northern boundary of the Township of Hobbs.

Sittings of the Court, Elk Lake City.

5.—To be composed of the Townships of Bonfield and Boulter.

Sittings of the Court, Town of Bonfield.

6.—To be composed of that part of the District that lies north of the northern boundary of the Townships of Cane, Henwood, Kerns, Harley, and Casey, and east of the boundary line between the Townships of Tudhope and Bryce, produced northerly to the production easterly of the southerly boundary of the Township of Timmins.

Sittings of Court, Englehart.

7.—To be composed of that portion of the District lying south of the northerly boundary of the Townships of Cane, Henwood, Kerns, Harley, and Casey, and east of the line between the Townships of Barber and Cane, produced southerly to the northern boundary of the Township of Hobbs.

Sittings of the Court, Haileybury and New Liskeard, alternately.

8.—To be composed of that portion of the District lying north of the southerly boundary of the Townships of Langmuir, Blackstock and Timmins and produced easterly to the eastern boundary of the District.

Sittings of the Court, Cochrane.

NORFOLK.

James Robb, Judge, Simcoe.

T. R. Slaght, C.C.A. and C.P., Simcoe.

1.—The Town of Simcoe, the Gore of the Township of Woodhouse and all that part of said township lying west of the side line between lots 5 and 6, together with that part of the 4th, 5th and 6th concessions lying west of the said line between lots 12 and 13.

2.—The Township of Townsend and the Village of Waterford.

3.—The Township of Windham.

4.—The Township of Middleton and the Village of Delhi.

5.—The Township of Charlotteville.

6.—The Townships of North Walsingham, South Walsingham and the Village of Port Rowan.

7.—The Township of Houghton.

8.—The Village of Port Dover, and that part of the Township of Woodhouse not included in Division 1, viz.: all that part of the 1st, 2nd and 3rd concession lying east of the side line between lots 5 and 6, and that part of the 4th, 5th and 6th concessions lying east of the said line, between lots 12 and 13 in said township.

NORTHUMBERLAND AND DURHAM.

T. M. Benson, Judge, Cobourg.

G. M. Roger, J.J., Cobourg.

W. F. Kerr, C.C.A. and C.P., Cobourg.

1.—Townships of Cartwright and Darlington and the Town of Bowmanville.

2.—Township of Clarke and Village of Newcastle.

3.—Township of Hope and Town of Port Hope.

4.—Townships of Cavan, Manvers, South Monaghan and Village of Millbrook.

5.—Township of Hamilton and Town of Cobourg.

6.—Townships of Haldimand and Alnwick.

7.—Township of Cramahe and Village of Colborne.

8.—Township of Brighton and Village of Brighton.

9.—Township of Percy and Village of Hastings.

10.—Township of Murrray.

11.—Township of Seymour and Village of Campbellford.

ONTARIO.

N. McCrimmon, Judge, Whitby.

D. J. McIntyre, J.J., Whitby.

J. E. Farewell, C.C.A. and C.P., Whitby.

1.—Including the Townships of Whitby and East Whitby and the Towns of Whitby and Oshawa.

2.—The Township of Pickering.

3.—The Townships of Reach and Scugog and the Village of Port Perry.

4.—The Townships of Uxbridge and Scott and the Town of Uxbridge.

5.—The Township of Brock and the Village of Cannington.

6.—The Township of Thorah and all that part of the Township of Mara lying south of the line between the 4th and 5th concessions.

7.—All that part of the Township of Mara lying north of the line between the 4th and 5th concessions thereof, and the Township of Rama.

OXFORD.

Alex. Finkle, Judge, Woodstock.

F. R. Ball, C.P., Woodstock.

R. N. Ball, C.C.A., Woodstock.

1.—Comprising the City of Woodstock, the Township of East Oxford, and that part of the Township of East Zorra, lying south of the line between lots number twenty-five and twenty-six of the Township of Blandford, and that part of the Township of North Oxford lying east and north of the road between lots 16 and 17 to the boundary of the township line between North and West Oxford, and that part of the Township of West Oxford lying east of the road between lots 6 and 7 to the boundary of the Township of East Oxford, and that part of the Township of Blandford lying south of the 10th concession.

2.—Comprises the Township of Blenheim.

3.—Comprises the Township of East Nissouri and West Zorra and the Village of Embro.

4.—Comprises the Townships of North Norwich and South Norwich and the Village of Norwich.

5.—Comprises the Town of Ingersoll and that part of the Township of North Oxford lying west and south of the road between lots No. 16 and 17 of the Township of West Oxford, and that part of the Township of West Oxford lying south of the road between lots 6 and 7 to the line between West Oxford and East Oxford, and those portions of the Township of Dereham being part of the 1st concession of the said Township of Dereham, west of the Middle Town Line.

6.—Comprises the Town of Tillsonburg and that part of the Township of Dereham not included in the Fifth Division.

7.—Comprising the Village of Tavistock and that part of the Township of East Zorra, north of the road between lots 25 and 26, and that part of the Township of Blandford lying north of the 10th concession of the said township.

DISTRICT OF PARRY SOUND.

P. McCurry, Judge, Parry Sound.

W. L. Haight, C.A., and C.P., Parry Sound

1.—The Town of Parry Sound and the Townships of Foley, McDougall, Cowper and Carling, and all that portion of the district lying to the west of the east boundary of Carling, produced to the French River.

2.—The Townships of McKellar, Ferguson, Hagerman, Croft, and all that portion of the district lying between the east boundary of Ferrie and the west boundary of Ferguson, produced to the French River.

3.—The Townships of Humphrey, Christie, Monteith and Conger.

4.—Townships of McMurrich, Perry and Armour, Proudfoot and Bethune.

5.—Townships of Spence, Chapman, Ryerson and Lount.

6.—That territory bounded on the west by the western boundaries of the Townships of Pringle and Patterson, and the western boundary of the Township of Patterson, produced to the French River and Lake Nipissing; on the east by the boundary of the District of Parry Sound, and on the south by the southern boundaries of the Townships of Himsworth, Gurd and Pringle.

7.—The Townships of Machar, Laurier, Strong and Joly.

PEEL.

D. McGibbon, Judge, Brampton.

W. H. McFadden, C.C.A., and C.P., Brampton.

1.—Township of Brampton, Township of Chinguacousy and northern division of the Township of Toronto Gore.

2.—Village of Streetsville, Township of Toronto and southern division of the Township of Toronto Gore.

3.—Township of Caledon.

4.—Village of Bolton, Township of Albion.

PERTH.

J. A. Barron, Judge, Stratford.

G. G. McPherson, C.C.A., and C.P., Stratford.

1.—To consist of all that part of the Township of North Easthope west of the line between lots 25 and 26, and south of the road between the 8th and 9th concessions, and all that part of the Township of South Easthope west of the side line between lots 25 and 26; all that part of the Townships of Downie and Gore north and east of the concession line between the 10th and 11th concessions and the Oxford Road; and all the Township of Ellice from the 1st to 13th concession, inclusive.

2.—To consist of all that part of the Township of Fullarton not included in Division No. 3, and the Townships of Hibbert and Logan.

3.—To consist of that portion of the Township of Downie west of the Oxford Road, and south of the concession line between the 10th and 11th concessions; the Township of Blanshard; all that part of the Township of Fullarton comprising the 13th and 14th concessions, and south of a road leading from Mitchell Road, between lots 24 and 25, east of lot 3 in the 10th concession; thence east along the line between the 10th and 11th concessions to the town line.

4.—To consist of that part of the Township of North Easthope east of the line between lots 25 and 26, and the north of the 8th concession, inclusive, with the 9th and 10th concessions; all that part of the Township of South Easthope not included in Division 1.

5.—To consist of the Township of Mornington, and all that part of the Township of Elma from lots 13 to 72, both numbers inclusive, of the 1st concession, and from lots 27 to 16, both numbers inclusive, in and from the 2nd to the 18th concession, both concessions inclusive, of the said Township of Elma; and concessions 14, 15 and 16 of the Township of Ellice; and concessions 11, 12, 13 and 14 of the Township of North Easthope.

6.—To consist of the Township of Wallace and all that part of the Township of Elma from the 1st concession to the 18th concession, both concessions inclusive, and comprising lots Nos. 1 to 52, both inclusive, of the 1st concession, and lots Nos. 1 to 26 inclusive from the 2nd to the 18th concession, both concessions inclusive.

PETERBOROUGH.

E. C. Huycke, Judge, Peterborough.

R. E. Wood, C.C.A., and C.P., Peterborough.

1.—Shall comprise the City of Peterborough, the Townships of North Monaghan and Ennismore, all the Township of Smith lying south of the 7th concession,

all that part of the Township of Otonabee lying west of the 8th concession and north of lots Nos. 21 and all that part of the Township of Douro lying south of lots numbered 11.

Court to be held at the Court House in the City of Peterborough.

2.—Shall comprise the Village of Norwood, the Township of Asphodel, and all that part of the Township of Dummer lying east of the 5th concession and that part of the said Township of Dummer lying west of the 6th concession and south of lots numbered 11. Court to be held in the Town Hall in the Village of Norwood.

3.—Shall comprise that part of the Township of Smith lying north of the 6th concession, all that part of the Township of Douro lying north of lots numbered 10, that part of the Township of Dummer lying west of the 6th concession and north of lots numbered 10, the Township of Galway, the Township of Harvey and the Village of Lakefield. Court to be held in the Town Hall in the Village of Lakefield.

4.—Shall comprise the Townships of Anstruther, Burleigh, Cavendish and Chandos. Court to be held in the Town Hall at Apsley.

5.—Shall comprise the Townships of Belmont and Methuen and the Village of Havelock. Court to be held in the Town Hall in the Village of Havelock.

6.—Shall comprise the Township of Otonabee, except that part thereof lying west of the 8th concession and north of lots numbered 21. Court to be held in the Town Hall, at Keene, in said township.

PRESCOTT AND RUSSELL.

A. Constantineau, Judge, L'Orignal.

A. Johnston, J.J., L'Orignal.

J. Maxwell, C.C.A., and C.P., L'Orignal.

1.—Comprises the whole of the Township of Longueuil, the municipality of the Village of L'Orignal, and the 1st concession of the Township of Caledonia.

2.—Comprising all that part of the Township of West Hawkesbury, extending from front of 3rd concession to the rear of the said township.

3.—Comprises the whole of the Township of East Hawkesbury.

4.—Comprising the Township of North Plantagenet, and that part of the Township of South Plantagenet lying north of the Nation River.

5.—Comprising the whole of the Township of Cumberland.

6.—Comprising the whole of the Township of Russell.

7.—Comprising the two front concessions of the Township of West Hawkesbury, and the Municipality of Hawkesbury Village, within the same.

8.—Comprising the Township of Caledonia (excepting the 1st concession of the said township), and also that portion of the Township of South Plantagenet lying south and east of the Nation River.

9.—Comprising the whole of the Township of Alfred.

10.—Comprising the whole of the Township of Clarence.

11.—Comprising the whole of the Township of Cambridge.

PRINCE EDWARD.

D. Morrison, Judge, Picton.

Jas. R. Brown, C.C.A., and C.P., Picton.

1.—The Town of Picton, the 2nd and 3rd concessions of "Military Tract" from the west line of No. 13 eastward; Gore "G": 1st and 2nd concessions north of the Carrying Place, 1st concession southeast of the Carrying Place, and 2nd con-

cession north of Black River, including Gores "K" and "L" and McCan Gores, all in the Township of Hallowell; Block "I" in the concession north and east of East Lake, and Gore "B" in the Township of Athol, and 1st and 2nd concessions south of the Bay of Quinte, and Gore "A" in the Township of North Marysburg, and 1st concession southwest of Green Point to the end of Carman's Point in Sophiasburg.

2.—The Township of South Marysburg, and the Southern part of Athol, commencing at the outlet of East Lake, thence down to the head of the Lake, thence down to the base line between the 1st concession south and the 1st concession north of East Lake, till it strikes the township line of Hallowell, thence down said township line till it strikes South Marysburg.

3.—The Township of Sophiasburg, together with Big Island, excepting the 1st concession southwest of Green Point to the end of Carman's Point.

4.—All that part of the Township of Ameliasburg lying east of the line between lots No. 86 and 87, in the 1st, 2nd, 3rd and 4th concessions of said township, including Huff's Island.

5.—That part of the Township of Hillier not included in the 7th division also the 1st and 2nd concessions north of West Lake, and west of lot No. 7 in the said concession, and that part of Irwin Gore lying north of and west of lot No. 7 in the 2nd concession and the west part of the 2nd concession produced west of lot No. 74 in that concession in the Township of Hallowell.

6.—Block (IV.) four, concession south side of West Lake, 1st concession "Military Tract," 2nd and 3rd concessions of said tract west of lots No. 13, in those concessions, Gore "E," 1st and 2nd concessions north of West Lake, and east of lot No. 6 in those concessions; the Gerrow Gore and that part of Irwin Gore not included in Division No. 8, and all that part of the 2nd concession produced east of lot No. 75 in the Township of Hallowell.

7.—All that part of the Township of Ameliasburg lying west of the line between lots No. 86 and 87, in the 1st, 2nd, 3rd and 4th concessions of said township; all that part of the 4th and 5th concessions of the Township of Hillier west of the line between lots 86 and 87 and the 3rd concession west of the line between lots No. 22 and 23, with that part of the 2nd concession lying north of Pleasant Bay in the said Township of Hillier.

8.—All the point lying east of the west line of Marshland's Gore, the concession lying north of Smith's Bay and Waupoos Island in the Township of North Marysburg.

DISTRICT OF RAINY RIVER.

R. Fitch, Judge, Fort Francis.

A. D. George, C.A., and C.P., Fort Francis.

1.—To comprise all that part of the said District lying east of the east boundaries of the Townships of Aylesworth, Lash, Carpenter, Kingsford and Fleming, and east of the east boundary of the said Township of Fleming produced north to the north boundary of the said District, to be styled "The First Division Court in the District of Rainy River."

2.—To comprise all that part of the said District lying west of Division No. 1 and east of the east boundaries of the Townships of Morley, Morley Additional, Pattullo, Sifton and Dewart, and east of a line drawn north astronomically from the northeast angle of the said Township of Dewart to the north boundary of the said District, to be styled "The Second Division Court in the District of Rainy River."

3.—To comprise all that part of the said District lying west of Division No. 2, to be styled "The Third Division Court in the District of Rainy River."

RENFREW.

D. J. Donahue, Judge, Pembroke.

Thos. Deacon, J.J., Pembroke.

J. R. Metcalf, C.C.A., and C.P., Pembroke.

1.—Comprising the Town of Pembroke, the Townships of Pembroke, Stafford, Alice, Petawawa, Buchan, Rolph, Wylie, McKay, Fraser, Herd, Clara and Maria, and all that part of the Township of Wilberforce from the 18th to the 25th concessions, both inclusive, and also those parts of the 14th, 15th, 16th and 17th concessions of the same Township of Wilberforce lying north of Snake River and east of Lake Dore.

2.—Comprising all that part of the Township of Westmeath lying east and north of the Muskrat Lake and River, and all those parts of the Township of Ross, from the 5th to the 9th concessions, both inclusive, east of Muskrat Lake, and from the 7th to the 13th (of the other) concessions, both inclusive, of the said Township of Ross.

3.—Comprising the Town of Renfrew and the Townships of Horton, Admaston, Bagot, Blythfield, Brougham and Matawachan, in the said County of Renfrew.

4.—Comprising the Village of Arnprior and the Township of McNab.

5.—Comprising the Townships of Grattan, Sebastopol, South Algoma, North Algoma, and all that part of the Township of Wilberforce, from the 1st to the 17th concessions, both inclusive, excepting those parts of the 14th, 15th, 16th and 17th concessions of said Township of Wilberforce lying north of Snake River and east of Lake Dore.

6.—Comprising the Township of Bromley, and all that part of the Township of Westmeath west of Muskrat Lake, and all those parts of the Township of Ross, from the 1st to the 14th concessions, both inclusive, of the said Township of Ross.

7.—Comprising the Townships of Brudenell, Radcliffe, Raglan, Lynedoch, Griffith, Hagarty, Sherwood, Jones, Richards and Burns.

SIMCOE.

J. A. Ardagh, Judge, Barrie.

E. A. Wismer, J.J., Barrie.

J. R. Cotter, C.C.A., and C.P., Barrie.

1.—Comprising the Town of Barrie, the Township of Vespra, except that portion lying west of the Nottawasaga River, and excepting also lots Nos. 38, 39 and 40, in the 1st and 2nd concessions, and lots Nos. 1, 2 and 3 in the 3rd, 4th, 5th, 6th and 7th concessions respectively. That portion of the Township of Oro lying south of lots Nos. 21 in the 1st and 2nd concessions (including the ranges), and south of lots Nos. 13 in the 3rd, 4th, 5th, 6th, 7th and 8th concessions respectively; that portion of the Township of Innisfil lying east of lots Nos. 5 in the 6th, 7th and 8th concessions, and that portion lying north of the 8th concession; that portion of the Township of Essa lying north of lots Nos. 19 in the 7th, 8th, 9th, 10th and 11th concessions.

2.—The Village of Bradford, the Township of West Gwillimbury, excepting thereout lots Nos. 1, 2, 3, 4 and 5 in the 14th and 15th concessions; the Township of Innisfil, excepting that portion lying north of the 5th concession, and excepting also lots Nos. 1, 2, 3, 4 and 5 in the 1st, 2nd, 3rd, 4th and 5th concessions thereof.

3.—The Township of Tecumseh, excepting concessions 12, 13, 14 and 15; the Township of Adjala, excepting that portion lying north of lot No. 25 in the 8th concession thereof.

4.—The Town of Collingwood, the Village of Stayner, that portion of the Township of Nottawasaga lying north of lot No. 18 in the 12th concession thereof; that portion of the Township of Sunnidale lying north of the 8th concession; that portion of the Township of Floss lying west of the Nottawasaga River; the islands in Lake Huron contiguous to the Township of Nottawasaga.

5.—The Township of Floss, except that portion lying west of the Nottawasaga River; the Township of Medonte, except that portion lying east of the 10th concession and north of lots Nos. 10 in the 9th and 10th concessions respectively; that portion of the Township of Oro lying north of the southern boundaries of lots Nos. 21 in the 1st and 2nd concessions, and north of the southern boundaries of lots Nos. 13 in the 3rd, 4th, 5th, 6th, 7th and 8th concessions respectively; lots 38, 39 and 40 in the 1st and 3rd concessions, and lots Nos. 1, 2 and 3 in the 3rd, 4th, 5th, 6th and 7th concessions of the Township of Vespra.

6.—The Town of Orillia, the Township of Orillia, southern division, the Township of Orillia, northern division, except that portion lying north of lots Nos. 15 in the first seven concessions thereof; that portion of the Township of Oro lying east of the 8th concession; that portion of the Township of Medonte, being composed of lots Nos. 1 to 6 (both inclusive) in the 11th, 12th, 13th and 14th concessions; the islands in Lake Simcoe contiguous to the townships and portions of townships above described lying wholly or for the most part opposite thereto.

7.—The Township of Nottawasaga, except that portion lying north of lot No. 18 in the 12th concession thereof; the Township of Sunnidale, except that portion lying north of the 8th concession; that portion of the Township of Vespra lying west of the Nottawasaga River; that portion of the Township of Essa lying north of lots 19 in the 1st, 2nd. 3rd, 4th, 5th and 6th concessions; that portion of the Township of Tossorontio lying north of lots Nos. 20 in each of the seven concessions thereof.

8.—The Township of Essa, except that portion lying north of lots Nos. 19 in each of the eleven concessions thereof; the Township of Tossorontio, except that portion lying north of lots No. 20 in each of the seven concessions thereof; that portion of the Township of Innisfil, being composed of lots Nos. 1, 2, 3, 4 and 5 in the 1st, 2nd, 3rd, 4th, 5th, 6th, 7th and 8th concessions; the 12th, 13th, 14th and 15th concessions of the Township of Tecumseh; lots Nos. 1, 2, 3, 4 and 5 in the 14th and 15th concessions of the Township of West Gwillimbury; that portion of the Township of Adjala lying north of lots Nos. 25 in the eight concessions thereof.

9.—The Town of Penetanguishene, and the Village of Midland, the Township of Tiny; that portion of the Township of Tay lying west to the 8th concession; the islands in Lake Huron contiguous to the Township of Tiny, and to that part of the Township of Tay, forming part of the 9th division, and lying wholly and for the most part opposite thereto.

10.—The Township of Matchedash, that portion of the Township of Orillia, northern division, lying north of lots Nos. 15, in the first seven concessions thereof; that portion of the Township of Medonte lying north of lots Nos. 6, in the 11th, 12th, 13th and 14th concessions, and that portion lying north of lots Nos. 10, in the 9th and 10th concessions thereof; the Township of Tay, except that portion lying west of the 8th concession; the island in Lake Huron, contiguous to that portion of the Township of Tay, forming part of the 10th division, and lying wholly or for the most part opposite thereto.

NOTE.—Each of the said several divisions shall include all allowances for roads embraced within its external limits, and shall also extend to the centre of every

allowance for road lying external and adjacent to every such division, excepting always where any such last-mentioned allowance is hereinbefore declared to belong to or form part of any particular division.

STORMONT, DUNDAS AND GLENGARRY.

J. R. O'Reilly, Judge, Cornwall.
J. W. Liddell, J.J., Cornwall.
Jas. Dingwall, C.C.A., and C.P., Cornwall.
1.—Township of Charlottenburg, in the County of Glengarry.
2.—Township of Lochiel, in the County of Glengarry.
3.—Township of Cornwall, in the County of Stormont.
4.—Township of Osnabruck, in the County of Stormont.
5.—Township of Williamsburg, in the County of Dundas.
6.—Township of Matilda, in the County of Dundas.
7.—Township of Mountain, in the County of Dundas.
8.—Township of Finch, in the County of Stormont.
9.—Township of Lancaster, in the County of Glengarry.
10.—Township of Winchester, in the County of Dundas.
11.—Township of Roxborough, in the County of Stormont.
12.—Township of Kenyon, in the County of Glengarry.

SUDBURY.

J. J. Kehoe, Judge, Sudbury
J. H. Clary, C.A., and C.P., Sudbury.

First Division Court.—That part of the District of Sudbury as follows: Commencing at the southwest angle of the township No. 82; thence on a line produced north to the northwest angle of the Township of Fairbank; thence east to the southeast angle of the Township of Rayside; thence north to the northwest angle of the Township of Creelman; thence east to the northeast angle of the same township; thence south to the southeast angle of the township, thence east to the line between the Township of Aylmer and Mackelcan, thence south on that line to the southern boundary.

Second Division Court.—So much of the district as lies north of a line produced westerly from the southeast angle of the Township of Rayside to the west boundary of the said district.

Third Division Court.—So much of the district as lies west of a line produced north from the southeast angle of the Township No. 82, to the northwest angle of the Township of Creighton, thence west to the boundary of the said district.

Fourth Division Court.—So much of the district as lies east of the line between the Townships of Aylmer and Mackelcan produced to the southern boundary of the said district.

THUNDER BAY DISTRICT.

H. O'Leary, Judge, Porth Arthur.
W. F. Langworthy, C.A., and C.P., Port Arthur.

1.—All that part of the district lying west of the meridian of 87 degrees of west longitude, to the meridian of the most easterly part of Hunter's Island, excepting therefrom the Municipality of Neebing.

3.—Comprising the Municipality of Neebing.

VICTORIA.

J. E. Harding, Judge, Lindsay.

H. McMillan, J.J., Lindsay.

A. P. Devlin, C.C.A., and C.P., Lindsay.

1.—The first consists of the following townships and parts of townships, viz.: Of the 15th concession of the Township of Mariposa, and the Township of Eldon, except the ranges north and south of the Portage Road.

2.—All of the Township of Fenelon, except that portion lying east of the Scugog River, and south of Sturgeon Lake, and the Township of Somerville.

3.—The Township of Verulam.

4.—The Township of Emily.

5.—The Town of Lindsay, Township of Ops, and that portion of the Township of Fenelon lying east of the Scugog River, and south of Sturgeon Lake.

6.—The Township of Mariposa, except the 15th concession.

7.—The Townships of Carden and Dalton, Laxton, Digby and Longford, and the Township of Bexley, and that portion of the Township of Eldon north of Portage Road, and the range south of Portage Road.

WATERLOO.

D. Chisholm, Judge, Berlin.

W. H. Bowlby, C.C.A., and C.P., Berlin.

1.—All that portion of the Township of Waterloo lying north of Blockline on the west side of the Grand River and that part of the upper block of said township lying north of said township lying on the east side of the Grand River, north of lots Nos. 115, 109, 104, 86 and 95, to the Guelph Township line, including the Towns of Berlin and Waterloo.

2.—All that part of the Township of Waterloo lying south of the Blockline on the west side of the Grand River, and that part lying on the east side of the Grand River, south of the northern boundary of lots Nos. 115, 109, 104, 85 and 95, to the Guelph Township line, including the Villages of Preston and Hespeler.

3.—All that portion of the Township of North Dumfries lying east of lot No. 19 in the 7th concession, and running a course with the eastern boundary of the said lot in a northerly direction up to the 12th concession; thence along the eastern boundary of lot No. 23, in the said 12th concession, to the township line, including the Town of Galt.

4.—The Township of Wilmot, including the Village of New Hamburg.

5.—The Township of Wellesley.

6.—The Township of Woolwich.

7.—All that part of the Township of North Dumfries lying west of the eastern boundary of said lot No. 19, in the 7th concession; thence along the eastern limits of the said lot No. 19, the same course thereof, in a northerly direction to the 15th concession; thence along the westerly limit of lot No. 23, in the said 12th concession to the township line, including the Village of Ayr.

WELLAND.

George W. Wells, Judge, Welland.

T. D. Cowper, C.C.A., and C.P., Welland.

1.—The Township of Crowland; that part of the Township of Thorold lying south of the line between lots 178 and 195, running through to Pelham; that part

of Pelham lying south of the 4th concession, and that part of Humberstone lying north of the concession line, between the 4th and 5th concessions, being the whole of the 15th concession and the Town of Welland.

2.—The Township of Wainfleet.

3.—The Township of Bertie, and those parts of the Township of Humberstone not included in Nos. 1 and 6, and the Village of Fort Erie.

4.—The Township of Willoughby, the Village of Chippawa, and that part of the Township of Stamford south of the line between lots 136 and 137; easterly from the westerly limit of the township to the southeast angle of lot No. 133; thence north on the line between lots Nos. 132 and 133, to the northern boundary of the township, including the Towns of Clifton and Navy Island.

5.—Those parts of the Township of Stamford, Thorold and Pelham not included in any other division, and the Town of Thorold.

6.—All the Township of Humberstone lying south of the 5th concession, and west of the side lines between lots Nos. 9 and 10, in the several other concessions thereof, and the Village of Port Colborne.

WELLINGTON.

A. C. Chadwick, Judge, Guelph.

Joseph Jamieson, J.J., Guelph.

H. W. Peterson, C.C.A., and C.P., Guelph.

1.—The Town and Township of Guelph.

2.—The Township of Puslinch.

3.—The Township of Eramosa.

4.—The Township of Nichol, excepting the 11th and 12th concessions; the Municipality of Fergus; the first eight concessions of the Township of Garafraxa; and lots 1 to 18, both inclusive, in concessions A and B of the Township of Peel, lots 13, 14, 15, 16, 17 and 18, in concessions 18 and 19, and lots 19, 20 and 21 in the 17th concession of the Township of Peel.

5.—The Township of Erin.

6.—The Township of Pilkington, and the 11th and 12th concessions of the Township of Nichol; the Municipality of the Village of Elora, and lots Nos. 19 and upwards belonging to the 9th, 10th, 11th, 12th, 13th, 14th, 15th and 16th concessions of Peel.

7.—Concessions 1 to 16, inclusive, of the Township of Maryboro', and concessions 1 to 16, inclusive, of the Township of Peel, except lots 19, 20, 21, 22 and 23 of those concessions in that township.

8.—That part of the Township of Arthur south and southeast of lot 15, on the west side of the Owen Sound Road, in the Township of Arthur; that part of the Township of Luther from 1 to 16, both inclusive; and lots 1 to 12, both inclusive, of the 17th and 18th concessions of the Township of Peel; lots 5 to 11, both inclusive, of the 19th concession of said Township of Peel; and lots 19 to 23, both inclusive, of concessions A and B of said Township of Peel.

9.—The territory formerly comprised in this division is now in the County of Dufferin.

10.—The Township of Minto.

11.—The Town of Mount Forest, and that part of the Township of Arthur north of lot 16, west of the Owen Sound Road; lot 17, on the Owen Sound Road, and lot 13, east of the Owen Sound Road.

WENTWORTH.

C. G. Snider, Judge, Hamilton.
J. F. Monck, J.J., Hamilton.
S. F. Washington, C.C.A., and C.P., Hamilton.

1.—All that part of the Township of Barton lying east of the lines between lots 14 and 15, and all that part of Hamilton City east of Hughson street.

2.—The whole of the Township of Flamboro' West, the Town of Dundas, and the east half of the Township of Ancaster.

3.—The whole of the Township of Flamboro' East.

4.—The whole of the Township of Beverly and the west half of the Township of Ancaster.

5.—The whole of the Township of Saltfleet.

7.—The whole of the Township of Glanford.

8.—The whole of the Township of Binbrook.

9.—All that part of the Township of Barton lying west of the lines between lots 14 and 15, and part of Hamilton City west of Hughson street.

YORK.

John Winchester, Judge, Toronto.
Edward Morgan, J.J., Toronto.
F. M. Morson, J.J., Toronto.
H. L. Drayton, C.C.A., Toronto.
H. E. Irwin, C.P., Toronto.
Toronto City.—Crown Attorney, J. W. Seymour Corley.

1.—The City of Toronto east of Yonge street, at date 14th September, 1875 (*i.e.*, Bloor, Sherbourne and Howard streets on the north, the Don on the east, down to Queen street, and south of Queen street as far as Lee avenue).

2.—Concessions 5 to 11, inclusive, of the Township of Markham, and concessions 5 to 10, inclusive, of the Township of Whitchurch, from 1 to 10, inclusive, together with the Villages of Markham and Stouffville.

3.—Concessions 1 to 4, inclusive, of the Township of Markham, and concessions 1 to 4, inclusive, of the Township of Whitchurch, from lots 1 to 10, inclusive, and concessions 1 to 3, inclusive, of the Township of Vaughan.

4.—The Township of Whitchurch, from the line between lots 10 and 11 northward; and the Township of East Gwillimbury.

5.—The Townships of Georgina and North Gwillimbury.

6.—The Townships of King and the incorporated Village of Aurora.

7.—Concessions 4 to 11, inclusive, of the Township of Vaughan.

8.—All that portion of the Township of York lying west of Yonge street, and the Township of Etobicoke.

9.—Township of Scarboro' and all that portion of the Township of York which lies east of Yonge street and the Village of Leslieville.

10.—The City of Toronto, west of Yonge street, at date of 10th September, 1875 (*i.e.*, Bloor street on the north and Dufferin street on the west).

DIVISION COURT TARIFF.

Fees to be received by the several Clerks and Bailiffs of Division Courts from and after 1st of July, 1894.

Form I.

Clerk's Fees.

1. Receiving claim, numbering and entering in procedure book ..... (This item to apply to entering in the procedure book a transcript of judgment from another Court, but not an entry made for the issue of a judgment summons.)	$0 15
2. Issuing summons, with necessary notices and warnings thereon, or judgment summons (as provided in forms) in all	
Where claim exceeds $10 and does not exceed $20.....	40
Where claim exceeds $20 and does not exceed $60.....	50
Where claim exceeds $60 and does not exceed $100.....	60
Where claim exceeds $100 ..... (N.B.—In replevin and interpleader suits the value of goods to regulate the fee.)	1 00
3. Copy of summons, including all notices and warnings thereon	25
4. Copy of claim (including particulars), when not furnished by plaintiff	25
5. Copy of set-off or counterclaim (including particulars), when not furnished by defendant ..... (Note.—In either of the last two preceding items the fee may be taxed against the party ordered to pay costs.)	25
6. Receiving and entering bailiff's return to any summons, writ or warrant issued under the seal of the Court (except summons to witness and return to summons or paper from another division).....	15
7. Taking confession of judgment ..... (This does not include affidavit and oath, chargeable under item 8.)	10
8. Every necessary affidavit if actually prepared by the Clerk, and administering oath to the deponent	25
9. Furnishing duly certified copies of the summons and notices and papers with all proceedings, for purposes of appeal (under section 157), as required by either party, per folio of 100 words	05
10. Certificate therewith	25
11. Certifying under seal of the Court and delivering to a judgment creditor a memorandum of the amount of judgment and costs against a judgment debtor, under The Creditor's Relief Act, or for any other purpose	25
12. Copies of papers, for which no fee is otherwise provided, necessarily required for service or transmission to the Judge, each.....	10
If exceeding two folios, per folio	05
13. Every notice of defence or admission entered, or other notice required to be given by the Clerk to any party to a cause or proceeding, including mailing, but not postages	15
14. Entering final judgment by Clerk, on special summons, where claim not disputed	50

15. Entering every judgment rendered at the hearing, or final order made by the Judge 50

(Note.—This fee does not apply to any proceeding on judgment summons.)

(This one fee of 50 cents will include the service of recording at the trial and afterwards entering in the procedure book the judgment, decree and order in its entirety, rendered or made at the trial. If a garnishee proceeding before a judgment, the fee of 50 cents will be allowed for the judgment in respect to the primary debtor, and a like fee of 50 cents for the adjudication, whenever made, in respect to the garnishee.)

16. Subpœna to witness 25

(The subpœna may include any number of names therein, and only one original subpœna shall be taxed, unless the Judge otherwise orders.)

17. For every copy of subpœna required for service 05

18. Summons for jury (including copy for each juryman), when required by parties 1 25

19. Calling and returning jury ordered by the Judge 25

20. Every order of reference, or order for adjournment, made at hearing, and every order requiring the signature of the Judge, and entering the same, including final order of judgment debtor's examination .. 25

(Any warning necessary with order, *e.g.*, the warning in Form 73, forms part of the order.)

21. Transcript of judgment to another Division Court 25

22. (Abolished—Transcript to County Court.)

23. Every writ of execution, warrant or attachment or warrant of commitment and delivering same to bailiff 50

24. Renewal of every writ of execution, when ordered by the judgment creditor, or of warrant of commitment, when ordered by the Judge.. 15

25. Every bond, when necessary, and prepared by the clerk (including affidavits of justification and of execution) 1 00

26. For necessary entries in the debt attachment book, in each case (in all). 20

27. Transmitting transcript of judgment: or transmitting papers for service to another division: or to the Judge, on application to him, including necessary entries and mailing, but not including postage 25

28. Receiving papers from another division for service, entering the same, handing to the bailiff, receiving and entering his return and transmitting the same (if return made promptly, not otherwise)..... 30

29. Search by person not party to the suit or proceeding, to be paid by the applicant 10

Search by party to the suit or proceeding, where the suit or proceeding is over one year old 10

(No fee is chargeable for search to a party to the suit or proceeding, if the same is not over one year old.)

30. Taxing costs, in defended suits, after judgment pronounced..... 25

31. Making out statement of costs in detail (including bailiff's fees) at the request of any party, or for the purpose of settlement, or upon entering judgment by default 10

(Neither item 30 nor 31 applies to statement of costs endorsed on summons or copy to be served.)

32. Taxing bailiff's costs, under section 241 of the Division Courts Act (R.S.O., 1897 25

33. Copying and transmitting to municipal clerk, Judge's decision to appeal 50

2.—BAILIFF'S FEES.

1. Service of summons issued under the seal of the Court, or Judge's summons or order on each person, except summons to witness and summons to juryman:—
   Where claim exceeds $10 and does not exceed $20 ..... $0 30
   Where claim exceeds $20 and does not exceed $60..... 40
   Where claim exceeds $60 and does not exceed $100..... 50
   Where claim exceeds $100 75
   (In interpleader suits the value of the goods to regulate the fee.)
2. For every return as to service under item 1; attending at the clerk's office and making the necessary affidavit (as provided by Rule 183) 15
3. Service of summons on witness or juryman, or service of notice 15
4. Taking confession of judgment and attending to prove 10
5. For calling parties and their witnesses at the sitting of the court, in every defended case, and at the hearing of every judgment summons 15
6. Enforcing every writ of execution or summons of replevin, or warrant of attachment or warrant against the body, each:
   Where claim does not exceed $20..... 50
   Where claim exceeds $20 and does not exceed $60 75
   Where claim exceeds $60 ..... 1 00
   (Where goods replevied, the value of the goods to regulate the amount of the fee. This fee does not include service of summons in replevin on defendant.)
   Fees under Creditor's Relief Act (see section 7 of 52 Vict., cap. 12; and section 25 of R.S.O., cap. 65) shall be taxed according to the tariff.
7. Every mile necessarily travelled to serve summons, or process, or other necessary papers, or in going to replevy goods, or to seize on attachment, or in going to seize on a writ of execution, where money, paid on demand, or made on execution, or case settled after seizure 12
8. Mileage going to arrest under warrant, when arrest made, per mile.... 12
9. Mileage carrying delinquent to prison, including all expenses and assistance, per mile 20
10. Every schedule of property seized, attached, or replevied, including affidavit of appraisal, when necessary:
    Exceeding $10 and not exceeding $20..... 30
    Exceeding $20 and not exceeding $60..... 50
    Exceeding $60 75
11. Every bond, when necessary, when prepared by the bailiff, including affidavit of justification and execution 50
12. Every notice of sale, not exceeding three, under execution, or under attachment, each 15
13. Reasonable allowances and disbursements, necessarily incurred in the care and removal of property:
    (*a*) If a bailiff removes property seized, he is entitled to the necessary disbursements, in addition to the fees for seizure and mileage.
    (*b*) If he takes a bond, then to 50 cents, instead of disbursements for removal of property.
    (*c*) If assistance is necessary in the seizure, or securing, or retaining of property, the bailiff is entitled to the disbursements for such assistance.

(*d*) All charges for disbursements are to be submitted to the clerk for taxation, subject to appeal to the Judge.

(*e*) The bailiff must in all cases endorse a memorandum of all his charges on the back of the execution, or state them on a separate slip of paper, so that the clerk may conveniently tax the bailiff's charges for fees and disbursements.

(*f*) The clerk is in all cases to sign the memorandum of his taxation and preserve it among the papers in the cause, together with the execution, for future reference, and thereby enable the clerk to certify the bailiff's returns properly.

14. If execution or process in attachment in the nature of execution be satisfied in whole or in part, after seizure and before sale, whether by action of the parties or otherwise, the bailiff shall be entitled to charge and receive 3 per cent. on the amount directed to be levied; or on the amount of the value of the property seized, whichever shall be the lesser amount.

15. Poundage on executions, and on attachments in the nature of executions, 5 per cent., exclusive of mileage for going to seize and sell, upon the amount realized from property necessarily sold.

3.—FEES TO WITNESSES AND APPRAISERS.

Allowances to Witnesses.

Attendance, per diem, to witnesses within three miles of the place where the Court is held, if within the county	$0 75
And if without the county	1 00
Attendance, if witness resides over three miles from the place of sittings and within the county, per diem	1 00
Attendance, if witness resides without the county and more than three miles from the place of sittings, per diem	1 25
Barristers and solicitors, physicians and surgeons, engineers and veterinary surgeons, other than parties to the cause, when called upon to give evidence of any professional service rendered by them, or to give professional opinions, per diem	4 00

(Note.—Disbursements to surveyors, architects and professional witnesses, such as are entitled to specific fees, by statute, are to be taxed, as authorized by such statute.

If witnesses attend in one case only, they will be entitled to the full allowance.

If they attend in more than one case, they will be entitled to a proportional part in each cause only.)

The travelling expenses of witnesses, over three miles, shall be allowed according to the sums reasonably and actually paid, but in no case shall exceed 20 cents per mile, one way.

FEES OF APPRAISERS.

Fees to Appraisers of Goods, etc., Seized under Warrant of Attachment.

To each appraiser, 50 cents per day, during the time actually employed in appraising goods—to be paid in the first instance by plaintiff and allowed as costs in the cause.

FEES IN SUITS NOT EXCEEDING $10.

(57 Vict., cap. 23, sec. 11.)

Clerk.

For all services, from entering action, or suing out a judgment or interpleader summons, up to and including the entering of final judgment, or final order on any such judgment or interpleader summons, in case the action proceeds to judgment or final order	$1 25
In case the action does not proceed to judgment or final order, the fees heretofore, or that may hereafter be payable, but not exceeding in the whole the sum.	
For issuing writ of execution, warrant of attachment, or warrant for arrest of delinquent and entering the return thereto	50

Bailiff.

For all services rendered in serving summons and making return, and any other service that may be necessary before the judgment is entered by the clerk or pronounced by the Judge, mileage excepted	40
For enforcing execution, schedule of property seized, or attached bond, where necessary, and all other necessary acts done by him, after seizure, mileage excepted, if money made or case settled, after levy	1 00
(Necessary disbursements incurred in the care and removal of property shall be allowed to be first taxed by the clerk, subject to the approval of the Judge.)	

REPORT

OF THE

Inspector of Legal Offices

ONTARIO

1909

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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To His Honour JOHN MORISON GIBSON, K.C., LL.D., etc., etc.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs respectfully to present to Your Honour the twenty-seventh annual report of the Inspector of Legal Offices for the year ending the 31st day of December, 1909.

J. J. FOY,
Attorney-General.

TORONTO, March 8th, 1910.

REPORT

OF THE

Inspector of Legal Offices, 1909.

To His Honour JOHN MORISON GIBSON, K.C., LL.D.,
Lieutenant-Governor of Ontario, etc., etc., etc.:

SIR,—I have the honour to present the twenty-seventh Annual Report of the Inspector of Legal Offices upon the affairs of the Judicial Offices of the Province for the year ending the 31st December, 1909.

The Statute 8 Edward VII., chapter 36, whereby the Territory comprising the Provisional Judicial District of Rainy River was divided and two Districts, Rainy River and Fort Frances, constituted, came into force on May 1st, 1909, by Proclamations, dated March 13th and 31st, 1909 (*Ontario Gazette,* March 20th, April 3rd, and May 1st, 1909). By Proclamation, dated April 28th, 1909, the name of the Provisional Judicial District of Fort Frances was changed to Rainy River and that of Rainy River to Kenora, to take effect from June 15th, 1909 (*Ontario Gazette,* May 1st and 15th, 1909).

In August I visited Fort Frances and instructed the newly appointed officers in their various duties, and saw that the necessary seals, books, etc., had been furnished to them.

A list of the officers appointed during the year, with the date of the *Ontario Gazette* in which each appointment was published, will be found in Appendix "M" to this Report.

SHERIFFS.

By Section 39 of the Statute 9 Edward VII., chapter 6, a Sheriff who is not paid wholly or in part by salary and whose net income does not exceed the sum of $1,200.00, may, on the report of the Inspector of Legal Offices, be paid an amount sufficient to make up his income for the year to $1,200. During the year 1909 the incomes of 11 Sheriffs were less than $1,200.00.

Notwithstanding repeated references to the Statute 7 Edward VII., chapter 23, section 15, some Sheriffs continue to deduct five per cent. from the fines received by them in cases in which the same are received without the necessity of a levy. Two per cent. only may be retained by a Sheriff in such cases. When, however, a levy has been made, item 26 of the Sheriff's fees, as set out in the Schedule, to R.S.O., chapter 101, governs. Returns of such fines must be made quarterly to the Honourable the Provincial Treasurer and to the Inspector of Legal Offices, 9 Edward VII., chapter 6, section 26.

By 9 Edward VII., chapter 6, section 30, a Sheriff may at the time of the delivery demand from any person delivering a process or attachment to him to be executed, the fees allowed him by the tariff for receiving, and for warrant, and return, and a reasonable sum for mileage, and the fees and mileage so paid shall, if afterwards collected from the debtor, be repaid by the Sheriff to the person who issued such process or attachment.

Some Sheriffs have inserted in their Annual Returns as salary the quarterly payments made to them under Item 42 of the Schedule to R.S.O., chapter 101, and section 11 thereof, and because of this the sum of $100.00 appeared in one instance in the column headed, "Salary paid by the Province," in Appendix "F" of my Report for 1908. It is not a salary and should have been included in the fees of the office.

Appendix "A" sets out in tabulated form the statistical returns made by the Sheriffs for the year 1909.

Local Masters.

Law stamps amounting to $187.90 were missing from papers; these I caused to be affixed and cancelled.

In the case of one office, the Master having died during the year, the Master's book could not be found.

On the whole, however, the duties of the Local Masters were well performed.

So many requests have been made for copies of the Annuity table published in my Report for 1904, that I have decided to re-publish it. From this table the value of a widow's dower in gross may be ascertained. It appears as Appendix "L" to this Report.

In Appendix "B," I have set out in tabulated form the statistical returns of the Local Masters for 1909.

Local Registrars, Deputy Registrars, Deputy Clerks of the Crown, County and District Court Clerks.

Five of the Local Registrars failed to cancel law stamps for the fees for searches of High Court writs and judgments made by them for the Mercantile Agencies.

In one office the law stamps for the fee of one dollar, payable on the passing of every record in the High Court, were not affixed to the Records.

Law stamps aggregating $42.00, and required to be affixed to papers in respect of the Shorthand Reporters' Fund, were found missing.

In connection with the sittings of the High Court, and the forwarding of papers to Osgoode Hall, at the request of the Judges I sent the following circular letter to all of the Local Registrars and Crown Attorneys of the Province.

Osgoode Hall, Toronto,
January 15th, 1910.

Dear Sir,—At least three days before the commencement of every Sitting of the High Court in your County you must send to the Justice who is to take the Sitting, addressed to him at Osgoode Hall, Toronto, a list of the Actions, Civil and Criminal, the latter to be obtained from the Crown Attorney, to be tried at such Sitting, with a statement of the nature of each and whether it is to be with or without a Jury.

You are also reminded that Rules 555 and 556 *must be strictly complied with* and that in forwarding papers to Toronto the list of Exhibits required by Rule 556 must accompany them.

Yours truly,

Jas. W. Mallon,
Inspector.

In a few instances moneys paid in and out of Court in County Court and Surrogate Court matters were not entered in the book provided for the purpose (Con. Rules 1221 to 1223). The Bank Books showing the balance on deposit must in every case be produced for inspection.

Appendix "C" is a return of the business of the High Court of Justice in the offices of the Local Registrars, Deputy Registrars, and Deputy Clerks of the Crown for the year 1909.

Surrogate Court Registrars.

In ten offices stamps were missing from the papers although the Probates or Letters of Administration or Guardianship had been issued. The amount due the Province as represented by these stamps, and which under the authority of 9 Edward VII., chapter 13, section 12, I caused to be affixed and cancelled, was $260.00.

In some counties I found it to be the practice to combine in one affidavit several of the affidavits leading to Grant of Probate or Letters of Administration, as permitted by Rule 8. It is the duty of the Surrogate Registrar upon the receipt of such an affidavit to see that it embodies all the proofs required to be shown in the affidavits for which it is substituted.

In a few instances I found that Officers had dispensed with the fyling of the necessary form of Inventory and Valuation. That this may not occur in future I gave the following as the necessary papers to be fyled on the application for Letters Probate, Administration, or Guardianship, etc.:

Probate:—

1. Petition for Probate.
2. Affidavit of death and place of abode.
3. Oath of Executor or Executrix.
4. Affidavit of execution of the Will.
5. Affidavit of Plight.
6. Inventory and Valuation of the Personality.
7. Inventory and Valuation of the Realty.
8. Affidavit of the value of the property devolving.
9. The affidavit, in duplicate, required by the Succession Duties Act.

Administration:—

1. Petition.
2. Affidavit of death and place of abode.
3. Oath of Administrator or Administratrix.
4. Renunciations of right to administer (if any).
5. Affidavit of search for a Will.
6. Inventory and Valuation of the Personality.
7. Inventory and Valuation of the Realty.
8. Affidavit of the value of the property devolving.
9. Bond, except where a Trust Company is the Petitioner.
10. The affidavit, in duplicate, required by the Succession Duties Act.

Guardianship:—

1. Petition.
2. Affidavit verifying Petition.
3. Oath of Guardian.
4. Affidavit of advertisement (except when petitioner is the Father or Mother of the Infant).

5. Consent of the infant if 14 years old or over, verified by affidavit.
6. Bond.
7. Inventory and Valuation of the Personality.
8. Inventory and Valuation of the Realty.
9. Affidavit of the value of the property devolving.

Ancillary Letters:—

1. Petition.
2. Exemplification of the Grant.
3. Oath of Executor or Administrator.
4. Affidavit of advertisement in the Ontario Gazette.
5. Bond or Certificate from the Registrar that the security given covers the whole estate (if administration).
6. Inventory and Valuation of Personality.
7. Inventory and Valuation of Realty.
8. Affidavit of the value of the property devolving.
9. Affidavit of death and of Grant issued.
10. Duplicate affidavit required by the Succession Duties Act.

Passing Accounts:—

1. Petition.
2. Appointment.
3. Accounts, verified by affidavit.
4. Order on passing accounts.
5. Bill of costs as taxed.

As a rule the Surrogate books were carefully and neatly kept. In a few offices the Fee book and the Non-contentious business book were in arrears; and in some the Bonds were not all copied.

In cases coming within Section 155 of the Ontario Insurance Act wearing apparel must not be included in the Inventories for the purpose of taking the estate out of the operation of the Statute (1 Edward VII., chapter 21, section 2, subsection 8).

In estates of large value law stamps of a denomination larger than $4.00 should be used. Law stamps of the denominations $10.00, $20.00, and $50.00 may be obtained from the Department of the Honourable The Provincial Treasurer. The use of such stamps greatly expedites the work of inspection.

Appendix "E" gives in tabulated form the business of the Surrogate Registrars for the year 1909.

County and District Crown Attorneys and Clerks of the Peace.

By Section 44 of "The Jurors Act," 9 Edward VII, chapter 34, Sheriffs and Clerks of the Peace of Provisional Judicial Districts shall in future perform the like duties and possess the like powers with respect to the selection, empanelling and summoning of Jurors and otherwise as the Sheriffs and the Clerks of the Peace of the Counties. However, the Clerk of the Peace of a District, instead of bringing into Court and delivering the Jurors' books as provided by section 32 of the said Act, shall on or before the 15th day of December in each year deliver them to the District Judge at his chambers and shall take the prescribed oath before him. After the passing of this Statute I caused to be supplied to the Sheriffs and Clerks of the Peace of the Provisional Judicial Districts the necessary Jurors' books.

In some counties I found that the Jurors' books supplied to the Officers did not comply strictly with the forms prescribed by the Statute. Steps have since been taken to have the books correctly printed.

General Remarks.

Some Police Magistrates and Justices of the Peace are careless in the preparation of the quarterly returns of their convictions, not showing the costs allowed as required by Statute. It would be a convenience if they would show the costs of each case in detail: (1) Magistrates' fees, (2) Constables' fees, and (3) Witness fees.

Office rent, furniture, stationery, and caretaking must not be included as disbursements by Officers in their annual returns. These are provided by the Counties—Sec. 506 Consolidated Municipal Act, 1903; Newsome v. Oxford, 28 Ontario Reports, 442; and *re* Local Officers of the High Court, 7, O. W. R., No. 316.

In many Counties the vault accommodation is quite inadequate to meet the present needs of the offices. In one instance I found papers damaged by reason of the dampness of the vault. In some vaults so great is the congestion that papers are kept outside wholly unprotected from fire.

Owing to the change made in the fiscal year, Local Registrars are now paid their salaries on the last days of January, April, July, and October in each year; consequently they received during 1909 only ten months' salary, which fact has materially reduced the percentage on income payable under R. S. O., chapter 18.

The sums payable to the Province under R. S. O., chapter 18 amounted to $10,057.60, as follows:—

Local Registrars, ...	$8,225.09
Crown Attorneys and Clerks of the Peace,.....	1,832.51

Appendix "F" is a statement of the fees and emoluments of the several Officers for the year 1909, and of the sources from which they derive their incomes.

In Appendix "G" is set out the more important business of the High Court of Justice at Toronto during 1909, compiled from statements from the Officers in Osgoode Hall.

Appendix "H" shows the number of actions tried or otherwise disposed of by the Judges of the High Court and of the Court of Appeal and the disposition thereof during the year 1909.

Appendix "I" is a statement of the business transacted in the office of the Surrogate Clerk, at Osgoode Hall, for the year 1909.

In my last annual Report I compiled tables showing the criminal business of the High Court of Justice, the Sessions, and the County Judges Criminal Court for York County. This report contains tables, Appendices "J" and "K," showing the whole of the criminal business of these Courts throughout the Province, compiled from statements furnished by the Marshal and Clerk of the Assize at Toronto, the Clerks of Assize and the County and District Crown Attorneys of the Province. This will be the first report of an Inspector of Legal Offices to show the criminal business of the Province.

I have the honour to be,

Sir,

Your most obedient servant,

Jas. W. Mallon,

Inspector.

Osgoode Hall, March 7th, 1910.

APPENDIX A.—Containing in tabulated form Statistics as returned

Counties or Districts.	Number of writs of summons received for service		Number of subpœnas received for service in—				Number of orders for arrest.		Number of other process.		Total process received.	
			Criminal Cases.		Civil Cases.							
	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.
Algoma	15	15	.....	5	2	.....	.....	.....	15	10	32	30
Brant	19	36	2	10	3	.....	1	1	.....	.....	25	47
Bruce	16	12	4	21	1	.....	.....	.....	8	2	29	35
Carlton	105	136	5	17	20	8	.....	1	24	22	154	174
Dufferin	10	4	.....	7	1	1	.....	.....	2	.....	13	12
Elgin	18	24	2	13	2	.....	.....	.....	8	5	30	42
Essex	26	27	8	28	.....	.....	.....	.....	8	1	42	56
Frontenac	22	28	1	11	.....	.....	.....	.....	2	3	25	42
Grey	6	11	1	11	1	.....	.....	2	5	.....	13	24
Haldimand	15	4	.....	17	.....	5	.....	.....	.....	2	15	28
Halton	10	8	.....	9	4	.....	.....	.....	2	.....	16	17
Hastings	19	27	6	52	4	3	.....	.....	8	6	37	88
Huron	22	20	2	17	6	1	.....	.....	6	3	36	41
Kenora	7	23	3	10	3	2	.....	1	4	7	17	43
Kent	14	30	2	31	6	3	.....	.....	2	4	24	78
Lambton	7	11	4	18	.....	.....	.....	1	9	1	20	31
Lanark	26	14	3	1	2	.....	.....	.....	1	2	32	17
Leeds and Grenville	25	17	8	29	1	.....	1	.....	5	.....	40	46
Lennox and Addington	5	11	1	4	4	2	.....	1	1	2	11	20
Lincoln	10	13	2	14	.....	1	.....	.....	4	4	16	32
Manitoulin	2	3	7	11	.....	.....	.....	.....	.....	.....	9	14
Middlesex	25	32	4	32	10	3	.....	.....	4	1	43	68
Muskoka	6	11	.....	2	.....	.....	.....	.....	.....	.....	6	13
Nipissing	33	29	15	18	1	.....	.....	.....	10	1	59	48
Norfolk	10	10	.....	.....	2	.....	.....	.....	.....	.....	12	10
Northumberland and Durham	10	9	6	31	.....	.....	1	.....	.....	.....	17	40
Ontario	3	11	6	14	1	.....	.....	.....	2	1	12	26
Oxford	15	23	1	4	10	.....	.....	.....	11	13	37	40
Parry Sound	6	15	9	30	.....	.....	.....	.....	1	1	16	46
Peel	7	10	3	7	.....	1	.....	1	3	4	13	23
Perth	21	33	10	1	4	.....	.....	.....	1	2	36	36
Peterborough	20	20	3	21	20	7	.....	.....	9	11	52	59
Prescott and Russell	6	11	2	3	.....	.....	.....	.....	.....	.....	8	14
Prince Edward	13	12	2	.....	.....	2	.....	.....	.....	.....	15	14
Rainy River	3	12	6	17	.....	.....	.....	2	.....	.....	9	29
Renfrew	5	15	2	3	2	1	.....	.....	2	11	11	30
Simcoe	16	28	2	21	1	1	.....	.....	10	2	29	52
Stormont, Dundas and Glengarry	35	37	5	8	7	2	.....	.....	7	5	54	52
Sudbury	17	44	36	64	.....	1	.....	.....	.....	4	53	113
Thunder Bay	30	41	2	7	.....	1	.....	.....	12	28	44	77
Victoria	10	11	2	5	1	3	.....	.....	3	5	16	24
Waterloo	26	29	10	6	.....	.....	.....	.....	2	2	38	37
Welland	27	20	3	18	5	.....	.....	.....	7	2	42	40
Wellington	15	25	10	15	.....	.....	.....	.....	8	3	33	43
Wentworth	68	61	8	71	10	1	.....	.....	18	5	104	138
York	22	25	.....	272	1	.....	.....	1	4	.....	27	296
Toronto	302	265	50	.....	38	7	1	2	67	46	458	320
Totals	1,150	1,313	258	1,006	173	56	4	13	295	221	1,880	2,605

by the different Sheriffs for the year ending 31st December, 1909.

Number of persons served.		Estreats received.		Number of jurors summoned.		Number of writs of execution received.			Number of renewals of writs of execution against— Goods and Lands.		
H.C.	C.C.	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.	D.C.	H.C.	C.C.	D.C.
19	48			122	43	7	22	21	10	16	
39	99			120	120	5	15	9	1		
41	72			122	122	15	22	22	2	3	
250	285			219	122	57	73	37	26	7	
20	36			122	120	3	4	7		1	
54	86			122	122	11	18	22	1		
84	165			122	122	24	34	45	4		
36	95			122	98	12	16	21	2	1	
22	76			122	124	17	13	20	4	2	
25	6			122	218	3	6	9	1		
27	5			122	98				1	3	1
85	239			122	122	19	22	7	5	8	
55	145			122	122	13	25	11	2	2	
32	76			122	122	2	21	3			
86	195			52	192	24	23	34	3	2	
68	95			122	98	13	14	20	5	5	
59	22			119	121	6	11	18			
101	151			122	218	12	20	28			
34	35			122	98	4	2	9		1	
22	68			122	98	11	18	17	1		
2	4			61	49	3	9	4		1	
80	172			183	122	13	12	25			
5	11			122	122	6	7	6			
103	55			127	86	94	84	30			
22	8			122	122	3	9	15			1
17	40			122	122	12	23	20	4	6	
33	77			122	122	9	10	9	4	4	
47	52			122	122	7	10	18			
46	132			126	87	16	12	7	4		
30	52			122	122	4	8	5	2	1	
144	47			122	122	15	24	6		1	
252	170			122	122	8	15	3	1		
24	26			122	122	4	3	23			
28	17			121	121	3		4			
				61	61	1	5				
35	38			122	122	4	11	5	1	1	
39	142		1	106	106	17	30	26	4	2	
99	84			183	122	19	20	18	4	6	
106	225			129	100	9	18	4	1		
82	90			128	129	30	112	22	1	9	
39	41			122	110	8	12	17	1	3	
64	50			122	121	17	24	19	1		
87	81			122	122	17	22	31			
175	132			122	122	11	19	14	2		
190	387			183	122	29	38	33	9	9	
29	1,446		1		292	34	33	17	5	5	
756	347			339		201	246	64	57	36	
3,693	5,925		2	5,917	5,592	852	1,195	805	169	135	2

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

Counties or Districts.	Number of renewals of writs of execution against—					Number of writs of possession received.		Number of writs Ca. Sa.	
	Lands only.			Goods only.					
	H.C.	C.C.	D.C.	H.C.	C.C.	H.C.	C.C.	H.C.	C.C.
Algoma	2		10		1	1	1		
Brant		1	2						
Bruce			7			4			
Carlton			3			5	2		
Dufferin			3			2			
Elgin							2		
Essex			2			3	2		
Frontenac			3						
Grey			3			2			
Haldimand						1			
Halton						1			
Hastings	2	3							
Huron						1			
Kenora			1				1		
Kent			4						
Lambton	2		12	1		2	1	1	
Lanark									
Leeds and Grenville			3				1		
Lennox and Addington							1		1
Lincoln			1						
Manitoulin									
Middlesex	1		1			1			
Muskoka					1	1			
Nipissing						5	1		
Norfolk									
Northumberland and Durham		1	10			1			
Ontario			3			1	1		
Oxford			4						
Parry Sound			10			1	1		
Peel									
Perth			1			3	1		
Peterborough			1			2			
Prescott and Russell									
Prince Edward						1			
Rainy River							1		
Renfrew									
Simcoe			1				1		
Stormont, Dundas and Glengarry			2						
Sudbury							1		
Thunder Bay			1			1			
Victoria						1			
Waterloo									
Welland						2	1		
Wellington		1				2	1		
Wentworth	2	5	7			4	1		
York	6	1	3	1		3	2		
Toronto	24	16	11		1	4	4	1	2
Totals	39	26	109	2	3	55	27	2	3

different Sheriffs for the year ending 31st December, 1909.—*Continued.*

Number of sales under writs of execution of					Seizures under writs of execution where no subsequent sale.			Attendance to seize where no goods found.		Writs of execution on which money realized.		
Goods.		Lands.										
H.C.	C.C.	H.C.	C.C.	D.C	H.C.	C.C.	D.C.	H C.	C.C.	H.C.	C C.	D.C.
.....	1	1	.....	.....	1	1	.....	1	1	1	1	.....
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2	3	.....
.....	1	.....	.....	.....	2	5	.....	1	5	2	7	.....
4	1	.....	.....	.....	6	10	.....	5	6	12	18	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	1	.....	.....	.....	3	.....	4	3	.....	3	2
.....	3	.....	.....	.....	10	20	.....	2	3	3	12	3
2	1	.....	.....	.....	.....	3	.....	.....	.....	2	4	2
.....	1	.....	.....	.....	1	5	.....	8	4	3	4	.....
1	2	.....	.....	1	2	.....	1	.....	.....	2	3	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	.....
.....	.....	3	.....	.....	3	3	.....	2	2	7	8	1
.....	.....	.....	.....	1	.....	10	.....	.....	1	.....	10	1
.....	3	.....	.....	.....	.....	2	.....	.....	3	.....	6	.....
.....	1	1	.....	.....	2	1	.....	2	1	3	3	1
.....	1	.....	.....	2	1	2	.....	2	1	1	3	1
.....	2	.....	.....	.....	1	1	.....	1	.....	.....	3	.....
.....	1	.....	.....	.....	3	11	7	1	2	3	12	7
.....	1	.....	.....	.....	.....	2	.....	.....	.....	.....	1	1
1	1	.....	1	.....	.....	.....	.....	.....	.....	3	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	3	2	.....
.....	1	.....	.....	.....	3	1	.....	2	1	2	1	3
1	.....	.....	.....	.....	2	2	.....	.....	1	2	2	.....
5	3	1	.....	.....	9	5	.....	7	8	12	11	.....
.....	.....	.....	.....	.....	2	3	.....	.....	2	1	3	1
1	.....	1	.....	.....	.....	4	.....	.....	.....	2	4	1
3	1	.....	.....	.....	4	4	.....	2	2	5	5	.....
1	.....	.....	.....	.....	3	5	.....	.....	1	3	4	.....
2	3	.....	.....	.....	4	5	.....	3	1	6	7	.....
.....	.....	.....	.....	.....	1	4	.....	1	.....	1	3	.....
.....	1	.....	.....	.....	4	3	.....	1	5	3	6	1
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	2	.....	.....	.....	.....	1	2	1
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	.....	.....	1	2	.....	.....	.....	.....	3	.....
1	.....	.....	.....	.....	1	4	.....	.....	.....	2	4	1
.....	.....	.....	.....	.....	7	4	.....	4	6	6	5	.....
2	1	.....	.....	.....	4	5	.....	.....	.....	2	6	2
1	.....	.....	.....	.....	5	2	.....	.....	3	5	5	.....
1	5	.....	.....	.....	3	29	.....	1	4	4	36	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....
2	.....	1	.....	.....	4	3	.....	4	9	4	3	2
2	.....	.....	.....	.....	4	2	.....	1	2	6	2	7
.....	1	.....	.....	1	2	6	.....	.....	.....	3	6	.....
1	4	.....	.....	.....	11	7	.....	8	6	5	4	.....
1	.....	1	.....	.....	4	4	.....	1	.....	7	5	4
2	9	1	.....	.....	.....	.....	.....	.....	.....	18	35	7
34	50	11	1	5	113	185	8	64	84	149	273	53

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

Counties or Districts.	Cases under Creditors Relief Act.	Certificates received under Creditors' Relief Act.	Assignments made to Sheriff under R.S.O. cap. 147.	Returns received under 7 Edw. VII., cap 51, sec. 7.	Sales of Lands under 7 Edw. VII., cap. 51, sec. 7.	Amount endorsed on Writs of Execution (not renewals). (1) For debt or damages H.C.	C.C.	Div. Co.	For costs taxed. H.C.	C.C.
						$ c.	$ c.	$ c.	$ c.	$ c.
Algoma	....	....	.. .	4	....	37,377 25	7,239 60	1,904 50	1,062 71	646 42
Brant	....	....	....	....	....	7,318 10	3,847 31	967 88	228 25	378 43
Bruce	2	1	1	....	....	36,523 15	5,819 66	1,860 49	694 05	581 92
Carlton	5	2	....	....	....	95,951 81	18,025 03	4,223 95	3,191 31	1,882 77
Dufferin	....	....	....	....	....	981 67	1,076 06	812 05	81 09	83 71
Elgin	....	....	....	....	....	18,919 54	5,638 16	1,997 13	1,175 81	492 48
Essex	3	19	4	....	....	75,706 91	7,858 20	5,128 49	657 67	585 03
Frontenac	1	2	....	....	....	8,794 02	2,936 73	1,329 52	285 23	452 63
Grey	....	....	....	....	....	9,504 40	3,158 27	2,779 09	1,338 92	319 83
Haldimand	....	....	....	....	....	10,459 44	978 31	1,009 51	59 03	67 29
Halton	....	....	1	....	....	869 11	2,563 06	697 69	58 89	149 89
Hastings	11	....	1	....	....	16,384 57	5,123 05	618 71	847 57	543 96
Huron	1	....	....	....	....	27,713 45	5,881 22	1,044 16	392 88	1,125 44
Kenora	1	....	1	....	....	72,074 95	17,288 00	245 90	355 24	585 24
Kent	1	1	1	....	....	97,799 66	7,554 56	2,956 32	1,435 75	935 76
Lambton	....	....	....	....	....	23,154 54	3,615 48	1,994 83	838 39	567 53
Lanark	1	9	....	....	....	6,520 42	3,970 37	1,773 72	334 33	258 16
Leeds & Grenville	1	1	3	....	....	13,346 84	4,880 36	2,474 83	958 33	417 06
Lennox & Addington	2	....	2	....	....	4,208 23	530 04	738 87	178 36	318 30
Lincoln	....	....	1	....	....	8,487 61	4,261 60	1,456 66	487 61	822 98
Manitoulin	....	....	1	4	....	230 70	2,421 03	....	76 58	321 27
Middlesex	1	....	....	....	....	20,790 81	3,476 68	2,417 84	580 69	394 66
Muskoka	....	....	1	9	....	4,307 62	2,255 07	394 96	367 72	162 32
Nipissing	3	3	....	....	1	154,539 66	26,266 73	3,085 27	6,421 72	2,295 71
Norfolk	....	....	....	....	....	5,239 56	1,762 92	1,699 29	33 92	132 10
Northumberland and Durham	2	....	....	....	....	15,543 28	2,516 67	1,325 75	1,746 15	440 25
Ontario	4	....	....	....	....	24,696 72	2,772 97	1,042 08	304 02	213 04
Oxford	1	....	....	....	....	4,477 51	2,800 64	1,515 34	645 22	224 78
Parry Sound	1	1	3	5	....	19,298 55	3,112 03	528 68	1,332 14	399 90
Peel	....	....	....	....	....	3,612 16	1,700 02	541 80	24 15	133 35
Perth	1	....	....	....	....	9,899 18	5,999 00	616 65	261 23	460 32
Peterborough	....	....	....	....	....	19,431 29	5,067 07	130 09	735 35	975 31
Prescott & Russell	....	....	....	....	....	2,275 57	142 00	1,957 95	321 41	215 20
Prince Edward	....	....	....	....	....	2,481 67	19 78	434 15	45 55	23 46
Rainy River	....	....	1	....	....	3,321 12	1,424 60	.....	606 00	48 01
Renfrew	1	....	....	....	....	3,983 61	3,365 36	466 15	359 95	260 31
Simcoe	1	....	....	....	....	14,792 60	9,199 55	1,987 46	648 66	868 75
Stormont, Dundas and Glengarry	1	....	....	.. .	....	13,371 78	5,267 46	1,564 63	1,114 97	481 75
Sudbury	....	....	7	....	....	7,816 39	4,050 33	277 11	475 31	311 01
Thunder Bay	8	7	1	....	....	45,117 30	40,766 97	2,163 83	1,089 91	2,458 18
Victoria	....	....	....	....	....	5,280 81	3,227 24	1,505 55	1,256 13	538 92
Waterloo	2	2	....	....	....	39,172 09	7,243 72	1,791 79	298 22	607 92
Welland	2	....	....	....	....	21,069 02	5,697 06	2,903 21	877 24	375 20
Wellington	2	....	3	....	....	10,713 87	6,964 64	1,538 68	291 37	235 16
Wentworth	4	6	3	....	....	73,120 79	11,498 62	2,950 40	1,672 30	1,037 50
York	2	1	....	....	....	57,703 61	11,497 61	1,540 18	1,142 16	759 65
Toronto	7	....	....	....	....	529,678 15	70,529 95	6,050 19	10,676 42	5,644 43
Totals	72	55	35	22	1	1,684,061 09	353,290 79	74,443 24	48,065 91	31,233 29

different Sheriffs for the year ending 31st December, 1909.—Concluded.

	Amounts realized under writs of execution from sales of					Amount received for fines, penalties, etc.	Amount received (not fees) under Fi. Fas. without sale, goods and lands.		
	Goods.		Lands.						
Div. C.	H.C.	C.C.	H C.	C.C.	Div. C.		H.C.	C.C.	Div. C.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
141 05	.....	8 00	25 00	.....	.....	.....	28 44	.....	65 83
60 46	.....	.....	.....	.....	.....	.....	2,053 59	391 39	.....
147 46	.....	93 79	.....	.....	.....	.....	218 90	1,300 65	.....
.....	1,709 60	196 00	.....	.....	.....	100 00	5,921 08	3,069 15	120 78
61 71	.....	.....	.....	.....	.....	.....	.....	173 00	.....
95 25	.....	.....	222 00	.....	.....	.....	.....	558 02	141 46
397 19	1,266 32	5 00	.....	.....	.....	.....	5,994 43	2,550 70	226 79
92 22	705 20	173 65	.....	.....	.....	.....	.....	390 00	173 00
131 23	133 00	58 12	.....	.....	.....	.....	577 24	499 98	.....
74 97	78 17	288 00	.....	.....	25 00	.....	.....	454 47	53 36
46 86	740 00	.....	.....	.....	.....	.....	.....	556 85	.....
44 57	.....	.....	446 72	.....	.....	.....	1,726 85	859 03	6 53
48 45	.....	.....	.....	.....	74 00	.....	.....	1,750 41	.....
14 80	.....	2,620 84	.....	.....	.....	.....	.....	549 22	.....
85 28	.....	355 55	240 00	.....	.....	100 00	282 38	351 04	140 90
139 35	.....	12 10	.....	.....	167 36	.....	61 13	422 48	.....
113 41	.....	1,088 85	.....	.....	.....	.....	.....	213 55	.....
194 91	.....	304 10	.....	.....	.....	.....	1,269 49	2,413 22	669 32
43 59	.....	21 00	.....	.....	.....	.....	.....	.....	102 31
90 72	800 00	30 80	.....	240 00	.....	.....	1,050 54	1,411 84	.....
.....	.....	100 00	.....	.....	.....	104 25	319 37	258 79	.....
118 27	.....	174 33	.....	.....	.....	122 50	137 00	248 59	197 33
87 75	1,006 00	.....	.....	.....	.....	.....	.....	263 09	.....
284 99	1,050 96	195 42	588 28	.....	.....	.....	165,465 88	34,157 64	3,370 26
9 44	.....	.....	.....	.....	.....	.....	356 00	428 67	53 00
58 91	367 78	.....	400 00	.....	.....	.....	.....	1,111 09	57 51
98 26	1 215 02	75 10	.....	.....	.....	82 50	460 53	576 07	.....
78 31	294 82	.....	.....	.....	.....	.....	1,085 32	1,019 08	.....
83 56	.....	1,312 35	2,495 35	.....	.....	.....	2,058 99	662 22	196 80
.....	.....	.....	.....	.....	.....	.....	.....	872 31	.....
27 57	.....	500 00	.....	.....	.....	.....	392 27	1,167 47	64 00
19 20	.....	.....	.....	.....	.....	30 00	.....	220 61	.....
172 93	.....	.....	.....	.....	.....	.....	465 00	741 43	54 76
14 03	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	200 00	.....	503 32	.....
20 32	197 75	.....	.....	.....	.....	.....	91 89	606 09	95 42
198 64	75 00	.....	100 00	.....	.....	21 00	1,055 77	756 76	.....
66 95	325 60	457 75	.....	.....	.....	.....	1,796 52	1,197 70	87 09
5 74	195 00	.....	.....	.....	.....	.....	1,939 76	1,304 15	.....
110 23	.....	2,665 73	.....	.....	.....	.....	4,810 91	9,973 96	135 15
159 21	.....	.....	.....	.....	.....	.....	.....	502 98	.....
54 44	.....	22 64	.....	.....	.....	.....	41,079 79	9,357 78	2,098 67
.....	181 25	.....	.....	.....	.....	.....	3,985 82	629 51	780 29
68 11	.....	.....	.....	.....	75 00	.....	2,504 55	920 12	.....
196 83	51 91	1,164 61	.....	.....	.....	25 00	655 20	15 54	.....
74 38	183 53	54 25	50 41	.....	42 53	725 00	4,978 70	339 82	295 30
369 56	457 05	777 00	70 00	.....	.....	.....	4,228 42	3,801 13	574 73
4,401 11	11,033 96	12,754 98	4,637 76	240 00	383 89	1,510 25	257,051 76	89,550 92	9,760 59

APPENDIX B.—Being a return of business transacted by Local Masters through

County or District.	Number of Orders made for the following purposes:					
	For administration of estates.	For partition or sale of property.	Respecting Infants under R.S.O., c. 168, s. 3. (Examination only).	Under Winding-up Acts.	Other Orders made in chambers.	Examinations taken as special examiner or otherwise before trial.
Algoma				1		
Brant						
Bruce	1					
Carlton		3		15	98	46
Dufferin					20	
Elgin		1			1	22
Essex		1			5	
Frontenac	1	3				
Grey					40	1
Haldimand						
Halton						
Hastings	2	1		3	24	33
Huron		1				
Kenora					4	9
Kent	1	1			3	
Lambton		4		1	23	3
Lanark		1				
Leeds and Grenville	1				23	
Lennox and Addington				2	9	
Lincoln	1	1		2	7	
Manitoulin						
Middlesex	2			11		
Muskoka						
Nipissing				2		
Norfolk						
Northumberland and Durham						
Ontario						
Oxford		1				20
Parry Sound						
Peel		2			18	
Perth	1	1		2	13	2
Peterborough						
Prescott and Russell						
Prince Edward	1				14	
Rainy River					2	
Renfrew					4	2
Simcoe	2	3			2	3
Stormont, Dundas and Glengarry				14	28	
Sudbury						
Thunder Bay				1		
Victoria	2				4	
Waterloo		1				3
Welland					1	
Wellington	1			3	39	32
Wentworth		1			5	
Totals	16	26		57	387	176

out the Province of Ontario during the year ending 31st December, 1909.

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

Administration of estates.	Executors, trustees or committees' accounts and compensation.	Foreclosure of mortgage or bond.	Redemption of mortgage or bond.	Sale under mortgage or agreement.	Account on any charge or liens on lands other than mechanics' liens.	Account under Mechanics' Lien Act.	Specific performance.	Partnership accounts.	Alimony.	Partition or sale.	Damages for breach of contract or covenant.
		2									
		1						1			
2										1	
1		5		1		6		1		2	1
		1						1			
1	1				1	2		1			2
2		3								3	
1											
	1				1						
3		2				5				1	
2		1		1		1					
								1	1		
1									1	2	
		1									
		6		1							
1		3							2		
		1		1						1	
1								1		1	
				1							
1	1			1						4	
		2				1		1			
		1									
1											
2								1			
1					1					2	1
							1				
	1	1	1	2		1					
1		2		1		2				1	1
1										1	
2	4										
2	1								1		
1		1					1	1		3	
	2	1						1			
1		1			1			1			
		1				1		1			
		1		1				1			
1		1									2
1		1									
		3		1	1	11		1		3	1
30	11	42	1	11	5	30	2	14	5	25	8

APPENDIX B.—Being a return of business transacted by Local Masters through

County or District.	Number of Judgments or Orders.—*Con*						
	Work and labor done.	Money received, paid, advanced, or lent.	Goods sold and delivered.	Promissory notes and bills of exchange.	Bonds, life and fire insurance.	Infants' estates.	Quieting Title matters.
Algoma							
Brant							
Bruce							
Carlton			1			1	
Dufferin						1	
Elgin							
Essex	2		1				1
Frontenac							
Grey	2	1					
Haldimand							
Halton							
Hastings							1
Huron							
Kenora							
Kent							
Lambton							
Lanark							1
Leeds and Grenville							
Lennox and Addington							
Lincoln							
Manitoulin							
Middlesex						1	1
Muskoka							
Nipissing							
Norfolk							
Northumberland and Durham							
Ontario							
Oxford							
Parry Sound							
Peel							
Perth							
Peterborough							
Prescott and Russell							
Prince Edward							
Rainy River							
Renfrew							
Simcoe							
Stormont, Dundas & Glengarry		1					
Sudbury							
Thunder Bay							
Victoria							
Waterloo							
Welland							
Wellington				1			1
Wentworth	3		1				1
Totals	7	2	3	1		3	6

out the Province of Ontario during the year ending 31st December, 1909.

tinued.

Lunacy.	Miscellaneous.	Number of advertisements of sale issued.	Number of reports issued.	Number of references pending at date of return.	Number of bills of cost taxed by Master.	Amount realized by sales held under direction of Master.	Amount of costs of reference, etc., taxed by Master or under his direction.	Amount of commission allowed in administration and partition matters.
						$ c.	$ c.	$ c.
1			1	4	1			
3	1			1	1		140 12	
2		1	2	4	2	1,480 00	191 44	149 00
	4	7	13	11	21	127,580 00	2,696 98	1,770 50
		1	3	1	1	2,810 00	283 00	
2		3	6	5	6	15,438 10	219 96	
		1	10	5	2	2,900 00	93 81	202 00
1	0	1	6	4	5	1,500 00	201 43	167 00
1			7	1	5		1,025 82	
1		1	2	2	1		86 39	
1			2	2				
1	3	3	3	9	6	2,465 00	496 72	
1	1	1	7	10	5	3,670 00	748 22	165 00
			2	2			82 10	
		3	4					
1		2	5	4	3		714 54	432 00
1	1	1	6	4	8		508 63	
1		2	8	8	6	7,640 00	1,228 03	
1	2	2	10		9	10,995 00	695 83	223 00
	3	4	5	6	6	9,060 00	720 48	341 15
		1		1				
1	1	8	16	8	7	467,467 00	609 81	602 95
		2	2	3	1		24 05	
			1	1	1		38 73	
1								
2		1	3	2		3,000 00		
	1	1	3	2		15,250 00		427 00
1		1	5	1	5	3,500 00	238 43	
		3	8	12	4	2,100 00	493 00	100 00
			3	2	7	1,085 00	693 07	
2			2	4	2		48 58	
					1			
		2	3		3	2,942 60	361 00	174 22
1	1	4	6	2	10	12,450 00	1,528 02	689 00
	1		2	7	2	111,241 99	392 32	
	1		1					
		1	1	3		5,875 00		
1		2	3	2	3	197 40		
		2	3	3	4	1,170 00	308 10	136 75
	3	2		5	1			
2	2	1	8	6	6	375 00	336 17	375 10
4	6	2	19	2	5	15,300 00	972 53	391 50
33	31	66	191	149	150	827,492 09	16,177 31	6,346 17

APPENDIX C.—A return of all business transacted by Local Registrars, 31st Dec

County or District.	Writs of summons issued.	Orders for arrest issued.	Actions entered in Procedure Book.			*Præcipe* orders issued.	Orders issued and signed by Local Judge.	Examination of parties returned.	Records passed.	Actions entered for Trial.		Actions tried.		Remanets standing for Trial.	
			Writs issued during year.	Writs issued during previous years.	Otherwise than by Writ.					By Jury.	Without Jury.	By Jury.	Without Jury.	By Jury.	Without Jury.
Algoma	52		29	6		32	47	13	7	2	5	1	4	1	1
Brant	79		44	3	4	31	26	32	21	14	19	1	11	1	3
Bruce	41		30	2	2	20	18	21	12	7	10	2	12		
Carlton	204		166	10	33	94	52	77	66	22	67	12	40		1
Dufferin	20		19	1	4	7		1	6	4	5	4	5		
Elgin	73		60	3	3	89	24	23	19	13	8	6	8		1
Essex	103		83	2	8	48	57	65	54	20	34	15	14		
Frontenac	70		45	3	8	36	31	25	16	9	5	8	6		
Grey	80		59	16	1	43	6	35	34	19	19	16	19	5	
Haldimand	20		17	1		2	2	8	4	3	2	2	3		
Halton	27		16	1	4	3	3	1	3	2	1	2	2		
Hastings	78		62	4		61	10	41	36	24	21	7	14	5	
Huron	81		69	8	1	27	4	16	40	23	18	2	18	21	
Kenora	19		14	2	2	15	31	4	6	3	3	1	3		
Kent	68		54	3	4	36	42	27	29	13	16	4	25		
Lambton	45		42		13	20	26	20	18	8	11	1	6		
Lanark	62		33	4	1	20	36	14	4	4		3			
Leeds and Grenville	52	1	38	4	1	16	1	22	13	5	8	5	8		
Lennox and Addington	23		14	1	1	13	11	7	10	3	5		7	1	
Lincoln	45		40		2	26	22	9	14	1	14		12		3
Manitoulin	10		8			8	2		4		4		4		
Middlesex	174		114	6	8	86	98	92	54	28	26	14	17	4	8
Muskoka	18		15	1	2	14	15	6	8	4	3	3	2		
Nipissing	171		130	14	34	102	145	44	45	17	39	2	22	2	6
Norfolk	27		22			9	4	7	5	5					
Northumberland and Durham	36		32	3	3	19	16	16	11	6	7	2	6		1
Ontario	19		16			8	4	5	3	4	2		2	1	
Oxford	51		42	3	2	28	14	34	16	8	2	5	10		
Parry Sound	19		19		3	6	7		4	5	1	4	1		
Peel	21		12	3	1	7	3	7	8	4	5	3	2	1	1
Perth	114		97	11	1	52	44	57	47	24	23	17	23		
Peterborough	53		34			49	2	33	14	3	13	1	11		
Prescott and Russell	9		8	1	1	4	5	2							
Prince Edward	4		3			11		8	6		6		4		
Rainy River	5		6		3	1	4		1		1				
Renfrew	39		26	2			3	10	13	5	9	3	5		1
Simcoe	88		25	8		48	16	27	24	12	12	2	8		
Stormont, Dundas and Glengarry	115		89	3	22	74	5	1	27	18	14	4	26		4
Sudbury	31		24	39		3	12		9	6	6	3	4		
Thunder Bay	128		150	2	27	55	106	51	28	13	15	2	22		4
Victoria	42		35	1	2	28	9	12	12	3	9		10		
Waterloo	87		78	4	8	66	45	30	25	6	24	1	10		2
Welland	87		74	5	19	17	40	19	32	15	23	3	29		4
Wellington	62		45	3	7	16		6	11	3	8	1	9		1
Wentworth	254		209	3	30	150	102	67	82	36	42	18	31	1	4
Totals	2906	1	2247	186	265	1500	1150	995	911	424	565	180	475	43	45

Deputy Registrars and Deputy Clerks of the Crown for the year ending ember, 1909.

Judgments entered without trial.	Amount of such judgments, without costs.	Amount of costs taxed thereunder (exclusive of Disbursements).	Amount of disbursements allowed.	Judgments entered after trial.	Amount of such judgments, without costs.	Amount of costs taxed thereunder (exclusive of Disbursements).	Amount of disbursements allowed.	Number of Judgments for over $10,000.	Number of Judgments for $10,000 and above $5,000.	Number of Judgments for $5,000 and above $2,000.	Number of Judgments for $2,000 and above $1,000.
	$ c.	$ c.	$ c.		$ c.	$ c.	$ c.				
5	4,304 38	93 65	30 58	....	1,000 00	58 70	128 14	....	....	1	....
10	17,551 68	174 00	52 88	7	677 22	250 99	94 88	....	1	2	2
14	5,261 80	153 00	62 42	9	13,065 05	333 30	526 46	....	1	....	4
71	84,454 21	1,772 68	651 52	46	117,163 55	3,422 73	1,886 38	3	2	14	24
6	2,215 13	72 50	21 91	6	7,794 00	200 50	66 12	....	1	....	2
15	27,956 14	448 55	49 00	8	10,887 67	907 30	789 44	....	2	4	7
24	43,438 97	834 95	197 22	32	33,250 29	4,108 35	2,404 72	3	2	3	8
17	59,879 05	338 38	139 09	8	5,390 50	1,035 38	292 84	1	....	4	4
20	167,323 88	461 75	124 60	10	3,738 77	506 31	327 83	4	2	1	3
2	.....	.....	.....	2	300 00	.....	.....	....	....	....	....
2	1,002 09	67 10	19 27	1	.....	.....	.....	....	....	....	....
9	3,573 60	146 07	34 50	12	4,300 00	878 72	399 05	....	....	....	4
13	8,799 11	166 00	85 17	3	1,850 00	929 50	122 24	....	....	1	3
4	13,829 02	186 84	40 90	2	250 00	109 90	265 85	1	....	1	....
7	10,650 50	126 71	68 66	6	4,720 00	887 50	543 52	....	....	1	6
7	4,876 36	209 03	37 57	13	2,789 68	828 30	1,442 78	....	....	1	1
18	15,100 73	345 55	152 41	3	1,079 00	184 30	330 63	....	....	3	3
9	9,812 17	284 15	163 30	5	3,194 49	432 20	878 27	....	....	1	2
8	8,869 17	124 46	62 31	4	647 50	307 74	143 42	....	1	....	2
11	20,890 60	225 33	62 15	6	4,231 34	704 06	310 59	....	1	3	4
1	.....	.....	.....	1	75 00	.....	.....	....	....	....	....
32	42,038 33	763 40	149 65	26	22,660 34	1,528 44	627 99	1	3	4	6
4	2,747 02	37 30	30 06	4	1,440 00	383 20	117 65	....	....	....	2
47	89,245 92	980 95	241 75	27	14,959 35	1,277 35	1,226 63	2	2	7	9
2	4,392 53	21 92	4 42	....	.....	.....	.....	....	....	1	1
12	16,640 70	418 43	214 91	10	17,397 15	1,147 96	656 48	1	2	1	2
4	2,413 57	43 30	12 95	....	.....	.....	.....	....	....	....	1
5	3,817 47	114 85	75 08	10	2,796 10	614 29	649 49	....	....	....	3
6	2,847 62	53 25	12 94	3	1,000 00	98 18	55 08	....	....	....	2
4	1,888 58	57 62	16 80	2	.....	34 89	7 40	....	....	....	....
20	14,134 15	239 51	93 64	17	22,411 01	924 57	602 66	1	....	2	8
7	6,748 15	180 89	43 20	12	4,936 28	903 87	450 92	....	....	....	1
4	2,107 60	52 18	17 87	3	830 81	153 36	238 48	....	....	....	....
1	2,077 11	66 88	45 52	5	3,141 14	226 65	70 27	....	....	1	2
2	3,370 64	58 63	6 70	....	.....	.....	.....	....	....	....	....
6	6,494 83	56 10	14 87	9	4,485 05	395 81	523 48	....	....	3	6
12	31,728 16	442 58	151 16	2	800 00	204 36	173 70	....	2	3	2
15	12,957 43	332 70	112 41	13	2,297 16	704 26	270 84	....	....	1	6
6	9,554 79	210 80	40 07	7	4,047 70	356 48	301 93	....	1	....	3
13	19,743 07	441 75	87 01	15	50,705 21	1,893 12	988 49	2	....	5	5
8	6,127 01	618 94	190 27	4	1,231 24	492 70	969 76	....	....	....	3
23	47,492 78	1,092 27	257 10	12	6,374 43	552 08	311 15	2	2	1	9
18	16,044 81	497 32	580 94	16	7,478 68	851 44	1,101 65	....	....	2	9
11	21,220 55	532 72	144 26	5	2,436 70	2,132 35	1,219 69	....	....	4	5
51	94,939 79	1,540 48	395 57	62	32,892 90	6,023 54	1,476 90	2	1	9	12
586	960,561 20	15,085 47	4,994 61	448	420,765 31	36,984 68	22,993 80	23	26	84	176

APPENDIX C.—A return of all business transacted by Local Registrars, 31st Dec

County or District.	Number of Judgments for $1,000 and above $400.	Number of Judgments for $400 and under.	Number of Judgments dismissing actions.	Number of Judgments in default of appearance or pleading.	Number of Judgments under Con. Rule 603.	Number of Judgments for reference to Master.	Number of Writs of Execution issued.	Number of Writs of Execution renewed.	No. of Writs of *Ca. Sa.* issued.	Number of Certificates issued under Creditor's Relief Act.	Amount for which issued, without costs.	Amount of Costs allowed thereunder (including Disbursements).
											$ c.	$ c.
Algoma	4	....	3	4	3	....	4	4	....	....	.....	.....
Brant	4	2	3	8	1	1	6	4	....	....	.....	.....
Bruce	5	13	1	12	1	1	15	1	....	....	.....	.....
Carlton	29	19	12	39	18	12	44	28	....	....	.....	.....
Dufferin	3	2	1	3	3	....	6	2	....	....	.....	.....
Elgin	3	7	1	9	4	3	8	1	....	....	.....	.....
Essex	6	....	4	10	4	5	20	3	....	....	.....	.....
Frontenac	14	2	....	17	....	3	7	2	....	....	.....	.....
Grey	5	6	3	7	11	2	17	2	1	....	.....	.....
Haldimand	....	1	1	....	1	1	....	....	....	....	.....	.....
Halton	2	....	1	2	....	....	3	1	....	....	.....	.....
Hastings	1	1	3	3	....	7	11	7	....	....	.....	.....
Huron	4	8	....	8	1	4	7	2	....	....	.....	.....
Kenora	2	1	2	4	....	....	1	....	....	....	.....	.....
Kent	2	4	....	3	4	....	9	2	....	....	.....	.....
Lambton	5	7	3	5	2	3	11	3	....	....	.....	.....
Lanark	5	....	1	2	....	6	6	....	....	....	.....	.....
Leeds and Grenville	7	3	....	4	3	5	12	....	....	....	.....	.....
Lennox and Addington	2	1	2	6	....	1	5	4	....	....	.....	.....
Lincoln	6	....	1	6	5	....	8	....	....	....	.....	.....
Manitoulin	....	1	1	1	....	....	1	....	....	....	.....	.....
Middlesex	16	6	4	15	6	4	20	1	....	....	.....	.....
Muskoka	1	....	....	....	....	....	4	....	....	....	.....	.....
Nipissing	24	30	5	26	9	4	54	7	....	....	.....	.....
Norfolk	....	....	....	2	....	1	2	....	....	....	.....	.....
Northumberland and Durham	1	6	4	2	....	3	8	5	....	....	.....	.....
Ontario	1	....	....	3	....	....	1	1	....	....	.....	.....
Oxford	6	2	1	4	1	1	6	....	....	1	2,091 41	14 95
Parry Sound	1	4	2	1	....	....	9	....	....	....	.....	.....
Peel	....	1	1	....	....	2	2	....	....	....	.....	.....
Perth	8	18	6	20	2	2	13	....	....	....	.....	.....
Peterborough	4	1	2	5	....	4	4	2	....	....	.....	.....
Prescott and Russell	4	3	....	4	....	....	3	....	....	....	.....	.....
Prince Edward	1	....	....	1	....	1	1	2	....	....	.....	.....
Rainy River	1	1	....	2	....	....	2	....	....	....	.....	.....
Renfrew	10	3	....	9	....	2	12	1	....	....	.....	.....
Simcoe	6	1	2	12	....	2	10	....	....	....	.....	.....
Stormont, Dundas and Glengarry	6	6	....	9	3	5	11	....	....	....	.....	.....
Sudbury	3	3	....	....	....	....	....	....	....	....	.....	.....
Thunder Bay	8	8	2	8	3	....	18	....	....	....	.....	.....
Victoria	4	1	2	2	3	3	6	....	....	....	.....	.....
Waterloo	9	6	2	18	2	1	17	1	....	....	.....	.....
Welland	4	5	3	9	....	2	11	2	....	....	.....	.....
Wellington	1	4	1	9	2	5	8	2	....	....	.....	.....
Wentworth	27	62	16	26	10	9	52	20	....	....	.....	.....
Totals	255	249	96	340	102	105	475	110	1	1	2,091 41	14 95

Deputy Registrars and Deputy Clerks of the Crown for the year ending ember, 1909.—Continued.

Number of days of sitting of Judge with Jury, H.C.J.	Number of days of sitting of Judge without Jury, H.C.J.	Number of Estreats ordered to be issued.	Number of Estreats issued.	Amount of Jury fees paid County Treasurer.	Amount of money paid into Court with defence.	Amount of money paid out of Court.	Amount of fees collected in law stamps for the Short-hand Reporters' Fund.	Fees collected in law stamps by Deputy Clerks and Local Registrars.	Fees collected in law stamps by Deputy Registrars.
				$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1	4	....	....	6 00	469 23	.....	14 00	253 65	.....
2	10	....	....	42 00	.....	.....	66 00	338 00	.....
4	6	....	....	21 00	.....	.....	34 00	271 00	.....
11	9	....	.. .	66 00	265 00	.....	148 00	609 00	312 40
6	2	....	....	12 00	.....	.....	18 00	117 40	....
7	4	....	....	39 00	.....	.....	42 00	354 20	.....
19	11	....	....	60 00	350 63	237 48	108 00	794 30	.....
4	5	....	....	27 00	.....	.....	28 00	287 20	.....
11	7	....	....	57 00	1,628 69	.....	76 00	388 90	....
3	4	....	....	9 00	370 00	.....	10 00	64 40	.....
2	2	....	....	6 00	.....	.....	6 00	91 40	.....
12	5	....	....	57 00	718 91	.....	72 00	134 60	409 50
10	12	....	....	69 00	.....	....	82 00	331 80	.....
7	2	.. .	....	9 00	.....	.....	10 00	103 70	.....
8	6	....	....	39 00	.. ..	.....	58 00	382 20	.....
6	4		....	24 00	.....	.....	38 00	293 80	.....
8	....	....	....	12 00	.....	.....	8 00	292 80	....
8	4	....	....	15 00	72 40	.....	24 00	289 00	.....
4	5	....	....	9 00	.....	.....	16 00	163 10	.....
4	4	...	....	3 00	.....	.....	30 00	254 80	....
....	2	....	....	.....	.....	.....	8 00	98 10	.....
13	13	....	....	84 00	5 00	.....	102 00	183 20	189 00
4	4	....	....	12 00	1,990 43	.....	12 00	125 85	....
7	7	....	....	51 00	238 50	.....	110 00	997 50	.....
5	2	....	....	15 00	.....	.....	10 00	92 80	....
13	5	....	....	18 00	....	.....	22 00	262 80	.....
4	4	....	....	9 00	.....	.....	12 00	72 20	.....
8	14	....	....	24 00	.....	.....	44 00	196 90	48 00
6	4	....	....	15 00	.....	211 40	12 00	122 20	....
6	4	....	....	12 00	5 00	.....	18 00	150 00	.....
9	5	....	....	72 00	.....	....	94 00	624 30	.....
2	6	....	....	6 00	.....	.....	28 00	302 60	.....
....	5	...	.. .	.....	200 00	300 00	.....	59 10	.....
3	....	....	...	.. ..	. .....	.....	12 00	63 60	....
2	....	....	....	.....	.....	.....	2 00	19 50	.....
2	8	....	....	15 00	2,716 12	.....	28 00	220 30	.....
5	2	....	....	32 00	335 65	.....	48 00	350 00	.....
17	2	....	....	63 00	265 00	.....	64 00	493 80	.....
4	1	....	....	18 00	.....	.....	24 00	133 08	.....
3	13	....	....	39 00	.....	.....	56 00	717 80	.....
....	8	...	....	9 00	.....	.....	22 00	232 60	.....
3	5	....	....	15 00	1,412 77	.....	58 00	527 90	.....
7	2	....	....	45 00	1,018 81	.....	76 00	525 20	.....
7	3	....	....	9 00	.....	.....	22 00	331 20	.....
24	10	....	....	108 00	580 80	.....	156 00	1,411 20	20 00
291	235	....	....	1,253 00	12,642 94	748 88	1,928 00	14,128 90	978 90

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

County or District.	Writs of summons issued.	Orders of arrest issued.	Actions entered in Procedure Book. (a) Writs issued during the year.	(b) Do. previous year.	(c) Otherwise than by Writ.	*Precipe* orders issued.	Orders issued and signed by Local Judge.	Examination of Parties returned.	Records passed.	Actions entered for Trial by Jury.	Actions entered for Trial without Jury.	Number of actions tried by Jury.	Number of actions tried without Jury.	Number of Remanets standing for Trial by Jury.
Algoma	42	..	28	2	2	21	36	4	6	....	5	....	3	....
Brant	56	..	43	2	2	16	12	18	17	10	7	3	4	1
Bruce	51	..	40	5	5	17	33	18	15	6	5	3	7	....
Carlton	202	..	140	4	3	32	47	20	20	4	17	2	13	....
Dufferin	18	..	15	1	1	1	8	2	....	....	....	....	....	....
Elgin	58	..	46	4	....	47	17	18	17	9	11	4	9	1
Essex	59	..	35	1	24	12	.....	15	16	3	9	2	10	....
Frontenac	61	..	46	1	4	31	9	8	14	4	10	....	14	....
Grey	56	1	37	3	2	14	.....	9	3	1	2	1	2	....
Haldimand	18	..	18	1	....	4	6	3	2	....	2	....	2	...
Halton	17	..	14	....	....	9	4	....	6	3	3	3	3	....
Hastings	60	..	49	2	....	20	23	9	15	8	9	6	3	2
Huron	62	..	49	3	2	29	10	7	15	10	5	2	5	8
Kenora	50	..	42	1	6	15	26	4	5	....	6	....	8	....
Kent	56	..	55	1	....	11	26	9	15	8	7	5	10	....
Lambton	41	1	32	....	13	15	17	18	12	6	6	3	6	....
Lanark	25	..	21	1	....	7	12	9	6	1	5	1	3	....
Leeds & Grenville	52	..	37	4	....	7	.....	4	6	2	4	2	....	....
Lennox & Addington	19	1	15	....	....	7	9	4	1	....	2	....	2	....
Lincoln	29	..	23	1	....	8	13	2	3	....	3	....	3	....
Manitoulin	12	..	8	1	1	5	9	....	4	....	4	....	4	....
Middlesex	133	..	99	3	10	50	36	19	14	5	9	3	5	....
Muskoka	26	..	18	1	....	3	7	....	2	2	....	2	....	....
Nipissing	211	..	147	8	2	29	128	14	36	11	29	3	23	2
Norfolk	14	..	10	....	2	10	2	3	2	2	....	1	1	....
Northumberland and Durham	32	..	21	....	1	9	14	6	4	4	....	3	....	....
Ontario	40	..	28	....	2	10	9	6	11	3	8	2	5	....
Oxford	50	..	24	3	3	10	23	6	6	5	1	3	1	2
Parry Sound	16	.	16	....	..	5	6	....	1	...	1	...	....	....
Peel	15	1	12	....	1	7	7	4	4	3	1	3	....	....
Perth	48	..	37	3	....	11	15	19	11	7	4	7	3	....
Peterborough	42	..	34	....	3	15	2	23	8	6	2	2	5	...
Prescott and Russell	17	..	10	....	....	4	10	4	2	....	2	....	1	....
Prince Edward	16	..	15	....	....	6	3	....	1	....	1	....	1	....
Rainy River	23	..	23	....	1	1	12	....	....	....	....	....	1	....
Renfrew	43	..	23	....	....	....	3	4	5	1	7	....	7	....
Simcoe	61	..	42	9	1	19	10	10	14	7	7	4	2	....
Stormont, Dundas and Glengarry	85	..	61	3	5	25	21	1	13	5	8	4	6	....
Sudbury	55	..	47	66	1	4	38	....	11	1	13	....	7	....
Thunder Bay	196	..	176	3	1	35	184	12	24	2	22	....	18	....
Victoria	55	..	40	2	1	24	19	7	10	5	6	3	5	....
Waterloo	76	..	57	9	1	23	24	14	17	5	13	2	14	1
Welland	52	..	41	....	8	5	10	5	12	6	6	1	11	....
Wellington	55	..	41	....	2	20	27	16	15	6	9	4	5	....
Wentworth	213	..	163	2	12	72	67	23	51	24	27	12	21	1
York	1,178	1	873	42	4	290	487	69	186	46	140	41	131	5
Totals	3,796	5	2,851	192	126	1015	1,481	446	658	240	438	137	384	23

throughout the Province of Ontario for the year ending 31st December, 1909.

Number of Remanets standing for Trial without Jury.	Number of Judgments entered without Trial.	Total amount of such Judgments without costs.	Total amount of Costs taxed thereunder (exclusive of Disbursements).	Total amount of Disbursements allowed.	Number of Judgments entered after Trial.	Total amount of such Judgments without cost.	Total amount of Costs taxed thereunder (exclusive of Disbursements).	Total amount of Disbursements allowed.	Number of Judgments $400 and under.	Number of Judgments dismissing actions.	Number of Judgments in default of appearance or pleading.	Number of Judgments under Con. Rule 603.
		$ c.	$ c.	$ c.		$ c.	$ c.	$ c.				
2	14	4,993 43	310 24	87 41	4	501 22	20 35	3 40	14	....	12	6
2	14	4,056 51	187 40	69 83	4	945 27	198 00	132 62	18	....	14	....
1	18	5,259 22	229 05	84 18	3	332 95	108 05	237 75	21	....	16	2
....	89	25,770 99	1,126 56	574 18	11	1,730 20	499 58	190 62	99	1	79	9
....	9	2,868 26	129 72	29 33	....	....	....	....	9	....	6	3
....	20	6,538 42	309 27	124 83	4	213 42	115 89	75 04	24	....	14	6
....	15	4,290 41	239 22	63 97	14	3,323 42	949 31	623 55	27	1	7	....
....	23	5,278 59	284 32	97 56	9	459 16	239 41	408 41	32	2	23	1
....	15	4,411 30	171 75	65 16	1	25 00	47 98	107 20	14	....	14	1
....	3	905 16	48 30	17 01	....	....	....	....	3	....	3	....
....	4	1,596 32	51 55	22 36	....	....	....	....	4	....	4	....
4	17	4,979 24	192 96	79 56	2	353 79	102 22	41 34	19	....	13	4
....	19	6,829 34	289 80	165 29	6	978 40	242 00	329 03	25	1	13	....
....	12	7,604 65	292 05	73 61	2	481 27	95 65	27 49	14	....	12	....
....	24	5,053 72	143 31	84 75	4	926 04	315 87	245 40	28	....	15	9
....	7	1,018 34	78 15	29 30	8	704 06	340 10	123 78	11	4	7	1
1	8	2,436 50	118 81	55 97	....	....	....	....	8	....	6	2
4	23	6,249 74	282 95	198 62	1	150 00	47 50	110 93	24	....	22	2
....	3	866 70	41 55	20 05	3	935 06	228 44	126 52	6	....	3	....
1	6	1,333 34	89 15	24 31	....	....	....	....	6	....	....	....
1	2	298 66	85 50	21 60	1	589 69	158 05	44 57	1	....	3	....
....	25	6,633 79	460 06	125 82	6	808 25	139 96	31 47	25	2	25	4
....	12	3,087 28	119 00	37 04	3	339 92	194 70	253 18	11	....	....	....
3	89	24,227 28	1,099 15	334 05	18	3,367 78	424 26	431 78	107	1	71	15
....	3	771 04	87 12	25 02	....	....	....	....	3	....	3	....
....	6	1,199 63	112 20	30 15	2	310 44	118 81	247 46	8	....	5	1
3	....	....	....	....	2	255 00	205 80	67 82	....	1	4	1
....	13	4,375 68	208 66	79 10	7	1,088 69	444 09	385 98	20	....	13	3
....	5	789 61	81 77	19 57	....	....	....	....	5	....	2	....
....	6	1,629 25	116 14	24 39	2	502 00	80 65	48 00	8	....	....	....
1	17	4,964 07	166 44	63 43	2	813 76	73 10	12 14	17	....	16	1
...	13	3,829 53	286 24	91 16	1	116 97	81 05	18 62	14	....	11	2
1	3	696 08	34 19	10 33	....	....	....	....	2	1	3	....
....	3	1,459 14	69 50	27 12	1	200 00	51 85	56 64	4	....	3	....
....	5	1,425 04	65 04	....	....	....	....	....	5	....	5	....
.. .	5	1,654 72	104 39	42 74	1	130 00	33 45	88 69	18	....	12	....
..	17	4,379 88	272 20	135 22	3	415 19	145 49	171 72	20	1	17	....
3	19	4,955 53	252 75	105 97	5	206 44	435 01	165 72	24	1	14	3
2	18	5,136 74	236 32	105 79	6	642 53	435 55	121 57	23	....	....	....
6	101	41,886 09	1,554 83	527 68	11	1,703 96	238 92	347 89	112	2	89	12
1	20	5,015 97	292 70	121 33	5	606 34	191 80	370 79	16	....	18	2
....	32	9,660 52	498 20	169 38	11	1,770 55	650 02	466 30	43	3	26	4
....	3	2,906 31	136 03	47 00	3	495 95	95 84	46 84	13	....	12	....
2	19	6,700 54	424 32	145 64	6	220 41	180 16	70 61	25	3	17	2
2	72	20,816 34	1,220 40	350 61	13	1,366 90	756 35	285 60	85	5	55	17
9	428	122,560 01	5,055 50	1,612 57	86	12,653 90	4,039 05	1,191 66	514	15	335	93
49	1179	383,395 91	17,654 76	6,219 99	271	40,663 93	12,724 31	7,708 04	1529	44	1042	206

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

County or District.	Number of Judgments for reference to Master.	Writs of Execution issued.	Number of Writs of Execution renewed.	Number of Writs of Ca. Sa. issued.	Number of Certificates issued under Creditors' Relief Act.	Amount for which issued without Cost.	Amount of Costs allowed thereunder (including Disbursements).	Number of days of sittings of County Court.	Amount of Jury Fees paid County Treasurer.	Amount of money paid into Court with defence.
						$ c.	$ c.		$ c.	$ c.
Algoma		16	12					4		126 00
Brant		15	1					7	30 00	
Bruce		15	1					10	9 00	85 00
Carlton		72	8		1	50 03		20	6 00	350 00
Dufferin		6	1					2		30 00
Elgin		15						20	13 50	126 25
Essex		23	3		18	1,687 77	86 57	14	4 50	351 05
Frontenac		16	1					10	6 00	75 00
Grey	1	7	2					8	1 50	148 81
Haldimand		3	1					4		
Halton		3	1					5	4 50	
Hastings		15	10					14	12 00	264 30
Huron	1	15	3					9	15 00	131 13
Kenora		14						6		2,409 43
Kent		14	1		1	40 00	5 87	12	12 00	244 57
Lambton		12	7					7	9 00	
Lanark		6	1		6	720 49	30 45	2	1 50	
Leeds and Grenville		20						6	3 00	63 00
Lennox and Addington		3	3	1				3		
Lincoln		7	2					5		240 00
Manitoulin		2	1					8		
Middlesex		28	3					6	7 50	966 20
Muskoka		7						2	3 00	200 00
Nipissing	1	57			2	218 05	12 94	16	16 50	206 40
Norfolk		4						4	3 00	
Northumberland and Durham		8	5					6	6 00	165 00
Ontario		5	2					9	4 50	
Oxford		11						5	7 50	
Parry Sound		4			1	345 14	28 35			
Peel		3						4	4 50	100 00
Perth		13						8	10 50	78 05
Peterborough		8	2					8	10 50	
Prescott and Russell		2						4		25 00
Prince Edward			1					1		
Rainy River		3						5		
Renfrew		14						14	1 50	116 00
Simcoe		19	2					5	10 50	198 07
Stormont, Dundas and Glengarry	1	12	5					18	7 50	189 81
Sudbury								6		878 81
Thunder Bay		101	5		2	195 54	13 80	21	3 00	
Victoria		15	2					10	7 50	
Waterloo		24	1					27	7 50	330 70
Welland		8			2	411 82	24 34	6	9 00	750 30
Wellington		14						22	9 00	25 00
Wentworth		66	15		6	697 15	32 10	27	36 00	
York		442	77	1	1	164 12	5 55	127	69 00	1,960 33
Totals	4	1067	179	2	40	4,530 11	239 97	537	361 50	10,834 21

in the Province of Ontario for the year ending 31st December, 1909.—Concluded.

Amount of money paid out of Court.	Number of Partition Matters.	Amount of money paid thereunder.	Amounts paid out.	Amount of moneys in Court in County Court matters, including interest (under Con. Rule 1221).	Number of Chattel Mortgages and Bills of Sale filed.	Total amount secured by such mortgages.	Number of mortgages renewed.	Number of discharges filed.	Number of assignments for benefit of creditors.	Number of Hire Receipts, etc., filed under R.S.O., 1897, Cap. 149.	Total amount secured by such Receipts, etc.	Amount of fees collected in law stamps under Section 41 of the Creditors' Relief Act.
$ c.		$ c.	$ c.	$ c.		$ c.					$ c.	$ c.
126 00					180	5,092,336 11	53	17	10	109	75,491 67	
	1			261 32	204	74,636 01	106	14	5	118	20,349 21	
		421 81		185 40	256	85,679 00	165	6	14	101	20,395 74	
813 10					237	777,280 14	226	4	29	560	82,649 98	
				30 00	78	51,049 93	51	2	1	58	6,486 20	
126 25				603 14	438	256,473 46	135	5	11	175	22,720 10	
351 05				6,270 66	332	213,424 69	153	16	16	110	36,469 83	3 00
				75 00	390	156,741 38	144	8	6	582	33,388 99	
153 25				20 56	608	273,480 37	316	4	13	258	26,459 41	
				109 00	108	46,443 38	46	1	2	39	7,298 19	
					57	36,558 07	27	3	4	22	5,709 69	10 00
309 80				364 90	459	241,959 77	200	16	4	160	31,745 36	
134 08				445 92	255	178,366 83	120	10	4	72	16,041 25	
469 22				1,971 61								
137 60				244 57	447	74,997 69	410	8	9	908	65,282 40	
25 00				209 00	276	686,762 83	249	9	14	137	19,455 37	
					100	47,092 23	90	11	5	51	15,629 76	1 50
				79 75	205	91,647 01	162	7	9	72	7,996 12	
					126	58,307 37	110	11	3	150	8,791 25	
25 00				240 00	134	68,027 34	62	6	4	190	29,217 30	
					68	328,660 77	45	5	4			
814 20				569 42	240	298,730 00	138	10	17	240	23,619 99	
200 00					306	94,013 92	58	5	1	40	14,172 01	
391 77				402 78	356	2,988,711 56	79	12	21	148	259,452 14	
				354 19	203	170,198 58	124	7	3	121	23,237 12	
212 20				90 00	215	70,780 08	245	8	10	61	79,406 25	
44 65				3,635 00	121	86,608 52	116	9	5	97	13,936 04	
				2,275 72	177	63,392 40	92	15	10	89	17,262 79	
					242	514,723 51	48	8	4	57	14,439 09	1 50
100 00				100 00	71	51,354 63	30	6	2	17	2,094 47	
79 22					193	236,516 62	67	6	10	132	32,119 20	
				95 00	151	48,359 69	112	6	4	53	16,013 64	
				25 00	174	133,098 40	63	18	6	39	6,464 20	
					96	47,256 30	55	8	1	63	2,690 10	
					44	21,714 12	1	3	1	29	5,113 16	
25 00				125 90	167	381,611 53	138	6	7	77	12,363 22	
25 00	1			173 07	676	776,888 95	274	7	12	207	68,969 70	
189 81				10 00	334	463,513 96	97	11	27	285	15,303 94	
742 37				39 85	165	723,336 98	51	4	11			
					137	48,855 78	22	11	18	587	75,925 09	
15 00					162	91,744 63	70		4	63	13,612 48	
330 70				225 00	144	284,928 26	87	15	20	205	61,007 37	
109 64				582 00	354	482,941 83	115	17	17	62	50,494 79	
				2,114 51	310	278,995 35	111	7	6	95	18,118 03	
				282 15	390	803,596 21	313	22	17	166	76,486 10	3 00
3,899 64				51,577 42	1,093	7,446,420 00	528	79	111	858	525,540 00	
9,849 55	2		421 81	73,769 84	11,479	25,448,216 19	5904	463	512	7673	1,959,409 74	19 00

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

County or District.	Total number of Probates issued.	Total number of Letters of Administration issued.	Total number of Letters of Guardianship issued.	Total number of Probates and Letters of Administration issued under R.S.O. c. 59, s. 77.	Total number of Probates and Letters issued under R.S.O. c 59, s. 74.	Number of Wills proved istration or Guardianship alty valued as			
						Above $100,000.	From $50,000 to $100,000.	From $25,000 to $50,000.	From $10,000 to $25,000.
Algoma	14	21	1	4	6	.....	.....	1	3
Brant	101	32	9	18	14	.....	.....	4	10
Bruce	139	57	2	24	20	.....	.....	.....	11
Carlton	153	112	6	24	34	2	4	7	9
Dufferin	46	16	2	8	5	.....	.....	.....	.....
Elgin	104	79	8	29	18	1	.....	.....	7
Essex	105	73	5	36	72	.....	.....	3	4
Frontenac	46	33	1	14	11	.....	.....	1	6
Grey	148	58	1	33	15	.....	.....	.....	3
Haldimand	48	20	1	4	8	.....	.....	2	2
Halton	43	25	2	6	10	.....	.....	1	3
Hastings	107	45	4	20	12	.....	2	3	4
Huron	169	54	3	25	17	.....	.....	1	8
Kenora	15	16	.....	6	6	.....	.....	2	2
Kent	113	50	4	20	21	.....	.....	3	6
Lambton	97	53	6	20	10	.....	.....	1	4
Lanark	61	32	2	12	7	1	1	1	5
Leeds and Grenville	116	42	3	15	19	.....	.....	4	7
Lennox and Addington	42	16	.....	6	8	.....	.....	3	.....
Lincoln	72	52	4	21	23	1	1	2	2
Manitoulin	12	11	.....	8	3	.....	.....	.....	.....
Middlesex	230	111	5	48	32	1	4	1	14
Muskoka	29	17	.....	11	6	.....	.....	.....	1
Nipissing	14	34	2	10	2	.....	.....	2	1
Norfolk	60	31	2	7	15	.....	.....	1	2
Northumberland and Durham	150	59	3	37	22	.....	2	2	5
Ontario	94	37	2	16	19	.....	1	3	8
Oxford	139	46	2	12	6	.....	1	1	7
Parry Sound	21	17	2	9	7	.....	.....	.....	.....
Peel	65	30	3	10	6	.....	.....	2	6
Perth	116	51	2	31	29	.....	.....	2	7
Peterborough	58	36	4	17	26	.....	1	1	2
Prescott and Russell	53	31	2	13	8	.....	.....	1	1
Prince Edward	43	21	1	12	3	.....	.....	4	5
Rainy River	1	10	.....	.....	2	.....	.....	.....	.....
Renfrew	50	25	2	19	.....	.....	.....	1	2
Simcoe	182	84	10	40	35	2	1	2	6
Stormont, Dundas and Glengarry	80	43	5	19	12	.....	.....	1	9
Sudbury	8	11	.....	7	3	.....	.....	.....	1
Thunder Bay	13	35	....	12	2	1	.....	1	5
Victoria	48	33	3	13	39	.....	.....	1	.....
Waterloo	137	44	4	25	1	1	.....	4	10
Welland	73	50	2	13	13	.....	.....	1	4
Wellington	140	59	1	29	18	.....	1	1	15
Wentworth	210	97	3	41	30	4	4	2	18
York	605	448	22	89	206	12	20	21	64
Totals	4,370	2,357	146	893	881	26	43	94	289

throughout the Province of Ontario during the year ending 31st December, 1909.

and Letters of Administration issued where person follows:				Total amount of personalty devolving.	Total amount of realty to be administered under R.S.O. c. 127, s. 4.	Amount of moneys in Court in Surrogate matters, including interest, Con. Rule 1,221.	Amount earned for.		
From $5,000 to $10,000.	From $1,000 to $5,000.	From $400 to $1,000.	$400 and under.				Registrar's fees.	Judge's fees.	Fee fund.
				$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
3	17	5	7	88,618 70	67,668 57	.....	287 40	167 50	103 90
8	43	24	53	466,374 03	410,385 92	.....	1,590 38	807 25	472 70
9	92	35	51	4,783 44	344,007 55	.....	2,035 25	990 75	604 20
28	91	43	87	1,321,240 11	219,960 00	.....	2,606 61	1,809 85	1,114 70
7	23	12	22	113,065 62	168,004 00	.....	680 00	245 25	164 50
9	79	45	50	505,164 34	372,868 65	.....	1,893 21	1,012 00	591 70
5	62	36	73	369,793 56	369,992 23	7 81	1,481 65	790 75	477 40
6	30	17	20	226,151 40	147,625 00	.....	821 40	418 50	246 30
12	88	52	52	351,164 86	405,256 00	.....	2,000 67	844 25	534 30
10	20	16	19	235,372 09	132,170 00	.....	831 84	456 85	218 60
10	18	14	24	195,864 95	198,111 66	.....	749 55	364 00	212 00
9	65	30	43	537,747 00	41,460 00	.....	2,209 11	1,258 65	527 30
24	102	34	57	606,877 23	59,118 51	.....	2,404 70	998 85	682 35
1	8	6	12	111,750 24	79,397 35	.....	305 64	148 75	114 10
10	59	37	52	105,113 00	41,645 00	.....	1,259 00	749 00	486 40
16	60	32	43	367,581 90	314,139 51	235 00	1,631 02	848 50	452 90
10	34	23	20	835,738 32	194,892 00	.....	1,143 85	1,080 25	575 00
13	69	25	43	571,561 00	35,550 00	.....	1,929 30	872 25	545 60
4	19	16	16	198,150 89	133,945 00	.....	642 93	411 60	192 90
9	44	30	39	653,683 77	219,343 00	.....	1,293 33	1,027 00	520 90
1	7	7	8	35,781 84	9,371 00	.....	198 40	67 00	51 70
36	107	93	90	1,053,740 20	763,198 39	.....	3,392 66	2,053 00	1,280 50
4	12	13	16	76,273 89	55,890 00	.....	389 43	169 00	123 20
4	10	11	22	114,710 87	20,465 67	.....	395 65	218 25	120 40
8	34	17	31	66,889 28	171,070 67	452 05	1,126 37	388 00	257 10
20	84	44	55	625,262 79	464,868 00	.....	2,102 40	1,077 00	689 60
7	57	23	34	476,090 49	31,625 00	.....	1,523 06	971 00	453 55
17	89	23	49	545,758 85	548,718 70	5,524 54	2,495 22	1,196 10	625 00
1	14	6	19	47,627 00	37,511 00	.....	291 78	116 00	86 00
9	30	25	26	309,580 00	389,940 00	.....	1,277 61	701 75	316 70
20	59	31	50	451,292 19	61,085 00	.....	1,688 75	830 00	761 90
6	34	17	31	340,028 38	248,246 41	.....	985 82	484 75	307 20
7	34	17	24	181,651 97	116,910 00	.....	856 55	349 00	234 30
5	23	11	17	286,722 99	173,620 00	.....	773 00	568 75	264 50
1	5	5	1	5,925 00	23,010 00	.....	83 86	33 50	21 90
3	34	25	12	179,523 68	.....	.....	713 75	307 75	228 00
13	169	45	38	1,566,166 35	890,942 50	.....	2,614 80	2,081 55	1,217 90
5	48	33	32	332,459 71	45,250 00	.....	1,502 01	646 00	390 10
.....	9	6	3	14,502 73	23,758 10	.....	135 29	56 25	47 90
2	19	6	14	308,043 14	276,316 55	.....	507 77	410 95	235 50
3	24	17	39	115,811 55	169,997 00	.....	686 23	283 00	184 10
16	54	30	70	649,865 53	384,434 39	.....	1,721 60	1,030 50	617 50
14	42	30	34	319,764 60	218,849 54	.....	1,040 00	631 75	364 00
19	74	25	65	672,726 00	440,516 00	.....	1,998 63	1,107 00	685 50
34	97	55	96	1,666,525 49	930,068 40	602 70	3,311 50	2,561 50	1,371 20
81	314	105	163	8,588,487 00	3,580,612 00	.....	10,635 55	10,847 35	5,902 20
539	2,506	1,152	1,822	26,897,007 97	14,031,814 27	6,822 10	70,244 53	44,488 50	25,675 20

APPENDIX F.—Return of fees and emoluments of County Judicial Officers throughout the officers payable by the Province, the County and the

County and Town.	Office.	Officer	Amount earned.	Salary paid by Province.	Total earnings and salary in all officers.	Total received for present year's services.
			$ c.	$ c.	$ c	$ c.
ALGOMA : Sault Ste. Marie ..	Sheriff	W. H. Carney ...	1,520 84	1,000 00	2,520 84	2,184 86
	Surrogate Judge ..	Judge Johnson ..	.....	*500 00	.....	500 00
	Local Master	" ..	20 70	.....	520 70	20 70
	Crown Attorney...	M.McFadden K.C.	584 15	400 00	1,540 34	882 00
	Clerk of the Peace.	" ..	556 19	.....	.....	252 12
	Local Registrar...	C. V. Plummer..	74 16	150 00	1,456 86	118 10
	District Court Cl'k	" ..	345 30	600 00	.....	920 30
	SurrogateRegistrar	" ..	287 40	.....	.....	287 40
BRANT : Brantford.	Sheriff	†W. W. Ross	1,865 49	.....	1,865 49	1,173 03
	Surrogate Judge...	Judge Hardy....	Commuted	682 00	734 00	682 00
	Local Master.....	" ...	52 28	.....	.....	52 28
	Crown Attorney .	A. J. Wilkes, K.C.	1,154 10	.....	1,779 26	657 60
	Clerk of the Peace	"	625 16	.....	.....	296 31
	Local Registrar...	J. T. Hewitt.....	306 53	675 00	3,197 67	850 03
	County Court Cl'k.	"	625 76	.....	.....	612 76
	SurrogateRegistrar	"	1,590 38	.....	.....	1,572 38
BRUCE : Walkerton	Sheriff	C. V. Parke.....	2,249 39	.....	2,249 39	1,908 76
	Surrogate Judge...	Judge Barrett...	990 75	.....	990 75	.....
	Local Master	Judge Klein.....	Commuted	400 00	.....	.....
	Crown Attorney...	Thomas Dixon ..	222 70	.....	1,462 54	221 70
	Clerk of the Peace	" ..	1,239 84	.....	.....	850 54
	Local Registrar. .	Matthew Goetz..	188 25	675 00	3,567 60	750 75
	County Court Cl'k	" ..	669 10	.....	.....	380 53
	SurrogateRegistrar	" ..	2,035 25	.....	.....	1,602 38
CARLTON : Ottawa ..	Sheriff	G. C. Richardson.	6,554 20	.....	6,554 20	5,563 51
	Surrogate Judge...	Judge McTavish.	1,300 00	.....	1,300 00 ..	.....
	" ...	Judge Gunn.....	509 85	.....	509 85	.....
	Local Master	John Bishop	1,814 05	.....	2,574 10	1,818 95
	Deputy Registrar..	"	760 05	.....	.....	760 05
	Crown Attorney...	J. A. Ritchie	640 62	.....	1,462 26	399 64
	Clerk of the Peace.	"	821 64	.....	.....	486 08
	Deputy Clerk of the Crown.....	J. P. Featherston.	514 02	450 00	4,825 63	889 02
	County Court Cl'k.	"	1,255 00	.....	.....	1,255 00
	SurrogateRegistrar	"	2,606 61	.....	.....	2,606 61
DUFFERIN : Orangeville	Sheriff	Thomas Bowles.	1,235 32	.....	1,235 32	806 06
	Surrogate Judge ..	Judge McCarthy.	245 25	.....	307 05	245 25
	Local Master	"	61 80	.....	.....	.....
	Crown Attorney...	W. J. L. McKay .	292 30	.....	770 70	205 35
	Clerk of the Peace.	"	478 40	.....	.....	218 75
	Local Registrar...	J. A. V. Preston.	64 10	675 00	1,625 45	626 45
	County Court Cl'k.	"	206 35	.....	.....	198 25
	SurrogateRegistrar	"	680 00	.....	.....	679 60
ELGIN . St. Thomas	Sheriff	Dugald McColl .	2,247 91	.....	2,247 91	1,627 00
	Surrogate Judge..	Judge Colter....	1,000 00	.....	1,000 00	.....
	Local Master	C. F. Maxwell. .	614 90	.....	614 90	437 22
	Crown Attorney...	A. McCrimmon..	1,049 80	....	1,940 06	686 60
	Cle k of the Peace.	" ..	890 26	.....	.....	475 65
	Local Registrar...	David McLaws..	245 86	675 00	3,490 27	769 86
	County Court Clerk	"	676 20	.....	.....	563 61
	SurrogateRegistrar	"	1,893 21	.....	.....	1,795 36

*By 6 Edw. VII. Cap. 19. Sec. 16. †Appointed 10th Sept., 1909.

Province of Ontario for the year ending 31st December, 1909, and of total earnings of such General Public respectively for the same period.

Total received for past year's services	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
336 05	2,520 91	1,297 17	1,223 74	.....	1,223 74	1,949 66	.....	581 18	Algoma.
.....	520 70	.....	520 70	.....	520 70	500 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	20 70	
107 40	1,349 84	.....	1,349 84	.....	1,349 84	984 15	.....	.....	
108 32	.....	.....	.....	.....	.....	527 31	.....	28 88	
.....	1,325 80	332 35	993 45	.....	993 45	150 00	.....	74 16	
.....	.....	.....	.....	.....	.....	600 00	.....	345 30	
.....	.....	.....	.....	.....	.....	.....	.....	287 40	
846 72	2,019 75	262 16	1,757 59	.....	1,757 59	1,158 31	324 20	382 98	Brant.
.....	734 28	.....	734 28	.....	734 28	682 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	52 28	
242 50	1,439 98	.....	1,439 98	.....	1,439 98	866 10	34 00	254 00	
243 57	.....	.....	.....	.....	.....	127 55	455 59	42 02	
.....	3,035 17	463 00	2,572 17	171 65	2,400 52	675 00	.....	306 53	
.....	.....	.....	.....	.....	.....	.....	.....	625 76	
.....	.....	.....	.....	.....	.....	.....	.....	1,590 38	
418 50	2,327 26	875 85	1,451 41	.....	1,451 41	817 45	646 72	785 22	Bruce.
.....	990 75	.....	990 75	.....	990 75	.....	.....	990 75	
.....	400 00	.....	400 00	.....	400 00	400 00	.....	.....	
116 00	1,678 92	8 00	1,670 92	.....	1,670 92	221 70	.....	1 00	
490 68	.....	.....	.....	.....	.....	120 05	1,107 89	11 90	
.....	3,504 73	479 20	3,025 53	312 76	2,712 77	675 00	.....	188 25	
308 43	.....	.....	.....	.....	.....	.....	.....	669 10	
462 64	.....	.....	.....	.....	.....	.....	.....	2,035 25	
1,113 58	6,677 09	1,893 97	4,783 12	.....	4,783 12	2,167 20	640 14	3,746 56	Carlton.
.....	1,300 00	.....	1,300 00	.....	1,300 00	.....	.....	1,300 00	
.....	509 85	.....	509 85	.....	509 85	.....	.....	509 85	
129 55	2,708 55	609 00	2,099 55	.....	2,099 55	.....	.....	1,814 05	
.....	.....	.....	.....	.....	.....	.....	.....	760 05	
332 30	1,633 52	825 04	808 48	.....	808 48	613 62	.....	27 00	
415 50	.....	.....	.....	.....	.....	120 80	519 39	181 45	
.....	4,750 63	1,666 60	3,084 03	342 01	2,742 02	450 00	.....	514 02	
.....	.....	.....	.....	.....	.....	.....	.....	1,255 00	
.....	.....	.....	.....	.....	.....	.....	.....	2,606 61	
385 32	1,191 38	547 82	643 56	.....	643 56	591 31	387 38	256 63	Dufferin.
.....	296 54	.....	296 54	.....	296 54	.....	.....	245 25	
51 29	.....	.....	.....	.....	.....	.....	.....	61 80	
41 00	724 75	85 00	639 75	.....	639 75	292 30	.....	.....	
259 65	.....	.....	.....	.....	.....	79 70	388 70	10 00	
11 30	1,617 77	94 55	1,523 22	2 32	1,520 90	675 00	.....	64 10	
15 22	.....	.....	.....	.....	.....	.....	.....	206 35	
86 95	.....	.....	.....	.....	.....	.....	.....	680 00	
779 17	2,406 17	890 44	1,515 73	.....	1,515 73	1,056 85	504 75	686 31	Elgin.
.....	1,000 00	.....	1,000 00	.....	1,000 00	.....	.....	1,000 00	
118 66	555 88	.....	555 88	.....	555 88	.....	.....	614 90	
379 85	1,933 39	516 83	1,416 56	.....	1,416 56	983 05	46 75	20 00	
391 29	.....	.....	.....	.....	.....	785 53	16 00	88 73	
237 75	3,509 98	554 80	2,955 18	286 55	2,668 63	675 00	.....	245 86	
56 55	.....	.....	.....	.....	.....	.....	.....	676 20	
86 85	.....	.....	.....	.....	.....	.....	.....	1,893 21	

APPENDIX F.—Return of fees and emoluments of County Judicia

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's services.
			$ c.	$ c.	$ c.	$ c.
ESSEX:						
Sandwich.	Sheriff	J. E. D'Avignon	4,273 00		4,273 34	3,344 04
	Surrogate Judge	Judge McHugh	790 75		790 75	
	Local Master	Henry Clay	431 56		431 56	360 91
	Crown Attorney	J. H. Rodd	1,363 07		2,494 08	1,093 17
	Clerk of the Peace.	"	1,131 01			800 67
	Local Registrar	Francis Cleary	271 52	675 00	3,144 72	832 02
	County Court Clerk	"	716 55			716 55
	SurrogateRegistrar	"	1,481 65			1,461 65
FRONTENAC						
Kingston	Sheriff	Thomas Dawson	2,341 22		2,341 22	1,844 16
	Surrogate Judge	Judge Price	Commuted	752 00		
	Local Master	J. B. Walkem, KC	189 13		189 13	88 08
	Crown Attorney	J. L. Whiting, K.C.	239 00		1,063 16	80 00
	Clerk of the Peace.	"	824 16			401 61
	Local Registrar	T. M. Asselstine.	183 19	675 00	1,456 87	745 69
	County Court Clerk	"	598 68			598 68
	SurrogateRegistrar	Miss H. Fraser	821 40		821 40	715 40
GREY:						
Owen Sound	Sheriff	C. H. Moore	2,101 59		2,101 59	1,592 25
	Surrogate Judge	Judge Hatton	844 25		844 25	
	Local Master	Judge Widdifield	314 50		314 50	275 40
	Crown Attorney	J. Armstrong	623 25		1,959 78	477 25
	Clerk of the Peace.	"	1,337 53			848 33
	Local Registrar	W. A. Bishop	137 70	750 00	3,496 77	762 70
	County Court Clerk	"	608 40			608 40
	SurrogateRegistrar	"	2,000 67			2,000 67
HALDIMAND						
Cayuga	Sheriff	M. McConnell	1,858 71		1,858 71	1,553 25
	Surrogate Judge	Judge Douglas	456 85		529 45	456 85
	Local Master	"	72 60			55 80
	Crown Attorney	J. A. Murphy	468 00		1,766 62	342 00
	Clerk of the Peace.	"	1,298 62			982 82
	Local Registrar	J. C. Eccles	98 00	600 00	1,708 61	590 20
	County Court Clerk	"	178 77			169 62
	SurrogateRegistrar	"	831 84			831 84
HALTON:						
Milton	Sheriff	*S. Webster	1,356 81		1,356 81	1,123 25
	Surrogate Judge	Judge Gorham	364 00		377 70	364 00
	Local Master	"	13 70			8 50
	Crown Attorney	W. I. Dick	307 50		1,330 91	160 45
	Clerk of the Peace.	"	1,023 41			353 69
	Local Registrar	W. A. Lawrence.	33 68	600 00	1,503 03	533 68
	County Court Clerk	"	119 80			119 80
	SurrogateRegistrar	"	749 55			749 55
HASTINGS:						
Belleville	Sheriff	M. B. Morrison	3,716 60		3,716 60	2,608 47
	Surrogate Judge	Judge Fraleck	commuted	985 00		
	Local Master	S. S. Lazier	commuted.	3,000 00		
	Deputy Registrar	"				
	Crown Attorney	P. J. M. Anderson	2,000 11		3,480 26	1,626 31
	Clerk of the Peace.	"	1,480 15			1,381 40
	Deputy Cl'k of the Crown	John Williams	191 15	450 00	3,598 21	566 15
	County Court Cl'k.	"	747 95			747 95
	SurrogateRegistrar	"	2,209 11			2,209 11

* Appointed August 9, 1909.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for past year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O. cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
196 16	3,540 20	1,684 22	1,855 98	.....	1,855 98	1,929 90	616 97	1,726 47	Essex.
.....	790 75	.....	790 75	.....	790 75	.....	.....	790 75	
37 90	398 81	.....	398 81	.....	398 81	.....	.....	431 56	
252 00	2,426 35	617 76	1,808 59	.....	1,808 59	1,039 82	.....	323 25	
280 51	.....	.....	.....	.....	.....	151 30	824 22	155 49	
4 12	3,014 34	474 90	2,539 44	161 83	2,377 61	675 00	.....	271 52	
.....	.....	.....	.....	.....	.....	.....	.....	716 55	
.....	.....	.....	.....	.....	.....	.....	.....	1,481 65	
326 76	2,170 92	332 20	1,838 72	.....	1,838 72	975 26	814 50	551 46	Frontenac.
.....	752 00	.....	752 00	.....	752 00	752 00	.....	.....	
.....	88 08	11 00	77 08	.....	77 08	.....	.....	189 13	
52 00	884 01	50 00	834 01	.....	834 01	239 00	.....	.....	
350 40	.....	.....	.....	.....	.....	115 00	709 16	.....	
.....	1,344 37	19 70	1,324 67	.....	1,324 67	675 00	.....	183 19	
.....	.....	.....	.....	.....	.....	.....	.....	598 68	
71 05	786 45	15 00	771 45	.....	771 45	.....	.....	821 40	
564 48	2,156 73	931 76	1,224 97	.....	1,224 97	773 45	708 87	619 27	Grey.
.....	844 25	.....	844 25	.....	844 25	.....	.....	844 25	
6 90	282 30	.....	282 30	.....	282 30	.....	.....	314 50	
169 00	1,965 33	272 70	1,692 63	.....	1,692 63	478 25	130 00	15 00	
470 75	.....	.....	.....	.....	.....	135 95	1,111 08	90 50	
.....	3,371 77	396 70	2,975 07	292 52	2,682 55	750 00	.....	137 70	
.....	.....	.....	.....	.....	.....	.....	.....	608 40	
.....	.....	.....	.....	.....	.....	.....	.....	2,000 67	
412 04	1,965 29	443 56	1,521 73	.....	1,521 73	802 11	612 89	443 71	Haldimand.
.....	577 55	.....	577 55	.....	577 55	.....	.....	456 85	
64 90	.....	.....	.....	.....	.....	.....	.....	72 60	
86 00	1,740 57	332 00	1,408 57	.....	1,408 57	434 67	3 33	30 00	
329 75	.....	.....	.....	.....	.....	100 55	1,144 83	53 24	
.....	1,591 66	214 60	1,377 06	.....	1,377 06	600 00	.....	98 00	
.....	.....	.....	.....	.....	.....	.....	.....	178 77	
.....	.....	.....	.....	.....	.....	.....	.....	831 84	
29 54	1,152 79	463 33	689 46	.....	689 46	508 97	574 73	273 11	Halton.
.....	389 98	.....	389 98	.....	389 98	.....	.....	364 00	
17 48	.....	.....	.....	.....	.....	.....	.....	13 70	
153 20	1,090 97	59 43	1,031 54	.....	1,031 54	221 20	.....	86 30	
423 63	.....	.....	.....	.....	.....	17 85	964 79	40 77	
.....	1,403 03	317 00	1,086 03	.....	1,086 03	600 00	.....	33 68	
.....	.....	.....	.....	.....	.....	.....	.....	119 80	
.....	.....	.....	.....	.....	.....	.....	.....	749 55	
959 78	3,568 25	1,569 94	1,998 31	.....	1,998 31	1,644 30	860 95	1,211 35	Hastings.
.....	985 00	.....	985 00	.....	985 00	985 00	.....	.....	
.....	3,000 00	550 00	2,450 00	.....	2,450 00	3,000 00	.....	.....	
465 93	3,610 42	515 30	3,095 12	178 53	2,916 59	1,850 11	.....	150 00	
136 78	.....	.....	.....	.....	.....	415 95	1,050 00	14 20	
.....	3,523 21	590 07	2,933 14	279 94	2,653 20	450 00	.....	191 15	
.....	.....	.....	.....	.....	.....	.....	.....	747 95	
.....	.....	.....	.....	.....	.....	.....	.....	2,209 11	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's service.
			$ c.	$ c.	$ c.	$ c.
HURON:						
Goderich.	Sheriff	R. G. Reynolds	2,395 37		2,395 37	2,260 93
	Surrogate Judge	Judge Doyle	commuted	1,000 00	1,216 90	1,000 00
	Local Master	"	216 90			7 92
	Crown Attorney	C. Seager	841 87		2,235 13	628 37
	Clerk of the Peace	"	1,393 26			1,265 74
	Local Registrar	D. McDonald	129 60	750 00	3,561 95	754 60
	County Court Clerk.	"	277 65			277 65
	SurrogateRegistrar	"	2,404 70			2,404 70
KENORA:						
Kenora.	Sheriff	John W. Humble.	1,606 50	1,000 00	2,606 50	1,721 31
	Surrogate Judge	Judge Chapple		* 500 00	582 10	500 00
	Local Master	"	82 10			82 10
	Crown Attorney	P. E. Mackenzie.	1,054 50		1,652 50	574 55
	Clerk of the Peace.	"	338 00	250 00		479 95
	Local Registrar	C. W. Chadwick.	24 14	700 00	1,204 38	807 34
	District Court Cl'k.	"	174 80			174 80
	SurrogateRegistrar	"	305 64			305 64
KENT:						
Chatham.	Sheriff	J. R. Gemmill	2,739 54		2,739 54	1,878 50
	Surrogate Judge	Judge Bell	749 00		819 00	749 00
	Local Master	"	70 00			28 60
	Crown Attorney	H. D. Smith	1,804 92		3,033 57	1,451 12
	Clerk of the Peace.	"	1,228 65			1,143 95
	Local Registrar	James Holmes	392 00	675 00	3,020 35	954 50
	County Court Clerk.	"	694 35			694 35
	Surrogate Regist'r.	"	1,259 00			1,259 00
LAMBTON:						
Sarnia.	Sheriff	James Flintoft	2,295 26		2,295 26	1,739 05
	Surrogate Judge	Judge Macwatt	commuted	1,000 00	1,217 76	1,000 00
	Local Master	"	217 76			217 76
	Crown Attorney	J. P. Bucke	668 47		1,858 02	539 96
	Clerk of the Peace.	"	1,189 55			1,138 60
	Local Registrar	Alex Saunders	136 18	675 00	2,941 45	698 68
	County Court Clerk.	"	499 25			499 25
	Surrogate Regist'r.	"	1,631 02			1,631 02
LANARK:						
Perth.	Sheriff	Wm. McGarry	1,402 28		1,402 28	1,068 09
	Surrogate Judge	Judge Senkler	1,000 00		1,077 88	1,000 00
	Local Master	"	77 88			11 82
	Crown Attorney	E.G.Malloch,K.C.	344 13		940 73	194 13
	Clerk of the Peace.	"	596 60			355 62
	Local Registrar	W. P. McEwen	172 80	675 00	2,320 90	672 50
	County Court Clerk.	"	329 25			247 25
	Surrogate Regist'r.	"	1,143 85			749 35
LEEDS & GRENVILLE:	Sheriff	G. A. Dana	2,578 22		2,578 22	2,245 23
Brockville.	Surrogate Judge	Judge McDonald.	commuted	960 00	1,082 30	960 00
	Local Masters	"	122 30			
		Judge Reynolds.	50 66		50 66	46 06
	Crown Attorney	M. M. Brown	733 86		1,840 22	653 16
	Clerk of the Peace.	"	1,106 36			794 46
	Local Registrar	O. K. Fraser	362 30	750 00	3,559 50	985 30
	County Court Clerk.	"	497 90			423 95
	Surrogate Regist'r.	"	1,929 30			1,720 00

*By 6 Edw. VII., Cap. 19, Sec. 16.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for past year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively. From Province.	From County.	From General Public.	County.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
186 60	2,447 53	508 81	1,938 72	.....	1,938 72	967 40	692 73	735 24	Huron.
.....	1,171 22	57	1,170 65	.....	1,170 65	1,000 00	.....	.....	
163 30	.....	.....	.....	.....	.....	.....	.....	216 90	
218 85	2,178 43	146 35	2,032 08	3 20	2,028 88	784 02	20 00	37 85	
65 47	.....	.....	.....	.....	.....	186 30	1,100 00	106 96	
.....	3,436 95	993 80	2,443 15	138 63	2,304 52	750 00	.....	129 60	
.....	.....	.....	.....	.....	.....	.....	.....	277 65	
.....	.....	.....	.....	.....	.....	.....	.....	2,404 70	
846 51	2,567 82	862 68	1,705 14	.....	1,705 14	2,287 97	.....	318 53	Kenora.
.....	620 80	5 00	615 80	.....	615 80	500 00	.....	.....	
38 70	.....	.....	.....	.....	.....	.....	.....	82 10	
1,192 89	2,417 39	348 95	2,068 44	6 84	2,062 40	925 95	.....	138 55	
170 00	.....	.....	.....	.....	.....	518 42	.....	69 58	
.....	1,087 78	200 00	887 78	.....	887 78	700 00	.....	24 14	
.....	.....	.....	.....	.....	.....	.....	.....	174 80	
.....	.....	.....	.....	.....	.....	.....	.....	305 64	
798 74	2,677 24	771 48	1,905 76	.....	1,905 76	1,110 52	779 20	849 82	Kent.
.....	786 57	.....	786 57	.....	786 57	.....	.....	749 00	
8 97	.....	.....	.....	.....	.....	.....	.....	70 00	
287 90	2,970 07	650 00	2,320 07	32 00	2,288 07	969 92	.....	835 00	
87 10	.....	.....	.....	.....	.....	228 65	1,000 00	.....	
.....	2,907 85	662 00	2,245 85	99 17	2,146 68	675 00	.....	392 00	
.....	.....	.....	.....	.....	.....	.....	.....	694 35	
.....	.....	.....	.....	.....	.....	.....	.....	1,259 00	
550 99	2,290 04	675 20	1,614 84	.....	1,614 84	965 10	553 30	776 86	Lambton.
.....	1,236 56	11 34	1,225 22	.....	1,225 22	1,000 00	.....	.....	
18 80	.....	.....	.....	.....	.....	.....	.....	217 76	
274 10	2,044 76	317 71	1,727 05	.....	1,727 05	640 47	28 00	.....	
92 10	.....	.....	.....	.....	.....	169 55	1,020 00	.....	
.....	2,828 95	720 00	2,108 95	71 79	2,037 16	675 00	.....	136 18	
.....	.....	.....	.....	.....	.....	.....	.....	499 25	
.....	.....	.....	.....	.....	.....	.....	.....	1,631 02	
297 70	1,365 79	774 01	591 78	.....	591 78	662 60	372 72	366 96	Lanark
.....	1,082 40	.....	1,082 40	.....	1,082 40	.....	.....	1,000 00	
70 58	.....	.....	.....	.....	.....	.....	.....	77 88	
214 50	1,069 01	128 96	940 05	.....	940 05	156 84	187 29	.....	
304 76	.....	.....	.....	.....	.....	94 85	455 56	46 19	
61 70	2,183 00	219 55	1,963 45	46 34	1,917 11	675 00	.....	172 80	
76 20	.....	.....	.....	.....	.....	.....	.....	329 25	
376 00	.....	.....	.....	.....	.....	.....	.....	1,143 85	
565 97	2,811 20	857 32	1,953 88	.....	1,953 88	1,210 86	614 54	752 82	Leeds and
.....	960 00	2 50	957 50	.....	957 50	960 00	.....	.....	Grenville.
.....	.....	.....	.....	.....	.....	.....	.....	122 30	
50	46 56	.....	46 56	.....	46 56	.....	.....	50 66	
322 70	2,197 63	271 50	1,926 13	.....	1,926 13	714 86	.....	19 00	
427 31	.....	.....	.....	.....	.....	196 74	834 36	75 26	
47 30	3,425 50	427 65	2,997 85	299 35	2,698 50	750 00	.....	362 30	
57 70	.....	.....	.....	.....	.....	.....	.....	497 90	
191 25	.....	.....	.....	.....	.....	.....	.....	1,929 30	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's services.
			$ c.	$ c.	$ c	$ c.
LENNOX & ADDINGTON: Napanee.	Sheriff	G. D. Hawley	1,332 83		1,332 83	1,056 18
	Surrogate Judge	Judge Madden	411 60		411 60	411 60
	Local Master	S. S. Lazier	248 60		248 60	204 24
	Crown Attorney	H.M.Deroche,K.C.	108 40		934 07	78 40
	Clerk of the Peace.	"	826 07			527 85
	Local Registrar	W. P. Deroche	114 20	600 00	1,623 93	614 20
	County Court Clerk.	"	266 80			266 80
	Surrogate Regist'r.	"	642 93			642 93
LINCOLN: St. Catharines.	Sheriff	T. C. Dawson	2,296 05		2,296 05	1,682 78
	Surrogate Judge	Judge Carmen	1,000 00		1,314 57	1,000 00
	Local Master	"	314 57			151 89
	Crown Attorney	M. Brennan	613 20		1,896 00	513 00
	Clerk of the Peace.	"	1,282 80			776 06
	Local Registrar	Johnson Clench	122 63	675 00	2,423 94	659 99
	County Court Clerk	"	332 98			332 98
	Surrogate Regist'r	"	1,293 33			1,293 33
MANITOULIN: Gore Bay.	Sheriff	J. Haddow Fell	765 17	625 00	1,390 17	1,166 71
	Surrogate Judge	Judge Hewson		*500 00	512 00	500 00
	Local Master	"	12 00			
	Crown Attorney	A. G. Murray	318 35		953 57	236 80
	Clerk of the Peace.	"	385 22	250 00		634 06
	Local Registrar	C. C. Platt	12 00		1,011 85	12 00
	District Court Cl'k	"	101 45	700 00		626 46
	Surrogate Regist'r	"	198 40			198 40
MIDDLESEX: London.	Sheriff	D. M. Cameron	4,072 16		4,072 16	2,973 79
	Surrogate Judges.	Judge Macbeth	1,300 00		1,300 00	
		Judge Elliott	753 00		753 00	
	Local Master	R. K. Cowan	439 77		1,765 47	216 77
	Deputy Registrar.	"	1,325 70			979 15
	Crown Attorney	J. B. McKillop	1,409 44		2,740 80	1,103 64
	Clerk of the Peace.	"	1,331 36			727 28
	Deputy Clerk of the Crown	Edmund Weld	141 32	500 00	4,776 07	558 00
	County Court Clerk.	"	742 09			702 09
	SurrogateRegistrar	"	3,392 66			3,132 39
MUSKOKA: Bracebridge.	Sheriff	D. E. Bastedo	1,873 52	750 00	2,623 52	2,153 63
	Surrogate Judge	Judge Mahaffy		*500 00	500 00	
	Local Master	"				
	Crown Attorney	Thomas Johnson	346 63	250 00	1,032 68	434 38
	Clerk of the Peace.	"	436 05			165 83
	Local Registrar	Isaac Huber	49 50	600 00	1,292 14	549 50
	District Court Cl'k.	"	253 21			253 21
	SurrogateRegistrar	"	389 43			389 43
NIPISSING: North Bay	Sheriff	H. C. Varin	4,794 34	800 00	5,594 34	5,062 54
	Surrogate Judge	Judge Valin		*500 00	529 55	500 00
	Local Master	"	29 55			2 20
	Crown Attorney	A G. Browning, K.C.	584 05		1,163 82	357 14
	Clerk of the Peace.	"	329 77	250 00		465 33
	Local Registrar	T. J. Bourke	566 40	150 00	2,512 75	537 40
	District Court Cl'k	"	950 70	450 00		1,238 05
	SurrogateRegistrar	"	395 65			307 75

*By 6 Edw. VII., Cap. 19, Sec. 16.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for past year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
328 00	1,384 18	285 06	1,099 12	.....	1,099 12	540 71	538 40	253 72	Lennox and
.....	411 60	.....	411 60	.....	411 60	.....	.....	411 60	Addington.
10 80	215 04	42 00	173 04	.....	173 04	.....	.....	248 60	
72 00	995 66	27 50	968 16	.....	968 16	78 40	5 00	25 00	
317 41	.....	.....	.....	.....	.....	78 65	705 05	42 37	
.....	1,523 93	103 60	1,420 33	.....	1,420 33	600 00	.....	114 20	
.....	.....	.....	.....	.....	.....	.....	.....	266 80	
.....	.....	.....	.....	.....	.....	.....	.....	642 93	
467 57	2,150 35	247 90	1,902 45	.....	1,902 45	692 50	666 30	937 25	Lincoln.
.....	1,191 89	.....	1,191 89	.....	1,191 89	.....	.....	1,000 00	
40 00	.....	.....	.....	.....	.....	.....	.....	314 57	
160 50	1,884 90	187 50	1,697 40	.....	1,697 40	613 20	.....	.....	
435 34	.....	.....	.....	.....	.....	157 50	1,005 30	120 00	
.....	2,286 30	566 50	1,719 80	21 98	1,697 82	675 00	.....	122 63	
.....	.....	.....	.....	.....	.....	.....	.....	332 98	
.....	.....	.....	.....	.....	.....	.....	.....	1,293 33	
108 25	1,274 96	109 43	1,165 53	.....	1,165 53	1,152 86	.....	237 31	Manitoulin.
.....	500 00	.....	500 00	.....	500 00	500 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	12 00	
33 00	977 24	137 85	839 39	.....	839 39	265 35	.....	53 00	
73 38	.....	.....	.....	.....	.....	605 22	.....	30 60	
.....	836 86	.....	836 86	.....	836 86	.....	.....	12 00	
.....	.....	.....	.....	.....	.....	700 00	.....	101 45	
.....	.....	.....	.....	.....	.....	.....	.....	198 40	
1,277 83	4,251 62	1,673 45	2,578 17	.....	2,578 17	1,532 76	1,578 22	961 18	Middlesex.
.....	1,300 00	.....	1,300 00	.....	1,300 00	.....	.....	.....	
.....	753 00	.....	753 00	.....	753 00	.....	.....	.....	
90 00	1,754 12	182 00	1,572 12	.....	1,572 12	.....	.....	439 77	
468 20	.....	.....	.....	.....	.....	.....	.....	1,325 70	
635 00	3,202 20	833 00	2,369 20	36 92	2,332 28	1,277 79	48 00	83 65	
736 28	.....	.....	.....	.....	.....	251 90	957 44	122 02	
140 00	4,606 37	1,835 00	2,771 37	231 41	2,539 96	500 00	.....	141 32	
15 50	.....	.....	.....	.....	.....	.....	.....	742 09	
58 39	.....	.....	.....	.....	.....	.....	.....	3,392 66	
286 80	2,440 43	970 00	1,470 43	.....	1,470 43	2,623 52	.....	.....	Muskoka.
.....	500 00	.....	500 00	.....	500 00	500 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	
51 50	763 53	22 25	741 28	.....	741 28	596 63	.....	.....	
111 82	.....	.....	.....	.....	.....	395 84	.....	40 21	
.....	1,192 14	18 58	1,173 56	.....	1,173 56	600 00	.....	49 50	
.....	.....	.....	.....	.....	.....	.....	.....	253 21	
.....	.....	.....	.....	.....	.....	.....	.....	389 43	
849 33	5,911 87	2,702 48	3,209 39	.....	3,209 39	5,594 34	.....	.....	Nipissing
.....	532 07	.....	532 07	.....	532 07	500 00	.....	.....	
29 87	.....	.....	.....	.....	.....	.....	.....	29 55	
118 90	1,040 70	156 00	884 70	.....	884 70	584 05	.....	.....	
99 33	.....	.....	.....	.....	.....	579 77	.....	.....	
68 40	2,175 10	534 41	1,640 69	14 06	1,626 63	150 00	.....	566 40	
15 50	.....	.....	.....	.....	.....	450 00	.....	950 70	
8 05	.....	.....	.....	.....	.....	.....	.....	395 65	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's services.
			$ c.	$ c.	$ c.	$ c.
NORFOLK:						
Simcoe ...	Sheriff	F. S. Snider	1,451 06	.....	1,451 06	1,012 45
	Surrogate Judge ..	Judge Robb	388 00	.....	403 52	388 00
	Local Master.....	"	15 52	.....	.....	.....
	Crown Attorney...	T. R. Slaght,K.C.	1,283 65	.....	2,884 70	1,085 65
	Clerk of the Peace.	"	1,601 05	.....	....	938 90
NORTHUM-	Local Registrar ..	C. C. Rapelje....	109 05	675 00	2,369 92	644 70
BERLAND	County Court Cl'k.	"	459 50	.....	.....	339 45
AND	SurrogateRegistrar	"	1,126 37	.....	.....	961 09
DURHAM:						
Cobourg ..	Sheriff	I. O. Proctor	2,625 33	.....	2,625 33	1,767 60
	Surrogate Judge...	Judge Benson ...	Commuted	1,000 00	.....	.....
	Local Master	†Judge Roger ...	40 34	.....	40 34	40 34
	Crown Attorney...	W. F. Kerr.....	986 00	.....	2,105 18	536 15
	Clerk of the Peace.	"	1,119 18	.....	.....	668 11
	Local Registrar ..	John T. Field ...	219 20	750 00	3,440 65	844 20
	County Court Clerk	"	369 05	....	.....	369 05
	SurrogateRegistrar	"	2,102 40	.....	.....	2,102 40
ONTARIO:						
Whitby ..	Sheriff	J. F. Paxton	2,286 22	.....	2,286 22	1,729 62
	Surrogate Judge...	G. Y. Smith.....	971 00	.....	1,114 85	971 00
	Local Master	"	143 85	.....	.....	43 85
	Crown Attorney...	J.E.Farewell, KC	816 90	.....	2,200 53	695 35
	Clerk of the Peace.	"	1,383 63	.....	.....	921 21
	Local Registrar...	J. B. Dow.....	54 10	675 00	2,620 18	616 60
	County Court Cl'k.	"	368 02	.....	.....	368 02
	SurrogateRegistrar	"	1,523 06	.....	.....	1,523 06
OXFORD:						
Woodstock	Sheriff	James Brady....	1,982 37	.....	1,982 37	1,852 58
	Surrogate Judge ..	Judge Finkle....	Commuted	1,000 00	.....	1,000 00
	Local Master	W. T. McMullen.	192 60	.....	933 20	157 10
	Deputy Registrar..	"	740 60	.....	.....	570 00
	Crown Attorney...	R. N. Ball	270 80	.....	270 80	239 80
	Clerk of the Peace.	F. R. Ball, K.C..	748 81	.....	748 81	452 55
	Deputy Clerk of the Crown.	James Canfield..	235 60	450 00	3,745 82	530 00
	County Court Clerk	"	565 00	.....	.....	378 00
PARRY	SurrogateRegistrar	"	2,495 22	.....	.....	1,860 00
SOUND:						
Parry Sound	Sheriff	Sam'l Armstrong	2,597 83	750 00	3,347 83	2,809 83
	Surrogate Judge ..	Judge McCurry..	.....	*500 00	525 00	500 00
	Local Master.....	"	25 00	.....	.....	25 00
	Crown Attorney...	W. L. Haight....	866 71	250 00	1,458 95	995 71
	Clerk of the Peace.	"	342 24	.....	.....	147 32
	Local Registrar...	E. Jordan.....	80 25	600 00	1,143 98	580 25
	District Court Cl'k.	"	171 95	.....	.....	171 95
	SurrogateRegistrar	"	291 78	.....	.....	291 78
PEEL:						
Brampton.	Sheriff	Robert Broddy..	1,519 99	.....	1,519 99	1,181 64
	Surrogate Judge...	Judge McGibbon.	701 75	.....	803 33	701 75
	Local Master	"	101 58	.....	.....	78 08
	Crown Attorney...	W. H. McFadden, K.C.	632 84	.....	1,623 78	482 24
	Clerk of the Peace.	"	990 94	.....	.....	809 84
	Local Registrar...	J. B. Dixon.....	138 20	600 00	2,201 28	568 20
	County Court Cl'k.	"	185 47	.....	.....	185 47
	SurrogateRegistrar	"	1,277 61	.....	.....	1,277 61

†Appointed 24th August, 1999. *By 6 Edward VII., chap. 19, sec. 16.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for past year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
.....	1,012 45	576 55	435 90	.....	435 90	740 65	393 24	317 17	Norfolk.
.....	388 00	.....	388 00	.....	388 00	.....	.....	388 00	
.....	.....	.....	.....	.....	.....	.....	.....	15 52	
413 10	2,956 23	1,107 55	1,848 68	.....	1,848 68	796 35	480 30	7 00	
518 58	.....	.....	.....	.....	.....	120 20	1,438 00	42 85	
64 00	2,554 33	56 60	2,497 73	149 55	2,348 18	675 00	.....	109 05	
126 60	.....	.....	.....	.....	.....	.....	.....	459 50	
418 49	.....	.....	.....	.....	.....	.....	.....	1,126 37	
473 85	2,241 45	848 75	1,392 70	.....	1,392 70	689 10	943 10	993 13	Northumberland and Durham.
.....	1,000 00	.....	1,000 00	.....	1,000 00	1,000 00	.....	.....	
39 85	80 19	.....	80 19	.....	80 19	.....	.....	40 34	
303 57	1,979 10	325 21	1,653 89	.....	1,653 89	859 65	29 00	97 35	
471 27	.....	.....	.....	.....	.....	199 64	834 26	85 28	
.....	3,315 65	549 20	2,766 45	229 93	2,536 52	750 00	.....	219 20	
.....	.....	.....	.....	.....	.....	.....	.....	369 05	
.....	.....	.....	.....	.....	.....	.....	.....	2,102 40	
354 74	2,084 36	724 98	1,359 38	.....	1,359 38	1,029 26	518 76	738 20	Ontario.
.....	1,139 70	.....	1,139 70	.....	1,139 70	.....	.....	971 00	
124 85	.....	.....	.....	.....	.....	.....	.....	143 85	
118 75	2,162 36	385 75	1,776 61	.....	1,776 61	630 15	.....	186 75	
427 05	.....	.....	.....	.....	.....	160 15	1,175 96	47 52	
.....	2,507 68	960 00	1,547 68	4 76	1,542 92	675 00	.....	54 10	
.....	.....	.....	.....	.....	.....	.....	.....	368 02	
.....	.....	.....	.....	.....	.....	.....	.....	1,523 06	
104 27	1,956 85	962 00	994 85	.....	994 85	1,069 85	591 02	321 50	Oxford.
.....	1,000 00	.....	1,000 00	.....	1,000 00	1,000 00	.....	.....	
28 60	770 70	100 00	670 70	.....	670 70	.....	.....	192 60	
15 00	.....	.....	.....	.....	.....	.....	.....	740 60	
18 50	258 30	12 00	246 30	.....	246 30	145 80	.....	125 00	
296 12	748 81	16 00	732 81	.....	732 81	56 70	679 61	12 50	
136 00	3,464 00	202 80	3,261 20	430 60	2,830 60	450 00	.....	235 60	
198 00	.....	.....	.....	.....	.....	.....	.....	565 00	
362 00	.....	.....	.....	.....	.....	.....	.....	2,495 22	
652 25	3,462 08	1,685 17	1,776 91	.....	1,776 91	1,619 33	.....	978 50	Parry Sound.
.....	525 00	.....	525 00	.....	525 00	500 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	25 00	
293 77	1,583 00	449 09	1,133 91	.....	1,133 91	1,067 71	.....	49 00	
146 20	.....	.....	.....	.....	.....	327 39	.....	14 85	
.....	1,043 98	7 60	1,036 38	.....	1,036 38	600 00	.....	80 25	
.....	.....	.....	.....	.....	.....	.....	.....	171 95	
.....	.....	.....	.....	.....	.....	.....	.....	291 78	
499 17	1,680 81	653 93	1,026 88	.....	1,026 88	753 20	420 55	346 24	Peel.
.....	779 83	.....	779 83	.....	779 83	.....	.....	701 75	
.....	.....	.....	.....	.....	.....	.....	.....	101 58	
216 95	1,681 90	230 09	1,451 81	.....	1,451 81	511 29	.....	121 55	
172 87	.....	.....	.....	.....	.....	121 95	826 88	42 11	
170 00	2,201 28	182 59	2,018 69	53 73	1,964 96	600 00	.....	138 20	
.....	.....	.....	.....	.....	.....	.....	.....	185 47	
.....	.....	.....	.....	.....	.....	.....	.....	1,277 61	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present years's services.
			$ c.	$ c.	$ c.	$ c.
PERTH :						
Stratford .	Sheriff	ThomasMagwood	2,566 41	.....	2,566 41	1,935 78
	Surrogate Judge...	Judge Barron ...	Commuted	873 00	1,723 00	.....
	Local Master	"	Commuted	850 00	.....	.....
	Crown Attorney...	G. G. McPherson, K.C.	600 90	.....	1,834 26	491 10
	Clerk of the Peace.	"	1,233 36	.....	.....	792 68
	Local Registrar...	W. C. Moscrip..	441 40	675 00	3,361 55	1,003 90
	County Court Clerk	"	556 40	.....	.....	556 40
PETER-BOROUGH:	SurrogateRegistrar	"	1,688 75	.....	.....	1,688 75
Peterboro'	Sheriff	James A. Hall...	2,052 06	.....	2,052 06	1,533 37
	Surrogate Judge ..	*Judge Huycke..	484 75	.....	484 75	484 75
	Local Master	"	.....	.....	.....	.....
	Crown Attorney...	R. E. Wood	655 75	.....	1,604 50	362 75
	Clerk of the Peace.	"	948 75	.....	.....	390 49
	Local Registrar...	†G. J. Sherry....	642 88	675 00	2,877 82	1,211 56
	County Court Clerk	"	573 62	.....	.....	573 62
PRESCOTT & RUSSELL:	SurrogateRegistrar	"	985 82	.....	.....	985 82
L'Original	Sheriff	Albert Hagar . .	1,426 90	.....	1,426 90	967 07
	Surrogate Judge ..	Judge Constantineau.	349 00	.....	410 30	349 00
	Local Master	"	61 30	.....	.....	35 90
	Crown Attorney..	John Maxwell...	306 94	.....	1,136 63	243 09
	Clerk of the Peace.	"	829 69	.....	.....	640 07
	Local Registrar...	Joseph Bélanger.	32 20	675 00	1,819 95	591 75
	County Court Clerk	"	256 20	.....	.....	240 45
PRINCE EDWARD:	SurrogateRegistrar	"	856 55	.....	.....	832 90
Pieton....	Sheriff	James Gibson ...	1,063 84	.....	1,063 84	952 19
	Surrogate Judge ..	Judge Morrison..	568 75	.....	663 95	568 75
	Local Master	"	95 20	.....	.....	93 80
	Crown Attorney...	J. Roland Brown	209 00	.....	799 29	187 60
	Clerk of the Peace	"	590 29	.....	.....	425 97
	Local Registrar...	Nehemiah Gilbert	143 90	600 00	1,732 60	643 90
	County Court Clerk	"	215 70	.....	.....	215 70
RAINY RIVER:	SurrogateRegistrar	"	773 00	.....	.....	773 00
Fort Frances ..	Sheriff	‡W. A. Baker ...	618 55	437 50	1,056 05	980 65
	Surrogate Judge...	§Judge Fitch....	.....	**500 00	529 60	500 00
	Local Master... ..	"	29 60	.....	.....	29 60
	Crown Attorney...	§A. D. George, pro tem.	428 55	.....	737 80	.....
	Clerk of the Peace.	§A. D. George, pro tem	184 25	125 00	.....	125 00
	Local Registrar...	†Wm. H. Elliott.	.....	262 50	380 06	187 50
	District Court Cl'k.	"	34 20	.....	.....	34 20
	Surrogate Regist'r	"	83 36	.....	.....	83 36
RENFREW:						
Pembroke .	Sheriff	Alex. Morris. .	1,358 43	.....	1,358 43	1,153 31
	Surrogate Judge...	Judge Donahue..	307 75	.....	460 75	307 75
	Local Master.....	"	153 00	.....	.....	89 20
	Crown Attorney...	J. A. Metcalf....	158 95	.....	796 59	152 95
	Clerk of the Peace.	"	637 64	.....	.....	333 83
	Local Registrar ...	H. W. Perrett...	163 90	600 00	1,846 03	663 90
	County Court Clerk	"	368 38	.....	.....	368 38
	Surrogate Regist'r.	"	713 75	.....	.....	713 75

*Appointed 13th July, 1909. †Appointed from 26th October, 1909; O. in C. 20th October, 1909.
‡Appointed from 1st June, 1909; O. in C. 27 May, 1909. §Appointed 22nd June, 1909.
Appointed 11th May, 1909. **By 6 Edw. VII. Cap. 19, Sec. 16.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for past year's services.	Total receipts by officer from all offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
497 53	2,433 31	1,106 01	1,327 30	.....	1,327 30	1,250 14	520 19	796 08	Perth.
.....	1,723 00	.....	1,723 00	.....	1,723 00	873 00	.....	.....	
.....	.....	.....	.....	.....	.....	850 00	.....	.....	
323 30	2,260 44	414 50	1,845 94	.....	1,845 94	480 90	.....	120 00	
653 36	.....	.....	.....	.....	.....	71 70	1,076 86	84 80	
.....	3,249 05	1,016 95	2,232 10	96 42	2,135 68	675 00	.....	441 40	
.....	.....	.....	.....	.....	.....	.....	.....	556 40	
.....	.....	.....	.....	.....	.....	.....	.....	1,688 75	
285 02	1,818 39	841 56	976 83	.....	976 83	975 95	440 03	636 08	Peter-
.....	484 75	.....	484 75	.....	484 75	.....	.....	484 75	borough
.....	.....	.....	.....	.....	.....	.....	.....	.....	
95 90	1,334 42	94 17	1,240 25	.....	1,240 25	608 75	47 00	.....	
485 28	.....	.....	.....	.....	.....	125 75	738 96	84 04	
.....	2,771 00	518 62	2,252 38	31 80	2,220 58	675 00	.....	642 88	
.....	.....	.....	.....	.....	.....	.....	.....	573 62	
.....	.....	.....	.....	.....	.....	.....	.....	985 82	
415 57	1,382 64	783 06	599 58	.....	599 58	498 02	423 93	504 95	Prescott and
.....	424 20	.....	424 20	.....	424 20	.....	.....	349 00	Russell.
39 30	.....	.....	.....	.....	.....	.....	.....	61 30	
52 50	1,080 86	59 00	1,021 86	.....	1,021 86	154 94	77 00	75 00	
145 20	.....	.....	.....	.....	.....	90 25	693 98	45 46	
2 10	1,722 85	304 20	1,418 65	.....	1,418 65	675 00	.....	32 20	
9 05	.....	.....	.....	.....	.....	.....	.....	256 20	
46 60	.....	.....	.....	.....	.....	.....	.....	856 55	
131 74	1,083 93	668 75	415 18	.....	415 18	480 51	467 47	115 86	Prince
.....	741 50	7 00	734 50	.....	734 50	.....	.....	568 75	Edward.
78 95	.....	.....	.....	.....	.....	.....	.....	95 20	
27 60	839 53	104 05	735 48	.....	735 48	63 40	15 00	130 60	
198 96	.....	.....	.....	.....	.....	61 91	487 98	40 40	
.....	1,632 60	93 50	1,539 10	3 91	1,535 19	600 00	.....	143 90	
.....	.....	.....	.....	.....	.....	.....	.....	215 70	
.....	.....	.....	.....	.....	.....	.....	.....	773 00	
.....	980 65	144 60	836 05	.....	836 05	952 57	.....	103 48	Rainy Riv'r
.....	529 60	.....	529 60	.....	529 60	500 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	29 60	
.....	125 00	94 50	30 50	.....	30 50	428 55	.....	.....	
.....	.....	.....	.....	.....	.....	309 25	.....	.....	
.....	305 06	.....	305 06	.....	305 06	262 50	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	34 20	
.....	.....	.....	.....	.....	.....	.....	.....	83 36	
.....	1,153 31	440 53	912 78	.....	912 78	555 65	401 78	391 00	Renfrew.
.....	396 95	.....	396 95	.....	396 95	.....	.....	307 75	
.....	.....	.....	.....	.....	.....	.....	.....	153 00	
46 34	820 43	46 09	774 34	.....	774 34	141 95	.....	17 00	
287 31	.....	.....	.....	.....	.....	64 90	513 72	59 02	
.....	1,746 03	104 00	1,642 03	14 20	1,627 83	600 00	.....	163 90	
.....	.....	.....	.....	.....	.....	.....	.....	368 38	
.....	.....	.....	.....	.....	.....	.....	.....	713 75	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's services.
			$ c.	$ c.	$ c.	$ c.
SIMCOE:						
Barrie....	Sheriff	Wm.McL. Harvey	2,836 32	.....	2,836 32	2,640 31
	Surrogate Judge...	Judge Ardagh...	commuted	585 00	.....	.....
	Local Master.....	†J. R. Cotter....	401 00	.....	3,033 78	401 00
	Crown Attorney...	"	998 31	.....	.....	683 36
	Clerk of the Peace.	"	1,634 47	.....	.....	1,153 71
	Local Registrar...	†John McCosh...	341 10	750 00	1,921 49	945 27
	County Court Clerk	"	830 39	.....	.....	830 39
	Surrogate Regist'r.	E. A. Little.....	2,614 80	.....	2,614 80	2,614 80
STORMONT, DUNDAS AND GLENGARRY: Cornwall .	Sheriff	W. R. Mack.....	2,902 98	.....	2,902 98	2,159 59
	Surrogate Judge...	Judge O'Reilly..	646 00	.....	1,063 40	646 00
	Local Master.....	"	417 40	.....	.....	355 10
	Crown Attorney...	James Dingwall.	237 15	.....	981 28	185 85
	Clerk of the Peace.	"	744 13	.....	.....	565 43
	Local Registrar...	J. A. McDougald	76 00	750 00	3,104 38	701 00
	County Court Clerk	"	776 37	.....	.....	776 37
	Surrogate Regist'r.	"	1,502 01	.....	.....	1,502 01
SUDBURY:						
Sudbury..	Sheriff	Alex. Irving	3,236 83	950 00	4,186 83	3,608 33
	Surrogate Judge...	Judge Kehoe	.....	‡500 00	.....	500 00
	Local Master	*F. F. Lemieux .	40 00	.....	40 00	40 00
	Crown Attorney...	J. H. Clary.....	1,139 35	250 00	1,717 88	1,221 85
	Clerk of the Peace.	"	328 53	.....	.....	215 06
	Local Registrar...	John D. Shipley .	80 00	.....	1,072 79	80 00
	Dist. Court Clerk..	"	407 50	450 00	.....	857 50
	Surrogate Regist'r.	"	135 29	.....	.....	135 29
THUNDER BAY: Port Arthur.. ...	Sheriff	A. W. Thompson.	5,203 87	1,000 00	6,203 87	4,791 92
	Surrogate Judge...	Judge O'Leary ..	.....	‡500 00	576 70	500 00
	Local Master.....	"	176 70	.....	.....	145 10
	Crown Attorney...	W.F. Langworthy	1,277 85	.....	1,921 50	990 70
	Clerk of the Peace.	"	393 65	250 00	.....	459 65
	Local Registrar...	James Meek	635 60	150 00	2,828 17	649 59
	Dist. Court Clerk..	"	1,084 80	450 00	.....	1,409 80
	Surrogate Regist'r.	"	507 77	.....	.....	467 24
VICTORIA:						
Lindsay ..	Sheriff	John McLennan .	1,380 33	.....	1,380 33	1,085 55
	Surrogate Judge...	Judge McMillan.	283 00	.....	283 00	283 00
	Local Masters...	"	.....	.....	.....	.....
		Judge Harding ..	298 00	.....	298 00	298 00
	Crown Attorney ...	A. P. Devlin	181 60	.....	752 55	137 60
	Clerk of the Peace.	"	570 95	.....	.....	370 65
	Local Registrar ...	§J. H. Sootheran.	189 90	675 00	1,981 73	752 40
	County Court Clerk	"	430 60	.....	.....	430 60
	Surrogate Regist'r.	"	686 23	.....	.....	686 23
WATERLOO:						
Berlin....	Sheriff	John Motz	2,201 60	.....	2,201 60	1,707 48
	Surrogate Judge...	Judge Chisholm .	1,000 00	.....	1,000 00	1,000 00
	Local Master.....	J. J. A. Weir	114 72	.....	114 72	109 12
	Crown Attorney ...	W.H.Bowlby,K.C.	418 80	.....	1,663 49	366 90
	Clerk of the Peace.	"	1,244 69	.....	.....	1,080 76
	Local Registrar ...	E. J. Beaumont..	477 32	675 00	1,800 62	1,039 82
	County Court Clerk	"	648 30	.....	.....	648 30
	Surrogate Regist'r.	James M. Scully.	1,721 60	.....	1,721 60	1,719 00

* Vacant since death of Mr. Lemieux 19th December, 1909.

† Mr. Cotter resigned as Deputy Registrar and Mr. McCosh appointed Local Registrar O. in C. 3rd February, 1909.

§ Appointed 16th April, 1909. ‡ By 6 Edw. VII. Cap. 19. Sec.

Officers throughout the Province of Ontario, etc.—Continued.

Total received for last year's services.	Total receipts by officers from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O., cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
498 28	3,138 59	1,277 04	1,861 55	.....	1,861 55	1,346 05	520 94	969 33	Simcoe.
.....	585 00	.....	585 00	.....	585 00	585 00	.....	.....	
.....	3,062 83	332 77	2,730 06	32 90	2,697 16	.....	.....	401 00	
294 50	.....	.....	.....	.....	.....	971 31	.....	27 00	
530 26	.....	.....	.....	.....	.....	249 90	1,287 07	97 50	
.....	1,775 66	120 00	1,655 66	15 56	1,640 10	750 00	.....	341 10	
.....	.....	.....	.....	.....	.....	.....	.....	830 39	
.....	2,614 80	240 00	2,374 80	124 96	2,249 84	.....	.....	2,614 80	
490 79	2,650 38	945 52	1,704 86	.....	1,704 86	835 05	782 63	1,285 30	Stormont,
.....	1,040 98	12 20	1,028 78	.....	1,028 78	.....	.....	646 00	Dundas
39 88	.....	.....	.....	.....	.....	.....	.....	417 40	and Glen-
73 70	1,049 41	625 02	424 39	.....	424 39	232 46	4 69	.....	garry.
224 43	.....	.....	.....	.....	.....	93 55	531 40	119 18	
.....	2,979 38	643 70	2,335 68	117 13	2,218 55	750 00	.....	76 00	
.....	.....	.....	.....	.....	.....	.....	.....	776 37	
.....	.....	.....	.....	.....	.....	.....	.....	1,502 01	
303 16	3,911 49	1,942 46	1,969 03	.....	1,969 03	2,054 83	.....	1,182 00	Sudbury.
.....	500 00	.....	.....	.....	500 00	500 00	.....	.....	
.....	40 00	.....	40 00	.....	40 00	.....	.....	40 00	
105 00	1,573 31	.....	1,573 31	.....	1,573 31	1,389 35	.....	.....	
31 40	.....	.....	.....	.....	.....	328 53	.....	.....	
.....	1,072 79	46 80	1,025 99	.....	1,025 99	.....	.....	80 00	
.....	.....	.....	.....	.....	.....	450 00	.....	407 50	
.....	.....	.....	.....	.....	.....	.....	.....	135 29	
1,120 33	5,912 25	2,258 83	3,653 42	.....	3,653 42	3,931 79	.....	2,272 08	Thunder
.....	645 10	.....	645 10	.....	645 10	500 00	.....	.....	Bay.
.....	.....	.....	.....	.....	.....	.....	.....	176 70	
443 60	2,025 80	108 00	1,917 80	.....	1,917 80	1,277 85	.....	.....	
131 85	.....	.....	.....	.....	.....	643 65	.....	.....	
154 55	2,907 36	742 39	2,164 97	82 99	2,081 98	150 00	.....	635 60	
197 30	.....	.....	.....	.....	.....	450 00	.....	1,084 80	
28 88	.....	.....	.....	.....	.....	.....	.....	507 77	
167 14	1,252 69	300 66	952 03	.....	952 03	588 30	332 93	459 10	Victoria.
.....	283 00	.....	283 00	.....	283 00	.....	.....	283 00	
.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	298 00	.....	298 00	.....	298 00	.....	.....	298 00	
52 00	757 15	120 00	637 15	.....	637 15	181 60	.....	.....	
196 90	.....	.....	.....	.....	.....	77 00	442 92	51 03	
1,869 23	.....	1,869 23	400 47	.....	1,468 76	675 00	.....	189 90	
.....	.....	.....	.....	.....	.....	.....	.....	430 60	
.....	.....	.....	.....	.....	.....	.....	.....	686 23	
494 12	2,201 60	704 31	1,497 29	.....	1,497 29	873 63	459 92	868 05	Waterloo.
.....	1,000 00	.....	1,000 00	.....	1,000 00	.....	.....	1,000 00	
43 89	153 01	3 00	150 01	.....	150 61	.....	.....	114 72	
100 50	1,585 71	231 00	1,354 71	.....	1,354 71	382 80	.....	36 00	
37 55	.....	.....	.....	.....	.....	90 75	1,000 00	153 94	
.....	1,688 12	264 72	1,423 40	.....	1,423 40	675 00	.....	477 32	
.....	.....	.....	.....	.....	.....	.....	.....	648 30	
68 78	1,787 78	348 15	1,439 63	.....	1,439 63	.....	.....	1,721 60	

APPENDIX F.—Return of fees and emoluments of County Judicial

County and Town.	Office.	Officer.	Amount earned.	Salary paid by Province.	Total earnings and salary in all offices.	Total received for present year's salaries.
			$ c.	$ c.	$ c.	$ c.
WELLAND:						
Welland..	Sheriff	James Smith....	2,051 37	.....	2,051 37	1,614 68
	Surrogate Judge...	Judge Wells.....	631 75	.....	838 75	631 75
	Local Master.....	"	207 00	.....	.....	46 50
	Crown Attorney ...	T. D. Cowper....	624 30	.....	2,493 41	294 70
	Clerk of the Peace.	"	1,869 11	.....	.....	1.245 50
	Local Registrar ...	J. E. Cohoe.....	154 60	800 00	2,512 65	821 27
	County Court Clerk	"	518 05	.....	.....	518 05
	Surrogate Regist'r.	"	1,040 00	.....	.....	1,040 00
WELLING-TON:						
Guelph ...	Sheriff	A. S. Allan	2.442 05	.....	2,442 05	1,863 06
	Surrogate Judge...	Judge Chadwick.	commuted	1,000 00	.....	1,000 06
	Local Master.... / Local Registrar..	A. M. McKinnon.	commuted	2,000 00	.....	2,000 00
	Crown Attorney...	H. W. Peterson..	674 27	.....	2,664 18	470 30
	Clerk of the Peace.	"	1,989 91	.....	.....	1,697 50
	County Court Clerk	Wm. Carroll	443 00	.....	2,441 63	396 85
	Surrogate Regist'r.	"	1,998 63	.....	.....	1,904 53
WENT-WORTH:	Sheriff	J. T. Middleton..	4,898 94	.....	4,898 94	4.160 19
Hamilton	Surrogate Judge...	Judge Snider.. .	1,500 00	.....	1,746 90	1.500 00
	"	Judge Monck....	1,000 00	.....	1,266 30	1.000 00
	Local Masters... /	Judge Snider....	246 90	.....	.....	236 90
		Judge Monck....	266 30	.....	.....	266 30
	Deputy Registrar	*T. H. A. Begue. K.C.....	40 00	250 00	290 00	248 34
	Crown Attorney ...	S. F. Washington, K.C.....	2,729 10	....	4,166 49	1.654 70
	Clerk of the Peace.	S. F. Washington, K.C.....	1,437 39	.....	.....	878 12
	Deputy Clerk of the Crown	T.H.A.Begue.K.C.	113 20	500 00	5,236 35	529 87
	County Court Clerk	"	1,311 65	.....	.....	1.311 65
	Surrogate Regist'r.	"	3,311 50	.....	.....	3.311 50
YORK:						
Tononto .	Sheriff	F. T. Daville....	8,935 55	.....	8,935 55	7.047 89
	Surrogate Judges	Judge Winchester	2,600 00	.....	.....	2.600 00
		Judge Morgan...	1,600 00	.....	.....	1.600 00
		Judge Morson ...	1,600 00	.....	.....	1,600 00
		†Judge Denton ..	500 00	.....	.....	500 00
	Crown Attorney...	‡Jas. Baird, K.C.	5,782 91	.. ..	5,782 91	4.386 57
	Clerk of the Peace	H. E. Irwin, K.C.	7,834 93	....	7,834 93	5,602 08
	County Court Clerk	John Richardson.	5,036 60	.....	5,036 60	5,036 15
	Surrogate Regist'r.	Joseph Tait.....	10,635 55	.....	10,635 55	10,635 55
TORONTO:						
	Sheriff	Fred'k Mowat...	14,930 90	.....	14,930 90	12,840 57
	Crown Attorney...	J.W.S.Corley,K.C.	.....	5,000 00	.....	5,000 00

*Acting.
†O. in C. 10th June, 1909.
‡Appointed 4th November, 1909.

Officers throughout the Province of Ontario, etc.—Concluded.

Total received for past year's services.	Total receipts by officer from all his offices.	Total disbursements.	Net receipts.	Amount paid to Province under R.S.O. cap. 18.	Net income.	Earnings of each officer payable by the Province, the County, and the General Public respectively.			County.
						From Province.	From County.	From General Public.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
431 53	2,046 21	809 25	1,236 96	.....	1,236 96	781 60	554 10	715 67	Welland.
.....	678 25	.....	678 25	.....	678 25	.....	.....	631 75	
.....	.....	.....	.....	.....	.....	.....	.....	207 00	
191 60	2,443 79	489 00	1,954 79	.....	1,954 79	624 30	.....	.....	
711 99	.....	.....	.....	.....	.....	130 35	1,738 76	.....	
31 50	2,573 77	498 95	2,074 82	64 96	2,009 86	800 00	.....	154 60	
21 55	.....	.....	.....	.....	.....	.....	.....	518 05	
141 40	.....	.....	.....	.....	.....	.....	.....	1,040 00	
448 64	2,311 70	365 08	1,946 62	.....	1,946 62	1,161 64	585 80	694 61	Wellington.
.....	1,000 00	.....	1,000 00	.....	1,000 00	1,000 00	.....	.....	
.....	2,000 00	9 00	1,991 00	.....	1,991 00	2,000 00	.....	.....	
266 20	2,608 93	332 50	2,276 43	27 64	2,248 79	661 84	.....	12 43	
174 93	.....	.....	.....	.....	.....	114 80	1,700 00	175 11	
29 24	2,413 92	306 03	2,107 89	71 58	2,036 31	.....	.....	443 00	
83 30	.....	.....	.....	.....	.....	.....	.....	1,998 63	
1,217 11	5,377 30	2,123 25	3,254 05	.....	3,254 05	2,555 85	657 34	1,685 75	Wentworth.
.....	1,749 00	.....	1,749 00	.....	1,749 00	.....	.....	1,500 00	
.....	1,266 30	.....	1,266 30	.....	1,266 30	.....	.....	1,000 00	
12 10	.....	.....	.....	.....	.....	.....	.....	246 90	
.....	.....	.....	.....	.....	.....	.....	.....	266 30	
354 16	602 50	479 16	123 34	.....	123 34	250 00	.....	40 00	
1,234 55	4,469 10	1,198 87	3,270 23	231 07	3,039 16	2,672 10	.....	57 00	
701 73	.....	.....	.....	.....	.....	418 15	1,003 24	16 00	
.....	5,153 02	1,292 50	3,860 52	730 26	3,130 26	500 00	.....	113 20	
.....	.....	.....	.....	.....	.....	.....	.....	1,311 65	
.....	.....	.....	.....	.....	.....	.....	.....	3,311 50	
1,790 15	8,838 04	3,263 42	5,574 62	.....	5,574 62	6,007 00	905 17	2,023 38	York.
.....	.....	.....	2,600 00	.....	2,600 00	2,600 00	.....	.....	
.....	.....	.....	1,600 00	.....	1,600 00	1,600 00	.....	.....	
.....	.....	.....	1,600 00	.....	1,600 00	1,600 00	.....	.....	
.....	.....	.....	500 00	.....	500 00	500 00	.....	.....	
1,889 15	6,275 72	3,652 97	2,622 75	74 55	2,548 20	5,157 04	435 91	189 96	
2,466 74	8,068 82	2,750 93	5,317 89	1,208 94	4,108 95	1,647 65	6,070 51	116 77	
2 10	5,038 25	2,177 70	2,860 55	258 16	2,602 39	.....	.....	5,036 60	
.....	10,635 55	2,291 00	8,344 55	2,972 28	5,372 27	.....	.....	10,635 55	
1,982 69	14,823 26	6,743 06	8,080 20	.....	8,080 20	*4,371 30	†544 47	10,015 13	Toronto.
.....	5,000 00	.....	5,000 00	.....	5,000 00	5,000 00	.....	.....	

* $220.00 payable by City of Toronto.
† $17.50 payable by Dominion Government.

APPENDIX G.—Table shewing the business of the High Court of Justice in York County compiled from statements furnished by the officers at Osgoode Hall.

Writs of summons issued		1,569
Actions entered in Procedure Book commenced by writs issued during the year 1909		1,138
" " " " previous years		51
" " otherwise than by writ		238
Præcipe Orders issued		1,044
Court " "		727
Chamber " "		3,000
Records passed		503
Actions entered for trial with Jury		129
" " without a Jury		342
Actions tried with a Jury		101
" without a Jury		330
Judgments entered in default of appearance or pleading		216
" " without trial		267
" " after trial		226
Total judgments entered		709
Judgments dismissing actions		59
" under Con. Rule 603		74
" " " 938		37
" " " 596		72
" in mechanics' lien actions		40
" of reference		45
" entered in respect of Writs issued in the year 1900		0
" " " " " 1901		0
" " " " " 1902		0
" " " " " 1903		0
" " " " " 1904		1
" " " " " 1905		0
" " " " " 1906		3
" " " " " 1907		12
" " " " " 1908		224
" " " " " 1909		448
" entered on motion		29
Amount recovered on Judgments (exclusive of costs)	$1,520,415 26	
Amount of Taxed costs (including disbursements) on judgments of all kinds	70,865 85	
Writs of Execution Fi. Fa. issued		310
" renewed, and Alias and Pluries Writs issued		135
Special writs (Habeas Corpus, etc.) issued		22
Amount of Jury fees paid City Treasurer	$381 00	
Petitions under The Quieting Titles Act		12
Certificates of Title under The Quieting Titles Act		6

Accountant's office:

Amount of moneys paid into Court	$2,279,563 28	
" " " out of Court	2,031,869 44	
Number of directions issued for payments of moneys into Court		1,262
" cheques issued		4,308
" certificates issued		265
" new accounts opened		883
" individual accounts		450
Orders issued by the Master in Ordinary, in Winding-up Matters		9

References brought into the of the Master in Ordinary:

Trustee accounts	0
Partition or sale	1
Foreclosure	19
Administration	1
Title	0
Partnership	1
Alimony	0
Winding up	1
Lunacy	1
Executors	0
Mechanics' liens	0
Estate	1

APPENDIX G.—Table shewing the business of the High Court of Justice in York County, etc.—Continued.

Redemption	0
Receiver	0
Settling conveyances	0
Specific performances	0
Accounts	7
	32

References before Official Referees—

Trial or assessment	10
Trustees and Executors' accounts	2
Winding up	32
Lunacy	2
Accounts	14
Mechanics' liens	95
Title	1
Partition or sale	4
Administration	0
Receivership	1
Foreclosure	0
Under Arbitration Act	0
	161

Fees paid in law stamps (Stamps cancelled by Taxing officers not included):

Central office	Records and Writs Branch	$7,052 30	$9,201 60
	Judgment Branch	2,149 30	
Registrars' office	For Fee Fund	1,146 70	2,072 70
	For Shorthand Reporters' Fund	926 00	
Accountants' office			1,282 70
Official Referee Cameron's office			195 50
Office of the Inspector and Referee (Quieting Titles)			109 00
" Master in Ordinary			530 10
" Master in Chambers			2,359 60
" Registrar of the Court of Appeal			843 60
			$16,594 80

APPENDIX H.—Table showing the number of actions tried or otherwise disposed of by the Judges of the High Court of Justice and the Court of Appeal and the disposition thereof, during the year ending Dec. 31st, 1909.

Trial Judges.	With a Jury.	Without a Jury.	Total.
Actions disposed of by the Judges of the King's Bench.	86	214	300
" " " " Chancery.....	52	175	227
" " " " Common Pleas	101	211	312
" " " " Exchequer ...	87	217	304
Totals	326	817	1,143

Judges in Chambers.	Allowed or varied.	Dismissed.	Standing for Judgment.	Total.
Toronto:				
Appeals from the Master in Chambers	11	49	.....	60
" Local Master and other officers acting in Chambers.....	9	21	.....	30
Appeals from Official Referees.....				
" Local Taxing Officers	2	2	... .	4
" Taxing Officers at Toronto	1	1	.....	2
Motions, other than appeals			.....	1220
Ottawa :—				
Appeals from Local Masters and other officers acting in Chambers				
Appeals, from Taxing Officers	2	.....	.....	2
Motions, other than appeals	37	2	....	39
London ;—				
Appeals from Local Masters or other officers acting in Chambers.....	1	1	.....	2
Motions, other than appeals	21	6	1	28
Totals	84	82	1	1387

Weekly Courts.	Allowed.	Dismissed.	Standing for Judgment.	Total.
Toronto :—				
Appeals from reports of Local Masters and Official Referees	20	22	1	43
Appeals from awards and motions to set aside awards	6	1	.....	7
Motions, other than appeals	708	77	6	791
Number struck off the list, no one appearing	.....	.....	.....	11
" of motions enlarged	.....	.....	.....	282
Ottawa :—				
Appeals from reports of Local Masters and Official Referees	3	3	....	6
Motions, other than appeals.....	12	1	.....	13
London :—				
Motions, other than appeals	15	1	.. ..	16
Totals	764	105	7	1169

Master in Chambers :—	
Motions in respect of pleadings, for particulars, for discovery and for commissions to take evidence.....	385
Motions in respect of venue, to set aside jury notices and notices of trial and proceedings under quo warranto	64
Motions for judgments and orders.....	481
Motions, setting aside judgments or orders, staying trials, and dismissing actions...	482
Miscellaneous motions	371
Ex parte motions	209
Total...	1992

APPENDIX H.—Table showing number of actions tried, etc.—Continued.

Divisional Court.	Allowed.	Dismissed.	Varied.	Standing for Judgment.	Total.
Appeals from Trial Judges	45	145	12	6	208
Appeals from Weekly Courts and Chambers	8	35	2		45
Appeals from County and District Courts	15	58	3		76
Appeals from Surrogate Courts	2	4			6
Appeals from Division Courts	3	4			7
Appeals under special statutes	10	19			29
Motions to quash convictions					5
Motions, other than above					164
Totals	83	265	17	6	540

Court of Appeal.	Allowed.	Dismissed.	Varied.	Standing for Judgment.	Total.
Appeals from Single or Trial Judges	16	26	5	8	55
Appeals from Divisional Courts	7	17	2	3	29
Appeals from Board of County Judges					
Appeals from Arbitrators		1		1	2
Appeals from Drainage Referee		2			2
Appeals from the Ontario Railway and Municipal Board	1	2		1	4
Election Trial appeals					
Habeas Corpus appeals				1	1
Reserved or criminal cases		4	1		5
Stated cases	3	4			7
Appeals from Surrogate Courts	1	1		1	3
Appeals from Mining Commissioner		1			1
Totals	28	58	8	15	109

APPENDIX "I."

TABLE shewing the business in the office of the Surrogate Clerk, Osgoode Hall, Toronto, for the year ending December 31st, 1909.

	No.
Probate Certificates issued	4,936
Administration	2,416
Guardianship	149
Caveats fyled	94
Elections received under R.S.O. cap. 128, sec. 20	0

Fees paid in law stamps, $3,728.10.

APPENDIX J.—Table shewing the Criminal business of the High Court of Justice at its sittings throughout the Province during the year 1909.

County or District.	Bills.		Nolle prosequi.	Indictments quashed.	Traversed to the Sessions.	Number of persons pleading guilty.	Number of persons tried by the Judges of the								Verdicts of the trial.				Number of days of sittings.
							King's Bench.		Chancery.		Common Pleas.		Exchequer.						
	True.	No.					With a Jury.	Without a Jury.	With a Jury.	Without a Jury.	With a Jury.	Without a Jury.	With a Jury.	Without a Jury.	Guilty.	Not guilty.	Disagreed.	Reserved.	
Algoma	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Brant	2	....	1	....	....	....	....	....	1	....	1	....	....	....	1	1	1	....	....
Bruce	2	....	....	....	1	....	....	....	3	....	....	....	....	....	....	3	....	....	....
Carlton	3	....	2	....	....	4	....	....	....	....	....	....	6	....	6	....	....	....	....
Dufferin	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Elgin	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Essex	7	....	....	....	....	5	2	....	3	....	....	....	....	....	4	1	....	....	....
Frontenac	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grey	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Haldimand	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Halton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hastings	2	4	1	....	....	....	....	....	....	....	1	....	1	....	....	1	1	....	....
Huron	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kenora	2	3	....	....	....	1	....	....	2	....	....	....	....	....	1	1	....	....	....
Kent	....	....	....	....	1	....	....	....	....	....	....	....	1	....	1	....	....	....	....
Lambton	5	....	....	....	1	....	....	....	....	....	3	....	....	....	....	3	....	....	....
Lanark	2	1	....	....	1	2	....	....	....	....	....	....	....	....	2	....	....	....	....
Leeds and Grenville	2	2	....	....	....	2	....	....	....	....	....	....	....	....	1	1	....	....	....
Lennox and Addington	2	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....
Lincoln	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....
Manitoulin	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....
Middlesex	4	....	....	....	1	....	....	....	....	2	....	2	....	....	1	1	1	....	....
Muskoka	2	1	....	....	1	1	....	....	....	....	1	....	....	....	2	....	....	....	....
Nipissing	13	1	2	....	....	5	....	....	2	....	....	....	....	....	5	1	1	2	....
Norfolk	7	1	....	1	....	....	....	....	....	....	....	....	3	....	1	2	....	....	....
Northumberland & D'm	6	1	....	....	....	4	....	....	2	....	....	....	....	....	2	4	....	....	....
Ontario	2	....	....	....	....	3	....	....	....	....	....	....	....	....	....	3	....	....	....
Oxford	1	1	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....
Parry Sound	6	1	1	....	....	....	....	....	1	....	....	....	5	....	2	3	....	1	....
Peel	1	....	....	....	....	....	....	....	....	....	1	....	1	....	....	1	1	....	....
Perth	6	....	....	....	....	3	....	....	....	....	3	....	....	....	6	....	....	....	....
Peterborough	2	....	....	....	....	3	....	....	....	....	....	....	....	....	....	3	....	....	....
Prescott and Russell	2	....	....	....	....	....	....	....	....	....	2	....	....	....	2	....	....	....	....
Prince Edward	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
Rainy River	2	....	....	....	....	....	....	....	....	....	2	....	....	....	1	1	....	....	....
Renfrew	1	1	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....
Simcoe	2	....	....	....	....	....	....	....	....	....	....	....	3	....	3	....	....	....	....
Stormont, D's and G'y.	2	2	....	....	....	....	....	....	....	....	....	....	2	....	....	2	....	....	....
Sudbury	10	3	....	....	....	7	....	....	....	....	....	....	....	....	6	1	....	....	....
Thunder Bay	8	....	....	....	....	1	....	....	2	....	....	....	1	....	1	2	....	....	....
Victoria	*1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Waterloo	2	....	1	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....
Welland	2	....	....	....	....	....	....	....	....	....	1	....	1	....	....	2	....	....	....
Wellington	7	....	8	....	2	4	....	....	....	....	....	....	....	....	4	....	....	....	....
Wentworth	9	....	4	....	1	....	....	....	3	....	2	....	....	....	3	1	1	....	....
York	10	....	....	....	....	5	1	5	1	....	....	....	....	....	9	2	....	2	....
Totals	141	22	12	9	4	17	44	1	25	3	18	3	25	....	67	42	8	5	....

* Traversed to Spring Assizes, 1910.

APPENDIX K.—Table shewing the business of the Courts of General Sessions of the Peace and of the District and County Court Judge's Criminal Courts of the Province for the year 1909.

County or District.	Bills in Sessions.		Cases C. C. J. C. C.	Number of Persons Pleading Guilty.		Number of Persons Tried.		Verdict after Trial.					Persons Accused.				Days of Sittings.	
						With Jury.	Without Jury.	Guilty.		Not Guilty.		Disagreed.	Sessions.		C. C. J. C. C.		Sessions.	C. C. J. C. C.
	True.	No.		Sessions.	C. C. J. C. C.	Sessions.	C. C. J. C. C.	Sessions.	C. C. J. C. C.	Sessions.	C. C. J. C. C.		Male.	Female.	Male.	Female.		
Algoma	2		20		10	2	20	1	11	1	9		2		17	3	2	12
Brant	1		11	3	12		3		9				3		11	1	2	8
Bruce			12		5		10		8		2	2			10	2	4	10
Carleton	2	2	8		1	2	5	1	4	1	1		5		6		8	19
Dufferin			4		1		4		1		3				3	1		4
Elgin	1		9		2	1	6	1	2		4		1		8		9	9
Essex	8		13			2	13		9	2	4	6	2		13		4	13
Frontenac	2		13		4	2	14	2	9		5		2		13	1	5	10
Grey	5		12	1	9	4	3	1	2	2	1	1	5		12		6	16
Haldimand			15		11		15		14		1				15		2	18
Halton	2		4		4	1	4		4	1			1		4		1	7
Hastings	18	1	68	1	27	18	68	9	21	6	20	2	12	1	38	2	13	36
Huron	4		32	1	19	1	33	3	26	1	6	12	2		32	1	5	49
Kenora	3		15		9	3	6	2	6	1		1	2	1	15		3	15
Kent	9	1	23		6	7	23	6	19		4	1	10		21	22	5	25
Lambton	2	1	27		20		19		20		7		3		20	2	4	20
Lanark																		
Leeds and Grenville	1		39		24		39		4		11		1		38	1	3	51
Lennox and Addington		3	3				3		1		2		3		3		6	3
Lincoln	2		20		7	1	10	1	8		2		2		17		4	31
Manitoulin	4		2			2	2	1	1	1	1		4		2		4	2
Middlesex	8	30	4	11	4	19	5	18	3	12			8		30		9	48

Muskoka	6		12		6	6	7	5	1	1	6		6		10	3	5	10
Nipissing	3		11	1		3	11	3	5		6	6	3		11		3	11
Norfolk	6		2	2	3	5	3	5	2	1			5		3		6	3
Northumberland and Durham	4		31		2	3	23	1	15	2	12		4		26	1	9	39
Ontario	1		19		9	1	19		14	1	5		1		17	2	4	37
Oxford			8				8				2				8			5
Parry Sound	3	1	25		2	2	21		13	2	8		4		21	4	1	20
Peel	1		15		8	1	7		3	1	4		1		15		4	18
Perth			5				3		1		2				5		3	9
Peterborough	10		9		1	10	9	2	7	8	2		9	1	9		13	9
Prescott and Russell			6				6		3		2				6		2	11
Prince Edward			3		2		3		2		1				3		2	3
Rainy River	4		6		3	4	3	4	1		2		3	1		6	5	5
Renfrew			5		1		5		4						5		2	9
Simcoe	6	1	36		18	5	36	3	33	2	3		5	2	34	2	8	41
Stormont, Dundas and Glengarry	1		11		9	1	11		9	1	2		1		11		2	10
Sudbury		1	15		7		15		6		2				14	1	2	14
Thunder Bay	4		29		6	2	29	1	4	1	19		3		29		5	15
Victoria	3		2	1	2	3	2	2	2	1			3		2		5	2
Waterloo			11		5		11		8		3	3			11			15
Welland	3		24	1	10	2	14		1	2	4		3		13	1	3	21
Wellington			18		11		18		11		7				18			25
Wentworth	8	1	87		16	7	87	3	33	4	38		6	1	81	6	13	41
York	161	13	98	63	49	97	28	50	16	41	12	6	147	23	64	19	138	79
Totals	298	55	842	85	345	217	684	125	376	96	225	40	272	30	744	81	334	858

APPENDIX L.—Being an annuity table shewing the value of an annuity of $1 on a single life, according to the Carlisle Table of Mortality.

Age.	5 per cent.	6 per cent.	7 per cent.	Age.	5 per cent.	6 per cent.	7 per cent.
1	13.905	12.078	10.605	32	14.506	12.860	11.516
2	14.983	12.925	11.342	33	14.387	12.771	11.448
3	15.824	13.652	11.978	34	14.260	12.675	11.374
4	16.271	14 042	12.322	35	14.127	12.573	11.295
5	16.590	14.325	12.574	36	13.987	12.465	11.211
6	16.735	14.460	12.698	37	13.843	12.354	11.124
7	16.790	14.518	12.756	38	13.695	12 239	11.033
8	16.786	14.526	12.770	39	13.542	12.120	10.939
9	16.742	14.500	12.754	40	13.390	12.002	10.845
10	16.669	14.448	12.717	41	13.245	11.890	10.757
11	16.581	14.384	12.669	42	13.101	11.779	10.671
12	16.494	14.321	12.621	43	12.957	11.668	10.585
13	16.406	14.257	12.572	44	12.806	11.551	10.494
14	16.316	14.191	12.522	45	12.648	11.428	10.397
15	16.227	14.126	12.473	46	12.480	11.296	10.292
16	16.144	14.067	12.429	47	12.301	11.154	10.178
17	16.066	14.012	12.389	48	12.107	10.998	10.052
18	15.987	13.956	12.348	49	11.892	10.823	9.908
19	15.904	13.897	12.305	50	11.660	10.631	9.749
20	15.817	13.835	12.259	51	11.410	10.422	9.573
21	15.726	13.769	12.210	52	11.154	10.208	9.392
22	15.628	13.697	12.156	53	10.892	9.988	9.205
23	15.525	13.621	12.098	54	10.624	9.761	9.011
24	15.417	13.541	12.037	55	10.347	9.524	8.807
25	15.303	13.456	11.972	56	10.063	9.280	9.595
26	15.187	13.368	11.904	57	9.771	9.027	8.375
27	15.065	13.275	11.832	58	9.478	8.772	8.153
28	14.942	13.182	11.759	59	9.199	8.529	7.940
29	14.827	13.096	11.693	60	8.940	8.304	7.743
30	14.723	13.020	11.636	61	8.712	8.108	7.572
31	14.617	12.942	11.578	62	8.487	7.913	7.403

APPENDIX L.—Being an annuity table shewing, etc.—*Continued.*

Age.	5 per cent.	6 per cent.	7 per cent.	Age.	5 per cent.	6 per cent.	7 per cent.
63	8.258	7.714	7.229	82	3.606	3.474	3.352
64	8.016	7.502	7.042	83	3.406	3.286	3.174
65	7.765	7.281	6.847	84	3.211	3 102	2.999
66	7.503	7.049	6.641	85	3.009	2.909	2.815
67	7.227	6.803	6.421	86	2.830	2.739	2.652
68	6.941	6.546	6.189	87	2.685	2.599	2.519
69	6.643	6.277	5.945	88	2.597	2.515	2.439
70	6.336	5.988	5.690	89	2.495	2.417	2.344
71	6.015	5.704	5.420	90	2.339	2.266	2.198
72	5.711	5.424	5.162	91	2.321	2.248	2.180
73	5.435	5.170	4.927	92	2.412	2.337	2.266
74	5.190	4.944	4.719	93	2.518	2.440	2.367
75	4.989	4.760	4.549	94	2.569	2.492	2.419
76	4.792	4.579	4.382	95	2.596	2.522	2.451
77	4.609	4.410	4.227	96	2.555	2.486	2.420
78	4.422	4.238	4.067	97	2.428	2.368	2.309
79	4.210	4.040	3.883	98	2.278	2.227	2.177
80	4.015	3.858	3.713	99	2.045	2.004	1.964
81	3.799	3.656	3.523	100	1 624	1.596	1.569

To ascertain the dower of a widow in lands, multiply the value of the property by the legal rate of interest, which is at present five per cent., this will give the income of the property for one year; the widow is entitled to one-third of this income; multiply this one-third by the value of the annuity in the five per cent. column opposite the widow's age. The amount thus ascertained will be the widow's dower in gross.

Example: Widow is forty years of age; property out of which dower is to be paid is worth $3,000; five per cent. on this will give an annual income of $150; widow is entitled to one-third of this, or $50, which, multiplied by the value opposite her age in the five per cent. column, namely, 13.390, produces $669.50, the amount of her dower in gross.

APPENDIX "M."

Officers Appointed during the Year 1909.

Sheriffs.

Frederick Samuel Snider, of the Village of Waterford, in the County of Norfolk, Esquire, M.D., to be Sheriff in and for the said County of Norfolk, in the room and stead of J. Jackson, Esquire, deceased.—*Gazette, 23rd January*

Alexander Morris, of the Town of Pembroke, in the County of Renfrew, Esquire, to be Sheriff in and for the said County of Renfrew, in the room and stead of S. J. Dempsey, Esquire, resigned.—*Gazette, 29th May.*

William Andrew Baker, of the Town of Fort Frances, in the District of Rainy River, Esquire, to be Sheriff in and for the Provisional Judicial District of Rainy River.—*Gazette, 19th June.*

Samuel Webster, of the Village of Norval, in the County of Halton, Esquire, M.D., to be Sheriff in and for the said County of Halton, in the room and stead of Matthew Clements, Esquire, deceased.—*Gazette, 21st August.*

William Wallace Ross, of the City of Brantford, in the County of Brant, Esquire, to be Sheriff in and for the County of Brant, in the room and stead of F. D. Reville, Esquire, resigned.—*Gazette, 25th September.*

Surrogate Judge.

His Honour Charles Edward Hewson, of the Town of Gore Bay, Judge of the District Court of the Provisional Judicial District of Manitoulin, to be Judge of the Surrogate Court in and for the said Provisional Judicial District of Manitoulin.—*Gazette, 16th January.*

His Honour Clarence Russell Fitch, Judge of the District Court of the Provisional Judicial District of Rainy River, to be Judge of the Surrogate Court of the said Provisional Judicial District.—*22nd June.*

Daniel O'Connell, of the City of Peterborough, in the County of Peterborough, to be Judge of the Surrogate Court in and for the County of Peterborough, *pro tempore,* in the room and stead of His Honour Judge Weller, deceased.—*Gazette, 17th July.*

His Honour Edward Cornelius Stanbury Huycke, Judge of the County Court of the County of Peterborough, to be Judge of the Surrogate Court of the said County of Peterborough, in the room and stead of Daniel O'Connell, Esquire, appointed *pro tempore.—Gazette, 14th August.*

Local Masters.

Francis Foley Lemieux, of the Town of Sudbury, in the District of Sudbury, Esquire, Barrister-at-Law, to be Local Master of the Supreme Court of Judicature for Ontario, in and for the Provisional Judicial District of Sudbury.—*Gazette, 13th February.*

His Honour Clarence Russell Fitch, Judge of the District Court of the Provisional Judicial District of Rainy River, to be Local Master of the Supreme Court of Judicature for Ontario, in and for the said Provisional District of Rainy River.—*22nd June.*

DANIEL O'CONNELL, of the City of Peterborough, in the County of Peterborough, to be Local Master of the Supreme Court of Judicature for Ontario, *pro tempore*, in the room and stead of His Honour Judge Weller, deceased.—*Gazette, 17th July.*

HIS HONOUR EDWARD CORNELIUS STANBURY HUYCKE, Judge of the County Court of the County of Peterborough, to be Local Master of the Supreme Court of Judicature for Ontario, in and for the said County of Peterborough.—*Gazette, 14th August.*

CROWN ATTORNEYS.

ARTHUR DUFFERIN GEORGE, of the Town of Fort Frances, Esquire, Barrister-at-Law, to be Clerk of the Peace and District Crown Attorney in and for the Provisional Judicial District of Rainy River, *pro tempore*, said appointment to take effect on and from the First day of June, 1909.

JAMES BAIRD, of the City of Toronto, in the County of York, Esquire, K.C., to be Crown Attorney in and for the County of York, in the room and stead of H. L. Drayton, Esquire, resigned.—*Gazette, 13th November.*

LOCAL REGISTRARS.

JOHN MCCOSH, of the Town of Barrie, in the County of Simcoe, Deputy Clerk of the Crown and Clerk of the County Court in and for the County of Simcoe, to be Local Registrar of the High Court in and for the said County of Simcoe, in the room and stead of J. H. Cotter, Esquire, resigned.—*Gazette, 27th February.*

JOHN HENRY SOOTHERAN, of the Town of Lindsay, in the County of Victoria, Esquire, to be Local Registrar of the High Court, Clerk of the County Court and Registrar of the Surrogate Court in and for the County of Victoria, in the room and stead of D. R. Anderson, Esquire, deceased.—*Gazette, 8th May.*

WILLIAM HERBERT ELLIOTT, of the Town of Fort Frances, in the District of Rainy River, Esquire, to be Local Registrar of the High Court, Clerk of the District Court and Registrar of the Surrogate Court in and for the Provisional Judicial District of Rainy River.—*Gazette, 19th June.*

LOUIS M. HAYES, of the City of Peterborough, in the County of Peterborough, Esquire, K.C., to be Local Registrar of the High Court, Clerk of the County Court, and Registrar of the Surrogate Court in and for the County of Peterborough, *pro tempore*, in the room and stead of John Moloney, Esquire, deceased.—*Gazette, 9th October.*

GEORGE JAMES SHERRY, of the Village of Norwood, in the County of Peterborough, Esquire, Barrister-at-Law, to be Local Registrar of the High Court, Clerk of the County Court, and Registrar of the Surrogate Court, in and for the County of Peterborough, in the room and stead of John Moloney, Esquire, deceased.—*Gazette, 30th October.*

POLICE MAGISTRATES.

SEIGFRIED ATKINSON, of the Town of Haileybury, in the District of Nipissing, Esquire, Police Magistrate for the said Town, to be Police Magistrate in and for the Town of Cobalt, in the room and stead of R. H. C. Browne, who has removed from the locality; also to be Police Magistrate in and for the Townships of Coleman and Bucke, in the said District of Nipissing.—*Gazette, 9th January.*

EUGENE J. BREAULT, of the Town of Sandwich, in the County of Essex, Esquire, to be Police Magistrate in and for the said Town of Sandwich.—*Gazette, 16th January.*

ALLAN MCLENNNAN, of the Town of Kenora, in the District of Rainy River, Esquire, to be Police Magistrate in and for the said Town of Kenora, in the room and stead of Andrew More, Esquire.—*14th January.*

ALLAN MCLENNAN, of the Town of Kenora, in the District of Rainy River, Esquire, Police Magistrate in and for the said Town of Kenora, to be Police Magistrate in and for the District of Rainy River, in the room and stead of Andrew More, Esquire.—*Gazette, 6th February.*

THOMAS A. CRAIG, of the Town of Blind River, in the District of Algoma, Esquire, to be Police Magistrate in and for the said Town of Blind River, and for the surrounding Territory, composed of the Townships of Thompson, Patton Montgomery, Scarfe, Cobden, Striker, Mack, Long and McGiverin, also Townships Numbers 155, 156, 157, 161, 162, 163, 167, 168, 169, 175 and 176, without salary.—*Gazette, 6th February.*

IRA BRUCE BRADLEY, of the Town of Latchford, in the District of Nipissing, Esquire, to be Police Magistrate in and for the said Town of Latchford, without salary.—*Gazette, 13th February.*

WILLIAMS HUGH, of the Village of Matheson, in the District of Nipissing, Esquire, to be Police Magistrate in and for the Village of Cochrane, in the said District of Nipissing, and the territory in the vicinity thereof, composed of the Townships of Clute, Glackmeyer, Kennedy, Fournier, Lamarche, Brower, Fox, Reaume, Hanna, St. John and Pyne, without salary.—*Gazette, 24th April.*

CHARLES E. STEELE, of the Village of Port Colborne, in the County of Welland, Esquire, to be Police Magistrate in and for the Municipalities of the Village of Port Colborne and the Township of Humberstone, without salary.—*Gazette, 24th April.*

JOSEPH CLARK, of the Village of Ridgeway, in the County of Welland, Esquire, to be Police Magistrate in and for the Municipality of the Township of Bertie.—*—Gazette, 24th April.*

JAMES PATRICK MACGREGOR, of Gow Ganda P.O., in the District of Nipissing, Barrister-at-Law, to be Police Magistrate in and for the Village of Gow Ganda, and for the territory in the vicinity thereof, being composed of the Gow Ganda Mining Division as established by Order-in-Council of 10th February, 1909. —*Gazette, 8th May.*

THOMAS HENRY TORRANCE, of the Village of Elk Lake, in the District of Nipissing, Esquire, to be Police Magistrate in and for the said Village of Elk Lake, and the territory in the vicinity thereof, being composed of the Montreal River and the Temiskaming Mining Division, without salary.—*Gazette, 31st July.*

ISAIAH RABB, of the Town of Palmerston, in the County of Wellington, Esquire, to be Police Magistrate in and for the said Town of Palmerston, without salary, in the room and stead of Hugh McEwing, Esquire, resigned.—*Gazette, 18th December.*

CHARLES J. HOLLANDS, of the Town of Fort Frances, in the District of Rainy River, Esquire, to be Police Magistrate, in and for the Provisional Judicial District of Rainy River as constituted by chapter 36, 8 Edward VII.—*Gazette, 24th December.*

Associate Coroners.

Ransom Herbert Green, of the Village of Embro, in the County of Oxford, Esquire, M.D., to be an Associate Coroner in and for the said County of Oxford.—*Gazette, 20th February.*

William Howard Dudley, of the Town of Webbwood, in the District of Sudbury, Esquire, M.D.C.M., to be an Associate Coroner in and for the District of Sudbury.—*Gazette, 27th February.*

Robert Young Parry, of the City of Hamilton, in the County of Wentworth, Esquire, M.D., to be an Associate Coroner in and for the County of Wentworth.—*Gazette, 6th March.*

Frederick Bruce Mowbray, of Palermo P.O., in the County of Halton, Esquire, M.D., to be an Associate Coroner in and for the County of Halton.—*Gazette, 13th March.*

John Joseph Sheahan, of the Village of Chapleau, in the District of Sudbury, Esquire, M.D., to be an Associate Coroner in and for the said District of Sudbury.—*Gazette, 20th March.*

Arthur Claude Munns, of the Village of Moorefield, in the County of Wellington, Esquire, M.B., to be an Associate Coroner in and for the County of Wellington.—*Gazette, 27th March.*

Wesley McConnell Robb, of the Village of Avonmore, in the County of Stormont, Esquire, M.D., to be an Associate Coroner in and for the United Counties of Stormont, Dundas, and Glengarry.—*Gazette, 10th April.*

Kenneth Campbell, of the Town of Bruce Mines, in the District of Algoma, Esquire, M.D., to be an Associate Coroner in and for the said District of Algoma.—*Gazette, 24th April.*

William Francis Loucks, of the Town of Campbellford, in the County of Northumberland, Esquire, M.D., C.M., to be an Associate Coroner in and for the United Counties of Northumberland and Durham.—*Gazette, 24th April.*

Samuel Tait White, of the Village of Shelburne, in the County of Dufferin, Esquire, M.D., to be an Associate Coroner in and for the said County of Dufferin.—*Gazette, 24th April.*

Peter Joseph McDonald, of Little Current P.O., in the District of Manitoulin, Esquire, M.D., to be an Associate Coroner in and for the said District of Manitoulin.—*Gazette, 8th May.*

John Andrew Kane, of the Town of Cobalt, in the District of Nipissing, Esquire, M.D., to be an Associate Coroner in and for the District of Nipissing.—*Gazette, 8th May.*

Thomas Bruce Hewson, of the Village of Colborne, in the County of Northumberland, Esquire, M.D., to be an Associate Coroner in and for the United Counties of Northumberland and Durham.—*Gazette, 22nd May.*

James Herbert Tandy, of the Town of Parry Sound, in the District of Parry Sound, Esquire, M.D., C.M., to be an Associate Coroner in and for the said District of Parry Sound.—*Gazette, 29th May.*

John Albert Dixon, of Warren P.O., in the District of Nipissing, Esquire, M.D., to be an Associate Coroner in and for the said District of Nipissing.—*Gazette, 29th May.*

Henry Herbert Elliott, of Seeley's Bay P.O., in the County of Leeds, Esquire, M.D., to be an Associate Coroner in and for the United Counties of Leeds and Grenville.—*Gazette, 12th June.*

HENRY HERBERT ELLIOTT, of Seeley's Bay P.O., in the County of Leeds, Esquire, M.D., to be an Associate Coroner in and for the County of Frontenac.—*Gazette, 12th June.*

LOUIS DE GOUZAGUE ROUTHIER, of the Town of Cobalt, in the District of Nipissing, Esquire, M.D., to be an Associate Coroner in and for the said District of Nipissing.—*Gazette, 19th June.*

JOHN WALKER WIGHAM, of the City of Toronto, in the County of York, M.B., to be an Associate Coroner in and for the said City of Toronto.—*Gazette, 4th September.*

HUGH CLAYTON MCLEAN, of the City of Guelph, in the County of Wellington, Esquire, M.D., to be an Associate Coroner in and for the said County of Wellington.—*Gazette, 4th September.*

THOMAS HENRY ORTON, of the City of Guelph, in the County of Wellington, Esquire, M.D., to be an Associate Coroner in and for the said County of Wellington.—*Gazette, 11th September.*

HAROLD CHRISTOPHER KINDRED, of the Village of Havelock, in the County of Peterborough, Esquire, M.D., to be an Associate Coroner in and for the said County of Peterborough.—*Gazette, 11th September.*

ETHELBERT BROWN HARDY, of the City of Toronto, in the County of York, Esquire, M.D., to be an Associate Coroner in and for the said City of Toronto.—*Gazette, 18th September.*

WILLIAM JOHN ROE, of the Town of Georgetown, in the County of Halton, Esquire, M.D., to be an Associate Coroner in and for the said County of Halton.—*Gazette, 2nd October.*

WILLIAM E. BROWN, of the Village of Victoria Harbour, in the County of Simcoe, Esquire, M.D., to be an Associate Coroner in and for the said County of Simcoe.—*Gazette, 9th October.*

ROBERT BURROWS HARRIS, of the Town of Huntsville, in the District of Muskoka, Esquire, M.D., to be an Associate Coroner in and for the District of Muskoka.—*Gazette, 23rd October.*

TRUEMAN AUGUSTUS BEEMAN, of the Village of Bancroft, in the County of Hastings, Esquire, M.D., to be an Associate Coroner in and for the said County of Hastings.—*Gazette, 20th November.*

ALBERT ARMSTRONG, of the Town of Arnprior, in the County of Renfrew, Esquire, M.D., to be an Associate Coroner in and for the County of Renfrew.—*Gazette, 20th November.*

JOHN JOHNSTON, of the Village of Elk Lake, in the District of Nipissing, Esquire, M.D., to be an Associate Coroner in and for the District of Nipissing.—*Gazette, 27th November.*

ROY CATHEY LOWREY, of the Town of Englehart, in the District of Nipissing, Esquire, M.D., to be an Associate Coroner in and for the District of Nipissing.—*Gazette, 11th December.*

ANNUAL REPORT

OF THE

Inspector of Registry Offices

FOR THE

PROVINCE OF ONTARIO

1909

PRINTED BY ORDER OF
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ANNUAL REPORT

OF THE

Inspector of Registry Offices

FOR THE YEAR

1909

To the Hon. J. J. FOY, K.C.

Attorney-General for the

Province of Ontario.

Sir:—I have the honour to present to you my Report as Inspector of Registry Offices for the year 1909.

The tabulated Statement of the Registrars' Returns of their fees and emoluments for the past year shows, amongst other results, the following:—

Total number of instruments registered in 1909	174,703
Total number of instruments registered in 1908	159,844
Increase	14,859
Gross amount of fees received in Registry Offices in 1909	$208,439 45
Gross amount of fees received in Registry Offices in 1908.	186,225 35
Increase	$ 22,214 10

Further particulars of the work of the offices appear from the Returns which are appended to this Report.

I respectfully suggest for your consideration that the Lieutenant-Governor should, under section 17 of The Registry Act, without an application by the Municipality interested, require Registrars to give security by Bond of a Guarantee Company for such an amount as the Lieutenant-Governor-in-Council deems sufficient to secure the due payment by the Registrar of any moneys payable by him to the County or City.

The Returns from the following Offices for 1909, show a surplus of fees payable to the County or City of over $100.00:—

Brant, Bruce, Carleton, Elgin, Essex, N. Grey, Hastings, Huron, Kent, Lambton, Lincoln, London, N. & E. Middlesex, Norfolk, Ontario, Ottawa, Oxford, N. Perth, Peterborough, Simcoe, East Toronto, West Toronto, Victoria, Waterloo, Welland, Wentworth and E. & W. York.

Such security is especially desirable to secure the City or County its proportion of the fees, in the event of a Registrar dying during any year prior to the time for making his annual returns. His estate might be liable for a considerable amount of surplus fees and there might not be sufficient assets to pay the amount due to the County or City.

I have pleasure in reporting that in different parts of the Province, Municipalities are taking steps for providing more commodious and convenient Registry Offices and having them fitted up with modern metal fittings.

I trust that the authorities of the City of Toronto will take early steps to provide for the erection of a new and modern Registry Office Building. The present building is too small and is otherwise unsuited for the increased and daily increasing business of these Offices.

For the benefit of Registrars, especially those recently appointed, I submit notes of some of the directions and instructions I have given to Registrars from time to time:—

1. Instruments should be promptly entered in the Abstract Indexes, that is the day they are received, or at latest on the morning of the day following, and the instruments should also be entered as promptly in the Alphabetical Indexes.

2. The names of all Grantors and Grantees should be entered in the appropriate columns of the Abstract Index and also of the Alphabetical Index. It is not sufficient to enter the names of some, and then add "et al" or "and others."

3. In connection with the registration of original wills, Registrars should be careful to see that the affidavit of Execution by the subscribing witnesses, or one of them, sets forth, amongst other things, that the will was executed according to the Wills Act of Ontario. It is proper to insist that the Affidavit of Execution should substantially follow the one required by Surrogate Courts in connection with application for Probate of a Will.

4. In entering the description of lands in the Abstract Index, Registrars should endeavour to comply, as far as possible, with the requirements of section 36 of The Registry Act.

5. The marginal entries of registration in the Registers should be signed by the Registrar or Deputy as soon as the instrument is copied. Some Registrars defer so signing until the instrument shall have been compared. While I urge that documents should be compared as soon as possible, still I do not think the signing of the marginal notes should be deferred until the comparing is done.

6. Care should be taken that where Rubber Stamps are used for forms of Certificates, the impression made by the Stamp is perfectly distinct.

7. In case of special conveyances care should be exercised in entering them in the Abstract Index, and in making out Abstracts of their contents. I here refer to conveyances granting or reserving a life estate or other estate less than an estate in fee simple, and to conveyances to uses or the like, and to those containing special clauses, conditions, recitals and covenants; and also where conveyances are to Grantees as joint tenants and not as tenants in common.

8. Where an instrument is made with the approval of the Attorney-General, Official Guardian or other public officer, the fact should be noted in the Abstract Index.

9. The Abstract and Alphabetical Indexes and Fee Book, as well as the Registry Books, should be certified by the Registrar under section 31 of the Act.

10. Where, in a conveyance, machinery, fixtures and the like are specially granted or conveyed, attention should be called to the fact in the Abstract Index.

11. It is desirable that where the Deputy or a Clerk, who has compared instruments, is about to leave the Office, a Statutory Declaration should be obtained from him before he leaves, verifying so much of the comparing as he has done; and, of course, all completed Registers should be verified by Statutory Declaration as soon as they are completed.

12. Statutory Declarations, as such, are not instruments which may be registered under The Registry Act. They may be deposited in the Registry Office under The Custody of Title Deeds Act. Statutory Declarations attached to instruments affecting lands without local description, for the purpose of giving a local description or the like, may, of course, be registered with the instrument.

13. Endorsements on Mortgages for short registration should be authenticated by the signature of the Mortgagee, his Solicitor or Agent.

14. Where an instrument purports to be by several Grantors and is in fact only executed by some and not by all of them, a note should be made in the Abstract Index showing by whom in fact the Deed appears to be executed, or showing that the Deed has not been executed by certain of the named Grantors.

15. All reservations of rights or grants of rights of way and easements, where the same affect other lands than the lands conveyed, should be noted against the lands affected by the reservations or grants of easements.

16. Where alterations are made in red ink the same should be signed by the Registrar or Deputy and initialled.

I append as usual notes of some decisions and opinions I have given in cases of disputed fees and other matters.

I have the honour to be, Sir,

Your Obedient Servant,

DON. GUTHRIE,

Inspector of Registry Offices.

NOTES OF DECISIONS BY DONALD GUTHRIE, K.C., INSPECTOR OF REGISTRY OFFICES.

Double Registration of Will in General Register and in Separate Register unnecessary where Will does not shew that general devise affects land in same County.

The Registration of the Probate of the Will of T. McC., of the Township of C., in the County of X., has given rise to the question as to whether or not on the registration of the Will in that County it was the duty of the Registrar to register it in the General Register as well as in the Separate Register for the Township of C. The Solicitor, Mr. M., who offered the Probate for registration, did not wish it to be registered in the General Register, but the Registrar considered it to be his duty to register it in that Book as well as in the Registry Book for the Township.

The Will disposes, by express devise, of the Testator's Homestead farm, which is described in the Will by local description, being the West half of Lot 9, in the 2nd Concession West of H. Street in the Township of C., in the County of X., and he also devises another Lot composed of the West half of Lot 10 in the same concession. There is no other land mentioned in the Will. The residuary clause disposes of the remainder of the Testator's estate and effects, in general terms. The Testator had in a previous part of the Will bequeathed certain personal property and by the Codicil gives a legacy of $2,000.00 cash to his widow.

There is nothing in the Will to show that the Testator had or disposed of any real estate excepting the two farms which he devised as above referred to.

The fact of these gifts of his farms sufficiently explains the object of the parties interested in desiring to have the Will registered. It was to show the title of the devisees from the Testator to the lands specifically devised and described. There is nothing in the Will to indicate that any other land in the County of X. is affected by it. There is no object, therefore, in or necessity for a double registration unless expressly required by the person registering the Will. In accordance with several previous decisions which I have had from time to time to make in similar cases, I hold, therefore, that registration of this Will in the General Registrar, was unnecessary.

I decide the present dispute in favour of the Solicitor.

IN A CERTIFICATE OF DISCHARGE OF MORTGAGE BY ASSIGNEE OF EXECUTORS OF DECEASED MORTGAGEE IT IS NECESSARY TO SHOW IN THE DISCHARGE THAT THE WILL OF THE MORTGAGEE HAS BEEN REGISTERED, ETC.

A question has been submitted to me for my opinion by Mr. H., Solicitor, in connection with a difference which has arisen between him and the Registrar of the County of X. The facts are not in dispute. They are that one S. was Mortgagee under a registered Mortgage made by one C., the Mortgage being dated 3rd October, 1901. On January 30th, 1906, the Executors of S., the Mortgagee, assigned the Mortgage to M. S.; but the will of S., the Mortgagee, has not been registered in the Registry Office, so that there is nothing on record there showing the right of the Executors of S. to make this Assignment of Mortgage. M. S. afterwards died and her Executors now grant a Statutory Discharge of the Mortgage which has been offered for registration. The probate of the Will of M. S. has been registered in the Registry Office, the particulars of which are recited in the Discharge.

The Registrar contends in effect that the will of S. is one of the instruments through which the Executors of M. S. claim interest on the Mortgage moneys, and that it should be registered and the discharge of Mortgage should recite the fact of registration. The Solicitor points out that he claims under the Assignment by the Executors of S., and that the Assignment is registered. He says S.'s Estate has got the money and so far as he knows is wound up. He says it is a hardship upon the Executors of Mrs. S. to be compelled to register the Probate of the Will of S., the original Mortgagee.

In this case I concur in the view of the Registrar.

Under Section 78, sub-section 1 of The Registry Act, I think the Will of the original Mortgagee is one of the instruments or documents through which the Executors of M. S. claim interest in or title to the Mortgage moneys, and should be registered otherwise there would be nothing on record to prove title from the original Mortgagee. It is true that by recital certain persons represent that they are the Mortgagee's executors, but a mere recital is not sufficient under Section 78.

I may point out, as I have done in other cases arising under Section 78, that that Section does not apply to the old Common Law Release of Mortgage and reconveyance under seal. It applies to a Certificate of Discharge of Mortgage. That Certificate is the creature of the Statute and must follow the Statute in order to have the operation and effect contemplated by the Act. The Act in no way interferes with the right of a person claiming Mortgage moneys to discharge a Mortgage by the old-fashioned mode. In such a Deed the right or title to grant the Discharge may, if the party chooses, be fully recited, but that title need not be a registered one.

AN INSTRUMENT MAY BE REGISTERED, ALTHOUGH EXECUTION THEREOF BY SOME OF THE PARTIES NOT PROVED. REGISTRAR CANNOT RETURN AN INSTRUMENT SO REGISTERED, NOR CAN HE CANCEL ENTRIES IN HIS BOOKS REGARDING IT.

A question has come before me for my opinion under the following circumstances:—Mr. P., Solicitor, C., in April last sent to the Registrar of X. a Deed for registration purporting to be made by C. and J. C., his wife, to A. C. The consideration was natural love and affection. The deed purported to be a grant of a Lot in C. by C. It was an ordinary statutory Deed, which contained a clause by which the wife purported to bar her dower.

The Deed appears to be executed under seal by the Grantor and his wife, and it is witnessed by one J. H. C. Accompanying the Deed and endorsed thereon is an affidavit by this witness sworn to in the usual way before Mr. P., the Solicitor, on the 24th April. By the affidavit the witness swears to the execution of the Deed by C, one of the parties thereto. Nothing is said in the affidavit as to the execution of the Deed by the wife, nor is there any other affidavit of execution of the Deed by her. The Deed was registered 27th April, 1909, as No. 4532, and duly certified, and was returned by the Registrar in due course to Mr. P. When the Registrar recorded the Deed he made a note in the Abstract Index to the effect that J. C. had apparently signed the Deed, but there was no affidavit as to her signature.

In the beginning of October following, Mr. P. wrote to the Registrar questioning the validity of the registration and requesting the Registrar to strike the Deed off the Abstract Index and return the Deed and registered duplicate to him. His view is that the instrument "had no right to be registered without an affidavit in accordance with section 40 of The Registry Act," and in support of his view he relies on section 42 of the Act.

He further says that in this case the same witness witnessed the execution of the Deed, by both parties, but owing to an oversight the name of the Grantor only was inserted in the affidavit of execution; and he says if the Deed were returned that error could be corrected and the affidavit could be resworn and the instrument re-registered, but he does not assert that that is the object for which he desires to have the Deed returned, nor that it is the intention to so re-register the Deed. He says it is his fault that the affidavit was not made correctly, and he thinks it should have been returned without registration for reasons above set forth.

He construes section 42 of The Registry Act to mean that the Registrar had no right to accept the instrument for registration without an affidavit as to execution thereof by each person.

I do not think the instrument could or should be returned as Mr. P. requests, and the registration cancelled. The instrument was registered at his instance. The duplicate was returned to him nearly six months before any question was raised by him. For one thing other interests may have intervened. I am by no means prepared to hold that there is anything wrong with the registration. On the contrary I think it is good in so far as the execution of the Deed by the Grantor is concerned. There is no proof, in fact, that there was a separate and distinct execution of this Deed by the wife. True, the signature purports to be hers, but there is nothing to prove that it is her signature, nor anything regarding it.

Supposing the Deed had been executed by the Grantee? But through some omission the Grantee's signature was not proved. I cannot believe that the whole registration would be void if the execution of the Instrument by the Grantor or Grantors was duly proved.

I have had numerous cases of instruments purporting to be executed by many Grantors, but where the execution by one has either been not proved or has been defectively proved. This is not uncommon where an instrument has been sent for execution to the United States or other distant parts. In such cases I have held that in so far as the execution of the instrument by these Grantors, in respect of whose signatures proper affidavits are furnished, the Deed might be registered in regard to execution thereof by them.

I may point out that Mr. P. need have no difficulty whatever if he doubts the validity of the present registration, in having a new affidavit attached to the duplicate Deed to show that the Grantor and wife both executed the Deed and send that duplicate for re-registration. He could either get a certified copy of it from the Registry Office, or he could make a copy himself which he could retain, and probably this would answer his purpose. It would procure for him a re-registration of this Deed which would satisfy his view of the Statute, and would, of course, supply proof that the Deed had been executed by Mrs. C. in order to bar her dower.

FEES OF REGISTRAR WHERE HE NOT ONLY MAKES SEARCHES, BUT FURNISHES WRITTEN PARTICULARS THEREOF, ALTHOUGH NOT SIGNED BY HIM.

A matter in difference between Mr. K., Solicitor, C., and the Registrar of the County of X., comes before me for my ruling.

The Registrar charged $9.25 to the Solicitor for certain services which he performed, and the Solicitor thinks that is too much. The Solicitor states that clients of his had a number of documents, principally Oil Leases, registered, of which they had no copies. The number of documents appears to have been thirty-seven. The Solicitor states that copies had recently been made of these Leases, I assume by him or his clients, and that he attended the Registrar to get particulars of the date, time of registration, number, etc., and that the Registrar stamped on the back of each copy the date of registration, and time and number of each Instrument; but the Registrar did not sign the memorandum, and the Solicitor contends that it is not a Certificate because it is not signed. The Solicitor's view is that the work consists of nothing more or less than searches, and that as several of the Instruments referred to the same Lot the Registrar should not charge more than 25 cents for the searches on each Lot, as there were not more than four references in respect of each Lot.

The Registrar's statement as to the facts is as follows: "About 11 a.m. on Saturday, 10th of July, Mr. R., a Student in Mr. K.'s office, came to me with a package of papers in his hand, which he said were duplicates of registered Leases and enquired what I would charge to endorse upon them a Certificate of Registration. I said twenty-five cents. After some conversation with Mr. K. over the phone he handed me the package of papers and requested me to let him have them the same day. In order to get the particulars required I searched the Abstract Index and also referred to the copy on the Register to get the time of registration, then as the documents were copies I endorsed them in the usual way, omitting my signature and for this service I charged only 25 cents, when I might by authority of your decisions have charged 50 cents. But Mr. K. contends that I am entitled only to the fee for a search, as he claims if he had searched the various parcels of land I would have charged him a fee of 25c. for each parcel. He is quite correct in stating that I would have charged him for searches only, but in that case he would not have my stamp showing the particulars of registration."

The Registrar furnishes a copy of the stamp he put upon the duplicate Leases as follows:—

"I certify that the within Instrument is duly entered and registered in the Registry Office for the County of X., in Book 44 for the City of C., at 10.05 o'clock a.m. of the 24th day of August, A.D. 1909. Number 25264."

On calling the attention of the Solicitor to the Registrar's statement as above the Solicitor says that he does not see that there is any use of submitting a statement of his Clerk's views as to what took place between him and the Registrar. He states, however, that the Registrar puts an entirely different construction upon the conversation to what his Clerk gave him.

If the Solicitor's contention is right, I understand from him that it will make a difference of $2.00 or $3.00 in the amount of the charges; that is, the $9.25 will have to be reduced by from $2.00 to $3.00.

As to what occurred when the work was ordered, I think, on the whole, in view of the circumstances and the fact that there is no statement by Mr. K.'s clerk, I must deal with the matter, treating as correct the Registrar's statement as to what occurred.

According to that, what the Registrar was required to do was to make endorsements of particulars of registration upon the different documents, and the documents were left with him for that purpose. The Registrar says that he afterwards made the necessary searches to obtain the particulars, referring to the Abstract Indexes and to the copies of the several documents in the Register, and he then made the endorsements upon the duplicates or copies of the Leases.

The Registrar thus did more than he would have been required to do, had he simply been requested to make searches. He has not only made searches and referred to each instrument, but he has given particulars in writing regarding each Instrument in the form and to the effect of a Certificate although not signed. He has furnished particulars in writing of the registration of each Instrument, giving the Book, the hour and minute and date of registration and the number of each Instrument.

I think on the whole the Registrar's charge of 25 cents for the work he did in respect of and on each Instrument is reasonable and I allow it.

FEES FOR ABSTRACTS WHERE ENTRIES ARE PARTLY IDENTICAL, COURSE TO BE PURSUED.

A dispute as to fees has arisen between the Registrar of X. and Mr. M., Solicitor for a Railway Company.

Mr. M., through his Agent, required an Abstract as follows:—

"Require Abstract covering W.—S. property, being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, according to the Plan of subdivision of Park Lot "L," made by W., P. L. S., for S., and registered the 26th day of November, 1879, together with the right to V. Street according to said plan."

The Registrar made five Abstracts for which he charged $12.55. To this charge Mr. M. objects.

Mr. M. states his views as follows:—

"I can understand separate abstracts being given if they are already separately abstracted in the Registrar's Books, but if there is only one abstract in the books I must protest against our being charged for separate abstracts, as I would think we should only pay the regular charges for one abstract taken from the books.

"I do not wish to be unreasonable or to attempt in any way to beat down the Registrar from the regular fees to be charged, but cannot understand why there should be any subdivision of an abstract, and, as I said, our Company will not be willing to pay more than the regular fees for one abstract if that is the way it is shown in the Registrar's Books."

The Registrar's position is thus stated:—

"When we started to prepare the Abstract we discovered that it would be necessary to prepare separate Abstracts of Lots *1, 2, & 3,* Lot *4,* Lot *5,* Lot *6,* and Lots *7, 8, 9 and 10,* making five Abstracts in all, as the entries affecting *Lots 1, 2 and 3 were alike,* and those affecting *Lots 7, 8, 9 and 10 were alike,* while those affecting Lots *4 and 5 and 6* were different from any of the others. These Lots are not separately abstracted, but they are according to a registered Plan of Park Lot 'L,' made by W., Esq., P. L. S., registered 26th November, 1879. This Park Lot 'L' is subdivided into Lots 1 to 11."

I find from a statement supplied me by the Deputy Registrar that in the five Abstracts the first 14 entries are all identical; that is, from the Patent down to No. 1166. Then there are other entries which are identical, for instance, 1825-1853 and 3584. The foregoing should all have been put in the first Abstract, say that for Lots 1, 2, and 3, and left out of any other Abstract.

Then Numbers 1355, 1818 and 1839 are the same in the first Abstract, and in three of the other Abstracts; and 1554-1555 and 1829 in the first Abstract are identical with the entries in two other Abstracts.

I am of opinion as follows:—

The charges for Abstracts, including searches, should be regulated according to section 118, subsection 5 of Registery Act, as amended by the Act of 1899, chapter 16, section 18. This will reduce the charges for the other Abstracts after the first both with respect to searches and writing.

Let the Registrar make up a memo. of his charges for Abstracts, according to my views as above expressed and submit it to Mr. M. Probably Mr. M. and the Registrar can then settle the amount. If not I will do so.

NOTES OF OPINIONS BY DONALD GUTHRIE, K. C., INSPECTOR OF REGISTRY OFFICES.

Registration of a Will Which Does Not Mention Lands by Local Description Against Certain Lands Locally Described in a Statutory Declaration.

To a Registrar:

The case you state for my opinion is as follows:—

"I am asked to register a Probate Will which does not mention any lands by local description upon a Declaration of the *present owner* of an interest in certain lands said to be affected by the Will against said lands. The executors and original beneficiaries mentioned in the Will refuse to make any declaration or to have anything to do with the matter, having disposed of their interest under the Will.

"Can I legally register the Probate and Will against lands described in the Declaration of the present owner (of an interest in the lands)?"

I have to say as follows:—

1. The Statutory Declaration under Registry Act, section 29, subsection 3, clause C, has to be a Declaration to be made by one of the persons in subsection 3 mentioned. You do not say who the "present owner" of the lands is and how he becomes the present owner, but I assume that he is not one of the heirs, nor is he the executor of the testator; but that he is a purchaser or Grantee of the lands under the heirs or the executor, probably the latter, and that he appears by your books to be such owner.

2. I think the Probate of the Will may be registered in the General Register, if the present owner so desires, and he may then make a Statutory Declaration, form R, under clause C of subsection 5, of section 29 of Registry Act, and have Probate of Will entered against lands described in Statutory Declaration.

3. If the present owner has not or cannot get the original Probate of the Will he cannot, of course, register the Will at all unless he procures an Exemplification of Probate from the Surrogate Court. See Section 70 of the Registry Act.

MODE OF ENTERING A CROWN GRANT OF A WATER LOT DESCRIBED AS SITUATED IN FRONT OF A NUMBER OF OTHER LOTS.

To a Registrar:

Touching the subject matter of the mode of entering the Grant from the Crown of the Water Lot in front of Lot No. 6 and 12 other Lots according to the Plan of resubdivision of Block "A" part of Township Lot No. 24 B. I understand one of your predecessors in office entered this Grant against Lot 6 and the other 12 Lots. I have to say as follows:—

1. As the Crown Grant is of one Water Lot and merely refers to the subdivision Lots to aid the description, I do not think, strictly speaking, that it should have been entered upon the several subdivision Lots, in front of which the water Lot is said to be situated.

2. Open a new folio for the water Lot as granted by the Crown. You will enter any instruments affecting the Water Lot under the new heading.

3. The Crown Grant having been entered as stated in paragraph 1, I think the better course now will be in the case of each of the subdivision Lots to note as follows:—

"For all entries affecting the Water Lot see folio ." Filling the blank by giving the page of the Abstract Index in which you enter the Crown Grant and subsequent Instruments affecting the Water Lot.

DESCRIPTION OF PART OF A LOT WHICH STATES THAT THE PART CONVEYED IS MORE PARTICULARLY DESCRIBED IN A CERTAIN REGISTERED INSTRUMENT, GIVING THE NUMBER OF THE LATTER, MAY BE SUFFICIENT FOR REGISTRATION PURPOSES.

To a Registrar:

I am in receipt of your letter.

I prefer that you submit to me a concrete case for my opinion. It may be necessary for me to hear what the person tendering such an instrument, as you in general terms refer to, has to say before I give an opinion.

I may, however, say generally that where a description is of part of a lot described by number and the description gives a further reference to the number of a registered Instrument as containing a better or fuller description of the particular property or part of Lot intended to be affected by the Conveyance, etc., I should be disposed to hold such a description sufficient for registration purposes.

A Lease for a Term of Five Years May be Registered.

To a Registrar:

Regarding the question which you submitted for my opinion, which is whether a lease for a term of five years can be registered, I am of opinion that such a Lease can be registered; of course, upon a proper Affidavit of Execution.

I expressed a similar opinion previously. It is reported in my Report for 1902, page 15.

I am not surprised that you were not aware of my previous opinion as I think the report for 1902 was not distributed to all the Registrars.

In the opinion referred to I stated that clause 39 of The Registry Act might be better expressed, but what I thought it really meant was that when a Lease is for a term not exceeding seven years, but where the actual possession goes along with the Lease it shall not be *necessary* to register the Lease in order to constitute Notice under the Registry Act.

REGISTRATION OF A RECEIPT FOR A LEGACY CHARGED ON LANDS—JUDGE'S ORDER UNDER SECTION 50 REGISTRY ACT, SHOULD BE ENDORSED ON ORIGINAL INSTRUMENT, DIRECTIONS TO REGISTRAR.

To a Registrar:

I return the copies Receipt. signed by A., the affidavit and the Judge's Order. I have to observe as follows:—

1. I recommend that the Judge be got to amend his Order in accordance with the form Schedule "I," to state the evidence given before him. I presume the evidence was the affidavit of A.; and I respectfully suggest that the amendment might be made by simply stating "and upon reading the within and hereunto annexed affidavit, being the evidence given before me."

2. The Judge's Order, under section 50 of The Registry Act will, of course, dispense with an affidavit, of execution. The receipt is not a document which requires a subscribing witness; that is a subscribing witness is not necessary to its validity, as it is, for instance, in the case of a Will.

3. I think a Statutory Declaration under subsection 3 of section 29 of The Registry Act, by W., who is not only a devisee of the land affected, but is one of the heirs of I. whose lands were affected, may be accepted as sufficient to enable you to register this instrument.

4. As a new Order has to be got from the Judge, I think it should be *endorsed on the original instrument.* See section 50 of The Registry Act, and, of course, the original instrument together with the Judge's Order and the affidavit and the Statutory Declaration would better be all registered together.

5. In entering this instrument in your Books you should call it a Receipt. It does not appear to be an instrument under seal; and in the column for remarks you can write the words "See Instrument."

Deed from one Incorporated Co. to Another—Wrong Corporate Seal Attached—Duplicate May be Properly Sealed and Registered—Suggestions.

To a Barrister:

May I suggest the following:—

The duplicate in your possession of the Deed, which was through mistake executed under the wrong Corporate Seal, might be sealed by the Officer of the grantor Company, who is in charge of that Corporate Seal, and it may then be registered as a fresh registration. You can then get a certified copy from the Registry Office to keep with your Title Deeds.

It is difficult to see how I can give any direction to interfere with a Deed registered so long ago as 1883, that is by permitting the duplicate then deposited and left in the Registry Office to be sealed now.

Use of Typewriting Machine in Registry Offices.

To a Registrar:

In answer to your letter of 29th inst. I have to say that I am of opinion that I have no power to compel the County to furnish a Typewriting Machine for use in the Registry Office.

I have indicated in one of my reports that I thought the law should be amended to include a Typewriting Machine as part of the furniture of an office to be supplied by the County, but such a change has not yet been made in the law.

Another view which has been taken of the matter, I think, in one or two other Registry Offices, is that the use of such a Machine may be charged as part of the disbursements incident to the business of the Office, as being of assistance in clerical work, and a charge for such use has been included, by some Registrars, in deductions from the surplus fees under the provisions of section 128 of The Registry Act.

No objection to this practice has hitherto come before me. Meantime I express no opinion either way on the subject.

WHERE THERE ARE SEPARATE WITNESSES TO EXECUTION OF AN INSTRUMENT BY DIFFERENT PARTIES THERETO THESE WITNESSES, IF QUALIFIED TO ADMINISTER OATHS, MAY MAKE THEIR RESPECTIVE AFFIDAVITS BEFORE EACH OTHER.

To a Registrar:

The case you state for my opinion is as follows:

"A few days ago I registered a Deed which was executed by ten different parties. There were two witnesses, both barristers, also partners in law. One barrister was the witness to most of the parties and his partner was the witness for the rest. There were two affidavits of execution attached, one by each barrister, but the affidavits were sworn before one another, that is the witnesses took one another's affidavits. Although I cannot find anything in the Registry Act bearing on this point, yet it does not seem to me to be right. I shall be obliged if you will advise me in the matter."

I am of opinion that there is nothing in the Registry Act which prevents A, one witness, making his affidavit of execution before B, another witness to an instrument, assuming that B is qualified to administer the oath, nor to prevent B then making his affidavit of execution before A, on the same presumption.

Suggestions as to Mode of Correcting Error in Registered Copy of an Original Will.

To a Registrar:

The case you state for my opinion is as follows:—

"J. B. died and his will was registered in 1905. One of the bequests in the Will, which was a charge on the Lot, was as follows: 'To my daughter J. H., wife of J. M. H., I give a certain sum——'

"The solicitor in preparing the Will for registration made an error in copying, and instead of J. H. he wrote it J. M., wife of J. H. M.,—Afterwards J. H. quit-claimed her interests in the Lot to the proper person. The Lot is about to be transferred, but the buyer objects to the title on that account. The original Will is held by the owner of the Lot. The Solicitor who made the copy is now dead. What is the proper course to pursue in that case. Would a Declaration stating the facts of the case by J. H. and registered on the Lot be the proper course? There is no such person as J. M., daughter of J. B. or J. H. M."

I think the better way is for the Will to be re-registered by a correct copy duly authenticated.

If this cannot be done a Statutory Declaration stating the facts of the case may be deposited with you under The Custody of Title Deeds Act and then the Deed to be prepared to the purchaser can recite the fact of the error and also the fact that the Statutory Declaration has been deposited with you as above mentioned.

You cannot register such a Declaration as against the Lot.

DEED UNDER POWER OF SALE AFTER NOTICE ERRONEOUSLY REGISTERED WITHOUT REGISTRATION OF NOTICE—COURSE TO BE PURSUED WHERE A JUDGE'S CERTIFICATE OBTAINED AFTERWARDS ON DUPLICATE DEED.

To a Registrar:

I return Deed under Power of Sale received with your letter of 14th inst.

The facts appear to be that this Deed, which is dated 12th May, 1909, was registered by you on 18th June. It purported to be a Deed under Power of Sale in a Mortgage after Notice, and it should not have been registered until the Notice was registered in your Registry Division. See 62 Vic. cap. 16, section 6.

I understand from you that S. subsequently sold the land and the purchaser under him refused to accept the title because the Notice of Exercising Power of Sale had not been registered.

In order to cure this defect a Judge's Certificate was obtained and endorsed upon the duplicate Deed which you had given out, pursuant to 63 Vic. cap. 19, section 7. The Judge's Certificate is dated 6th July, 1909.

You are now asked to exchange this duplicate on which is endorsed the Judge's Certificate for the one deposited in the Registry Office and to endorse on that duplicate, that is the present registered duplicate, a copy of the Judge's Certificate and certify that it is a true copy.

I do not think I can sanction this course. For one thing, Section 95 stands in the way; but even if it did not, the Judge's Certificate is *dated* 18 *days* after the registration of the Deed. There is, however no objection to the registration of the duplicate having endorsed thereon the Judge's Certificate, treating it as a new registration. Then the parties concerned can, if they choose, get from you a certified copy of this duplicate having the Judge's Certificate endorsed on it. Probably they can use such a certified copy in lieu of the original.

Hereafter you should take care not to register a Deed under Power of Sale purporting to be made after Notice of Sale, unless the Notice is registered or there is a Judge's Certificate.

INCOMPLETE AND INSUFFICIENT DESCRIPTIONS OF LANDS IN A WILL—DIRECTIONS.

To a Registrar:

The case you state for my opinion is as follows:—

"I have also received a Probate of a Will in which the property is described as follows: Lot 4 West side of A. Street 1-4 of an acre and Lot 4, 5, 7 and 8 N. B. St., and Lots 19 and 20 N. S. St. 2 acres and 2-5. Situated in Town of L, etc. The Testatrix appears to have owned Lot 4 west side of A. Street in H's Survey, Lots 19 and 20 North side of S. Street, in S's Survey and there does not appear, so far as I can discover, to be any other Lots of these numbers on the respective streets.

"The Testatrix also owned Lot 5 North side of B. Street in N's Survey, but did not own 4, 7 and 8 in said Survey, and there does appear Lots Nos. 5 and 7 in another Survey on the North side of the said street. From other documents registered it would appear as if the Lots mentioned were in N's Survey. The devisee in the Will being registered owner of Lots 7 and 8, but is not the owner of Lot 4, the question has arisen in my mind as to how far outside of the Will I should go to determine where to register the documents. I would have registered against Lots 4 H's Survey and 19 and 20 S's, but am not sure if I should register the Will against lots 4, 5, 7 and 8 N's Survey or register in General Register on account of the description being uncertain."

I am of opinion as follows:—

1. Regarding Lot 4 West side of A. Street if there is only one Lot 4 on the West side of A. Street and that is in H's Survey, you may register the Will against that Lot.

2. The same remark applies to Lots 19 and 20 on the North side of S. Street in S's Survey.

3. As to Lots 4, 5, 7 and 8, described in the Will as on N. B. Street, I think as there are two Surveys of Lots on the North side of N. B. Street, namely: N's and another, the better way will be to put this Will in the General Register as it affects lands in your Division without a proper local description. Should the devisees of the lands on the North side of N. B. Street afterwards wish to have the Will registered against the proper lands they can have that subsequently done by a Statutory Declaration giving a proper local description.

How an Instrument May be Registered which Refers Generally Without Local Description to Lands Presently Affected and Also Gives Rights and Powers Over After Acquired Lands.

To a Barrister:

I have your letter.

Permit me to call your attention to an amendment to The Registry Act, passed in the year 1900, which will enable you, if you register the Instrument by attaching a Statutory Declaration with reference to the lands at present to be dealt with, to further register it by entering it in the separate Registry Books, so as to affect other lands in the same Registry Division, by a Statutory Declaration in the form of Schedule "R." And I may point out that this last Declaration can be registered for the same fee as is payable for the registration of a Certificate of Discharge of Mortgage.

I may also call your attention to another point, namely, that if you once register the instrument in the separate Registry Books under a Statutory Declaration you need not, in so far as the alleged Power of Attorney is concerned, further register it in the same Registry Office, because by the Act to amend The Registry Act, 62 Victoria, Chapter 16, section 5, registration of a Power of Attorney prior to the registration of any instrument executed by Attorney is only required to be effected *once* in the same Registry Office. The registration, therefore, of a Power of Attorney in one of the separate registers will be for purposes of that Section quite as effectual as registration of a Power of Attorney in the General Register would be.

SEARCHES BY A NEWSPAPER EDITOR OF A RAILWAY PLAN, AND RIGHT TO COPIES THEREOF FOR PUBLICATION.

To a Registrar:—

I am in receipt of your letter of the 27th inst. I return the letter from the City Editor of The W., and also the cutting from the issue of the W. of October 16th.

I have to observe as follows:—

1. The City Editor wishes to know if a revised or final Plan of the Railway through X. has been filed in your office. I think you may answer according to the fact, namely, that a Plan of the Railway, which runs through the Township of H., and which is a Plan of a *proposed* line of Railway, is filed in your office. I understand from your letter that there is no other Plan of that Railway in your Office.

2. If you will look at my decision, reported in my Report of 1906, page 7, you will there find the whole subject of your duties and your rights in connection with copies of such Plans, etc., set forth.

3. I do not think you have anything to do with what the Editor intends to do with the copy Plan if he has one made.

4. The Editor will be entitled, through any Agent, to make searches in the Books of your Office with regard to the present titles to Lots through which the Plan shows the Railway is to be carried. He will, of course, have to pay the proper fee for searches.

AN OLD PLAN SUBDIVIDING LANDS INTO LOTS AND ACTED ON FOR MANY YEARS MAY BE TREATED AS DULY FILED AND REGISTERED, ALTHOUGH THERE MAY HAVE BEEN SOME IRREGULARITY IN CONNECTION WITH THE ORIGINAL REGISTRATION.

To a Deputy Registrar:

I have your letter of yesterday regarding the Plan of subdivision of part of Lot 9, First Concession of the Township of H.

I have to observe as follows:—

The Plan appears to have been certified by a Provincial Surveyor, 27th February, 1871, and entered in the Book for Plans in the Registry Office on the same day. You state that Deeds at various times have been registered according to this Plan, although the deeds do not give any date of filing plan. You say that one Deed, registered in 1881, states that Lots 3 and 4 described therein, were according to a Plan made by G. A. S., P. L. S., for the Synod of the Diocese of X., and being part of Lot 9 in the First Concession of the Township of H.

You further state that the Surveyor's Certificate shows that it was a Plan made by him for the Synod of the Diocese of X., and shows the date, the Lot of which it is a subdivision and the scale of the Plan.

I am of opinion under the circumstances that you may treat the plan as having been duly filed and registered in your office, and you will accept for registration instruments containing descriptions of Lots according to the Plan.

By the present law it is necessary that instruments affecting the land executed after a Plan is filed with the Registrar shall conform and refer thereto.

It does not apparently require that the date of the filing of the Plan should be given.

REGISTRATION OF ORDER OF LOCAL MASTER APPOINTING A COMMITTEE OF ESTATE OF A LUNATIC.

To a Registrar:

In answer to your letter I have to say that I think the Order of the Local Master, appointing a Committee of the estate of a lunatic, under 9 Edward VII., Chapter 37, may be considered a proceeding in lunacy, and, therefore, an instrument capable of registration.

I think the Order may be registered with a Declaration attached made by the Committee, giving a description of the lands affected by the Order.

COURSE TO BE TAKEN WHERE ONE OF NUMEROUS PROPRIETORS OF LANDS AFFECTED BY A SUBDIVISION PLAN REFUSES TO SIGN THE PLAN. SUGGESTIONS.

To a Barrister:

I have considered the subject of your letter of 11th instant.

I do not think I can, as the matter now stands, instruct the Registrar to accept the Plan without M.'s signature. It may be, however, that if the Plan was duly altered; that is to say, if the subdivisions of M.'s land as Lots 36 and 37 were obliterated, the Plan might be registered as a subdivision of all the lands other than M.'s.

If necessary see section 111, subsection 5, Registry Act. Perhaps if requested by a number of the parties concerned, and if you think that such an application is necessary in order to secure subdivision per the plan, I might retain some Solicitor to act for me in making an application under that subsection, provided, of course, I was indemnified against costs; but see the last clause of that subsection. Under the circumstances, if such an application were made, the Judge might think fit to order M. to pay the costs or part of the costs of it; but as to this, of course, I cannot say.

THE EXECUTRIX OF THE ADMINISTRATOR OF A MORTGAGEE CANNOT EXECUTE A VALID CERTIFICATE OF DISCHARGE OF MORTGAGE.

To a Registrar:—

As I understand it, the case stated by you for my opinion is as follows:—

A certificate of Discharge of Mortgage is presented to you for registration. It purports to be executed by the Executrix of the Will of the Administrator of the estate of the deceased Mortgagee. Letters of Administration with the Will annexed of the property of the deceased Mortgagee in Ontario were taken out. They apparently were granted to the Administrator with the consent of the then surviving Executor of the deceased Mortgagee.

The question is:—Can the Executrix of this Administrator grant a valid certificate of Discharge of the Mortgage held by the deceased Mortgagee?

In my opinion the Executrix of the Administrator cannot do so. I think it will be necessary to have another legal personal representative appointed to the estate of the deceased Mortgagee before a valid Discharge of Mortgage can be executed.

REGISTRATION OF ASSIGNMENT OF MORTGAGES COVERING LANDS, AND ALSO TELEPHONE PLANT, SITUATED ON PUBLIC HIGHWAYS.

To a Registrar:—

I am in receipt of your favor of yesterday regarding the Assignment of Mortgages from the S. B. and S. Society to the I. T. Company. The mortgages cover both lands and Telephones lines.

I am of opinion that it would be better not to register the Assignment in the General Register Book. It is well to follow the Act of 1899 as strictly as possible; and in this particular case there is not likely to be any real difficulty, because the Mortgage will be registered in the Book for L. upon the lands.

I do not at present know where you can make an entry in regard to the Plant, which is mentioned as situated on the public highways. As to this, however, please inform how the highways are described and the plant, that is, if you wish me to consider the matter further.

VERY OLD DEEDS IN ORIGINAL REGISTRY OFFICE. TRANSMISSION TO THE OFFICE OF THE NEW COUNTY IN WHICH THE LANDS ARE NOW SITUATED. PATENT OF 1798 OF LARGE TRACT OF LAND. ENTRY AS TO SAME.

To a Deputy Registrar:—

I return the letter from Mr. M., received from you, also the enclosed description. You may keep them both for reference.

With regard to his suggestion that I should have the Registrar of E. and W. York transmit to you the originals of 152-166 and 1765, I may say that I think if these originals apply to lands now wholly situate in your County, they may be properly transmitted by the Registrar of E. and W. York to your office.

If, therefore, the instruments referred to apply to lands now wholly in your County, you may apply to the Registrar of York for the originals, but it would be well to do so when you are personally in Toronto, so that they can be carried to your office by a responsible Officer.

I think you may also write to the proper Government Department requesting that an Official or certified copy of the record there be sent you, showing that a Patent was issued on the 15th February, 1798, for 94,305 acres, and giving the description as set out in the Books in the Department. This, I think, will be sufficent for you to make an entry regarding the Patent in your books; that is, in view of the peculiar circumstances of this case.

EXECUTION OF AN INSTRUMENT IS NOT SUFFICIENTLY PROVED FOR REGISTRATION BY A CERTIFICATE OF A NOTARY PUBLIC. DEFECTS IN CERTIFICATE.

To a Registrar:—

With regard to the execution of the Deed to which you refer, there appears on it the certificate of a Notary in place of an Affidavit of Execution. That is not sufficient according to our law to entitle the instrument to registration, and even the Certificate does not contain the statements required to be contained in an affidavit of execution under the Ontario Registry law.

It may be, however, that the parties offering the Deed for registration can procure a Certificate from the Judge under section 50 of The Registry Act, and in that way procure registration.

ARTICLES OF PARTNERSHIP WHICH DO NOT AFFECT LANDS DESCRIBED THEREIN CANNOT BE REGISTERED BY ATTACHING SAME TO A CERTIFICATE OF CO-PARTNERSHIP.

To a Registrar:—

In answer to your letter I have to say as follows:—

I understand a Conveyancer has asked you to register certain Articles of Partnership, to which there is attached a certificate of Co-Partnership, which I assume is in the form required by Section 2 of the Act respecting the registration of co-partnerships. This partnership Agreement does not appear to affect any lands and no lands are described in it. I know of no authority for registering such Articles of Partnership.

If the Certificate is in the form or to the effect of Schedule "A" to the Act, and it can be separated from the Articles of Partnership, you may register it, provided you get authority from the party who sent the documents to you to register it separately. In that case you can return to him the Articles of Partnership and retain the Declaration.

AFFIDAVIT OF EXECUTION OF INSTRUMENT NOT SUFFICIENT IF SWORN TO BEFORE A JUSTICE OF THE PEACE IN NEW SOUTH WALES.

To a Registrar:—

I return Release J. A. C. to R. W. C.

I think as the law now stands the affidavit sworn in New South Wales before a Justice of the Peace for New South Wales is not sufficient.

I may suggest, however, that you call the attention of the Solicitor, who offers this instrument for registration, to the provisions of section 50 of The Registry Act. Under that section, he could probably, if he so desired, obtain a Certificate from the County Judge, upon which to register the Release.

ORDNANCE LANDS. A LEASE FOR 99 YEARS MADE BY THE OFFICERS OF H. M. ORDNANCE MAY BE REGISTERED AS A CROWN GRANT.

To a Registrar:—

I am in receipt of your favor of 1st inst., respecting instruments affecting part of what is known as the Military Reserve in the Township of X.

The case you state is as follows:—

The instruments in question consist of a Lease of 40 acres of the Reserve originally granted, November 15th, 1831, for a term of 99 years, by the Officers of His Majesty's Ordnance, acting on behalf of His Majesty's Government, also an Assignment of that Lease by the Lessee, dated 11th May, 1847, and the Will of the son of the Assignee, etc.

You wish to know whether I would consider that owing to the Crown Lease being for such a long period. It would be in effect the same as a Grant, and be sufficient to permit of a heading being opened up in the Abstract Index, although no entry has hitherto been made in regard to the 40 acres in question.

I am of opinion as follows:—

The Lease for 99 years may, I think, be deemed to be a Grant by the Crown within the meaning of The Registry Act.

The Act does not refer to the nature of the estate conferred by the Crown Grant to enable registry of latter to be made. The Crown may grant an estate in fee simple, or an estate for life, or an estate for years, in any land; and I think the Grant of a 99 year Lease is an instrument which may be registered, and is within the scope and intent of the Act. I am of opinion, therefore, that you may register the 99 year Lease and the subsequent instruments, opening a page in the Abstract Index accordingly.

AN AFFIDAVIT OF EXECUTION SHOULD NOT STATE MERELY THAT THE INSTRUMENT WAS EXECUTED BY THE PARTY OF THE FIRST PART WITHOUT NAMING THE PARTY, ESPECIALLY WHERE THERE ARE SEVERAL PARTIES OF THE FIRST PART.

To a Registrar:—

Regarding the affidavits of Execution of the Releases in favor of The Railway Company, I am of opinion as follows:—

1. With regard to the Affidavit of McK., in which he says, "that he saw the attached instrument in duplicate signed, sealed and executed by the party of the First Part," I think you may accept that as sufficient, although it is not quite satisfactory. The form given in the Act indicates that the party should be named. I think, strictly, it should have stated by the party of the First Part *thereto.* Still, on the whole, you may accept it.

2. With regard to the other case where the same language is used, that the deponent saw the instrument executed by the party of the First Part, and there is more than one party of the First Part, I think the affidavit is not sufficient. Cases often occur where there are a great many parties of the First Part; and I do not think it would be sufficient or satisfactory to have an affidavit in the form tendered to you, where there is more than one party of the First Part.

A Mortgage made to three persons named as trading together under a Partnership named may be discharged by the two Surviving Partners, Mortgagees.

To a Registrar:—

The case stated by you for my opinion is as follows:—

A Mortgage was registered about the year 1902, made to "M., C., and E., all of the Village of S., in the County of L., and Province of Ontario, Merchants, trading under the name and style of M. & Sons, hereinafter called the Mortgagees of the Second Part."

One of the Mortgagees, M., is dead and the other two as surviving Mortgagees have executed a Certificate of Discharge of the Mortgage, and they claim that it is a valid Discharge, and that it is not necessary that the personal representative of M. should execute the Discharge. They refer to section 14, chapter 121, R. S. O.

I am of opinion that this Certificate of Discharge executed by two surviving Trustees may be registered.

I consider that the Mortgage having been made to the Mortgagees, who are described as trading under a particular name and style, may be discharged by the surviving Mortgagees. I say this on general principles; and, further, assuming that no contrary intention is expressed in the Mortgage, I think that under the provisions section 13, of chapter 121, R. S. O., the Certificate of Discharge executed by the two surviving Mortgagees is executed by the persons entitled to receive the Mortgage money.

I do not consider it necessary to determine whether section 14 of the Act referred to, also authorizes such an execution of the Certificate of Discharge or not.

In entering the Discharge you will note in your Abstract Index that it has been executed by the two surviving Mortgagees.

THE LEGAL PERSONAL REPRESENTATIVE OF DECEASED MORTGAGEE, NOT THE HEIRS AT LAW, SHOULD EXECUTE STATUTORY DISCHARGE OF MORTGAGE. But WHERE RELEASE APPEARS TO BE AN INSTRUMENT UNDER SEAL IT MAY BE REGISTERED AS SUCH. DIRECTIONS.

To a Registrar:—

I return the certificate of Discharge of Mortgage by the heirs of the last surviving mortgagee. I am of opinion that the Mortgage should be discharged by the legal personal representative of the last surviving Mortgagee, not by his or her heirs or children, even if these children should be the persons beneficially entitled to the proceeds.

The deceased mortgagee may have left a Will or he may have had creditors. I notice that the instrument does not even say that the survivor of the mortgagees died intestate.

If, however, the parties tendering the instrument for registration so desire, you may register it as an instrument under seal; because it appears to be sealed and the affidavit of execution states that it was sealed.

In my opinion in that case you would be entitled to charge a fee as for registering an instrument under seal; and you will refer to the instrument in your Index as an instrument purporting to be a Release of Mortgage, and in the column for "remarks" you will state that it appears to be an instrument under seal and state, "See the Instrument."

A Certificate of Discharge of Mortgage which is not sufficient as a Statutory Discharge may, if under seal, be registered. Directions.

To a Registrar:—

I return the Discharge of Mortgage, H. to M. I think it is not sufficient as a Statutory Discharge. It does not set forth that the Mortgage has not been assigned, nor does the person who executes it say that he is the person entitled by law to receive the Mortgage money.

As, however, it is an instrument under seal, and as the affidavit of execution shows that it was executed under seal, I think it may be registered as an instrument under seal, if the parties who are tendering it for registration so desire.

A Mortgagor is a party to an informal certificate of Discharge of Mortgage for the purpose of making a Statutory Declaration containing a local description of the lands affected, if such a Declaration be necessary. Remarks.

To a Registrar:—

In answer to your letter of 6th inst., I have to say that I consider a Statutory Declaration of the Mortgagor would be sufficient, that is containing a local description of the lands affected. It is true he did not execute the instrument, but he is sufficiently described to be deemed to be a party to it for the purpose of making the Statutory Declaration.

Then, again, in these cases of Discharges of Mortgages, which do not strictly comply with the requirements of the Statute with respect to Certificates of Discharge, but which being under seal may be registered, I am of opinion it is in keeping with the spirit of the Act to treat the instrument as containing *by reference* a sufficient description of the property. The instrument refers to a certain registered Mortgage, giving the date and hour of registration and the number of the instrument. This enables the Registrar to ascertain from the particular Mortgage in his own office what land is affected.

This view is not only consistent with the intention of the Act, but it is of public convenience and tends to the dispatch of business.

WHERE AN ORIGINAL WILL IS OFFERED FOR REGISTRATION AND WHERE IT IS SHEWN TESTATOR DIED BEFORE THE FIRST SUCCESSION DUTY ACT, IT IS NOT NECESSARY THAT THERE SHOULD BE AN AFFIDAVIT PROVING THE FILING OF AN ACCOUNT, ETC.

To a Deputy Registrar:—

In answer to your letter I have to say that in my opinion where the testator died before the passing of the first Succession Duty Act, an affidavit under the amendment of 1905 is not necessary. I think, however, that the date of the testator's death should be definitely stated; merely to say in the affidavit that "he died before the Succession Duty Act" is hardly sufficient. We have had several Succession Duty Acts.

APPENDIX

FEES AND EMOLUMENTS received by the Registrars of Deeds for the Province of Ontario for which are contrasted the amount of Fees, Surplus to Municipalities

SCHEDULE A.

No. of Registration Division.	Name of Registration Division.	Name of Registrar.	No. of Municipalities.	Total No. of instruments registered in 1908.	Instruments registered in 1909. Total number.	Fees therefor.	No. of Instruments uncopied.	No. of Instruments copied but uncompared.
			1	1a	2	3	4	5
						$ c.		
1	Algoma	C. F. Farewell	12	1,874	2,332	2,796 92	.....	.....
2	Brant	Alex. Graham	7	2,693	3,042	3,570 95	97	.....
3	Bruce	Walter M. Dack	28	3,557	3,943	4,604 90	.....	.....
4	Carleton	Patrick J. Coffey	11	2,870	2,673	3,335 60	133	.....
5	Dufferin	D. J. Hunter	9	1,419	1,304	1,592 25	.....	.....
6	Dundas	R. J. Dillen	8	1,502	1,128	1,281 45	60	.....
7	Durham, East	Henry Elliott	5	741	711	942 45	27	.....
8	Durham, West	S. Pollard	5	590	560	702 50	41	.....
9	Elgin	James H. Coyne	15	3,887	3,955	4,569 85	.....	.....
10	Essex	J. Wallace Askin	23	4,455	4,866	5,474 25	7	.....
11	Frontenac	James D. Thompson	19	1,458	1,392	1,674 45	.....	.....
12	Glengarry	John Simpson	8	1,076	1,123	1,316 60	.....	.....
13	Grenville	John Hollingsworth	9	928	950	1,393 20	.....	.....
14	Grey, North R.	R. McKnight	13	2,828	2,856	3,239 30	.....	.....
15	Grey, South R.	Thos. Lauder	11	1,787	1,949	2,243 30	.....	.....
16	Haldimand	Jacob Baxter	14	1,626	1,472	1,930 41	.....	.....
17	Haliburton	E. C. Young	23	278	306	426 38	1	.....
18	Halton	David Robertson	9	1,491	1,468	1,910 90	.....	.....
19	Hastings	Samuel Russell	31	3,133	3,070	3,667 95	12	.....
20	Huron	William Coats	25	3,540	3,736	4,183 90	22	.....
21	Kingston	J. P. Gildersleeve	1	915	1,104	1,317 25	36	3
22	Kent	P. D. McKellar	20	4,298	4,931	5,746 87	269	13
23	Kenora	R. E. Preston	1	306	263	290 40	.....	.....
24	Lambton	A. McLean	21	3,643	3,828	4,310 65	23	.....
25	Lanark, North R.	P. C. McGregor	10	1,134	659	783 85	.....	.....
26	Lanark, South R.	James Armour	9	1,756	1,796	1,529 80	.....	.....
27	Leeds	W. Howard Cole	16	1,977	2,079	2,428 35	.....	.....
28	Lennox and Addington	Jas. Reid	9	1,393	1,260	1,450 40	.....	.....
29	Lincoln	Carl E. Fisher	14	2,307	2,307	3,399 20	679	.....
30	London	R. H. Dignan	1	2,909	2,854	3,061 30	.....	.....
31	Manitoulin	W. R. Abrey	22	449	447	520 35	.....	.....
32	Middlesex, North and East R.	John Waters	13	2,756	2,837	3,398 13	50	.....
33	Middlesex, West R.	Stephen Blackburn	9	1,018	902	1,272 45	52	.....
34	Muskoka	J. Ewart Lount	27	1,192	1,304	1,583 25	48	.....
35	Nipissing	A. G. Browning	15	1,440	1,296	1,481 10	20	53
36	Norfolk	W. E. Tisdale	13	2,230	2,478	2,901 45	.....	.....
37	Northumberland, East	A. G. Willoughby	9	1,498	1,433	1,769 95	34	.....
38	Northumberland, West	F. W. Field	5	605	787	1,024 20	175	.....
39	Ontario	Geo. W. Dryden	17	1,955	2,164	2,574 40	7	77
40	Ottawa	J. P. Fisher	1	3,936	6,089	6,996 50	436	.....
41	Oxford	George R. Pattullo	16	3,174	3,042	3,533 87	21	.....
42	Parry Sound	Thos. Kennedy	54	1,030	1,024	1,262 15	.....	.....
43	Peel	Robert Johnston	8	1,301	1,461	2,122 75	39	243
44	Perth, North	James Steele	9	2,126	2,352	2,662 50	14	.....
45	Perth, South	Henry Fred. Sharp	7	1,893	1,036	1,214 35	65	39
46	Peterborough	Bernard Morrow	19	2,437	2,718	3,424 45	50	50
47	Prescott	F. W. Thistlethwaite	10	1,544	1,560	1,919 55	50	.....
48	Prince Edward	Walter Mackenzie	10	1,246	1,077	1,445 21	.....	.....
49	Renfrew	Robert A. Campbell	22	2,529	2,354	2,747 05	.....	.....
50	Russell	W. H. Lowrie	6	2,286	2,377	3,657 80	300	.....
51	Simcoe	Samuel Lount	27	5,253	5,761	6,907 59	.....	.....
52	Stormont	J. C. Alguire	6	1,387	1,521	1,727 80	.....	.....
53	Sudbury	Stephen Fournier	23	.....	197	253 65	5	.....
54	Thunder Bay	John Malcolm Munro	37	4,069	4,963	6,381 31	247	459
55	Toronto, East	Peter Ryan	1	9,106	12,493	14,707 50	103	131
56	Toronto, West	William Bennett Deputy Reg. for Herbert A. E. Kent. Robert H. Bowes	1 1	 13,096	7,587 8,652	8,638 05 9,867 15	.....	.....
57	Victoria	Charles Barr	19	1,737	1,688	2,112 00	.....	.....
58	Waterloo	John D. Moore	13	3,705	4,391	5,203 85	1,266	.....
59	Welland	Judson C. Crow	15	3,627	3,924	4,803 95	844	.....
60	Wellington, North	John Anderson	11	1,464	1,306	1,391 65	30	20
61	Wellington, South	N. Higinbotham	12	2,057	2,209	2,603 65	59	.....
62	Wentworth	Robert K. Hope	11	7,797	8,179	10,589 64	138	.....
63	York, East and West	William J. Hill	13	6,063	7,549	9,612 92	501	.....
64	York, North	David Lloyd	10	1,467	1,628	1,951 70	.....	.....
		Totals	879	159,844	174,703	208,439 45	5,961	1,088

the year 1909, made in accordance with the provisions of R.S.O., 1897, cap. 136, sec. 124, with and Registrar's incomes for the years 1908 and 1907.

SCHEDULE A.

Patents.		Deeds.		Mortgage.		Dis. of Mortgages.		Wills.		Leases.		
No. registered.	Fees therefor.	No. registered.	Fees for same.	No registered.	Fees for same.	No. registered.	Fees for same.	No. registered.	Fees for same.	No. registered.	Fees for same.	No. of Registration Division.
6	7	8	9	10	11	12	13	14	15	16	17	
	$ c.		$ c.		$ c.		$ c.		$ c.		$ c.	
22	30 95	1,025	1,511 94	529	593 78	432	226 75	38	58 55	4	9 40	1
....	.....	1,102	1,710 10	765	776 95	689	377 85	117	217 75	2	4 50	2
6	8 95	1,429	2,159 30	986	1,063 00	949	560 85	163	324 30	5	9 25	3
....	... ...	1,040	1,615 75	711	742 15	586	415 55	79	146 60	3	6 55	4
3	4 20	333	673 20	406	418 46	398	220 40	46	112 40	1	2 45	5
....	.....	404	612 05	282	298 35	268	138 80	47	79 45	5	7 75	6
....	.....	297	476 15	127	135 65	144	93 45	36	69 25	3	6 65	7
....	.....	215	342 80	107	109 65	124	78 15	38	76 30	5	12 45	8
2	3 40	1,426	2,226 50	1,026	1,052 05	955	532 80	102	221 85	26	48 70	9
4	6 65	1,735	2,566 10	1,200	1,313 70	1,195	637 20	94	178 35	27	54 95	10
7	9 95	515	768 85	344	371 85	297	220 00	41	69 25	27	46 00	11
....	.....	344	574 65	294	307 00	234	138 15	59	108 85	15	27 40	12
....	.....	341	554 75	230	254 65	236	143 80	53	100 20	7	13 15	13
....	.....	998	1,419 25	741	760 90	618	338 15	83	155 95	.....	.....	14
2	2 80	686	1,043 55	440	478 85	525	292 90	83	153 35	2	3 10	15
....	.....	553	894 40	377	387 05	357	204 45	56	103 95	38	110 61	16
2	2 95	167	252 70	56	77 43	40	21 50	9	19 10	1	1 40	17
....	.....	490	918 40	391	403 20	346	228 00	69	125 75	2	3 55	18
8	11 65	1,219	1,846 30	686	732 40	629	332 15	110	28 55	15	25 15	19
....	.....	1,252	1,852 45	924	955 45	947	550 40	206	340 80	2	3 55	20
9	13 95	435	678 65	267	267 75	260	197 60	28	50 25	2	5 65	21
....	.....	1,468	2,219 65	1,080	1,121 75	1,157	607 05	134	218 00	340	511 45	22
....	.....	89	127 50	47	49 25	52	26 00	.....	.....	2	2 80	23
1	1 70	1,314	2,020 95	902	944 90	1,021	533 50	112	203 35	56	79 95	24
....	.....	250	389 25	156	167 50	157	94 95	33	62 30	.....	.....	25
3	4 20	352	536 30	310	341 45	229	151 70	49	86 30	1	2 75	26
13	19 70	783	1,209 45	470	497 20	500	275 40	100	158 90	60	30 15	27
2	2 80	463	695 60	298	313 90	292	169 05	68	114 75	7	13 20	28
1	1 70	1,002	1,572 05	684	708 60	621	406 25	79	160 70	23	44 05	29
...	.....	970	1,435 45	782	785 08	755	402 00	68	123 00	7	18 00	30
3	4 35	158	230 15	120	132 60	102	58 50	12	25 35	3	6 05	31
....	.....	962	1,455 27	742	764 64	658	360 37	113	219 10	5	8 65	32
....	.....	447	676 70	245	253 60	81	156 35	53	90 85	7	14 35	33
11	15 70	583	879 00	253	277 55	215	128 35	32	63 00	10	18 85	34
3	4 20	514	750 35	273	298 30	193	102 15	16	21 60	2	3 40	35
....	... .	933	1,425 30	581	596 75	577	322 40	83	168 50	41	76 05	36
....	.....	514	820 05	339	373 20	340	200 90	65	119 05	10	15 05	37
1	1 55	275	448 25	153	157 80	141	83 75	44	81 75	4	6 50	38
...	.....	834	1,284 05	478	495 50	483	280 85	92	196 45	3	5 95	39
23	29 50	2,250	3,591 95	1,731	1,733 55	1,468	818 70	101	165 50	5	12 80	40
...	.....	1,010	1,541 80	752	774 04	684	409 85	143	242 55	8	17 85	41
10	14 60	448	692 80	220	231 20	189	97 10	14	22 85	2	3 10	42
2	2 80	444	864 60	367	385 05	349	203 85	78	159 20	4	5 40	43
....	.....	793	1,207 85	593	627 20	611	342 10	94	174 20	4	8 45	44
....	.....	337	524 75	240	258 95	258	140 00	51	87 65	2	5 55	45
1	1 40	993	1,552 30	600	620 30	572	358 20	95	232 30	6	15 15	46
....	.....	553	879 60	426	481 95	374	203 00	51	119 40	2	4 35	47
....	.....	374	590 90	264	279 75	249	133 85	67	108 85	4	5 95	48
5	7 15	879	1,363 05	620	654 80	573	315 90	66	119 00	5	9 70	49
...	.....	554	832 30	526	637 30	429	238 65	35	64 75	5	9 10	50
4	7 65	2,290	3,467 80	1,407	1,493 05	1,338	850 75	204	446 90	9	20 70	51
....	.....	492	761 10	404	463 60	407	227 10	40	73 60	8	21 15	52
....	... ...	90	137 90	41	47 90	26	17 85	3	4 20	1	1 40	53
2	2 00	2,439	3,689 96	996	1,056 60	604	355 65	16	28 60	5	16 00	54
...	....	3,853	6,797 15	3,690	3,723 90	2,558	1,427 85	4	7 25	193	562 40	55
....	.....	2,414	3,889 00	2,397	2,404 15	1,439	809 75	151	289 05	8	21 55	56
...	.....	2,775	4,487 10	2,959	2,972 70	1,529	846 40	145	275 95	5	14 30	
3	4 20	574	907 60	389	408 05	412	263 00	66	137 85	9	23 20	57
2	2 80	1,690	2,734 95	1,097	1,115 90	967	552 60	127	241 30	8	14 50	58
1	1 40	1,525	2,263 55	929	994 90	758	465 40	103	168 75	78	140 75	59
....	.....	414	527 15	357	388 55	321	195 50	60	106 50	2	6 00	60
1	1 40	706	1,114 90	552	5 58	501	314 00	110	189 35	1	2 65	61
....	.....	2,693	4,207 80	2,128	2,155 95	1,849	1,048 65	228	385 45	23	56 50	62
....	.....	2,974	4,906 84	2,132	2,226 29	1,251	771 33	183	318 80	4	11 20	63
....	.....	645	990 50	420	460 70	365	215 85	56	112 90	1	1 55	64
57	226 25	62,126	97,398 82	45,039	46,373 75	37,914	21,931 65	5,001	9,136 45	1,175	2,270 66	

Fees and Emoluments received by the Registrars

Schedule A.—*Continued.*

No. of Registration Division.	Name of Registrar.	Abstracts.		Searches.		Mechanic's Liens.		All other instruments.	
		Number.	Fees for same.	Number.	Fees for same.	Number.	Fees for same.	Number.	Fees for same.
		18	19	20	21	22	23	24	25
			$ c.		$ c.		$ c.		$ c.
1	C. F. Farewell	240	307 70	1,196	464 05	35	13 95	247	351 65
2	Alex. Graham	93	124 20	1,334	470 60	19	4 75	348	479 05
3	Walter M. Dack	1,053	901 50	1,197	298 20	4	1 00	401	475 25
4	Patrick J. Coffey	370	506 30	1,177	524 00	12	5 15	242	403 85
5	D. J. Hunter	233	294 10	386	164 85	.....	.....	117	161 15
6	R. J. Dillen	51	101 60	236	125 30	4	2 00	118	147 70
7	Henry Elliott	115	154 95	288	222 75	.....	.....	98	161 35
8	S. Pollard	122	213 65	308	128 27	.....	.....	71	83 10
9	James H. Coyne	116	192 10	2,059	556 95	13	3 75	405	480 80
10	J. Wallace Askin	101	126 90	2,553	1,029 10	20	6 30	591	711 00
11	James D. Thompson	105	106 50	1,832	385 00	11	3 85	159	184 70
12	John Simpson	52	99 70	484	126 62	1	0 25	176	220 50
13	John Hollingsworth	66	96 70	353	111 10	2	0 50	81	105 10
14	R. McKnight	603	522 25	1,281	365 55	3	1 25	416	563 80
15	Thos. Lauder	484	375 90	656	164 00	1	0 80	210	267 95
16	Jacob Baxter	218	234 50	431	267 91	.....	.....	91	269 95
17	E. C. Young	60	54 80	186	27 85	3	1 25	29	50 00
18	David Robertson	316	168 55	659	465 35	14	3 50	156	228 50
19	Samuel Russell	545	940 45	1,578	439 00	12	3 35	391	508 40
20	William Coats	858	709 75	1,315	355 20	3	0 75	402	480 50
21	J. P. Gildersleeve	53	88 00	707	289 25	1	0 25	102	103 15
22	P. D. McKellar	269	396 25	1,401	681 70	20	5 00	732	1,063 97
23	R. E. Preston	6	6 30	45	11 25	7	1 75	73	65 55
24	A. McLean	132	81 80	1,670	5 35	5	1 25	417	525 05
25	P. C. McGregor	127	89 75	360	115 80	.....	.....	63	69 85
26	James Armour	158	75 90	568	206 20	1	0 25	125	124 75
27	W. Howard Cole	125	154 65	1,341	343 95	2	0 50	195	237 05
28	Jas. Reid	38	60 30	755	202 90	.....	.....	130	141 10
29	Carl E. Fisher	762	1,222 45	1,260	589 65	14	4 95	357	502 60
30	R. H. Dignan	61	153 15	1,139	381 50	7	3 25	265	294 55
31	W. R. Abrey	42	39 35	396	105 15	.....	.....	49	63 35
32	John Waters	180	304 40	1,314	504 07	8	2 00	349	588 10
33	Stephen Blackburn	197	257 40	376	167 55	.....	.....	68	80 80
34	J. Ewart Lount	142	93 10	1,064	277 05	8	2 00	162	198 80
35	A. G. Browning	112	89 65	179	60 20	68	26 25	237	274 35
36	W. E. Tisdale	138	192 15	1,820	478 50	1	0 25	262	312 20
37	A. G. Willoughby	552	766 65	292	88 50	4	0 75	161	240 95
38	F. W. Field	368	646 65	359	137 30	2	0 60	167	244 00
39	Geo. W. Dryden	308	508 25	810	281 85	5	1 25	269	310 35
40	J. P. Fisher	1,025	952 50	4,166	1,041 50	78	22 75	433	621 75
41	George R. Patullo	506	667 20	1,618	443 35	8	270 00	437	545 08
42	Thos. Kennedy	146	180 25	928	244 20	2	0 85	139	199 65
43	Robert Johnston	157	176 80	258	139 65	8	2 50	209	182 90
44	James Steele	332	336 35	1,202	313 95	1	0 25	247	302 55
45	Henry Fred. Sharp	166	125 65	583	148 25	1	0 25	148	197 45
46	Bernard Morrow	561	801 40	1,546	517 80	.....	.....	451	644 40
47	F. W. Thistlethwaite	149	231 00	440	149 45	.....	.....	154	231 25
48	Walter McKenzie	33	50 55	411	115 63	.....	.....	119	141 58
49	Robert A. Campbell	144	100 30	201	64 05	3	1 50	203	275 95
50	W. H. Lowrie	506	621 35	307	210 50	.....	.....	15	43 85
51	Samuel Lount	697	1,071 10	2,645	922 40	14	5 50	495	609 24
52	J. C. Alguire	105	167 65	1,014	327 35	22	5 60	148	175 65
53	Stephen Fournier	58	47 05	164	43 25	1	0 50	35	73 95
54	John Malcolm Munro	816	1,061 75	2,739	1,355 95	99	44 30	802	1,187 40
55	Peter Ryan	462	1,259 15	8,386	3,029 05	247	67 60	1,948	2,121 85
56	William Bennett, Deputy Reg. for H. A. E. Kent.	134	330 50	6,498	2,713 35	120	32 00	1,058	1,192 65
56a	Robert H. Bowes, K.C.	148	327 45	6,883	2,710 90	173	44 60	1,066	1,226 10
57	Charles D. Barr	220	349 25	1,497	451 65	9	2 65	226	365 45
58	John D. Moore	204	240 25	790	313 35	39	10 10	461	531 70
59	Judson Crow	682	1,252 65	2,016	505 95	52	16 35	478	752 85
60	John Anderson	330	382 30	305	143 35	2	0 50	150	175 45
61	N. Higinbotham	93	103 75	1,425	479 80	5	1 25	333	422 00
62	Robert K. Hope	1,599	2,849 05	4,392	1,776 20	151	42 90	1,107	1,421 89
63	William J. Hill	177	585 50	4,881	2,358 20	101	28 85	904	1,349 61
64	David Lloyd	112	178 80	534	213 15	1	0 25	140	169 95
	Totals	19,133	25,112 17	89,496	12,361 80	1,447	436 45	20,829	26,906 92

of Deeds for the Province of Ontario, etc.—*Continued.*

Schedule A.—*Continued.*

Received for work done for municipalities.	From other sources not enumerated.	Fees earned and not received.	Gross amount of fees earned for year 1909.	Gross amount of fees earned for year 1908.	Gross amount for year 1907.	Deputy Registrar for services.	Other charges in connection with office.	No. of Registration Division.
26	27	28	29	30	30a	31	31a	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
220 60	....	.....	3,789 27	2,813 55	3,165 66	605 00	455 55	1
21 85	64 40	340 65	4,230 15	3,626 69	4,515 15	.....	1,190 15	2
.....	107 05	1,288 56	5,911 65	5,314 40	6,732 65	1,000 00	708 85	3
581 90	84 85	.....	4,450 75	4,474 60	4,301 85	800 00	456 52	4
.....	44 65	.....	2,095 85	2,339 95	2,301 55	800 00	121 00	5
.....	43 00	.....	1,556 05	1,521 20	1,487 23	300 00	.....	6
.....	.....	125 00	1,320 15	1,292 45	1,282 00	500 00	70 00	7
.....	17 40	199 17	1,061 82	966 42	919 20	420 00	19 00	8
986 65	89 95	12 55	5,403 80	5,352 67	5,551 80	843 15	756 84	9
.....	.....	.....	6,696 55	6,295 00	6,494 90	1,300 00	862 67	10
.....	.....	.....	2,165 95	2,227 05	2,129 25	700 00	129 00	11
.....	33 80	345 00	1,576 72	1,560 34	1,533 20	416 00	9 00	12
.....	13 25	36 10	1,393 20	1,340 75	1,548 45	720 00	126 10	13
48 30	49 60	718 80	4,216 70	4,072 00	4,427 55	600 00	510 00	14
.....	93 25	380 06	2,876 45	2,652 05	3,684 25	900 00	673 18	15
.....	34 50	131 52	2,467 32	2,721 91	2,525 50	950 00	445 50	16
.....	23 60	.....	552 63	469 85	917 30	10 00	.....	17
.....	49 95	179 15	2,594 75	2,330 20	2,366 30	365 00	177 75	18
.....	117 50	538 59	5,164 90	5,038 25	5,184 25	1,300 00	752 13	19
.....	.....	572 50	5,245 85	5,069 60	5,917 35	800 00	995 25	20
39 70	.....	.....	1,694 50	1,371 75	1,446 25	.....	287 74	21
.....	43 60	459 34	6,878 42	5,686 11	8,288 15	1,000 00	2,098 41	22
.....	.....	.....	290 40	354 60	.....	100 00	10 35	23
.....	22 80	70 00	4,950 25	4,876 30	4,652 70	1,498 00	946 08	24
.....	12 75	5 94	1,002 15	996 09	1,204 95	43 70	.....	25
.....	.....	.....	1,529 80	1,460 35	1,818 80	100 00	.....	26
.....	85 17	55 95	3,012 12	2,845 65	3,114 75	11 96	87 20	27
871 05	26 10	35 70	1,739 70	1,488 90	1,809 75	700 00	1,039 70	28
.....	100 50	543 89	5,313 50	4,413 95	4,894 10	754 00	456 40	29
50 88	13 85	.....	3,660 65	3,693 00	4,476 05	468 00	50 00	30
.....	16 90	20 00	691 75	708 05	3,056 40	300 00	20 50	31
.....	.....	.....	4,206 60	4,041 65	4,126 73	624 00	545 00	32
.....	.....	60 00	1,722 50	1,725 55	2,074 70	620 00	655 00	33
.....	81 60	.....	2,035 00	1,820 75	2,519 75	600 00	80 00	34
.....	.....	.....	1,630 95	1,935 35	2,147 67	600 00	325 00	35
.....	22 95	18 85	3,595 05	3,178 05	.....	312 20	657 00	36
.....	285 60	130 50	2,899 30	2,452 70	2,617 65	728 00	172 85	37
.....	27 00	368 23	1,835 15	1,525 40	1,256 80	480 00	86 00	38
.....	102 40	.....	3,466 90	3,108 15	3,962 55	1,118 00	370 04	39
.....	986 70	.....	9,977 20	6,290 20	6,757 05	2,504 63	1,080 05	30
.....	66 75	.....	4,711 37	4,870 56	5,098 85	786 10	660 84	41
.....	59 40	205 00	1,746 00	1,765 45	2,224 05	469 50	250 00	42
50 00	27 90	23 24	2,150 65	2,059 80	2,243 05	843 40	200 00	43
.....	73 85	218 40	3,386 75	3,037 30	.....	434 00	450 70	44
.....	.....	76 00	1,536 25	1,602 00	1,573 25	520 00	.....	45
.....	43 95	.....	5,380 50	4,262 40	4,023 10	850 00	909 00	66
.....	103 75	.....	2,403 75	2,228 70	2,593 85	625 00	102 00	47
.....	18 15	.....	1,445 21	1,555 55	2,326 23	600 00	.....	48
.....	10 15	163 65	2,921 55	3,100 15	3,498 90	780 00	921 00	49
15 12	165 80	63 90	2,823 60	2,633 50	2,571 15	600 00	409 00	50
.....	102 10	1,477 35	9,003 17	8,460 41	8,946 55	1,100 00	2,001 80	51
.....	46 75	91 70	2,269 55	2,031 60	1,966 15	372 00	79 55	52
.....	.....	97 80	374 00	.....	.....	140 00	.....	53
.....	203 20	.....	9,002 21	7,463 32	7,726 94	820 00	2,880 40	54
.....	.....	.....	19,120 45	13,526 50	16,356 90	2,412 80	4,708 00	55
.....	.....	.....	11,473 63	.....	21,657 50	1,624 90	3,145 80	56
.....	.....	.....	12,968 00	.....	2,952 10	1,701 15	3,437 80	a 56
.....	90 85	9 95	3,004 25	2,800 75	.....	600 00	772 10	57
.....	18 75	877 30	5,776 20	4,783 60	6,414 65	1,300 00	1,032 15	58
.....	135 10	659 13	6,697 65	6,323 39	6,711 40	1,000 00	1,187 86	59
.....	60 60	340 00	1,977 90	2,192 45	2,375 00	650 00	390 00	60
.....	15 80	.....	3,203 00	2,850 95	3,071 15	520 00	836 45	61
.....	24 00	1,149 96	13,954 39	12,360 90	16,928 86	1,800 00	2,050 72	62
2,993 05	74 35	.....	12,630 97	9,289 42	10,187 50	1,590 00	6,063 52	63
.....	.....	102 20	2,343 65	2,141 85	2,461 22	500 00	275 00	64
5,879 10	4,035 87	12,191 33	269,451 07	216,801 03	260,939 54	48,530 49	50,189 50	

Fees and Emoluments received by the Registrars

Schedule A.—*Continued.*

No. of Registration Division.	Name of Registrar.	Surplus of gross income to municipality under sec. 126, cap. 136, R.S.O., 1897.				Surplus of net income to municipality under ss. 126 and 137, cap. 136, R.S.O., 1897.			
		Amount for 1909.	When paid.	Amount for 1908.	Amount for 1907.	Amount for 1909.	When paid.	Amount for 1908.	Amount for 1907.
		32	32a	33	33a	34	35	36	36a
		$ c.		$ c.	$ c.	$ c.		$ c.	$ c.
1	C. F. Farewell								
2	Alex. Graham	369 00	Jan. 15, 1010	188 00	507 77	201 30	Jan. 15, 1910	331 00	206 40
3	Walter M. Dack	1,205 82	Jan. 7, 1910	904 20	161 32	299 10	Jan. 7, 1910	255 69	292 04
4	Patrick J. Coffey	435 22	Jan. 15, 1910	489 84	420 74	227 70	Jan. 15, 1910	203 32	186 17
5	D. J. Hunter								
6	R. J. Dillen								
7	Henry Elliott								
8	S. Pollard								
9	James H. Coyne	808 82	Jan. 15, 1910	922 89	1,027 31	372 12	Jan. 15, 1910	312 02	394 98
10	J. Wallace Askin	1,548 27	Jan. 14, 1910	1,397 50	1,497 45	295 68	Jan. 14, 1910	248 77	228 91
11	James D. Thompson								
12	John Simpson								
13	John Hollingsworth								
14	R. M. Knight	367 36	Jan. 17, 1910	328 80	471 02	141 61	Jan. 17, 1910	128 46	143 58
15	Thos. Lauder	37 65	Jan. 14, 1910	15 20	205 27				30 06
16	Jacob Baxter			22 19	2 50				
17	E. C. Young								
18	David Robertson	8 40	Jan. 14, 1910			53 28	Jan. 14, 1910	28 00	32 00
19	Samuel Russell	715 96	Jan. 14, 1910	769 13	842 13	129 36	Jan. 14, 1910	92 15	113 00
20	William Coates	872 93	Jan. 11, 1910	784 80	1,208 68	173 30	Jan. 11, 1910	162 84	340 29
21	J. P. Gildersleeve								
22	P. D. McKellar	1,401 36	Jan. 15, 1910	1,098 05	2,394 07	125 73		23 49	296 75
23	R. E. Preston								
24	A. McLean	630 10	Jan. 4, 1910	688 15	576 35	37 60	Jan. 4, 1910	46 03	25 20
25	P. C. McGregor								
26	James Armour								
27	W. Howard Cole	52 42	Jan. 11, 1910	34 50	72 95	17 65	Jan. 11, 1910	3 30	26 04
28	Jas. Reid								
29	Carl E. Fisher	906 75	Jan. 15, 1910	465 58	697 05	398 17	Jan. 15, 1910	239 36	310 23
30	R. H. Dignan	182 94	Jan. 14, 1910	193 56	465 10	272 66	Jan. 14, 1910	295 69	579 83
31	W. R. Abrey				61 28				175 95
32	John Walters	214 25	Jan. 13, 1910	182 90	182 90				
33	Stephen Blackburn								
34	J. Ewart Lount								
35	A. G. Browning								
36	W. E. Tisdale	178 51	Jan. 12, 1910	88 03	153 64	66 90	Jan. 12, 1910	109 43	19 90
37	A. G. Willoughby					36 79	Jan. 13, 1910	8 64	19 88
38	F. W. Field								
39	G. W. Dryden	143 38	Jan. 17, 1910	71 63	288 77	33 54	Jan. 17, 1910	7 03	52 19
40	J. P. Fisher	2,640 88	Jan. 14, 1910	1,395 10	1,537 52	675 82	Jan. 14, 1910	194 67	257 75
41	George R. Pattullo	605 68	Jan. 11, 1910	685 28	799 42	152 02	Jan. 11, 1910	17 88	63 19
42	Thos. Kennedy								
43	Robert Johnston								
44	James Steele	127 35	Jan. 15, 1910	25 02	156 57	124 93	Jan. 15, 1910	16 91	33 96
45	Henry Fred Sharp								
46	Bernard Morrow	940 25	Jan. 24, 1910	404 96	309 25	204 37	Jan. 24, 1910	106 68	125 96
47	F. W. Thistlethwaite		Jan. 10, 1910		9 38	17 67			18 18
48	Walter Mackenzie								
49	Robert A. Campbell	42 15	Jan. 13, 1910	70 16	149 78	45 84	Jan. 13, 1910	65 13	96 26
50	W. H. Lowrie	32 00		0 73		31 00		50 77	
51	Samuel Lount	2,751 59	Jan. 17, 1910	2,480 21	2,723 27	374 90	Jan. 17, 1910	280 73	324 05
52	J. C. Alguire					31 18	Jan. 14, 1910	1 80	
53	Stephen Fournier								
54	John Malcolm Munro								
55	Peter Ryan					7,199 70	Jan. 15, 1910	4,330 95	4,809 10
56	William Bennett (Dep. Reg. for H. A. E. Kent)	3,145 80				4,549 65			8,516 19
	Robert H. Bowes, K.C.					5,227 75	Jan. 15, 1910		
57	Charles D. Barr	50 85	Jan. 14, 1910	30 07	45 21	813 00	Jan. 14, 1910		3 47
58	John D. Moore	960 48	Dec. 31, 1909	641 80	1,457 33	146 71	Dec. 31, 1909	68 49	242 65
59	Judson C. Crow	1,599 00	Jan. 25, 1910	1,411 70	1,605 70	273 00	Jan. 25, 1910	189 52	269 37
60	John Anderson								
61	N. Higinbotham	90 60	Jan. 22, 1910	35 09	64 23	25 59	Jan. 22, 1910	3 88	27 92
62	Robert K. Hope		Jan. 15, 1910		6,714 43	2,465 03	Jan. 15, 1910		1,282 89
63	William J. Hill	3,702 40	Jan. 13, 1910	2,894 71	3,343 75	259 50	Jan. 13, 1910	160 05	409 68
64	David Lloyd					6 86	Jan. 14, 1910	5 68	
	Totals	26,768 17		18,719 78	31,607 14	25,507 02		7,990 36	20,014 02

of Deeds for the Province of Ontario, etc.—*Continued.*

Schedule A.—*Concluded.*			Schedule B.							
Net amount received by Registrar.			Number and aggregate amount of mortgages registered.							
Amount for 1909.	Amount for 1908.	Amount for 1907.	For nominal consideration or amount not specified.	For $1,000 or under.	Over $1,000 and not exceeding $2,000.	Over $2,000 and not exceeding $5,000.	Over $5,000.	Total number.	Aggregate amount.	No. of Registration Division.
37	37a	37b	Class I.	Class II.	Class III.	Class IV.	Class V			
$ c.	$ c.	$ c.							$ c.	
2,728 72	1,735 70	2,078 30	7	382	82	39	19	529	559,608 95	1
2,469 70	2,347 19	2,621 63	9	392	200	145	18	765	1,107,718 00	2
2,697 88	2,596 62	2,892 05	24	474	263	208	17	986	1,446,007 34	3
2,531 31	2,474 44	2,434 41	12	400	156	120	23	711	1,015,909 57	4
1,174 85	1,323 55	1,339 13	10	110	101	185	.....	406	620,186 75	5
1,256 05	1,421 20	1,187 23	.....	120	72	67	23	282	773,773 11	6
750 15	762 45	755 00	.....	63	24	33	7	127	151,470 36	7
622 82	522 20	482 42	2	50	33	20	2	107	157,101 75	8
2,772 12	2,712 02	2,794 98	7	562	260	163	34	1,026	1,522,008 57	9
2,689 93	2,580 48	2,534 14	6	626	375	177	16	1,200	1,546,062 76	10
1,336 95	1,457 85	1,264 60	.....	212	74	51	7	344	415,101 85	11
1,151 72	1,139 84	1,143 20	1	168	71	51	3	294	365,911 00	12
547 10	609 75	718 45	1	140	63	24	2	230	250,519 09	13
2,607 70	2,472 24	2,671 58	23	336	226	135	21	741	1,039,275 95	14
1,265 62	950 63	1,170 56	17	218	120	78	7	440	596,457 73	15
1,071 82	1,317 72	1,240 00	14	190	93	53	21	377	379,210 00	16
542 63	469 85	517 30	.....	47	6	3	.....	56	33,562 96	17
1,979 54	1,752 00	1,788 00	4	179	83	67	17	350	566,329 00	18
2,267 45	2,118 58	2,201 97	8	429	134	95	20	686	832,471 87	19
2,404 37	2,379 96	2,740 29	18	398	238	254	17	925	1,524,008 25	20
1,406 56	1,134 99	1,268 83	.....	144	78	35	10	267	391,961 00	21
2,252 92	1,711 45	2,692 43	19	559	222	195	45	1,080	1,596,549 08	22
180 05	243 35	293 05	.....	31	10	3	3	47	130,048 87	23
1,838 47	1,914 22	1,726 84	22	480	213	165	17	897	1,849,497 86	24
958 45	964 49	1,146 65	1	103	24	22	6	156	273,135 50	25
1,429 80	1,260 35	1,493 80	20	174	79	35	2	310	336,983 29	26
1,658 85	1,520 78	1,734 31	4	271	109	74	12	470	580,780 15	27
1,039 70	1,327 65	1,384 75	1	163	67	58	9	298	418,860 38	28
2,798 18	2,558 51	2,710 23	4	285	193	169	33	684	1,176,738 47	29
2,636 20	2,737 75	3,043 13	6	436	207	97	34	782	1,244,327 03	30
961 25	941 01	2,410 56	1	99	12	7	1	120	94,422 85	31
2,821 35	2,872 65	2,957 73	.....	319	214	180	29	742	1,739,185 28	32
1,067 50	1,070 55	1,419 70	.....	123	73	43	4	243	342,068 00	33
1,355 00	1,145 75	1,509 60	3	211	24	9	6	253	264,397 19	34
705 95	1,130 35	1,352 67	6	182	55	19	11	273	359,866 92	35
2,017 64	2,187 75	1,949 11	1	354	125	91	10	581	1,217,145 00	36
1,867 95	1,586 47	1,698 83	5	177	69	55	5	311	419,553 59	37
1,259 15	1,064 95	806 80	....	85	30	33	5	153	252,654 00	38
1,801 94	1,563 26	1,958 80	6	237	130	87	18	478	761,331 68	39
3,075 82	2,521 67	2,654 02	11	671	444	436	169	1,731	5,371,699 00	40
2,506 73	2,475 92	2,703 38	14	358	168	174	38	752	1,305,999 00	41
821 50	867 85	1,272 75	2	168	26	21	3	220	200,420 57	42
1,107 25	1,028 51	1,195 73	5	142	88	95	21	351	661,892 00	43
2,249 76	1,901 52	1,805 60	5	252	167	146	23	593	1,104,414 21	44
1,016 25	1,082 00	1,053 25	3	66	66	87	18	240	506,836 00	45
2,476 88	2,176 76	2,253 89	5	354	131	90	20	600	813,775 01	46
1,659 08	1,423 70	1,654 29	1	247	97	74	7	426	554,104 42	47
845 21	955 55	1,726 23	2	137	68	49	8	264	387,409 00	48
1,918 40	2,009 56	2,231 30	18	406	101	79	16	620	713,616 12	49
1,751 60	1,375 00	.....	4	302	95	53	7	461	474,190 63	50
2,774 90	2,655 06	2,724 03	22	846	299	214	26	1,407	2,184,430 05	51
1,780 63	1,516 10	1,433 59	1	260	82	53	8	404	529,196 58	52
234 00	.....	.....	4	17	6	12	2	41	84,564 60	53
5,301 81	3,910 90	4,910 34	14	550	218	133	81	996	2,700,945 21	54
4,799 95	4,330 95	4,534 50	11	1,338	1,095	818	428	3,690	11,871,753 00	55
2,423 30	4,659 25	5,043 91	.....	954	950	432	44	2,397	4,507,357 00	56
2,601 30	.....	.....	25	1,128	1,165	584	47	2,959	4,959,086 00	56
1,573 13	1,450 68	1,531 32	10	214	109	57	9	389	491,396 43	57
2,336 86	2,023 93	2,566 17	16	511	317	196	57	1,097	2,571,945 86	58
2,637 79	2,442 21	2,628 53	7	588	203	110	21	929	1,323,345 00	59
937 00	1,117 45	1,325 00	4	163	81	90	19	357	684,801 00	60
1,639 76	1,534 98	1,667 05	14	248	146	120	24	552	995,135 15	61
5,961 59	2,926 73	3,682 89	22	1,063	630	331	62	2,128	3,785,194 00	62
2,605 55	2,373 40	2,809 69	.....	1,339	468	192	133	2,132	3,191,138 00	63
1,568 65	1,551 17	1,735 10	1	240	93	74	12	420	590,912 70	64
123,530 04	112,391 90	123,275 81	483	22,511	11,930	8,065	1,854	44,883	58,588,009 95	

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Thirteenth Annual Report

OF THE

Provincial Municipal Auditor

FOR

1909

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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1910

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TORONTO

To His Honour The Honourable John Morison Gibson,

Lieutenant-Governor of Ontario:

May it Please Your Honour:

I have the honour to present to you the report of the Provincial Municipal Auditor for 1909.

J. J. FOY,

Attorney-General.

Parliament Buildings,
Toronto, January, 1910.

TORONTO, 6th January, 1910.

TO THE HONOURABLE J. J. FOY, K.C., M.P.P.,

Attorney-General for Ontario.

SIR,—I have the honour to present to you my report for the year 1909.

J. W. SHARPE,

Provincial Municipal Auditor.

REPORT OF THE MUNICIPAL AUDITOR.

TORONTO, 31st December, 1909.

TO THE HONOURABLE J. J. FOY, K.C., M.P.P.,

Attorney-General for Ontario:

SIR,—I have the honour to submit to you herewith the thirteenth annual report of the Department of the Provincial Municipal Auditor. On the twenty-second of April, 1909, I was appointed to the office to succeed the late Mr. J. B. Laing, who had so worthily filled it for many years.

At the time I entered upon my duties, special audits were under way in the Townships of Chatham, Raleigh and Charlotteville. That in the Township of Chatham is still in the hands of Mr. A. F. Falls, of Chatham, not completed. Those in the Townships of Raleigh and Charlotteville have been completed by Mr. W. J. Taylor, of Toronto, and Mr. Ralph E. Young, of same city, respectively.

During the year, but prior to my appointment, an audit of the books and accounts of the Town of Welland was made by Mr. Firth Jeffers, of Belleville.

Petitions were received during the year asking for special audits in the Townships of Normanby, Evanturel, and Mersea, and the Towns of Hawkesbury and Sturgeon Falls.

After some correspondence the petition respecting the Township of Normanby was permitted to lapse. The prayer of the petitions respecting the Townships of Evanturel and Mersea, and the Towns of Hawkesbury and Sturgeon Falls was granted. Mr. H. R. Morton, of Toronto, was appointed and is engaged in the audit of the books and accounts of the Township of Evanturel. Mr. George L. Blatch, of Ottawa, was appointed and has completed an audit of the books and accounts of the Town of Hawkesbury. An audit in the Township of Mersea is now being carried on by Mr. Ralph E. Young, of Toronto, and in Sturgeon Falls by Mr. W. J. Ross, of Barrie.

I have visited several municipalities and examined the methods of bookkeeping.

My report to the Council of the Town of Perth, submitted herewith, explains itself.

RECOMMENDATIONS.

As directed by Section 18, Chapter 228, R.S.O., I respectfully recommend as follows:

(*a*) That Sub-section 5 of Section 291 of The Consolidated Municipal Act of 1903, be amended by striking out the words "the name" in the first line of such Sub-section and substituting the words "his name as treasurer."

This amendment is designed to harmonize this Sub-section with Section 20 of Chapter 228 R.S.O.

(*b*) That Sub-section 2 of Section 285 of said Act of 1903 be amended by inserting the words "one copy of such by-law or" before the word "one" in the third line of said Sub-section.

This amendment is designed to meet cases where under the authority of a special act or for any other reason, the by-law has not been published.

(*c*) That Section 294 of said Act be amended by inserting the words "dies, resigns" before the word "or" in the first line of said Section.

(*d*) That Section 306 of said Act be amended by striking out the words "(if any)" in the second line of such Section.

Under the provisions of Section 304, Sub-section 3, there should always be a report.

(*e*) Make it clear that an appointment of one auditor under Section 309 shall dispense with any appointment under Section 299.

(*f*) That Section 403 of said Act be amended by striking out the words "counties and" in the first line and the word "actual" in the second line thereof and adding at the end of the said Subsection the words "as shown by the last revised Assessment Roll."

Sections 402, 403, and 405 of the Act apply to every municipality, including counties, but the provisions thereof are not clearly applicable to the methods prescribed by Sections 80 to 88, Chapter 23, 1904, which make provision for the equalization of the assessment of real property and the levying of rates for county purposes. By these Sections County Councils are required not to calculate a rate, but to apportion the sums required for county purposes and the county clerk is to certify the total amounts to the local municipal clerks who calculate the rate. It would appear advisable to confine the application of Section 403 to local municipalities. Actual value is a matter of opinion. The council has nothing before it defining the "actual value."

(*g*) That Sub-section 1 of Section 366 of said Act be amended by inserting the words "gas or" before the word "works" in the third line of said Sub-section.

This amendment is recommended upon the supposition that Sub-section 5 of Section 591 refers to this Section 366.

(*h*) That Section 429 be amended by adding thereto the following:

(1*a*) "The treasurer of the municipality shall not pay out nor cause nor permit to be paid out any monies which have come to his hands as the proceeds of the sale, or disposal of, or raised by means of any debenture or debentures, except for the purposes designated in the by-law authorizing the issue of such debenture or debentures or as by law directed."

(*i*) That Sub-section 2 of Section 534 be amended by inserting after the word "acquired" in the third line of said sub-section, the words "(except lands acquired for cemetery purposes)."

This amendment is designed to harmonize this Sub-section with Sub-section 1 of Section 577 which provides that lands acquired for cemetery purposes shall become part of the municipality acquiring same.

(*k*) That Sub-section 1 of Section 539 be amended by striking out the words "The Tile, Stone and Tunnel Drainage Act" and substituting the words "The Tile Drainage Act."

(*l*) That Section 306 of said Act be further amended by inserting after the word "directs" in the third line of such Section the words "and shall within ten

days after the publication of same transmit to the Provincial Municipal Auditor at Toronto one printed copy of such auditors' abstract and report and detailed statement."

(*m*) That Section 321 of said Act be amended by adding thereto the following:

"And shall promptly reply to all official communications from the Provincial Municipal Auditor and from time to time upon request shall promptly furnish in writing and transmit by mail or otherwise to said auditor at Toronto, correct information upon any matter relating to the business or affairs of the municipality."

These two amendments, (*l*) and (*m*), are recommended for the following reasons:

The difficulty, and in many cases the impossibility of obtaining any information or reports from the officials of local municipalities materially embarasses any effort to increase the efficiency of this office. Amongst the many causes which result in this difficulty is the fact that whilst the Act creating the office gives the Provincial Municipal Auditor authority to make rules for the guidance of local officials, it provides no method by which he can ascertain whether those rules are observed or not. Personal inspection of nearly 900 offices is manifestly impossible, and no authority is given to the Provincial Municipal Auditor to require any information or returns from the local officials.

As an illustration, one of the most important duties devolving upon the clerks of local municipalities, is the publication of the annual auditors' report for the information of the people, and I conceive it to be part of the duty of the Provincial Municipal Auditor to see that this is done, but he is not given any authority to require that the printed report be sent to him.

Partly to ascertain if the report had been printed and partly that I might have an opportunity of supervising in a measure the local auditor's statements, I (in a circular letter to the Treasurers) requested that a printed copy of the report in each municipality be sent to me, but less than fifty per cent. of those officials responded in any way.

(*n*) That Section 389 of said Act be amended by inserting after the word "seventh" in the sixth line thereof the words "or for the purchase of a fire engine under Section 544a."

Under Section 544a a by-law for the purchase of a fire engine not exceeding $5,000 does not require the assent of the electors.

Permit me also to direct attention to the following:

(1) Sub-section 4, Section 384 of The Consolidated Municipal Act includes "iron or other smelting works," and "high school houses." Sub-section 1 of Section 386 does not. Is this intentional?

(2) Section 423 authorizes the setting apart for educational purposes "surplus monies derived" "from any source" which would include money raised for a specific purpose, such as the construction of a drain under the Drainage Act, whereas the latter Act directs that such surplus shall be returned to the ratepayers.

Suggestions for Local Municipal Officials.

Since the creation of this office a considerable number of special audits have been carried out in different municipalities in the Province; of these a small number were necessitated by the dishonesty of the local treasurers; a very much larger number were from other causes: in some cases the result of inefficient bookkeeping,

inaccuracy and carelessness in details, and lack of knowledge on the part of local officials. Improper methods resulted in error and omissions, which a careful audit at the time of the occurrence would have detected; defects in accounting and auditing looked upon as trivial and unimportant, were allowed to develop, causing irritation and suspicion in the minds of the ratepayers, resulting in a petition for a special audit. Special audits cannot be altogether done away with, but their number can, I hope, be reduced to a minimum.

There are some municipalities, wherein the local officials, however desirous they may be of doing good work, have not had any experience, nor opportunities of learning their duties; municipal law is to them a sealed book, and municipal accounting is a mystery.

The following brief suggestions are submitted, with the hope that they may assist in the work of the treasurers, clerks and auditors of local municipalities in the Province. They are not intended to cover all of the duties of these municipal officials, nor to supply the place of a copy of the Municipal Act; on the contrary each local official is urged to make a careful study (so far as circumstances will permit) of the Municipal Act, and more particularly of those sections which define the duties of his particular office.

By Section 321 of The Consolidated Municipal Act of 1903, all municipal officials, in addition to the duties assigned to them by the Municipal Act, are required to perform all other duties required of them by any other Statute or by the by-laws of the Council.

Treasurers.

By Section 12, Chapter 228, R.S.O., every municipal treasurer is required within five days after his appointment to office to inform the Provincial Municipal Auditor of his appointment, and of his full name and post office address.

The treasurer's duties are chiefly defined in Sections 288, 290, 291, 292, 293, 294, 294*a*, 426 and 429 of the Consolidated Municipal Act of 1903. Section 20, Chapter 228, R.S.O., 1897; Section 8, Chapter 21, 1909, and Section 20, Chapter 22, 1909.

He made be paid either by salary or by a percentage.

He is required to furnish proper securities for the due performance of the duties of his office, and it is the duty of the Council in each year to enquire as to the sufficiency of the securities and report thereon.

The Bond is to be given by the treasurer and two or more sufficient securities in such sum and in such manner as the Council by any by-law may require. Corporations may accept the bonds of a guarantee company. (Sec. 323, Municipal Act, 1903, and 196, Assessment Act, 1904.)

The treasurer is required to take care of and disburse the moneys of the municipality in such manner as the laws of the Province, the by-laws of the municipality and the resolutions of the council direct. To keep all monies of the Corporation separate from his own money, and deposit in his name as treasurer of the municipality all municipal moneys, in a Chartered Bank or in such other depositary as may be approved of by the Council (Sections 19 and 20, Chapter 228, R.S.O.).

He must see that every payment is authorized by law, by-law or resolution of Council. An order signed by the head and Clerk of the Municipality if not duly authorized by the Council will not release the treasurer from his liability for an improper payment. (Section 290, Chapter 19, 1903.)

He must see that all moneys collected under the authority of any by-law are properly applied to the purposes of the by-law and to do this it will be necessary to keep a separate account of all such moneys. (Section 429, Chapter 19, 1903.)

There is at least one exception to this rule, the Public Health Act (Chapter 248, R.S.O., 1897, Sec. 57 as amended by Section 2, Chapter 85, 1909) requires the treasurer to pay out of any moneys of the municipality in his hands the amount of any account for services performed under the direction of the Board by virtue of the Act after a resolution of such Board approving of the account and certified by the Chairman and Secretary thereof has been filed in the office of the treasurer of the municipality.

The treasurer is required to keep such books and accounts as may be prescribed by Section 291 of The Consolidated Municipal Act of 1903, or by the Provincial Municipal Auditor or by the Railway and Municipal Board under Section 57, Chapter 31, 1906.

In Cities, Towns, Villages and Counties the provisions of Section 291 of The Municipal Act of 1903, may be varied by the Council, and in Townships it comes into force only when so provided by by-law.

Section 47, Chapter 89, 1909, provides that every Municipal Council shall account annually for all monies collected under any rate for Public School purposes; treasurer must therefore keep a separate account of such moneys.

Treasurer should open in his Ledger an account with the Collector wherein he shall debit the Collector with the total amount of taxes upon his roll and credit him from time to time with taxes collected and paid into treasury, also with taxes remitted or otherwise disposed of. When properly kept the account will show at all times, the balance of taxes remaining uncollected.

Section 417 of The Municipal Act provides that the council of every municipality shall keep in its books two separate accounts of every debt. One for special rate, and one for sinking fund or for instalments of principal and all other accounts necessary to show state of debt. The duty under this section will no doubt fall upon the treasurer.

The treasurer should be supplied with blank receipts, with stubs attached, and should give a receipt for each item received by him, at the same time entering the particulars upon the stub for the use of the auditors.

By Section 292 of The Municipal Act the treasurer is required to prepare and submit to the Council half yearly a correct statement of the moneys at credit of the municipality.

In cities, towns, villages and townships which have passed by-laws requiring it to be done, he must on or before the 20th December, yearly, prepare and transmit to the Clerk of the Municipality a list of all persons who have not paid their municipal taxes on or before 14th of said December.

By Section 293 of Municipal Act he is required to transmit by mail in a registered package on or before 1st May, yearly, to Secretary of Bureau of Industries at Toronto, on forms to be furnished, such information or statistics regarding finances or accounts as may be called for, under a penalty in case of default of $20.

R.S.O. Chapter 42, Section 8, provides that he and other officials must promptly answer all official communications from Bureau of Industries, and from time to time collect and tabulate facts according to any instructions furnished by the Bureau under a penalty for false returns, wilful neglect, etc., of $40.

By Section 294, Chapter 19, 1903, he is required to make up on or before 7th January in each year, a statement in detail of amounts paid by him to any other municipality during previous year, and transmit such statement by registered letter to the head of the municipality to whose treasurer payments have been made.

By Section 426 he is required in municipalities indebted to the Municipal Loan Fund, on or before 15th January in each year to make a return to Provincial Treasurer, certified on oath before a Justice of the Peace, showing amount of taxable property, debts and liabilities and also such further information as may be required, under a penalty of $100.

He must prepare and lay before the council of his municipality in every year, previous to the striking of the annual rate, a statement showing what amount or amounts will be required for the purposes of the sinking fund under a penalty in case of default of $25. (Sub-section 4, Section 418.)

It may be assumed that the detailed statement of receipts and expenditures to 15th December in each year, required by Sub-section 6 of Section 304, must be prepared by the treasurer and be signed by him.

By Section 137 of the Act of 1903, he is required (if the collector's roll has been returned to him) to prepare a statement, on or before the last Monday in December, of all income voters who have not paid their municipal taxes on the 14th of such month of December.

More difficulties have arisen by reason of improper methods of keeping drainage accounts than from any other cause.

Two principal accounts, at least, are required for each drainage scheme, and if these are properly kept there should be no difficulty in ascertaining at any time, the true state of account in connection with the drain.

First, there should be a construction account. Upon the debit side of this account should be entered, every payment caused by the construction of the drain, and upon the credit side the amount of all monies received, including proceeds of debentures issued and rates commuted under the by-law. If it then be found that the cost of the construction of the drain exceeds the receipts, the deficit must be made up by an amendment of the by-law as provided by Section 66, Chapter 226, R.S.O. If the receipts exceed the cost of the construction the surplus must go to the benefit of the parties assessed. Every by-law and assessment requires a separate construction account, even in cases where two or more of such by-laws apply to same drainage scheme.

Secondly. There should be a "Debenture Account" for each drainage scheme, upon the debit side of which will be entered the principal of debentures issued and yearly the instalment of interest to be paid. Upon the credit side will be entered the amounts collected by special rate under the by-law. Upon payment of the last of the debentures and the collection of the last year's rates this account should exactly balance.

Accounts in connection with Local Improvements may be kept upon a system similar to that suggested for drainage work.

Clerk.

The duties of the clerk are partly defined in Sections 282, 283, 284, 285, 286 and 306 of the Municipal Act.

His connection with the accounting branch of municipal work is slight. He has, however, some important duties in that respect.

By Section 306 he is required to publish the Auditors' Abstract and Report and transmit to the Clerk of the County Council a copy of such abstract and statement. This provision is for the benefit and information of the ratepayers, and it is of the utmost importance that it should be fully carried out. The clerk has no discretion in the matter, neither must he be controlled nor directed by the Council.

The Section also provides that he shall publish the detailed statement in such form as the Council directs, further than this the Council has no power nor authority to interfere with the publication of the Audiors' report.

It may be assumed that the duty of procuring the publication of the annual statement required by Sub-sections 6, 7 and 9 of Section 304 devolves upon the clerk.

By Section 8, Chapter 42, R.S.O., he, with other officials, is required promptly to answer all official communications from the Bureau of Industries and from time to time collect and tabulate facts according to any instructions furnished, and make returns upon forms furnished to him. Penalty for false returns or wilful neglect not to exceed $40.

Directions for the preparation of the collectors' roll are contained in Sections 94, 95, 96 and 97 of Chapter 23, Statutes, 1904. It is advisable when preparing collectors' roll to number each item to correspond with the numbers on the assessment roll and each page in the collectors' roll should terminate with the same serial number as the corresponding page in the assessment roll. This method greatly facilitates checking.

Auditors.

The duties of the auditors are in many respects more important than those of any other municipal officials. Treasurers, collectors and clerks are only human, liable to oversight and error. After them come the auditors, who are expected to make no mistakes, overlook no error and correct all mistakes made by all other officials. Unfortunately, the reward for their services is not aways commensurate with the labour and skill required.

Perhaps the first and not least important of the suggestions which may be made to auditors is this: Do not commence your duties with the idea that the accounts are all right. You perhaps have known the treasurer for years as an honest and capable official, and you feel that all you have to do is to make a cursory examination, sign the statement and report and go on your way. You should remember that the most capable men in business life make mistakes. Rather look upon yourself as a painstaking critic, who is assured that somewhere in the books or accounts there are improper methods, insufficient vouchers or mistakes (honestly made, no doubt) which you are bound to ferret out. If you find all correct, so much the better. No reasonable official will object to a careful audit of his accounts.

The duties of auditors are very comprehensive and are chiefly defined in Section 304 of The Consolidated Municipal Act of 1903.

Sub-section 1 of Section 304 provides that they are to examine and report upon all accounts affecting the corporation or relating to any matter under its control or within its jurisdiction, for the year ending 31st December previous to their appointment.

Sub-section 2 provides that they are annually to prepare in duplicate an abstract of the receipts, expenditures, assets and liabilities of the corporation.

Assets should be classified as

(*a*) "Available Assets," consisting of cash on hand or in bank, taxes not yet collected, and all moneys owing to the municipality upon any account whatsoever.

(*b*) "Fixed Assets," consisting of all property owned by the municipality of a fixed or permanent nature. The statement of assets sometimes prepared by auditors, contains items which are not of any value as assets. If auditors desire to include such items in their statement let them be under the head of "fixed assets."

Liabilities should also be classified as

(*a*) "Current Liabilities," consisting of all debentures, debts and sums of money due and payable by the municipality.

(*b*) "Deferred Liabilities," consisting of debts, the principal money of debentures and all other monies owing by the municipality but not yet due.

Auditors are also required by Sub-section 2 of Section 304 to prepare a detailed statement in such form as the council may direct, make a report upon all accounts audited by them and a separate report of any expenditure contrary to law. For this purpose they should familiarize themselves as far as possible with the provisions of the Municipal Act and the by-laws of the municipality.

The bonds of the treasurer and tax collector must be carefully examined each year and a report made as to their condition and value.

Treasurer's cash book must be examined and if any balance be found due at date of audit it must be stated in auditor's report and also the place where it is deposited and what security exists that it will be available when required. If deposited elsewhere than in a chartered bank the treasurer should be asked to produce his authority from the council for so depositing. All municipal moneys should be deposited in name as treasurer of the municipality.

Collectors' roll should be checked item by item with the assessment roll as finally revised and totals of the two rolls should agree.

Receipts by Collector should be checked with entries on collectors' roll, and when found correct should be deducted from the whole amount of roll; the balance arrived at should agree with the balance shown in treasurer's ledger in his account with collector.

Receipts by collector should be compared with the amounts paid by him to the treasurer or to his credit.

All items of receipts in treasurer's cash book should be checked with the vouchers and stub receipts in treasurer's hands.

It is sometimes found that vouchers or stubs for receipts have not been made use of, in that case it is difficult to check the items of receipts with any degree of certainty, but auditors are expected to trace all items of receipts to their source if possible.

Less difficulty occurs in checking payments. The treasurer must produce a voucher for each payment. Auditors must see that each payment has been authorized not merely by an order of the head and clerk of the municipality, but also by law, by-law or resolution of council, and that all vouchers are properly signed by the persons authorized to sign them, properly endorsed by the payees and charged to the proper accounts.

Auditors must see that proper and sufficient accounts are kept of all moneys borrowed, raised or collected for a specific purpose, such as school moneys, sink-

ing funds, debentures and the like, and that such moneys are used for the specified purpose for which they were obtained.

As each stub and voucher is checked it should be stamped with a rubber hand stamp to be furnished by the council. If no stamp be furnished auditors should initial each stub and voucher.

Examine and report upon the amount and particulars of insurance against fire, upon the buildings, etc., the property of the municipality.

Examine bank account and balance and compare same with the treasurer's account and balance. It is of the greatest importance that balances in treasurer's cash book and in the bank should be carefully compared. For this purpose prepare a statement of deposit and cheques appearing in one but not in the other.

Upon a written representation being made the treasurer must give to the auditors, within 24 hours, an order authorizing any bank or company to exhibit the account with the corporation and details thereof to the auditors. Should the treasurer fail to comply he forfeits his office.

Auditors are required within one month after their appointment to office to transmit by mail in a registered package, one copy of the abstract and detailed statements to the Secretary of the Bureau of Industries at Toronto and file the other copy of abstract and detailed statements in the office of the clerk of the council.

By Sub-section (*p*) of Section 72, Chapter 89, 1909, auditors are required to audit school accounts of Urban Schools, and school trustees are obliged to publish an abstract of auditors' annual report with their findings and recommendations.

The following special reports are submitted herewith:

Town of Welland, by Mr. Firth Jeffers.
Township of Raleigh, by Mr. W. J. Taylor.
Township of Charlotteville, by Mr. R. E. Young.
Town of Hawkesbury, by Mr. Geo. L. Blatch.
To the Council of Perth, by myself.

I have the honour to be,

Sir,

Your obedient servant,

J. W. Sharpe,

Provincial Municipal Auditor.

To the Mayor and Council of the Town of Perth:

GENTLEMEN,—On the twenty-fourth instant I made an examination of your treasurer's books. You will understand that I did not make an audit, as the time at my disposal would not permit that. I did, however, note some matters which call for consideration.

I found that the sum of $8,000 had been transferred from sewerage account to general account. Your treasurer explained to me why this had been done and assured me that the amount would be repaid to sewers account out of this year's taxes.

One of the leading principles of the municipal law is that moneys raised for a special purpose must not be diverted to another purpose. I need scarcely say to you that the transfer of this sum of $8,000 is therefore contrary to law.

I could not find that any authority had been furnished to the treasurer from time to time for orders accepted by him. If this be the practice in your municipality it is a most objectionable one. The treasurer is the custodian of all moneys belonging to the corporation and before accepting an order or making a payment it is his duty to see that the payment is proper and authorized by law, by-law or resolution of council. An order signed by the Mayor and clerk if not duly authorized by the council will not release the treasurer from his liability for an improper payment. See Section 290 The Consolidated Municipal Act of 1903.

I am pleased to say that in Mr. Code your municipality possesses a courteous and capable official.

J. W. SHARPE,

Provincial Municipal Audiaor.

TORONTO, 29th November, 1909.

WELLAND, April 22nd, 1909.

To the Mayor and Members of Council, of the Municipality of the Town of Welland, in the County of Welland, Ont.:

GENTLEMEN,—Following the instructions received from the late Mr. J. B. Laing, Provincial Municipal Auditor, I arrived here on the 25th of January last past for the purpose of conducting an examination and audit of the books, accounts, vouchers and moneys of your Corporation. This audit, which was at the request of your honourable body, was to cover the transactions of the year 1908, and to be in such form as to present a detailed statement of the receipts and disbursements for the year, and the present financial position of the municipality, for publication for the information of the ratepayers thereof.

I have the honour to submit herewith, for your consideration, the report of my audit just concluded.

This examination and audit has comprised all the books, vouchers and papers showing accounts as pertaining to the offices of the town clerk, town treasurer, Water Commission and public and high school boards.

It is sought to give in the form of the annual audit full particulars of the work of the municipality, in its several departments, following accurately the financial incidents of your history for the year.

These should be closely read and compared. If so, you will be the better citizens, the more intelligent voters and the more willing ratepayers of a municipality which holds possibilities favouring its already rapid growth, until it shall reap the full advantages of its unique position as one of the great manufacturing centres of the Province and the Dominion.

The first page shows receipts and whence received, *viz.*, balance from previous year, cash, balance of tax roll, current year's taxes, fines and fees, government grants, sale of debentures and arrangement with the Imperial Bank under the title of *Overdraft,* for the meeting of extraordinary expenditure on account of Public Works.

The pages showing disbursements explain themselves as to detail, being most largely on account of the public works of the town.

The above are referred to in connection with the sections of this report as follows:

ASSESSMENT ROLLS.

The Roll for 1908 was found made out in proper form and duly certified to by the Assessor.

COLLECTOR'S ROLL.

This was not completed in due form, nor proved by the addition of the columns nor certified to by the Clerk.

The acting Clerk was a young man who in his father's illness had been appointed to conduct the business of the office as acting Clerk, and had not the experience necessary to the making of the Roll, nor the knowledge of the importance of his work. The Council was very dilatory in striking the rate, August 20, and placing the Assessment Roll in his hands. He had not sufficient time allowed

him in which to prepare and complete the Roll before the first instalment of taxes was due and payment offered. The consequence was, that a number of errors occurred, for the most part of small amounts, but when I had fully checked the roll, summed it up and tabulated it at the end, it showed the amount of the discrepancies under the several By-laws for specific amounts to meet the charges under said By-laws. These will have to be *added* to the Roll of 1909.

The Roll was marred by a number of erasures in the effort to make things right. All these items of defect were gone over with him and I am satisfied he will give due attention that no such roll as that for 1908 will again go out of his hands.

In totalling the roll, the excess and deficiency of the collection, as mentioned under the several by-laws was found to be as follows:

Under Collected.

County rate	$48 58
Town rates	532 01
Water Works	105 76
Permanent streets and sidewalks, B. L. 112	45 13
Town Hall	12 85
Public School (B. L. 114) Debentures, 1st issue	68 04
Water Works extension, B. L. 213	11 94
Iron & Steel Co. B. L., 262	18 50
Billing & Spencer Co., 257	48 00
North Main & Cordage, 240	27 30
Canada Forge & Sup. Heating Co., 246	26 36
Water Works extension, 264	27 58
Consol. Sewers, 291	34 21
General Sewers	7 24
	$1,013 50

Over Collected.

Public School rate	$1,664 28
High School rate	751 84
Public School debentures, 2nd issue, B. L. 125	83 71
	$2,499 83

The above amounts have been put on record in Treasurer's Ledger.

Among the individual errors the most striking were, Ward 1, folio 6, George Elliott. Change made after payment of taxes. He paid $51.08 and afterwards the roll was changed to $55.55, leaving a balance of $4.47 due. The amount is correct but the irregularity is in altering after the roll was delivered for collection.

Ward 2, Fol. 1, No. 2, Wm. Anticliffe. After roll was made up and taxes in this item paid, roll was altered by erasure and amount appeared as $94.25 instead of $82.80, when roll was returned, difference, $11.45, made up of $3.60 special, col. 15, and Young St. Sewer, Col. 29, $7.85—Total $11.45.

Thomas Hicks, Ward 2, Fol. 18, $1.00 short.

Susan Lamont, Ward 2, Fol. 22, 10c. short.

Abel Miller, Ward 2, Fol. 23, $1.50 short.

Putman and Ruby, Ward 2, Fol. 27, 12c. overcharge, uncollected.
W. L. Rice, Ward 2, Fol. 29, 10c. short.
Fred C. Green, Ward 4, Fol. 7, 23c. overcharge, collected.
Albert Valencourt, Ward 4, Fol. 18, 2c. overcharge, collected.
S. H. McCormick, Ward 1, Fol. 14, 20c. short.

L. H. Pursell was overcharged $5, and as it had just been paid I directed it should be refunded and voucher taken as appears in expenditure items.

The bulk of the taxes having been paid prior to this audit the only thing to do is to direct that their several deficiencies be added to the respective ratings for 1909, and credit be given for excess collections on School accounts.

The Clerk should have proper supervision from the Finance Committee in making his rolls.

Town Clerk's Office.

The acting Clerk is showing a desire to follow the Act, as to the conduct of his office. The importance of his position, as the guardian of all documents entrusted to him, is now fully recognized by him, and being personally above reproach, I think will devote himself duly to his work. The office is commodious, has a proper vault in which all records, bonds of officials, policies of insurance, leases and contracts are preserved. I have examined the by-laws and find them complete. The contracts were in evidence except one relating to part of by-law 291, the Shotwell Street Sewer, but it was settled and paid for. I refer to a portion of McKnight's contract. The documents are duly filed.

The minutes of the council are intact with the exception of some marginal corrections which should have been initialed by both Mayor and Clerk but show only initials of the Clerk.

Each Committee of Council should have a minute book showing the business of each meeting properly signed by its chairman and secretary. It seems that the Mayor directed that these should be furnished, but there are none in the vault.

The license book and warrant book are properly stubbed, and show exactly the amounts received and those authorized to be paid. The latter checked with the Treasurer's Cash Book.

The principal duty will be the preparation of the Collector's Roll for 1909, which, when completed, must be summarized and bear the Clerk's Certificate before taken by the Collector. The Assessor has said that his Roll will be handed to the Clerk on the 30th instant, complete.

Town Treasurer's Office.

This office is in the Town Hall, where all the civic offices should be, for the convenience of the citizens and the security of public records. It possesses a good vault, and books and vouchers are classified and ready for reference. I have checked all accounts therein and have found them exactly as submitted in the accompanying pages. There was only one error of addition in the cash book amounting to $9.90, which the Treasurer has charged against himself and will be found noted under expeditures. Payment of taxes is made to him, and such payments are duly dated, and in all respects he has done his duty correctly with the imperfect roll furnished him. His record of arrears of taxes is properly kept. There are no non-resident rolls for the past two years. The arrears of taxes have

been given to Mr. Geo. Connor, Treasurer of the Water Commission for collection, and he is proceeding well with his work.

The Ledger of the Treasurer has been checked with Cash Book and is correct. The Debentures are well taken care of, their sinking funds and interest accounts have been checked and found complete. The Treasurer has very properly kept a special account in a separate bank book for each of these uncontrollable items of indebtedness and they have all been examined and certified in the presence of Mr. Brown, Manager of the Imperial Bank, where the accounts are held.

Mr. J. H. Burgar has held the office of Town Treasurer for fifteen years and acquired an experience of special civic accounts and Welland's accounts generally which qualify him as an excellent officer, thorough, obliging and capable. As the late Provincial Municipal Auditor remarked a few weeks ago, when I made a verbal report to him, "I have examined Mr. Burgar's books twice and always found them in perfect order, I look on Mr. Burgar as a Municipal asset."

The entries on his books as shown in these pages total $119,908.08, received and expended and several times entered to their various accounts show his diligence and labour in the growing business and duties of his office, not the least of which is the care of the Debentures and overdraft account.

Debentures.

These are succinctly stated as to authority of by-law, amount, sinking fund, and interest. The sinking fund is the special feature of these bonds which requires attention, especially of those created twenty years ago, and having long periods to run. These I have checked carefully, for rates of interest have fallen since those of 1888 were issued. Those under by-laws 40-41 were estimated to earn a fraction over 4 per cent. on sinking fund, whereas to-day, when on deposit in bank can only earn 3 per cent. Your Treasurer has foreseen this and advised the investment of the sinking fund in your own debentures, and in the case I have just mentioned has been able to show the sinking fund therefor in good shape as of the debentures bought $14,000 give 3 1-4 per cent. and 5,000 give 4 1-2 per cent., bringing up the present standing to $24,826.20 for the 20th year. From now forward at 3 per cent. on $840 annually, the fund would stand in thirty years when debentures are payable, at only $40,963.30, while the rate of 3 per cent., the annual levy for sinking fund would have to be $1,008.93 in order to yield $48,000 with which to meet payment of principal.

Debentures were sold in 1908, at a discount, which you could have afforded to take at par, and save yourselves the amount of the discount to apply on your sinking fund, see account on preceding pages. Good finance advises this course, and on Saturday last, the Manager of your bank, advised your Mayor and Treasurer to that effect.

Overdraft.

I need not say much regarding this item because you, as intelligent, wide-awake citizens are aware of its existence and use.

The amount of the overdraft is your credit from year to year, and for the year 1908 was $17,808.13, as per office Ledger, this with $513.76 cash available to draw upon December 31st, made the cash or bank overdraft, $18,321.89. This amount added to that at the end of 1907, viz.: $44,242.80, gives as a total overdraft, December 31st, 1908, $62,564.69. This amount exhibits the value of your public works of the past few years. While they are under construction you

require the facility granted by the bank, to obtain the necessary cash for construction, but so soon as construction is finished debentures for the cost should be issued and interest stopped on amount borrowed under the name of overdraft, no matter how favourable the terms, which is 5 per cent., and enables the taxes to be kept down for the current year. They rise as bonds are issued and the uncontrollable expense of interest and sinking fund appear.

For the $62,564.69 overdraft above, it was contemplated to issue $46,326.39 in debentures, and add to this the balance of tax roll 1908, $7,418.82, cash on hand $513.76, which still left on December 31st, $8.305.72 as balance of overdraft brought down to 1909.

This will have to be taken into account in making up the tax rate for 1909, and as mentioned above I would suggest that the Finance Committee give its best attention to this matter, or, if as individuals they have not the time, that it be added to for that purpose.

The quesion of assessment of the property in the Municipality is one of much thought to the citizens. There is a large amount of vacant property within the Corporation which is deriving an enhancing value for both manufacturing and residence purposes, from the vast local improvements of sewers, water works, and sidewalks carried on and completed, but to which this class of property does not contribute its proper share of expense. It will all be of immense value in the early future, and suggests that the council would do well to appoint an equalization commission of experienced men, of whom you have a large number who appointed for, say, three years, would bring the whole matter of sufficient and just valuation of all property to figures which would be beyond dispute. This would be a satisfaction to those responsible for both uncontrollable and controllable expenditure and desirous of assuming the constant development of the Town. A map would show the results of such valuation for constant reference.

Gentlemen, I do not think it necessary to extend this letter. The facts are before you, you are capable men with business experience and can read into this report all that the Municipal Act prescribes.

Keep your records of committees, seek to gain the thought of your citizens, especially as embodied in your Board of Trade, and with the advantages of your position as the Corporation of the Town of Welland, you can do great things as to the present and the future.

I have to thank his Worship the Mayor, Members of the Council and the several officials of the Municipality for the uniform courtesy and diligence given to make this audit complete.

Your obedient servant,

J. Firth Jeffers,

Auditor.

CHARING CROSS, August 30th, 1909.

To the Reeve and Council of the Township of Raleigh:

GENTLEMEN,—Acting upon instructions received from the Provincial Government, dated the 17th June, 1909, and upon a resolution passed by your Council, I proceeded to make an investigation of the books of the Township of Raleigh, and I beg to report as follows:

The resolution called for placing before me the books and vouchers for the years 1903-4-5-6-7; in order, however, to properly ascertain the standing of the Drain Accounts, I have been compelled, of a necessity, to go back nearly forty years.

I find that for the five years covered by the resolution the orders and vouchers as issued by the Reeve or Commissioners (with some minor exceptions which I have noted and corrected) have been properly charged against the accounts designated in said orders.

I find that the cash and bank balances for each of the five years, are correct, with the small exception of some $5.55 in total, which sum I have had adjusted and properly charged against the Treasurer.

I would suggest that the Treasurer exercise care about the endorsing of orders. I noticed several which were not correctly endorsed but as the time has passed and there is no likelihood of any demand being made, I merely make a note of having seen them.

I also would call attention to the practice of issuing orders with only one signature; it would be well to conform to the usages, but if necessary to issue an order in such a way the first meeting of Council should pass upon it.

A habit of the Commissioners is to issue orders without numbering them. This does not seem to amount to much, but it helps largely as a check, should it be found necessary to look up any items.

I have to report that under the system of bookkeeping in use, there is no absolute assurance as to the correctness of any account. The many changes which I have had to make in the different accounts are entirely due to the faulty method in vogue, and as there is no system of balancing, errors are difficult to detect.

The cash book, which is one of the most important books in any business, is not properly used. It is now being used merely as a book in which to copy the vouchers, instead of being regarded as a book of original entry. It is imperative that this book be kept as it was intended it should be, and that the cash and bank balances be ascertainable therefrom, not alone yearly, but at any time.

The Ledger (if it may be termed a Ledger) according to the manner in which it is now kept, offers every chance for errors creeping in, and it is only a wonder to me, that I have had to alter, comparatively speaking, so few accounts.

You have before you a statement showing at 31st December, 1907, the amounts overdrawn or at credit of accounts (other than Drain accounts). In my opinion, these accounts, such as rural road divisions and such like, should be closed out—they are charges against general funds, and after the Council has satisfied itself concerning the outlay on same, there seems to be no use in carrying forward balances.

You also have before you a general statement, containing the results of my findings—condensed—showing the various balances and the standing of the Township as at 31st December, 1907.

I now come to Drain Accounts, and understanding that there was a certain feeling of uneasiness throughout some parts of the Township regarding the standing of the various Drain Accounts, I endeavoured to make my examination as thorough as I possibly could.

Any drain which appeared in the books for the years 1903-4-5-6-7 has been gone into from the beginning of the work on that drain, and as before remarked, this necessitated my going back some forty years.

I present herewith an analytical statement showing the by-law number, the engineer's estimate, the construction charges, the debenture interest, the levies made, the amounts received from any contributing municipalities, the debentures not yet matured, and the overdraft and balances.

With regard to these drains and the accounts, the practice of running four or five—or more—by-laws into the one drain account is wrong. Each drain construction and the by-law governing it should stand in an account by itself, until the debentures mature and the levies are all made; if there then is a balance or overdraft, your Council can take the proper action in the matter. It is not possible to properly deal with the account unless each specific transaction stands on its own merits. In this connection I would add this as a suggestion—The Treasurer should enter at the top of the drain account in the ledger, the number of the by-law and the engineer's estimate; as he went along entering up his charges he could, at a glance, see if over-expenditures were being made, and for this purpose, as well as for other reasons, the cash book should be kept written up and the entries regularly posted to the drain and other accounts.

It is presumed that the Commissioners sometimes (if not often) over-step the limits of the engineer's estimates, and issue on their own responsibility or change the amounts to be paid for some of the work, such extra orders and such changes having the effect of increasing the expenditure to a greater or lesser degree. In a legal sense I am not prepared to say what powers they derive from their appointment as Commissioners, but from a straight business point of view, they should not have such absolute powers conferred upon them. You can formulate a plan for curtailing their powers without any suggestion from me.

Some method should be adopted which will bring out an exact balance of the books and accounts at the end of each year.

All of which is respectfully submitted,

Your truly,

W. J. Taylor,

Official Auditor.

SCHEDULE "A."

Balances and Overdrafts.

(Other than "Drain" Accounts.)

	Overdrafts.	Balances.
Fourth Concession Road	.....	$2,231 75
Third Concession Road	$271 75	.....
Merlin Sidewalk	.....	441 37
Free Ferry	.....	125 01
River Road Improvement	.....	244 50
Ditches and Watercourses	.....	48 32
Tile Drainage	.....	339 50
School Section No. 7	.....	25 54
School Section No. 6	.....	1 48
Special School Grant Account	.....	1,185 26
Rural Road Division No. 1	.....	150 83
" No. 2	122 23	
" No. 3	13 36	
" No. 4	236 73	
" No. 5	.....	178 67
Raleigh and Tilbury Town Line	.....	8 94
Raleigh and Harwich Town Line	135 32	
Raleigh and Chatham Town Line	.....	87 03
Lake Erie and Detroit River Road	.....	913 90
	$779 39	$5,982 10
Balances, net	5202 71	

GENERAL STATEMENT.

Condensed.

December 31st, 1907.

Cash in Treasurer's hands	$108 68	
Real Estate, valued at	200 00	
Arrears of Taxes, per Register	452 76	
Taxes due	37,267 15	
Accounts overdrawn, Schedule "A"	779 39	
Accounts overdrawn, Schedule "B"	11,175 37	
Balance due Bank	.....	$19,486 67
Balance Credits Accounts, Schedule "A"	.....	5,982 10
Balance Credits Accounts, Schedule "B"	.....	10,194 88
	$49,983 35	$35,663 65
Balance, Township	.....	14,319 70
	$49,983 35	$49,983 35

The Provincial Municipal Auditor, Parliament Buildings, Toronto, Ont.:

Dear Sir,—Under authority of an Order-in-Council of the 1st March last we have made an audit of the accounts of the Township of Charlotteville covering a period from January 1st, 1905, to December 31st, 1908.

A preliminary investigation was made on 5th March, and after a conference with the late Provincial Municipal Auditor it was arranged to postpone the audit until a later date, and the work was not begun until 14th June.

The petition, praying for a special audit, set forth the following charges and and requests as sufficient reasons for such an audit:

1. That information ought to be given to the above-named officials how entries should be made, what books are needed and how documents should be treated and taken care of;

2. That the books, accounts and vouchers in use are not such as will readily furnish information even to the officials themselves, so that inquiries by members of the Council and ratepayers cannot be satisfied by an easy reference to such records.

3. That the printed statements and reports of the treasurer and auditors are not complete nor framed in a sufficiently explanatory manner.

4. That the explanations thereof when demanded are not freely nor clearly given so that the ratepayers can form opinions thereon.

5. That the accounts of the said township in connection with the various drains in the said township are not kept separate and distinct from each other, and from the other accounts of the township.

6. That the School rates in the said township are not equalized according to the Public Schools Act of Ontario.

7. That the monies collected for Statute Labour are not properly appropriated for the use for which they are collected.

8. That no proper account is kept of the Clergy Reserve Fund belonging to the said township, nor of the interest collected therefrom, nor are the general accounts of the township kept in a satisfactory condition.

9. There does not appear to be any proper security taken for the monies of and belonging to the municipality loaned by its officers.

10. That the assessors and collectors' rolls of the said municipality are not audited.

11. A desire for positive information as to the financial standing of the Corporation.

12. That the reports of the auditors appointed by the Council do not agree with the financial statements issued by the Treasurer.

In this report and accompanying statements it is sought to cover the charges and requests of the petitioners; and we submit certain recommendations which, if adopted, will improve the system of accounts and render possible the compilation in future of a comprehensive annual financial statement.

Cash Book.

The usual form of municipal cash book was in use. It contained, however, only those cash transactions relating to the General Funds of the municipality.

The transactions relating to the Clergy Reserve Fund Principal and the Clergy Reserve Fund Interest were not entered in the general cash book, nor were the details thereof shown in the annual financial statements. Absence of this information in the annual statements has no doubt given rise to the charge that no proper account is kept of these funds. Record has, however, been kept of these funds in subsidiary books, and, while there is considerable room for improvement in the method, we have been able to verify the transactions which have taken place during the period under audit, and certify to the balances in the bank to the credit of these funds on December 31st, 1908. For the future we recommend that the cash transactions relating to these funds pass through the general cash book, then in taking off the detail of receipts and disbursements they will appear therein under their respective headings.

The bank transactions on current account have been examined and found in order, and we certify to an overdraft in the bank at December 31st, 1908, of $515.81.

Overdraft per Bank Pass Book	$316 22
Add cheques outstanding	199 59
Overdraft per Cash Book	$515 81

The receipts have been examined and, with exception of amounts received for current taxes, verified by production of satisfactory evidence thereof. There is no official form of receipt in use. A stub form of receipt should be adopted, bound in book form and numbered—the stub and receipt bearing the same number. This official receipt should be issued for every item of cash received and particulars thereof endorsed on the stub. The number of the receipt should be placed in the column in the cash book provided therefor, opposite the amount to which it refers. Usually the Treasurer receives with each remittance a letter or statement setting forth the amount and nature of the receipt. These also should be preserved and filed in the order in which the receipts to which they refer appear in the cash book.

The disbursements have been made by cheque. They have been found to be in accordance with resolution of the Council and order signed by Reeve, or other proper authority.

Acceptance of the returned cheque as voucher for the disbursements appears to have been the almost general practice. While we have no reason in this case to question the sufficiency of the receipt, the method is one which does not meet with our approval, and should be improved and corrected by preservation, in order of payment, of the original accounts properly receipted, or with receipt attached. The receipt in itself would be satisfactory evidence of the payment, but the original account should also be available so that the auditors can satisfy themselves of the nature of the disbursements.

With the exception of those payments which are authorized by by-law or by statutory enactment, all others should be passed upon and authorized by the Council previous to payment.

There are several methods which might be adopted in the matter of paying accounts and preserving them in a form satisfactory for audit. The following is a simple and effective one which will meet all requirements in the Township of Charlotteville:

At sessions of the Council all accounts requiring to be passed for payment should be presented. Those passed should be stamped "passed for payment" and

bear date, and initials of chairman of finance committee. They should then be listed and a by-law passed providing a certain sum of money for general purposes, sufficient to cover the total of the accounts passed. Such a by-law executed with signatures of Reeve and Clerk and bearing seal of the corporation would do away with necessity of issuing separate orders.

The Treasurer would proceed to pay by cheque the accounts covered by the by-law, obtaining proper receipts. The accounts receipted, or with receipt attached, should be attached with list to by-law, and the whole preserved and filed.

The cheques are more conveniently handled by being filed by themselves in the order in which they appear in the Cash Book.

For all disbursements, those passed by Council and those paid under authority of by-law or statutory enactment, receipts should be obtained and filed in the order of payment. The number on the receipt should correspond with the number appearing against the amount in the Cash Book.

We submit with this report detail statement of receipts and disbursements, and abstract of receipts and disbursements for each of the years. A comparison with the printed annual statements will show some differences, but these are mostly, if not all, accounted for by errors and omissions apparently on the part of the printer. Some items could better have been arranged under more comperhensive headings. We will deal with these later in our remarks on the annual statements.

Ledger.

This book, so-called, contained only the detail of disbursements as taken from the Cash Book arranged under headings such as appear in the annual statements; a memorandum of the adjustment of the collectors' rolls; and a statement of the amounts making up the Clergy Reserve Fund Principal.

It contained no record of the receipts nor of the accounts going to make up the assets and liabilities of the municipality.

A properly kept ledger should contain a complete record of all the transactions of the municipality gathered together under appropriate headings from entries having their origin in the Cash Book or Journal.

It does not differ from the form in use for commercial purposes, nor do the principles involved in the keeping thereof differ materially.

The material for a balance sheet should be contained between its covers and such balance sheet should show the exact financial position of the municipality.

The accounts representing revenue and expenditure should be closed out at end of each year and the balances of the accounts representing assets and liabilities carried forward.

In posting the entries from the Cash Book or Journal it is well to enter them in detail in the ledger under their respective headings. The advantage of so doing will be appreciated by the Treasurer and Auditors when preparing the detail statement of receipts and disbursements required of them.

Journal.

A Journal was not in use in the municipality.

The accounts for each year embraced only the actual receipts and disbursements. No account was taken of revenue or expenditure applicable to any particular year not actually received or disbursed. A proper system of municipal accounting should record in the ledger all revenues applicable to the year, both

that actually received and that due to the municipality; and all expenditures applicable to the year, both that actually paid and that due by the municipality.

For this purpose, for the transfer of entries, for the correction of errors, and for closing off the accounts at the end of each year the use of a Journal is demanded.

Assessors' Rolls.

Generally speaking showed lack of care and were incomplete. They bear no evidence of having been checked or audited. In future greater care should be exercised in their compilation.

The totals should be inked in and their accuracy checked before the rolls are returned. Changes by Court of Revision should be neatly made and initialed so that the items and summary can be readily checked to the collectors' rolls compiled therefrom.

Collectors' Rolls.

These bear the appearance of having been carefully compiled, but they are marred by changes made after completion which have not been carried out with same amount of care, and this has tended to complicate the adjustment of the rolls. They bear no evidence of having been checked or audited.

There is room for considerable improvement in dealing with this most important branch of municipal accounting. The following instructions if carried out will prove an effective method of dealing with the collectors' rolls and adjustment thereof.

The assessment roll forms the basis of the collectors' roll. After final revision the assessment should be copied into the collectors' roll, or rolls. If the work has been accurately done the totals of the assessment in both rolls should agree. The taxes required to be raised by the various rates should then be entered opposite each assessment in the columns provided and the total extended. A summary should then be made of the taxes raised by each rate and this should agree with the total amount of taxes appearing on the roll to be collected. The Clerk should then attach his required certificate to the roll before handing it to the collector. All totals should be inked in before the roll leaves the Clerk's hands. At the same time the Clerk should forward to the Treasurer a statement of the taxes provided by the various rates and showing the total taxes to be collected. The Treasurer should then, by means of a Journal entry, debit the Collector for the amount of taxes on his roll, crediting any special rate accounts with the amount raised by such rate, and general taxes with amount raised for general purposes. We submit form of Journal entry based on rolls of 1907. Any additions to or deductions from the roll should be made thereon by the Clerk and initialed and notified to the Treasurer with the authority therefor in order that that official may adjust his records. It seems hardly necessary to add that no alteration should be made on the collectors' rolls except under proper authority.

The collector when making collections should give to each taxpayer an official receipt for the amount of taxes collected. He should be provided with a cash book ruled so as to show on the debit side the amount of taxes collected, percentage added and rebates allowed; and on the credit side his remittances to the Treasurer. These remittances should be made to the Treasurer at least once every two weeks and the Treasurer should issue a receipt to the collector for the same.

Against the name of the taxpayer in this cash book he should enter the date of payment, the number on the roll and the number of the receipt given, at the same time noting on the roll in the column provided the date of payment. Under existing by-law 5 per cent. is added to all taxes uncollected on 15th day of December. The collectors should, therefore, on that date, or as soon thereafter as possible, remit to the Treasurer the balance remaining in their hands of all taxes collected up to and including that date, together with a statement of all uncollected taxes to which percentage must be added. The Treasurer should then by means of a Journal entry debit each collector with the percentage added and credit "Percentage added to taxes," preserving the list as a voucher. Upon return of the rolls the collectors should furnish a list of all taxes not collected, showing percentage added. From this list, for all taxes allowed under proper authority, the Treasurer should, by means of a Journal entry, debit "Rebates of Taxes," and credit each collector; for those returned to County Treasurer he should debit "Arrears of Taxes," and credit each collector. He will, of course, have to credit each collector's account for any taxes received by him between date of return of rolls and date of return to County Treasurer. If the work has been accurately done the accounts of the collectors should balance, and his books contain a complete record of the adjustment of the rolls. In addition to the above suggestions it would be well for all the officials to become familiar, by reference to the statutes, with the duties there required of them.

For the years under review particulars were not available to enable us to completely verify the adjustment of the rolls or the amounts said to have been uncollected. We have, however, by access to statements from the County Treasurer, been able to verify the taxes returned from the collectors' rolls each year and from the non-resident roll; the transactions between the Township and County relating to arrears of taxes throughout the period under audit; and the balance of arrears of taxes remaining in the hands of the County Treasurer at 31st December, 1908, and we submit statements dealing therewith.

Arrears of taxes.

There was no record to show amount remaining in hands of County Treasurer.

Statements submitted show adjustment of balance to December 31st, 1908. This balance should be taken into the ledger as an asset at that date and the account hereafter dealt with in accordance with the transactions which take place from year to year between the Township and County. The account should be debited with future taxes returned to the County Treasurer and percentage added; it should be credited with remittances received from the County Treasurer, with amounts returned to be placed upon rolls and with amounts ordered written off by resolution of the Council. A land register, similar to the one in use by the County Treasurer, should be used in which to record the details of Arrears of Taxes.

In order to carry out the transactions relating to arrears of taxes it is necessary for each official to follow some well-defined procedure, and we cannot do better than submit the following from the pen of a well-known authority on municipal accounting:

(1) Each township or municipality returning arrears of taxes to the county treasurer for collection, to obtain a land register, the counterpart of the one in the county treasurer's office.

(2) The land register to be written up showing the taxes and percentages uncollected as on December 31st previous.

(3) This book is to be kept by the local treasurer.

(4) Upon receipt by the local treasurer of the clerk's returns of non-resident taxes (a duplicate of the one forwarded by the clerk to the county) the treasurer to enter in the land register the taxes against the several properties.

(5) Similarly, upon receipt by the local treasurer of the collector's return of uncollected taxes, he shall prepare his return of taxes to the county treasurer in duplicate. The original he will forward to the county official. From the duplicate he will enter in the land register the taxes so returned against the several properties.

(6) Upon May 1st in each year the county treasurer shall prepare a statement showing in detail the percentages added to the several properties, copy of which he will forthwith mail to the local treasurer.

(7) Upon receipt thereof the local treasurer will post to the debit of the several accounts in his land register the percentages so added by the county treasurer.

(8) The county treasurer will, as early as possible after January 1st in each year, forward to the local treasurer a statement (upon the form supplied) showing in detail the amounts collected during the preceding half year, together with a cheque in settlement thereof.

(9) The local treasurer will, immediately upon receipt of this statement, enter to the credit of the several lots, upon which the taxes have been paid, the amount as stated by the county treasurer in his report.

(10) When for any reason taxes are written off by resolution of the council of the local municipality, the clerk is to furnish to township treasurer a duplicate of the resolution forwarded to the county treasurer, when the local treasurer will, in his land register, on the credit side, make the following entry:

"Written off by resolution of council dated ..... 190...."

(11) Immediately at the conclusion of a sale of lands for arrears of taxes the county treasurer to forward to each local municipality a statement showing the properties disposed of and the sum realized, making special mention of any properties that have not brought the full amount of taxes charged against them.

This statement to be accompanied by a cheque covering the proceeds of the sale. The local treasurer will credit each property included in such return, making an entry under the proper date, as follows: "By tax sale, 190. ..$..... In case the property be sold for less than the taxes against it, a further entry will be needed to balance the account, viz.: "Loss on realization at tax sale (190..) $....."

(12) The county treasurer to forward to the local treasurer a duplicate of his return to the clerk, of occupied lands to be placed upon the collector's roll; upon receipt of which the local treasurer will make an entry upon the credit side of the land ledger, viz.: "By return to clerk, Roll 190....$....."

(13) Immediately after the 1st of January in each year the county treasurer to forward a statement in detail of all uncollected taxes appearing in his land register, as at December 31st previous, to the clerk of the local municipality, which statement the clerk shall deliver to the auditors.

Drainage.

There are no drainage debentures outstanding in the Township of Charlotteville. The drainage work has all been done under the provisions of the Ditches and Watercourses Act.

There appears to have been no record kept in the Treasurer's books of the various drainage operations. A Drainage account should be carried in the General Ledger to record receipts and disbursements on account of drainage operations carried out under the Ditches and Watercourses Act. The account should be charged with all disbursements and credited with amounts applicable thereto, both those paid direct through the Cash Book and those entered upon the rolls. Record should also be kept of each drainage work, charging each work with the disbursements and crediting same with receipts on account thereof. At the close of any year the debit balance in the General Ledger account should represent the amount due the Township in respect of drainage work done, and a summary of the debit balances in the subsidiary record should agree therewith.

Under the heading "Drainage" in the detail of disbursements in the years under review appear items for ordinary disbursements for drainage as well as disbursements for work under the Ditches and Watercourses Act. Such ordinary disbursements should be eliminated from this account in future (and charged, say, to "Township Drainage") and the Drainage account charged only with those items which will afterwards be collected from the parties benefited.

The following outstanding items, certified to by the Clerk, represent the Asset on Drainage Account at December 31st, 1908:

Wm. Hunter, re Madole ditch	$40 25
Chas. & Walter Dunkin, re Madole ditch	10 25
John Schram, re Madole ditch	5 50
Mrs. Eva Schram, re Madole ditch	2 76
	$58 76

These parties have been notified.

If payment is made before October 1st, 1909, the account in the General Ledger and the individual accounts in the subsidiary record should be credited from the entries in the Cash Book.

If not paid prior to October 1st next, then the amounts plus 7 per cent. will be placed on the roll. In this case the account in the General Ledger should be debited with addition of 7 per cent., also the individual accounts in the subsidiary record.

South Norfolk Railroad Debenture.

The final assessment was made and the final debenture and interest paid in the year 1907.

The account for the years 1905 to 1907 is as follows:

Debenture paid 1905	$1,605 25	
Assessment 1905	1,537 62	
Shortage		$67 63
Debenture paid 1906	1,604 90	
Assessment 1906	1,577 26	
Shortage		27 64
		95 27

Debenture paid 1907	1,598 10	
Assessment 1907	1,641 98	
Surplus		43 88
Net Shortage		$51 39

This amount was provided out of current funds. It is not a large amount and is accounted for by the fact that the assessed value of property against which the rate was levied varied from year to year, while the rate remained the same. The method of dealing with accounts for which a special assessment is made, is to credit the account with the amount provided by the assessment and charge the account with the expenditure of the year, carrying the balance forward, which should be taken into account in striking the rate next year.

School Purposes.

In the years under review the amounts received for school purposes from Government Grant, County Grant, and Clergy Reserve Interest (see detail of receipts for each year) have been paid to the School Sections under the warrant of the Inspector and agree in total (see detail of disbursements) with the amounts received for distribution.

The amount raised within the Township for school purposes has been raised on the authority of requisitions of the School Trustees of each section by a rate calculated to produce the amount required to be raised from and for each section.

The amount raised in this manner as per the collectors' rolls for each year shows as follows:

	1905.	1906.	1907.	1908.	Total.
	$ c.	$ c.	$ c.	$ c.	$ c.
S.S. No. 1.....	370 53	371 04	375 43	331 52	1,448 52
" " 2.....	405 35	361 91	385 50	375 89	1,528 65
" " 4.....	289 34	230 42	236 60	353 62	1,109 98
" " 5.....	498 93	509 98	602 30	597 29	2,208 50
" " 6.....	925 97	826 51	872 66	743 44	3,368 58
" " 7.....	136 86	211 61	262 87	345 89	957 23
" " 8.....	362 43	328 72	299 29	375 17	1,365 61
" " 9.....	111 56	173 96	159 18	221 46	666 16
" " 10.....	301 01	401 81	457 86	443 01	1,603 69
" " 11.....	540 87	546 69	603 40	788 74	2,479 70
" " 12.....	375 71	377 25	386 21	394 29	1,533 46
" " 13.....	252 60	306 98	417 02	353 77	1,330 37
" " 14	271 55	281 16	345 08	379 95	1,277 74
" " 15.....	425 08	352 99	445 65	407 53	1,631 25
" " 16.....	256 99	294 38	362 55	355 21	1,269 13
" " 17.....	55 98	83 02	33 35	59 07	231 42
" " 18.....	480 34	462 83	450 48	433 37	1,827 02
" " 20.....	103 50	159 35	91 17	110 69	464 71
	6,164 60	6,280 61	6,786 60	7,069 91	26,301 72
Payments applicable to each year.....	5,670 22	6,319 12	6,772 79	7,063 04	25,825 17

Short paid, 1905	$494 38	
" " 1907	13 81	
" " 1908	6 87	
	515 06	
Overpaid, 1906	38 51	
Total short paid		$476 55

It is impossible to raise by rate the exact amount required, but the difference should not be as great as that shown in the year 1905. With this, as in the case of all special rate accounts, the account should be credited with the amount raised by assessment and charged with the amount paid; carrying the balance forward to be taken into account when striking the rate for the next year.

Statute Labour.

The amounts appearing on the collectors' rolls apply to commuted statute labour only, against parties not having performed statute labour as required by sub-section 1 of section 15 of the Act Respecting Statute Labour.

The practice of the past has been to carry the amount thus provided into the general funds of the Township, supplementing the requirements of any division by expenditures out of the general funds.

In order to carry out the provisions of sub-section 2 of section 15 of said Act the proper procedure would be to credit each division with its share of such commuted statute labour, charging the division with the expenditure thereof. We are informed by the Clerk that such a plan is contemplated for the future.

Annual Financial Statements.

It has been contended that these statements are not sufficient in form to give full information to the ratepayers, and in this we agree.

Those for the years under review have been constructed to show the cash received and cash disbursed through the general Cash Book between January 1st and December 31st of each year. To this extent they are correct, subject to errors in the printed copies apparently on the part of the printer. They might to advantage, however, have given, as we have done, a detail of the receipts as well as a detail of disbursements.

Failure in the past to construct a statement covering fully the year's transactions can be traced to the absence of a ledger. If, as we suggest, all the cash transactions on general and special account are entered in the Cash Book, and the other revenue and expenditure applicable to the year, but not actually received or paid, recorded by means of the Journal, and the items in these books posted in detail to the proper account in the ledger, then between the covers of that ledger will be found not only material for a statement of Assets and Liabilities, but material also for a detail statement of revenue and expenditure.

The only items in these printed statements for the years under review which appear to call for any special explanation are those which appear in the disbursements under the headings "Errors and Omissions," "Uncollectable Taxes," "Refunds," "Non-Resident Taxes," and "Taxes Allowed," terms variously used throughout the years which were no doubt intended to designate taxes refunded, taxes rebated and taxes remaining on the rolls uncollected, which were subsequently returned to the County Treasurer.

We show in detail in the statements dealing with Arrears of Taxes those which we have verified as having been returned to the County Treasurer. Information was not available, however, to enable us to verify the other items which go to make up the totals under these headings each year.

It has also been contended that the reports of the auditors do not agree with the financial statements issued by the Treasurer.

The annual report of the Treasurer records transactions up to and including December 15th, while that of the auditors includes all transactions to December 31st. The discrepancy between these two statements is therefore very easily accounted for.

Treasurer.

The treasurer, Mr. Charles E. Shearer, we regard as an honest, painstaking official, who has conducted the affairs of his department to the best of his ability. All the funds of the municipality passing through his hands have been accounted for, and, while there is room for improvement in the method employed, we have been able to verify the correctness of the balances as at December 31st, 1908. He will, we believe, do his best to put into operation the suggestions and recommendations made affecting his department.

Clerk.

The Clerk, Mr. R. W. McCall, has had a long experience in municipal matters. The conduct of the affairs of his department evidences a desire on his part to carry out the duties of his office in a proper manner. The suggestions and recommendations we have made affecting his department will no doubt be carried out satisfactorily.

REPORT ON CLERGY RESERVE FUND PRINCIPAL, AS AT DECEMBER 31, 1908.

J. J. Dunlop $700 00

Original mortgagor Chas. Robertson and wife. Dated February 10, 1886 for $1,000.00 on Lot 13, Con. 7, Township of Windham, 260 acres. Principal due five years from date. Interest June 30th and December 31st at 6 per cent. Registered February 16th, 1886, No. 1124 B.

This loan stood at same amount on December 31st, 1904. During period covered by audit interest has been charged at rate of 5 per cent. only.

Wilbur Howick, 450 00

Mortgage dated May 12th, 1898, for $800.00 on N. Pt. Lot 9, Con. A, Township of Charlotteville, 117 acres. Principal due January, 1904. Interest January 1st, at 5 per cent. Registered May 20th, 1898, No. 90015.

This loan stood at $675.00 on December 31st, 1904. Payments as follows: March, 1906, $50.00; November, 1907, $75.00; October, 1908, $100.00.

Thos. S. Howick. 256 00

Mortgage dated March 1st, 1899, for $350.00 on S. ½ Lot 8, Con. 1, and N. E. Pt. of S. ½ Lot 7, Con. 1, Township of Charlotteville, in all 109¼ acres. Principal due three years from date. Interest January 1st at 5 per cent. Registered March 6th, 1899, No. 91596.

This loan stood at same amount on December 31st, 1904.

Thos. S. Howick. 225 00

Mortgage dated March 1st, 1899, for $600.00 on N. ½ Lot 9, Con. 1, Township of Charlotteville, 100 acres. Principal due January 1st, 1904. Interest January 1st at 5 per cent. Registered March 9th, 1899, No. 91619.

This loan stood at $425.00 on December 31st, 1904. Payments as follows: January, 1905, $100.00; October, 1905, $100.00.

James H. Carr. 500 00

Original mortgagor, Wm. Price. Dated February 11th, 1903, for $600.00 on S.E. Pt. of W. ½ of Lot 5, Con. 1, Township of Charlotteville, 45 acres. Principal due February, 1908. Interest December 31st at 5 per cent. Registered February 23, 1903, No. 99937.

This loan stood at $600.00 on December 31st, 1904. Payment $100.00, December, 1905.

J. W. Monroe, 750 00

Mortgage dated October 29th, 1903, for $750.00 on N. W. 75 acres of Lot 14, Con. 4, Township of Charlotteville. Principal due five years from date. Interest December 31st at 5 per cent. Registered October 31st, 1903, No. 101179.

This loan stood at same amount on December 31st, 1904.

Police Village St. Williams, 500 00

This loan was made in 1905 to the Trustees of above Police Village under Minute of the Council under seal dated June 5th, 1905, upon the following terms: For a period of three years with interest at 5 per cent. repayable—

$150.00 and interest on or before December 15, 1905.
175.00 and interest on or before December 15, 1906.
175.00 and interest on or before December 15, 1907.

The interest has been duly paid but the Council has by resolution each year waived payment of the instalment of principal.

We regard this transaction as one not within the provisions of the Act governing the investment of funds set apart for educational purposes and are of the opinion that the Council exceeded their powers in making such loan.

The classes of securities authorized by the Act are: the public securities of the Dominion, Municipal debentures, or first

mortgages on real estate held and used for farming purposes. Loans are also authorized to any board of school trustees within the limits of the Municipality

James Cowan, 350 00

Original mortgagor, A. A. Boughner. Dated December 23, 1905, for $1,00.00 on Pt. Lot 20, Con. 3, Township of Charlotteville, 23½ acres. Principal due December 31, 1910. Interest December 31, at 4½ per cent. Registered December 26, 1905, No. 105787. This loan was made December, 1905, for $1,000.00 and a repayment of $650.00 was made December 30, 1906.

John B. Hall, 500 00

Mortgage dated October 20, 1906, for $1,000.00 on S. ½ Lot 1, Con. 10, and Pt. S. ½ Lot 2, Con. 10, Township of Charlotteville, in all 114¼ acres. Principal due five years from date. Interest December 31 at 4½ per cent. Registered October 25, 1906, No. 107461.

This loan was made October, 1906, for $1,000.00 and a repayment of $500.00 was made December 24, 1907.

School Section No. 7, 360 00

This loan was made in 1906 under Minute of the Council under seal, dated December 15, 1906, upon the following terms: For a period of five years with interest at 4½ per cent., repayable $120.00 and interest on or before December 31st of each year. The loan was for $600.00 principal payments having been made in each of the years 1907 and 1908.

The loan should have been made by By-law as provided by the Act; and in such cases it would be well to have an agreement as well, executed by the Trustees and Reeve and Clerk.

Wm. Price. 900 00

Mortgage dated January 19, 1907, for $900.00 on Pt. Lot 10, Con. A; and N. Pt. centre division of S. Pt. Lot 10, Con. A, Township of Charlotteville, in all 72 acres. Principal payable $50.00 January 1, 1908, balance due January, 1912. Interest January 1 at 5 per cent. Registered January 19, 1907, No. 108068.

The instalment of principal due January 1st, 1908, was not paid.

School Section No. 11, 800 00

This loan was made in 1908 under Minute of Council under seal, dated July 17, 1908, upon the following terms: Repayable in five instalments of $160.00 each on or before December 15th of each year, first payment due December 15, 1909. Interest 5 per cent.

The same remarks apply to this loan as in the case of S. S. No. 7.

Simcoe Water Works Debenture, 1,862 06

This debenture was bought March 4th, 1908, for $1,792.23 plus accrued interest from March 15th, 1907, $81.26, or a total payment of $1,873.49. This amount was in excess of its par value at which it is carried, and to adjust the Clergy Reserve Fund Principal the amount of interest received March 15th, 1908, $83.79, was appropriated as follows:

Carried to Principal Account	$11 43
Carried to Interest Account	72 36
	$83 79

The amount carried to Interest Account is made up as follows:

Interest accrued March 4, 1908, to March 15, 1908	$2 53
Discount on purchase price	69 83
	$72 36

The Interest Account for the year has thus benefited to the extent of $69.83, which has been paid out of Principal to bring the debenture to par in the Principal Account.

Clergy Reserve Fund Principal Bank Account, 611 94

This is the balance remaining in the bank uninvested at December 31st, 1908, and the same has been verified. The account is adjusted as follows:

Balance December 31st, 1908, per Bank Book	$622 56	
Interest on deposit transferred to Clergy Reserve Fund Interest Account, February 10th, 1909	10 62	
Leaving balance as above		$611 94

Summary.

Loans on Mortgages, etc.	$8,153 06
Bank Balance	611 94
	$8,765 00

The Bank transactions in the Principal Account have been closely examined in each of the years under review and found in order.

Until 1906 the Clergy Reserve Fund Principal stood at $8,763.73, but in that year the Council authorized the Treasurer to add $1.27 from interest earned bringing the principal to $8,765.00.

In future loans from this fund should be within the provisions of the Act. In the case of loans on real estate, the loan must be a first lien and must not exceed two-thirds of the value according to the last revised assessment roll.

According to the terms of the mortgages the principal of a number of the existing loans is past due. In these cases it would be well to see that the security is sufficient.

A subsidiary ledger should be obtained in which to record the details of these loans. It should be ruled to provide a date column, a column for particulars, three money columns for principal (debit, credit and balance) and three money columns for interest (debit, credit and balance). At each due date of interest a single entry debit should be entered in the account, "To Interest Due," extending the amount in the debit interest column. When the interest is paid a single entry credit should be entered in the account, "By Cash," extending the amount in the credit interest column. At the end of the year a list should be made from these accounts of interest due for the year but unpaid at December 31st, and the following entry made through the Journal therefrom,

Accrued Interest,

To Clergy Reserve Fund Interest,

for the amount due but unpaid.

This credit to the Clergy Reserve Fund Interest Account in the General Ledger, together with the interest already paid and credited through the Cash Book, will cause the Clergy Reserve Fund Interest Account to show the true revenue for the year. The Accrued Interest Account will be carried as an asset to represent the amount due. Credit this account when the interest it represents is paid.

A summary of the loans in this subsidiary ledger should agree in total with the debit balance of Clergy Reserve Fund Securities Account in the General Ledger.

The securities in connection with these loans have been examined and found in order, with exception of the loans to School Sections 7 and 11 and St. Williams Police Village.

In connection with all loans on real estate where the value of the buildings thereon forms part of the security under the mortgage, insurance policies should be held with the mortgage.

These policies should contain a clause "loss, if any, payable to Township of Charlotteville."

The Treasurer should see that such policies are obtained forthwith, and that they remain in full force and effect during currency of loan.

REPORT ON CLERGY RESERVE FUND INTEREST.

Interest paid and accrued due in 1904		$416 00	
Less 3% Commission to Treasurer		12 48	
Carried to General Account in 1905 and paid School Sections			$403 52
Interest paid and accrued due in 1905		411 44	
Less 3% Commission to Treasurer	$12 34		
Less Expense re mortgage	2 00	14 34	
Carried to General Account in 1906 and paid School Sections			397 10
Interest paid and accrued due in 1906		410 95	
Less 3% Commission to Treasurer	$12 32		
Less added to Principal	1 27	13 59	
Carried to General Account in 1907 and paid School Sections			397 36
Interest paid and accrued due in 1907		424 19	
Less 3% Commission to Treasurer		12 72	
Carried to General Account in 1908 and paid School Sections			411 47

The amounts carried to General Account will be found in the detail of receipts under the heading of "Clergy Reserve Fund Interest," and in the detail of disbursements under the heading, "School Purposes," in each of the years stated.

The account for 1908 and subsequent adjustment are as follows:

Interest of 1908 paid prior to December 31st	$276 74	
Balance at credit of Interest account December 31, 1908		$276 74
Interest of 1908 accrued due paid in January and February, 1909		148 02
		$424 76
Less 3% Commission to Treasurer		12 74
Balance for distribution in 1909		$412 02

The transactions in this account throughout the years under review have been closely examined and found in order.

The payments to the School Sections have been made on the order of the Inspector and in accordance therewith, the total amount paid agreeing in every case with the amount of interest available for distribution.

We have only one criticism to make in the management of this account. Payments of interest are not made promptly on the due dates and as no interest has been charged for delay it means a loss of interest to the account. Prompt payment of interest should be insisted upon, but when there is delay then the legal rate of interest should be charged on the interest payment for the time between the due date and date of payment.

Conclusion.

The time necessary in the prosecution of the work of this investigation has been somewhat lengthy. The chief reason for this may be found in the necessity of first having had to prepare complete records upon which to base this report, and the labour entailed in the preparation and verification of these records has been very considerable.

The objects of the enquiry having been attained, in so far as the means of conducting it were available, it is hoped that the results will be of value for the future.

We acknowledge, with thanks, the assistance rendered by the Clerk and Treasurer, who were always prompt to respond whenever called upon.

All of which is respectfully submitted.

MAITLAND, YOUNG & SON,

Chartered Accountants, Auditors.

Toronto, August 12th, 1909.

TOWNSHIP OF CHARLOTTEVILLE.

ABSTRACT OF RECEIPTS AND DISBURSEMENTS.

January 1st, 1905, to December 31st, 1905.

RECEIPTS.

Taxes of 1904—		
North Roll	$621.81	
South Roll	358.48	
		$980.29

Taxes of 1905—		
North Roll	5,400.00	
South Roll	7,791.42	
		13,191.42
Arrears of Taxes		6.03
Licenses		19.00
Interest		6.14
Clergy Reserve Fund Interest		403.52
School Purposes		353.00
Miscellaneous		487.43
Overdraft Molsons Bank December 31, 1905		132.15
		$15,578.98

DISBURSEMENTS.

Overdraft Molsons Bank January 1, 1905	$886.11
Salaries, Allowances, etc.	753.10
Stationery, Printing and Postage	204.79
Law Costs	18.50
Roads and Bridges	1,973.97
Charity	105.25
County Rate	2,660.00
School Purposes	6,426.74
Interest	45.12
Board of Health	68.90
Debentures	1,387.00
Coupons	218.25
Drainage	124.73
Sheep Killed	346.62
St. Williams Police Village	150.20
Care of Hall	20.25
Rebates of Taxes	36.83
Uncollectable Taxes	116.47
Miscellaneous	36.15
	$15,578.98

TOWNSHIP OF CHARLOTTEVILLE.

ABSTRACT OF RECEIPTS AND DISBURSEMENTS.

January 1st, 1906, to December 31st, 1906.

RECEIPTS.

Taxes of 1905—		
North Roll	$640.99	
South Roll	294.65	
		$935.64
Taxes of 1906—		
North Roll	5,943.69	
South Roll	7,684.46	
		13,628.15
Arrears of Taxes		93.48
Licenses		70.00
Interest		4.64
Clergy Reserve Fund Interest		397.10
School Purposes		687.00
Drainage		12.50
Miscellaneous		53.25
Overdraft Molsons Bank December 31, 1906		2,408.43
		$18,290.19

DISBURSEMENTS.

Overdraft Molsons Bank January 1, 1906	$132.15
Salaries, Allowances, etc.	720.80
Stationery, Printing and Postage	59.53
Roads and Bridges	4,706.84
Charity	59.67
County Rate	2,660.00
School Purposes	7,403.22
Interest	19.05
Board of Health	22.85
Debentures	1,456.00
Coupons	148.90
Drainage	377.10
Sheep Killed	232.03
St. Williams Police Village	156.48
Care of Hall	.50
Rebates of Taxes	54.00
Uncollectable Taxes	62.18
Miscellaneous	18.89
	$18,290.19

TOWNSHIP OF CHARLOTTEVILLE.

ABSTRACT OF RECEIPTS AND DISBURSEMENTS.

January 1st, 1907, to December 31st, 1907.

RECEIPTS.

Taxes of 1906—		
North Roll	$899.21	
South Roll	250.87	
		$1,150.08
Taxes of 1907—		
North Roll	6,230.00	
South Roll	7,446.55	
		13,676.55
Arrears of Taxes		97.37
Licenses		78.75
Clergy Reserve Fund Interest		397.36
School Purposes		991.87
Drainage		46.35
Miscellaneous		145.72
Overdraft Molsons Bank December 31, 1907		1,293.59
		$17,877.64

DISBURSEMENTS.

Overdraft Molsons Bank January 1, 1907	$2,408.43
Salaries, Allowances, etc.	742.16
Stationery, Printing and Postage	107.98
Roads and Bridges	623.10
Charity	107.75
County Rate	2,660.00
School Purposes	8,063.60
Debentures	1,522.00
Coupons	76.10
Interest	94.38
Board of Health	9.80
Drainage	377.56
Sheep Killed	301.77
St. Williams Police Village	185.41
Vittoria Police Village	166.97
Care of Hall	169.72
Rebates of Taxes	39.96
Uncollectable Taxes	119.92
Miscellaneous	101.03
	$17,877.64

TOWNSHIP OF CHARLOTTEVILLE.

Abstract of Receipts and Disbursements.

January 1st, 1908, to December 31st, 1908.

Receipts.

Taxes of 1907—		
North Roll	$290.66	
South Roll	168.13	
		$458.79
Taxes of 1908—		
North Roll	6,255.00	
South Roll	6,578.22	
		12,833.22
Arrears of Taxes		81.79
Licenses		73.50
Clergy Reserve Fund Interest		411.47
School Purposes		1,063.62
Drainage		12.17
Miscellaneous		189.61
Overdraft Molsons Bank December 31, 1908		515.81
		$15,639.98

Disbursements.

Overdraft Molsons Bank January 1, 1908	$1,293.59
Salaries, Allowances, etc.	707.30
Stationery, Printing and Postage	217.90
Roads and Bridges	883.45
Charity	118.90
County Rate	2,660.00
School Purposes	8,636.48
Interest	78.55
Board of Health	22.50
Drainage	306.69
Sheep Killed	108.31
St. Williams Police Village	195.50
Vittoria Police Village	183.64
Rebates of Taxes	22.75
Uncollectable Taxes	55.97
Miscellaneous	148.45
	$15,639.98

ARREARS OF TAXES.

Statement of Taxes Returned to County Treasurer.

By Treasurer from Collectors' Rolls—

S. Pt.,	Lot 16, Con. A	$2.10	
N. W. Pt.,	Lot 6, Con. 3	2.70	
S. W. ¼,	Lot 5, Con. 4	9.00	
N. C. Pt.,	Lot 14, Con. 3	7.56	
Total from South Roll, 1905			$21.36
E. C. Pt.,	Lot 24, Con. 8	4.32	
N. ½,	Lot 16, Con. 8	11.34	
N. E. Pt.,	Lot 4, Con. 8	40.70	
N. & N. W. Pt.,	Lot 3, Con. 11	2.86	
	5% added	2.97	
Total from North Roll, 1905			62.19
S. E. Pt.,	Lot 5, Con. 1	5.74	
S. W. Pt.,	Lot 6, Con. 3	4.47	
W. ½, N. W. ¼ and			
E. ½, N. W. ¼,	Lot 2, Con. 3	6.95	
	5% added	.87	
Total from South Roll, 1906			18.03

S. W. Pt.,	Lot 1, Con. 5	8.41	
E. C. Pt.,	Lot 24, Con. 8	5.10	
S. W. ¼,	Lot 14, Con. 8	5.62	
N. ½,	Lot 16, Con. 8	13.06	
N. E. Pt.,	Lot 4, Con. 8	6.72	
N. E. Pt.,	Lot 22, Con. 9	6.12	
	5% added	2.26	
Total from North Roll, 1906			47.29
N. ½,	Lot 11, Con. 1	7.92	
N. E. C. Pt.,	Lot 12, Con. A	2.75	
N. W. Pt.,	Lot 23, Con. 3	4.60	
N. C. Pt.,	Lot 24, Con. 3	.56	
S. W. Pt.,	Lot 6, Con. 3	6.42	
N. W. ¼,	Lot 5, Con. 4	8.78	
	5% added	1.56	
Total from South Roll, 1907			32.59
E. ½, N. E. ¼,	Lot 15, Con. 10	4.06	
S. ½,	Lot 5, Con. 9	11.62	
S. ½, S. ½,	Lot 6, Con. 9		
	5% added	.79	
Total from North Roll, 1907			16.47
			$197.93

ARREARS OF TAXES.

Statement of Taxes Returned to County Treasurer.

By Clerk from Non-Resident Roll—

Block 5,	Lot 15, Con. 3	$1.51	
Block 15,	Lot 14, Con. 3	1.72	
S. E. Pt.,	Lot 12, Con. A	3.30	
Total for Roll, 1905			$6.53
S. E. Pt.,	Lot 12, Con. A	2.56	
Block 15,	Lot 14, Con. 3	1.20	
Total for Roll, 1906			3.76
Block 15,	Lot 14, Con. 3		
S. C. Pt.,	Lot 20, Con. 3	1.18	
S. W. Pt.,	Lot 15, Con. 9	14.76	
S. W. Pt.,	Lot 2, Con. 5	11.61	
E. C. Pt.,	Lot 24, Con. 8	7.71	
N. E. Pt.,	Lot 4, Con. 8	10.33	
Total for Roll, 1907			45.59
S. W. Pt.,	Lot 2, Con. 5	10.57	
N. ½,	Lot 4, Con. 7	10.89	
E. C. Pt.,	Lot 24, Con. 8	7.53	
N. E. Pt.,	Lot 4, Con. 8	10.89	
Total for Roll, 1908			39.88
			$95.76

ARREARS OF TAXES.

Remittances Received from the County Treasurer.

In the Year 1905:

S. W. Pt.,	Lot 3, Con. B	$6.03	
			$6.03

In Year 1906:

N. E. ¼,	Lot 5, Con. 5	7.06	
S. W. ⅛,	Lot 6, Con. 4	4.40	
S. E. ¼,	Lot 5, Con. 4	8.80	
E. ½, S. W. ¼,	Lot 17, Con. 8	4.32	
S. W. ¼,	Lot 14, Con. 7	7.70	

N. C. Pt.,	Lot 24, Con. 3	3.21	
S. W. ¼,	Lot 5, Con. 4	9.00	
S. Pt.,	Lot 19, Con. 7	3.70	
Block 1,	Lot 17, Vittoria	18.06	
Block 5,	Lot 15, Vittoria	8.25	
N. C. Pt.,	Lot 14, Con. 3	8.31	
N. ½,	Lot 7, Con. 9	10.67	
			93.48
In Year 1907:			
N. W. ¼,	Lot 2, Con. 3	7.30	
N. E. Pt.,	Lot 22, Con. 9	6.43	
N. W. Pt.,	Lot 17, Con. 10	4.97	
N. E. Pt.,	Lot 4, Con. 8	49.36	
E. C. Pt.,	Lot 24, Con. 8	10.88	
S. W. Pt.,	Lot 2, Con. 5	11.61	
N. W. Pt.,	Lot 6, Con. 3	6.82	
			97.37
In year 1908:			
E. C. Pt.,	Lot 24, Con. 8	7.71	
S. W. Pt.,	Lot 15, Con. 9	14.76	
S. ½,	Lot 5, Con. 9	9.36	
Block 15,	Lot 14, Vittoria	6.13	
N. ½,	Lot 16, Con. 8	30.98	
S. W. Pt.,	Lot 6, Con. 3	12.85	
			81.79
			$278.67

NOTE:—A further remittance of $6.96 was received after close of year and appears in receipt of 1909.

ARREARS OF TAXES.

STATEMENT OF ARREARS RETURNED BY COUNTY TREASURER.

To Be Placed on Collectors' Rolls.

For Collectors' Rolls, 1905:			
S. Pt.,	Lot 13, Con. A	$11.27	
N. ½, S. ½,	Lot 11, Con. 1	10.67	
N. Pt.,	Lot 2, Con. 5	11.86	
N. E. Pt.,	Lot 4, Con. 8	34.54	
N. W. ¼,	Lot 14, Con. 9	28.47	
N. ½,	Lot 5, Con. 9	24.95	
S. ½, N. ½,	Lot 6, Con. 9	10.17	
			$131.93
For Collectors' Rolls, 1906:			
N. ½, S. ½,	Lot 12, Con. 1	*2.54	
N. W. Pt.,	Lot 1, Con. 2	9.72	
			12.26
For Collectors' Rolls, 1907:			
S. Pt.,	Lot 16, Con. A	6.38	
S. ½,	Lot 14, Con. A	1.93	
N. Pt.,	Lot 20, Con. 7	*5.43	
N. Pt.,	Lot 2, Con. 8	2.94	
S. Pt.,	Lot 17, Con. 9	7.92	
E. ½, N. W. ¼,	Lot 15, Con. 10	*4.60	
			29.20
For Collectors' Rolls, 1908:			
S. E. Pt.,	Lot 12, Con. 5	**10.67**	
N. & N. W. Pt.,	Lot 3, Con. 11	**3.82**	
			14.49
			$187.88

Special Return, 1905:

S. E. Pt.,	Lot 12, Con. A	17.06	
			17.06

Sold for costs only; taxes charged to Township.

$204.94

NOTE:—All these taxes excepting three items marked with an asterisk (*), were placed upon the Collectors' Rolls.

SUMMARY.

ARREARS OF TAXES IN HANDS OF COUNTY TREASURER.

May 1st, 1905, to December 31st, 1908.

Debits—		
Balance in hand May 1st, 1905		$267.06
Return 1905 taxes, South Roll	$21.36	
North Roll	62.19	
		83.55
Return 1906 taxes, South Roll	18.03	
North Roll	47.29	
		65.32
Return 1907 taxes, South Roll	32.59	
North Roll	16.47	
		49.06
Non-Resident Roll, 1905		6.53
" " 1906		3.76
" " 1907		45.59
" " 1908		39.88
Percentage added, 1906		12.62
" " 1907		14.16
" " 1908		13.80
		$601.33
Credits—		
Arrears paid, received 1905		$6.03
" " " 1906		93.48
" " " 1907		97.37
" " " 1908		81.79
Returned to Clerk for Roll, 1905		131.93
" " " 1906		12.26
" " " 1907		29.20
" " " 1908		14.49
Arrears S. E. Pt., Lot 12, Con A, sold for costs only, taxes charged back		17.06
		$483.61
Balance in hands of County Treasurer December 31st, 1908		117.72
		$601.33
Adjustment—		
Township Treasurer's Balance		$117.72
County Treasurer's Balance		110.76
Remittance in transit received in 1909		$6.96

ARREARS OF TAXES.

DETAILS OF BALANCE IN HANDS OF COUNTY TREASURER, DEC. 31, 1908.

N. ½	Lot 11, Con. A	$9 15
S. E. Pt.	Lot 5, Con. 1	6 96
N. C. Pt.	Lot 24, Con. 3	65
N. W. Pt.	Lot 23, Con. 3	5 31
N. W. ¼	Lot 5, Con. 4	10 14
S. W. Pt.	Lot 1, Con. 5	10 20

S. W. Pt.	Lot 2, Con. 5	10 57
N. ½	Lot 4, Con. 7	10 89
N. E. Pt.	Lot 4, Con. 8	30 42
S. W. ¼	Lot 24, Con. 8	7 14
E. C. Pt.	Lot 24, Con. 8	7 53
S. ½, N. ½	Lot 6, Con. 9	4 07
E. ½, N. E. ¼	Lot 15, Con 10	4 69

Balance, December 31st, 1908 ..... $117 72

FORM OF JOURNAL ENTRY OF COLLECTORS' ROLLS.

BASED ON ROLLS OF 1907.

Collector South Roll, Dr.		$7,628 90	
" North Roll, Dr.		6,517 78	
To Sundries—			
S. S. No. 1		.....	$375 43
" 2		.....	385 50
" 4		.....	236 60
" 5		.....	602 30
" 6		.....	872 66
" 7		.....	262 87
" 8		.....	299 29
" 9		.....	159 18
" 10		.....	457 86
" 11		.....	603 40
" 12		.....	386 21
" 13		.....	417 02
" 14		.....	345 08
" 15		.....	445 65
" 16		.....	362 55
" 17		.....	33 35
" 18		.....	450 48
" 20		.....	91 17
County Rate		.....	2,699 89
Railway Debenture Rate		.....	1,641 98
Drainage		.....	256 48
Arrears of Taxes		.....	19 17
General Fund—			
Township Rate	$1,933 98		
Police Village	162 44		
Commuted Statute Labor	247 14		
Dogs	399 00		
		.....	2,742 56
		$14,146 68	$14,146 68

NOTE.—It is usual to place to the credit of each account for which a special rate is struck the proceeds of such rate, charging the account with the disbursement on account thereof and carrying the surplus or deficit of such rate forward to the next year, taking the same into account in striking the rate for that year.

ASSETS AND LIABILITIES.

DECEMBER 31ST, 1908.

ASSETS.

Active—			
Taxes of 1908 (without percentage added)			
North Roll	$6,405 45		
Less paid in to Dec. 31, 1908	6,255 00		
		$150 45	
South Roll	6,945 41		
Less paid in to Dec. 31, 1908	6,578 22		
		367 19	
Arrears of Taxes		117 42	
Drainage		58 76	
			$693 82

Reserve—			
Clergy Reserve Fund Securities	8,153 06		
" " " Bank Balance	611 94		
		$8,765 00	
" " " Accrued Interest	148 02		
" " " Interest, Bank Balance.	276 74		
		424 76	
			9,189 76
Fixed—			
Real Estate		150 00	
Buildings		800 00	
Road Machinery		75 00	
Safe		50 00	
Tile Moulds		75 00	
			1,150 00
			$11,038 58

LIABILITIES.

Floating—		
Molsons Bank, Current Account Overdraft	$515 81	
Schools (Clergy Reserve Interest)	**424 76**	
		$940 57
Trust Funds—		
Clergy Reserve Fund	8,765 00	
		8,765 00
Surplus *Assets over Liabilities*		1,328 01
		$11,033 58

Ottawa, Sept. 14, 1909.

To His Honour the Lieutenant-Governor in Council:

Sir,—Under authority of an Order-in-Council, dated June 3rd, 1909, approved by His Honour the Lieutenant-Governor of Ontario, in pursuance of Sub-Sec. 3, Sec. 9, Cap. 228 R.S.O., 1897, I, George L. Blatch, Chartered Accountant, of the City of Ottawa, was instructed by the Provincial Municipal Auditor to make an examination and audit of the books and accounts of the town of Hawkesbury, in the County of Prescott.

I have made a close examination of the Collector's rolls for this period and a general view of the accounts in general, but more particularly the state of the various bank accounts and liabilities at this date, September 10, 1909.

A statement of Assets and Liabilities is prepared from various sources, chiefly the report of the town auditors.

I find that there is levied on the Collector's rolls sufficient only for the special accounts—that is, for Public and Separate Schools, Debentures, County rate and Local Improvement rates. There has been no levy of a town rate for general purposes. The Council has to depend entirely on rentals and licenses to provide revenue for general expenses, which is not sufficient for all purposes.

It would be necessary to collect all the taxes promptly to have sufficient funds to meet the town's obligations for debentures falling due and demands of the school boards.

The taxes, however, are in arrears and it becomes necessary to borrow from the bank to meet the demands. This means that the town has to pay a large amount in interest every year, and if the taxes are more than one year in arrears there is no interest being earned on those arrears.

Assessment and Collectors' Rolls.

There are some discrepancies between the Assessment Rolls and the Collectors' Rolls.

1904 Rolls.

	Asst. Roll.	Coll. Roll.
No. 452, Polidore Joly	$300 00	$250 00
" 679, John Murphy	400 00	300 00
" 754, W. R. Montgomery	1,300 00	1,000 00
	$2,000 00	$1,550 00
Assessment Roll	$2,000 00	
Collector's Roll	1,500 00	
Difference	$450 00	

1905 Rolls.

	Asst. Roll.	Coll. Roll.
No. 878, Joseph Pilon	$100 00	$200 00

1906 Rolls.

	Asst. Roll.	Coll. Roll.
No. 201, Baptiste Contois	$650 00	$450 00
" 335, Marie Dube	250 00	
" 739, James McGillis	800 00	300 00
" 895, H. B. Partridge	400 00	
Assessment Roll	$2,100 00	$750 00
Collector's Roll	750 00	
Difference	$1,350 00	

1907 Rolls.

	Asst. Roll.	Coll. Roll.
No. 168, Basille Carriere	$1,350 00	$1,250 00
" 271, John Decarie	1,900 00	1,800 00
" 789, R. G. Parnell	700 00	800 00
Assessment Roll	$3,950 00	$3,850 00
Collector's Roll	3,850 00	
Difference	$100 00	

1908 Rolls.

	Asst. Roll.	Coll. Roll.
No. 234, Theo. Deslaurier	$350 00	$250 00

Apart from these discrepancies the rolls are carefully prepared, added up and proved.

Collectors' Rolls.

The Collectors' rolls of 1904 and 1905 have been returned to the Treasurer with only a small amount uncollected. The taxes on these rolls have been properly accounted for by the Collector.

The taxes of 1906 have all been collected except $15.00 uncollectable, but the roll has not yet been returned, and there is a shortage of $426.15 on this roll.

There is about $121.72 balance of the taxes of 1907 uncollected and a shortage of $846.23 on this roll.

There is still a large amount of the taxes of 1908 to be collected.

It is rather difficult to tell on which items the percentages should be added as being overdue, but I am of the opinion that the Collector has been very careful to charge the percentage when the taxes were collected after the time fixed by the Council.

I have allowed discount on the amount collected calculated from the amount deposited to November 2nd each year, and charged the percentage on all taxes uncollected on January 16th.

On October 26th, 1907, the Collector claims to have deposited $398.00, but I can find no credit for this in the bank book. There is a difference of one dollar in the deposit of February 21, 1908, the amount claimed being $86.75 and the amount deposited only $85.75. A statement of the account with the Collector each year is attached showing a net shortage of the rolls of 1905-6-7-8 of $1,900.00.

Two items included in the list of unpaid taxes of 1905 with interest amounting to $12.86 were paid to the Collector and deposited by him along with the taxes of 1906 in the year 1909. These amounts should have been paid to the Treasurer to whom the roll had been returned and deposited by him to the credit of arrears of taxes.

I would recommend that the Municipal Cash Book be used by the Treasurer and I have explained to him how it should be kept.

A general ledger should also be opened with the balances of the accounts as shown in the statement of Assets and Liabilities attached and the cash book posted to the ledger regularly so that the accounts would at all times show the correct balance.

When the Collector's roll is handed to the Collector the Treasurer should charge the Collector and credit the various accounts with the amounts on the roll thus:—

Collector of Taxes. Dr. $18,391.21.

To Town Rate,
" County and House of Refuge Rate,
" Board of Education,
" R. C. Sep. School Board,
" Debentures,
" West Hawkesbury.

Then as the Collector makes a deposit of taxes collected he should be credited through the Cash Book with the amount deposited.

ASSETS.

Taxes 1907 unpaid	$121 72	
Taxes 1908 unpaid	2,711 65	
Taxes due by Collector	1,900 00	
		$4,733 37
Town Hall Property		4,000 00
Water Works System		110,000 00
Water Works Services		10,000 00
High and Public School		9,000 00
Sewerage System		63,000 00
Township West Hawkesbury Debenture fund		96 02
Granolithic Sidewalks		16,500 00
		$217,329 39

The only available assets in this list are the taxes, $4,733.37, and the amount due from West Hawkesbury, $96.02.

LIABILITIES.

County Rate and House of Refuge		$1,285 62
Board of Education		1,700 00
R. C. Separate School Board		1,800 00
Bank of Ottawa loan on Local Improvement account		9,837 10
" " " against 1908 Taxes		4,861 18
" " " against 1909 Taxes		8,929 71
Sundry Expenses and Salaries		1,907 21
West Hawkesbury, refund		2,095 59
Debentures, 139-143	29,184 46	
" 126	5,835 92	
" Main and William	3,524 44	
" C. A. R.	3,606 06	
" Streets	13,448 44	
" W. W. and Sewer	113,610 28	
		$169,209 60
		$201,626 01
Surplus		15,703 38
		$217,329 39

Note.

The above item of $9,837.10, which is now a liability to the Bank of Ottawa, will be covered by an issue of debentures and become a debenture debt. The item of $8,929.71 included notes amounting to $5,800.00 due in December. All the amounts due the Bank of Ottawa included interest to September 2, 1909.

The Water Works accounts are not included in this report.

The following is a list of the liabilities due this year, for which there is available only the unpaid taxes amounting to $4.733.37 and $96.02 due from West Hawkesbury.

County of Prescott and House of Refuge	$1,285 62
Board of Education	1,700 00
R. C. Separate School Board	1,800 00
Sundry Expenses and Salaries	1,907 21
West Hawkesbury, Refund	250 00
Bank of Ottawa, Loan	4,861 18
Debentures, due October 1st, 1909	8,848 00
" due December 1st, 1909	1,471 68
	$22,123 69

Respectfully submitted,

GEO. L. BLATCH, F.C.A.,

Auditor.

Ottawa, Oct. 27, 1909.

STATEMENT OF ACCOUNT WITH THE COLLECTOR OF TAXES, TOWN OF HAWKESBURY, ONT.

1904 AND 1905 ROLLS.

Amount on Roll 1904	$16,606 72	
" " " 1905	19,842 97	
Interest 1904	45 10	
" 1905	50 21	
		$36,545 00
Cash 1904	$16,651 82	
" 1905	19,195 44	
Joly 468	8 75	
Discount	655 15	
Unpaid 1905	33 25	
		36,544 41
Due by Collector		59

1906 ROLLS. SEPTEMBER 8, 1909.

Amount on Roll		$17,548 49
Less unpaid		15 00
		$17,533 49
Cash to November 2, 1906	$10,103 60	
Discount	546 50	
		$10,650 10
		$6,883 39
Cash to January 16, 1907		2,109 90
		$4,773 49
5% Interest		238 67
		$5,012 16
Cash to date		4,586 01
Due by Collector		$426 15

STATEMENT OF ACCOUNT WITH THE COLLECTOR OF TAXES, TOWN OF HAWKESBURY, ONT.

1907 Rolls, September 8, 1909.

Amount on Roll		$18,306 96
Less amount unpaid		121 72
		$18,185 24
Allowed by Council		203 00
		$17,982 24
Cash to November 2, 1907	$7,598 54	
Discount to November 2, 1907	399 46	
		$7,998 00
		$9,984 24
Cash to January 16, 1908		4,623 88
		$5,360 36
Interest 5%		268 02
		$5,628 38
Cash to date		4,781 70
		$846 68
Exchange charged by Bank		45
Due by Collector		$846 23

1908 Rolls, September 8, 1909.

Amount on Roll		$18,391 21
Less unpaid September 8, 1909		2,711 65
		$15,679 56
Cash to November 2, 1908	$11,547 35	
Discount to November 2, 1908	607 75	
		$12,155 10
		$3,524 46
Cash to January 16, 1909		1,287 51
		$2,236 95
Interest 5%		111 84
		$2,348 79
Cash to date		1,721 76
Due by Collector		$627 03

STATEMENT OF ACCOUNT WITH THE COLLECTOR OF TAXES, TOWN OF HAWKESBURY, ONT.

1904 and 1905 Rolls.

Amount on 1904 Roll	$16,606 72
" " 1905 "	19,842 97
Interest 1904 Roll	45 10
" 1905 "	50 21
	$36,545 00

Cash received 1904	$16,120 20	
Cash received 1905	2,074 53	
Cash received 1905	17,652 53	
Discount allowed	655 15	
Joly taxes	8 75	
Unpaid	33 25	
		$36,544 41
Due by Collector		59

1906 Rolls.

Amount on Roll		$17,548 49
Interest 5% overdue		238 67
		$17,787 16
Cash received and		
Deposited	$16,799 51	
Discount	546 50	
Unpaid per list	15 00	
		17,361 01
Due by Collector		$426 15

1907 Rolls

Amount on roll		$18,306 96
Interest 5% on overdue		268 02
		$18,574 98
Cash received and		
Deposited	$17,004 12	
Discount	399 46	
Allowed by Council	203 00	
Exchange	45	
Unpaid per list	121 72	
		17,728 75
Due by Collector		$846 23

1908 Rolls.

Amount on Roll		$18,391 21
Interest on overdue		111 84
		$18,503 05
Cash received and		
Deposited	$14,556 62	
Discount	607 75	
Unpaid	2,711 65	
		17,876 02
Due by Collector		$627 03

SUMMARY.

Balance due by Collector, 1905		59
" " " " 1906		426 15
" " " " 1907		846 23
" " " " 1908		627 03
Total due by Collector		$1,900 00

Continued Sept. 8, 1909, to Nov. 15, 1909.

To Balance per statement 1904-5		59
Interest on amount unpaid January 16, 1906	$249 24	
Less amount already charged	50 21	
		199 03
Joly taxes credited twice		8 75
		$208 37

By amount unpaid P. Dorion	9 90	
By amount unpaid M. Greenspoon	1 66	
Error A. Sabourin	3 30	
		14 86
Balance due by Collector		$193 51
Roll returned to Treasurer.		
To Balance per statement 1906		$426 15
By cash received and deposited	$37 73	
By error in roll No. 311	3 30	
		41 03
Balance due by Collector		$385 12
Roll returned to Treasurer.		
To Balance per statement 1907		$846 23
Amount unpaid on Roll		121 72
		$967 95
By error in Roll	10 00	
By cash received and deposited	215 00	
		225 00
		$742 95
November 15, 1909—		
Balance unpaid	$154 82	
Balance due by Collector	588 13	
		742 95
To Amount on Roll unpaid, 1908		$2,711 65
Balance due by Collector		627 03
		$3,338 68
By Cash received and deposited	$286 00	
By Cash received and deposited	1,295 49	
		1,581 49
		$1,757 19
November 15, 1909—		
Balance unpaid	1,416 16	
Balance due by Collector	341 03	
		1,757 19

SUMMARY.

Year.	Returned.	Unpaid.	Due by Collector.	
1904-5	$33 25	$11 56	$193 51	
1906	15 00	..	385 12	
1907	..	154 82	588 13	
1908	..	1,416 16	341 03	
	$48 25	$1,582 54	$1,507 79	$3,138 58

GEO. L. BLATCH, F.C.A.,

Auditor.

November 15, 1909.

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TWENTY-FOURTH ANNUAL REPORT

OF THE

COMMISSIONERS

FOR THE

Queen Victoria Niagara Falls Park

1909

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1910

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COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK.

JOHN W. LANGMUIR, Chairman.
GEORGE H. WILKES.
P. W. ELLIS
COLONEL L. CLARKE RAYMOND, K.C.
WILLIAM L. DORAN.
LIONEL H. CLARKE.

JOHN H. JACKSON, C.E.,
Superintendent.

J. HARRISON PEW,
Assistant Superintendent.

HENRY J. MOORE,
Chief Gardener.

PARLIAMENT BUILDINGS,
TORONTO. March 3rd, 1910.

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., *Lieutenant-Governor of the Province of Ontario.*

MAY IT PLEASE YOUR HONOUR:

I beg to submit to you herewith the Twenty-fourth Annual Report of the Queen Victoria Niagara Falls Park Commission, 1909.

I have the honour to be,

Your Honour's most obedient servant,

W. J. HANNA,
Provincial Secretary.

To the Honourable W. J. Hanna, K.C., M.P.P., *Provincial Secretary, Province of Ontario, Parliament Buildings, Toronto.*

Sir,—I have the honour to transmit herewith for presentation to the Legislature of Ontario the Twenty-fourth Annual Report of the Commissioners for the Queen Victoria Niagara Falls Park (being for the year ended 31st December, 1909), together with statements of receipts and expenditures and other documents connected with the Report.

I have the honour to be, Sir,

Your obedient servant,

J. W. Langmuir,

Chairman.

TWENTY-FOURTH ANNUAL REPORT

OF THE

Commissioners of the Queen Victoria Niagara Falls Park.

To the Honourable JOHN MORISON GIBSON, K.C., LL.D., *Lieutenant-Governor of the Province of Ontario.*

MAY IT PLEASE YOUR HONOUR:

The Commissioners of the Queen Victoria Niagara Falls Park beg to submit their Twenty-fourth Annual Report, to which is appended statement of Receipts and Expenditures for the year 1909.

The report of the Park Superintendent, showing the character and extent of the various works and improvements carried on in the several Parks and connecting lengths vested in the Commissioners along the bank of the Niagara River between Lake Erie and Queenston Heights, together with the text of all contracts entered into by the Commissioners during the year, will be found in the appendix to the Report.

NIAGARA RIVER BOULEVARD.

Reference has been made in previous reports of the Commissioners to the construction of a Boulevard or Esplanade between Bridgeburg and the southerly end of Niagara Falls Park. The works connected with this undertaking comprise the complete protection of the shore line of the river against erosion at all points; the acquirement of additional land necessary to widen the Reserve or Boulevard to one hundred feet; the building of bridges over the creeks and water courses flowing into the River and the construction of a high class macadam road from Bridgeburg to the head of the Park, a distance of sixteen miles. Up to the 31st December, 1909, there had been expended on these operations the sum of $121,857.92; and in order to complete the undertaking it became necessary to ask the sanction of the Legislature for the issue of additional debentures to the extent of $200,000, making $300,000 in all for the completion of the work.

The Commissioners confidently hoped that at least one-half of the macadam roadway on the Boulevard would have been placed under contract before the close of 1909, and, having regard to the fact that a considerable portion of the land required for bringing the width up to one hundred feet had been purchased and taken possession of before the close of 1908, it was but reasonable to expect that little difficulty would have been experienced in closing with the remaining owners. The prices offered were acknowledged by expert valuators to be fair and just, apart entirely from a consideration of the contemplated improvements which would greatly enhance the value of the lands fronting on the Boulevard. Notwithstanding that great patience has been exercised in the negotiations for acquirement and that every effort has been made to reach an equitable adjustment without proceeding to expropriation, there still remains at the close of the year a large percentage of frontage to be purchased before actual construction can be proceeded with.

Seeing that the efforts of the Commissioners to acquire the lands at reasonable prices have proved fruitless, it only remains to commence expropriation proceedings,

To that end the plans for all the unpurchased frontage have been prepared and will at once be filed. The two sections of roadway which were placed under contract last year have been completed and are excellent specimens of macadam road construction with proper and efficient drainage.

The shore protection of rip rap stone work was continued during 1909 at short lengths where the river currents made it necessary, and it is satisfactory to note that this class of protection against erosion is proving effective. Some additional lengths of the shore line will require to be completed in the same way during the current year.

The location of the Boulevard connection between the southerly limit of the Park proper and the Village of Chippawa received careful consideration from the Commissioners with the result that the land for this new and important entrance to Queen Victoria Niagara Falls Park is being acquired south of and adjoining the lands of the International Railway right of way. It was originally contemplated to make the connection along the shore of the river, using for the roadbed the material excavated from the Power Company construction, but, as the Chippawa River is part of the Canal System of the Dominion, and even if the excavated material had been available, the great cost of placing a drawbridge over the River and the future maintenance of the same would have rendered the carrying out of the plan not only difficult but exceedingly expensive. It was therefore finally decided to make the connection between the head of the Park and Chippawa over the high land running parallel with the International Railway, which will give a more extensive view of the Upper River and Rapids and will at the same time enable a better entrance to be made to the head of the Park.

The contract for this portion of the Boulevard, comprising about a mile, has been accepted and will be proceeded with at the opening of the Spring. There will then remain the short length through the Village of Chippawa to be arranged for between the Commissioners and that Municipality which, when finished, will complete about three miles of the new roadway running southerly from the head of the Park.

Queen Victoria Niagara Falls Park.

Early in the year an improved system of water supply for the northerly portion of the Park proper was decided on in order to increase the facilities for more effective lawn watering. When the contract for construction was about to be let the City of Niagara Falls approached the Commissioners with a request to be allowed to run a new and enlarged main through the Park in order to supply the increased wants of the City. It was suggested by the City representatives that the requirements of the Park might be better served by combining the proposed system with the new and enlarged City main. After careful consideration it was decided that the supply of water for the Park would be more effectively accomplished by such combination and an agreement was accordingly executed to give effect to the arrangement. The new pipe line will give an adequate supply of water for Park purposes for all time. The text of the agreement will be found in the Appendix.

Greenhouses with Conservatories.

The project of constructing spacious greenhouses with conservatories has been under the consideration of the Commissioners for several years. The most appropriate site for the building is the space midway between the power houses of the Canadian Niagara Power Company and the Electrical Development Company. This site is in full view of the Upper Rapids and has the additional advantage of being

the widest portion of the Park proper. Designs have been prepared for improving the whole of this part of the park from the shore line of the River to the slope of the bank. Unfortunately, however, the Ontario Power Company commenced to lay down its second pipe, necessitating the breaking up of a large portion of the surface of the ground proposed to be dealt with, thus rendering it not only impossible to carry out the improvements contemplated but also rendering it necessary to postpone the carrying out of the designs for the greenhouses with conservatories on this site. In order to supply the growing needs of the Park proper and the outlying areas of the Park system temporary space had to be provided on the present site of the greenhouses, as well as for additional glass surface.

If this great historic park is to keep pace with the great parks on this continent in this most attractive feature of park decoration, it is quite evident that the construction of extensive greenhouses with conservatories cannot longer be delayed, and it may become necessary to select another location for the purpose than the one between the Canadian Niagara Power Company and the Electrical Development Company.

It is greatly to be regretted that the development of the aesthetic features of the southerly end of the Park has to give way to the utilitarian or commercial requirements in the generation of power, or that the two could not have been simultaneously carried out. After a period of rest during which the work of restoration was favourably progressing and a large number of trees and shrubs had been planted and carefully nurtured, the work was not only arrested but much plant life was lost by the excavations for the power works of the Ontario Power Company. In the excavations for laying the enormous pipe of eighteen feet in diameter the limits of surface disturbance are very wide and necessarily extend much beyond the trench required for laying the pipe.

Pending the completion of the works connected with the Ontario Power Company in the southerly portion of the Park, which will enable the restoration and planting of that part of the Park proper to be proceeded with, the efforts of the Chief Gardener will be directed to improvements in the northerly part of the pleasure grounds by the removal of trees and shrubs where they have become too dense, and the opening up of vistas. It is intended also to introduce a new feature of rock gardening along the slope of one of the small ravines.

The Park approach at the north gateway widened last year and macadamized under an agreement with the City of Niagara Falls has been further improved by the building of a neat and substantial cement walk with new guard rail from the Upper Steel Arch Bridge to Ferry Road, the new grade conforming to the new elevation of both roadway and railway tracks.

The Niagara Falls Park System.

The Parks and outlying properties now under the supervision of the Commissioners comprise:

1. Queen Victoria Niagara Falls Park proper, having an area of 196 acres.
2. Queenston Heights, containing 88 acres.
3. Niagara Glen and Whirlpool Point, containing 75 acres.
4. The Old Fort Grounds at Fort Erie, containing 17 acres.
5. Butler's Burying Ground, 1 acre.

6. Lundy's Lane Burying Ground, 3 acres.

7. The Chain Reserve along the Niagara River from the Park to Niagara-on-the-Lake, a distance of 13 miles, together with all the ungranted lands lying between the Reserve and the water's edge, 260 acres.

8. The Chain Reserve along the Niagara River from Chippawa to Fort Erie, a distance of 16 miles, 100 acres.

All of these Parks and outside areas have been efficiently maintained and generally improved during the year, as more particularly set out in the Report of the Superintendent.

Queenston Heights.

At Queenston Heights the suggested changes in the location of the entrance gates have been completed and to this change, along with other improvements, are due the large increase in the number of visitors to this most attractive Park.

Travellers to this Park have been a good deal annoyed by the operations of certain vendors of souvenirs, post cards, etc., on the roadway fronting the Monument Grounds. These persons, although licensed by the County of Lincoln, are in no way amenable to Park regulations. Efforts are now being made to secure jurisdiction over this portion of the old Military Reserve at Queenston Heights.

Niagara Glen.

This resort continues to be a great attraction to visitors, although much damage was done during the ice jam in the early part of April. The northerly limit of the area was completely swept of trees and shrubs by the action of the ice in passing down the Gorge, and much time was spent in repairing the paths and other portions of the Glen during the past summer. It is quite evident, however, that the great beauties of this charming spot will not be appreciated until an incline is erected at Whirlpool Point and another at the northerly end of the Glen in order that visitors may have easy access to the banks of the River.

Butler's Burying Ground.

After considerable negotiation the plot of ground known as "Butler's Burying Ground" has been purchased as authorized by the Legislature and a right of way to it has been acquired. The plot has been fenced and this year works of restoration and improvements will be carried out.

Lundy's Lane.

For some years the Burying Grounds at Lundy's Lane on the old battle ground have been in a neglected and unkempt condition, due partially to the Trustees having no assured revenue for the purpose of maintenance. At the last Session of the Legislature it was proposed that this sacred spot should be placed under the care of the Commissioners so that it might be presentable in appearance to the many visitors both from Canada and the United States who yearly come to see where the brave men of 1814 fought and fell. While the Act was not passed owing to the lateness of its introduction the Commissioners were authorized to prepare the way for assuming control by clearing the area of refuse and repairing the

fences. Considerable money will require to be spent here, for many of the old gravestones are completely off the foundations and present a very dilapidated appearance.

Power Company Extensions.

In May last the Canadian Niagara Power Company informed the Commissioners that the increased demand for power necessitated the installation of an additional unit in connection with the further development of its plant. This request was approved of under the terms of their agreement and the construction of the additional length of power house has been completed. The total electrical equipment of the Canadian Niagara Power Company will now comprise five units of 10,000 H.P. each and one unit of 12,500 H.P., or a total development of 62,500 H.P.

Towards the end of the year the Ontario Power Company made application for permission to increase its output of electrical energy by laying down a second conduit from its forebay at the Dufferin Islands through the Park to the Power House site; and also to make a corresponding addition to the hydraulic and electrical plant under the bank of the River below the Falls.

This Company has the right under its agreement with the Commissioners to withdraw from the river a quantity of water equivalent to the volume that will pass through three pipes each of eighteen feet diameter, only one of which pipes has been, up to this date, installed. Some points of difference arose between the Commissioners and the Company in the details of construction to be followed, but these were amicably adjusted, whereupon authority was granted to proceed with laying down the second pipe line.

With the completion of these works the Ontario Power Company will have a capacity of about 90,000 electrical horse power, comprising three units of 10,000 each and five units of 12,000 each. With the demand for power constantly increasing and the near approach of the time for supplying the Hydro Electric Power Commission with electrical energy for Provincial distribution it is expected that this company will at once erect two additional units of 12,000 horse power each.

The Electrical Development Company has now an equipment consisting of four units of 10,700 horse power each, and it is stated that they are contracting for three additional units of 14,000 horse power each.

Payment for Excess Power.

The verbatim report of a conference held in connection with the question of payment for excess power generated by the various power companies was incorporated in last year's Report, but inasmuch as the discussion which took place at the Conference did not have the effect of bringing any closer together the widely differing contentions of the Companies and the Commissioners, litigation was determined upon and the suit is still before the Courts.

In illustration of the difference between the methods adopted for these payments for power generated in excess of the amount stated in the agreements with the companies, the following schedule shows the amounts of such difference to this date:

Six months ending.	C.N.P. Co.		Ont. P. Co.		Elec. Dev. Co.	
	Average.	Peak.	Average.	Peak.	Average.	Peak.
April 30th, 1906. } Oct. 31st, 1906.. }	$ 2,823 00	$ 8,087 99				
April 30th, 1907 ..	5,196 18	8,146 95				
Oct. 30th, 1907....	8,636 57	10,882 16				
April 30th, 1908 ..	8,700 26	12,459 15				
Oct. 30th, 1908	9,923 89	13,828 81				
April 30th, 1909...	10,125 40	14,718 79				
Oct. 30th, 1909....	11,360 15	14,978 08				
	$56,765 45	$83,101 93				
March 31st, 1908..				$ 1,136 54		
Sept. 30th, 1908...			$ 88 50	3,474 80		
March 31st, 1909 ..			5,822 02	8,773 08		
Sept. 30th, 1909....			4,413 00	10,332 59		
			$10,323 52	$23,717 01		
Aug. 1st, 1907.....						$ 2,521 11
Feb. 1st, 1908					$ 662 20	5,794 68
Aug. 1st 1908.....					1,602 00	8,660 88
Feb. 1st, 1908					1,787 50	10,889 72
Aug. 1st, 1909.....					4,106 00	12,008 92
					$8,157 70	$39,875 31

High and Low Water.

The early months of 1909 were notable for some of the most phenomenal physical occurrences that have taken place in the Niagara River and Gorge within the last half century. The month of January, with its usual low water conditions, was followed in February by the almost complete withdrawal of water from the American Niagara Falls, the immediate cause being an ice jam which formed as a result of the exceedingly low water at the head of Goat Island, thus practically closing off the American Falls. This occurrence took place on Saturday the 13th February, and during the Sunday, Monday and Tuesday following only a few trickling streams were in evidence instead of the normal thousand feet of rushing water. A similar event happened in 1848 but did not occur since that time until 1903, and then to a partial extent only.

Following these phenomenal conditions which, however, were free from damage, the month of April brought the highest water levels attained within the knowledge of the present generation. A wind storm of very high velocity swept over the range of the Great Lakes, breaking up the enormous ice fields, which swiftly floated down the Rapids and Lower Gorge till the mass became blocked at the mouth of the river, and within four days the whole length from Niagara-on-the-Lake to the Horseshoe Fall, with the exception of the Lower Rapids, was choked, and remained so until the end of April. The difference between the level of the water in the Lower Gorge in February and April was over 50 feet. On Saturday, April 10th, the water level rose to such an extent that the power house of the Ontario Power Company immediately under the falls was flooded and the generators entirely submerged. Structures and trees along the whole of the twelve miles from Lake Ontario were damaged and uprooted to an extent, in many cases, beyond repair.

At the request of the Government, the Commission entertained the Australian Press delegates to the convention in London, as they were passing across the continent in May last. A number of prominent Editors and Members of Parliament from the southern colony were present, and manifested great pleasure and much interest in viewing the great cataract and its surroundings.

In October a distinguished party of Japanese, comprising the Imperial Industrial Commission of Japan, who came to this continent to study American methods of manufacture, availed themselves of a visit to Niagara Falls, New York, to cross to the Canadian side, and were entertained by the Dominion Government, with the assistance of the Commissioners.

Financial Statements.

An examination of the financial statements for the year, herewith attached, shows that the gross receipts from all sources for the year (exclusive of the refund from the sale of the Niagara River Boulevard Debentures) amount to $113,942.80, as compared with $99,975.55 in 1908, or an increase of $13,967.25. An analysis of these figures shows that this additional revenue was derived from rentals received from the Power Companies for excess generation, namely, $10,235.02 from the Ontario Power Company, as compared with $88.50 in 1908; and $21,485.55 from the Canadian Niagara Power Company, as against $18,624.15 in 1908. There is also an increase in revenue received from tolls from the ascent of Brock's Monument to the extent of $476.75.

Immediately after the accounts for the year were closed, payment for excess rental was received from the Electrical Development Company to the amount of $8,157.70, but this receipt does not appear in this year's statement. Practically, therefore, the increased revenue over 1908 is $22,124.95.

An illustration is given in the text of the report of the results of computation on the basis of the varying views held by the Commission and the Power Companies in respect to the method of computing for the payment for excess rental. From this statement it will be seen that since the period that excess development was reached by the various companies the Commissioners should have received under the Peak system $146,694.25 instead of $75,246.67, a difference of $71,447.58. Pending a final decision by the Courts on this question, the three Power Companies are now paying the amounts that they admit to be due under the average principle, and such payments are made by the Companies and received by the Commissioners "without prejudice" to the rights of either party.

In the capital and maintenance statements it will be observed that there is a considerable decrease in the expenditures for wages for permanent works, while the cost of material remained about the same. A new item in these expenditures is for lighting plant. This new lighting system greatly improves the appearance of the Park at night.

The payments during the year for works connected with the Boulevard amounted to $53,573.83, which will, of course, be recouped to ordinary revenue receipts when the new debentures are disposed of.

All of which is respectfully submitted.

J. W. Langmuir, *Chairman*
George H. Wilkes.
P. W. Ellis.
L. Clarke Raymond.
William L. Doran.
L. H. Clarke.

QUEEN VICTORIA NIAGARA FALLS PARK.

Financial Report.

1909.

Receipts.

Ontario Power Company, rental	$30,000 00
Ontario Power Company, excess rental	10,235 02
Canadian Niagara Power Company, rental	15,000 00
Canadian Niagara Power Company, excess rental	21,485 55
Electrical Development Company, rental	15,000 00
Electrical Development Company, excess rental	....
International Railway Company, rental	10,000 00
Zybach and Company, rental,	9,000 00
Refund from sale of Niagara River Boulevard Debentures, being total cost of Boulevard to July 30th, 1909, expended out of ordinary revenue..	94,095 25
Brock's Monument tolls	1,478 25
Wharf privileges	511 00
Sundries	1,232 98
	$208,038 05

Expenditures.

Paid Imperial Bank overdraft January 1st, 1909			$73,722 50
Capital Account:—			
Wages, Permanent Works:—			
New roads	$955 65		
Queenston Gateway	431 68		
Miscellaneous improvements	760 93		
Butler's Burying Ground	75 00		
		$2,223 26	
Materials, Permanent Works:—			
Iron Rail Fence to Whirlpool Point	$820 30		
Queenston Restaurant Building alterations	817 29		
Queenston Gateway and Entrance	697 25		
New roads	551 28		
Butler's Burying Ground	478 26		
Miscellaneous improvements	621 80		
Furnishings	109 85		
Queenston Hill	100 00		
Queenston Flag Staff	57 55		
Queenston lands	1 54		
		$4,255 12	
Legal		1,220 00	
Lighting Park		5,475 05	
Review on Dr. Spencer's Report		1,750 00	
			$14,923 43
Niagara River Boulevard to July 30th, 1909:—			
Lands, including legal	$11,538 12		
Roadway construction, drains, etc.	9,418 35		
Stone Protection Works	4,622 87		
Bridges	232 32		
			$25,811 16
Amount carried forward			$114,457 09
Maintenance Account:—			
Salaries, Office and Clerical Staff for Park System.	$5,558 50		
Salaries, Gardeners and Constables for Park System	9,899 50		
Wages, Laborers and Teamsters:			
Queen Victoria Park	16,882 22		

Queenston Heights Park	1,515 47	
Niagara Glen	736 57	
Lundy's Lane Burying Ground	485 65	
Boulevard	36 00	
Materials:		
Queen Victoria Park	4,768 57	
Queenston Heights Park	283 43	
Niagara Glen	90 73	
Butler's Burying Ground	8 80	
Fort Erie	91	
Office Expenses:		
Travelling expenses	715 00	
Supplies, postage, telegrams, etc.	674 11	
Commissioners' expenses (travelling, etc.)	615 81	
Miscellaneous	798 35	
	.....	$43,069 62
Monthly interest on overdraft		2,563 08
Interest on debentures		24,167 58
Balance in Imperial Bank, Dec. 31, 1909		23,780 68
Total		$208,038 05

Niagara River Boulevard.

1909.

July 31. To amount expended to date on Boulevard:			
Lands, including legal	$26,863 07		
Roadway	30,071 54		
Protection Works	25,936 40		
Bridges	4,547 10		
		$87,418 11	
Interest on above expenditure		6,677 14	
		$94,095 25	
Dec. 31. To amount expended since July 31st to date:			
Roadway construction	$19,992 73		
Lands, including legal	6,977 69		
Stone protection	500 00		
		$27,470 42	
Interest on above expenditure		292 25	
Total expenditure to date		$121,857 32	
July 2. By proceeds of debenture issue	$93,750 00		
By interest accrued	620 24		
		94,370 24	
Overdraft in Imperial Bank, Dec. 31st, 1909		$27,487 68	

Special Account.

1909.

For maintaining water levels at Intake of Canadian Niagara Power Company and the International Railway Company:		
January 31, 1903. Deposited		$25,000 00
December 30, 1905. Interest to date		2,288 41
		$27,288 41
Less cost of submerged dam		2,189 32
		$25,099 09
November 1, 1909. Interest to date		3,034 52
		$28,133 61

APPENDIX A.

Report of the Park Superintendent.

To the Commissioners of the Queen Victoria Niagara Falls Park.

Gentlemen,—I submit herewith the Annual Report for the year 1909 of works carried on in the Queen Victoria Park System under the direction of the Board.

The early months of the year when winter conditions usually obtain were marked by a constantly rising and falling temperature and the Spring was more than ordinarily protracted with many frosts of unusual severity rendering the conditions under which the year's work was commenced anything but encouraging. The lawns and beds were wet and the roads badly cut and rutted while considerable of the planting undertaken several years back was destroyed. As a climax to these unfavourable circumstances the Niagara Frontier was swept on April 7th by a most severe wind storm of cyclone proportions doing damage to buildings and trees all along its course. Many of the larger specimen trees were uprooted and pines and cedars at Dufferin Islands, along the edge of the cliff towards Niagara Glen and also at Queenston, where the soil lies but shallow on the bed rock, were blown down as a frail shrub before the wind. The damage to trees and structures was small indeed, however, to the effects in evidence several days later, for the great ice fields upon Lake Erie had been broken up and suddenly piled into the lower gorge on the way to Lake Ontario. Tons upon tons were precipitated over the brink of the Falls with small danger till the mass blocked at a shoal beyond the mouth of the Niagara. Gradually the oncoming floes choked the river course till the whole length to the Queen Victoria Park was one immovable surface of ice cakes ever becoming more tightly wedged against the shore lines, and ever becoming thicker with the running ice from the upper reaches of the river. Nor was the danger confined to the scouring action of the mass for with decreased area of outflow the water began to rise in the gorge until the ice surface presented a mountainous appearance many feet above the normal winter conditions. Finally it reached a maximum on April 10th, when the lower works of the power companies were endangered, and the power house of the Ontario Power Company was flooded to the level of the top of the generators.

While causing tremendous anxiety for weeks after this occurrence no such height of water level was recorded nor were the immense works again submerged Such was the flood of 1909 which will be of record as the highest reached by the Niagara River within the memory of man to this date. The damage by scouring of the shore lines and banks is irreparable and some years will pass before the marked evidences of the terrible pressure exerted are wiped out. One whole bench of trees at Niagara Glen were completely sheared off and destroyed.

During January and February, the low water period, some difficulty was experienced at the City Pumping Station from the lack of sufficient water to operate both the hydraulic machinery and the pumps. By far the lowest of these periods occurred in February when on Saturday, the 13th, ice was enabled to completely block the shallow American channel between Goat Island and the main shore. From the 14th to the 16th, the American Falls were practically dry and many adventurous persons walked across the rocky channel. On the Canadian side the International Railway power plant was out of commission and ice would stand in the bottom of the Canadian Niagara Power Company's ice run. This was the minimum low water level since 1848 and within three months was experienced the lowest and highest levels within a generation.

The Park Proper.

With the opening of Spring considerably later than usual much work had to be crowded into the first weeks of dry weather. The roads were found to be in very bad repair and the surface was completely broken through from intermittent frost action. Repair work was commenced in May and completed by the first week in June. The main foot path from the entrance to join the concrete walk at the Administration Building was given a coating of cinders and well rolled to take the place of stone dust which proved objectionable from the continual spray which formed a spongy mass of the surface. This will require to be done with several paths south of the Horseshoe Falls, and an extension of the brick pavement to the intake of the International Railway would greatly improve conditions for carriage traffic. The roadways from this point are for the most part outside of the spray zone.

Much of the surfacing from the Falls to the Dufferin Islands has been done with no thought of grade or level, and the main driveway requires trimming up both in plan and section to present a pleasing effect to the eye. It is only late this last Fall that this work has been taken up owing to the pressing needs of other parts of the growing system under our care. But now the abrupt changes in grade are receiving attention and the curves flattened to a gentle sweep. Much thought is being given to this narrow space nearly a mile in length in an endeavour by sufficient planting of high class design to attract the attention of visitors from the unsightly works and excavations in the rear that must go on for extra power development and for this purpose the piles of rock and earth have been kept as much in the background as possible to give opportunity for working out such a plan.

It will be many months before the land now occupied by buildings, material, plant and excavated rock and earth will be available for park work and the several years gained in planting of trees and shrubs are completely lost, so that while it was reported last year that the whole of the park area was under cultivation again, one-third of the space is now given over and another start will require to be made.

In the northern area from the Administration Building the trees and shrubs have for some time been altogether too crowded for effective display and much damage is resulting both to the larger and smaller specimens. Some work of transplanting has been accomplished but much still remains to be done, and the staff will be kept busy as soon as this work can be performed in the Spring. In this area we are now doing a great amount of tree pruning in the attempt to prevent the spread of disease so readily carried from affected branches to other parts and to distant specimens. When limbs have been cut and left without treatment we have invariably found disease spreading to the trunk and their short ends must be again cut and scraped out and treated, and sometimes concreted to keep out the moisture. All of this work is being carried on diligently, and the effect will be seen and appreciated.

To connect with the park path along the edge of the cliff the old wooden walk between the Upper Steel Arch Bridge and the entrance has been renewed in concrete to conform with the change in grade of the Electric Railway tracks. Solidly embedded in the concrete is a substantial pipe railing with woven wire along the foot, and taken as a whole the approach to the park is now in accord with the surroundings.

One of the works of a permanent nature partially completed and reported last year was the system of lighting, along the iron trolley poles of the International Railway. This has proved very effective and fills a much felt want for the space adjacent to the railway line. Several additions could very well be made to points of interest and with no large outlay for capital cost or maintenance.

One of the most attractive features of Park work in so far as visitors are concerned comes from the judicious planting of herbaceous material and indeed many persons are willing to give praise or withhold it according to the pleasure they derive from the bedding design and the careful blend of the colour-scheme. To prepare for the summer season propagating houses of spacious proportions must be within reach and the contents carefully planned in advance for use in the early spring if any degree of success is to be attained. Add to these, conservatories for showing to advantage various winter blooming plants and tropical species not inured to our rigorous climate and horticulture may be made an interesting and instructive department, amply repaying the cost of the skilled workmen needed in the cultivation of plant life. Our facilities are and have been inadequate for some years while the quantity of bedding material required is increasing greatly with the extension of the park system. Unfortunately the time is not opportune for constructing a new and modern greenhouse plant, owing to the location coming within the area required for power plant extension. Temporary wooden houses 28 feet by 40 feet are therefore being added to the present group to give space for immediate needs and several years to come. These are light and roomy for their use but will be razed when the larger question comes up and a new plant is constructed.

While the majority of visitors think only of the pleasure derived from beautiful effects in plant and shrub life, some come as students of nature and many others would seek information if the planting were so arranged and properly labelled as to readly show the genus and species of a tree or shrub, with its uses. Some attempt has been made in this direction in the past but not of a systematic form and it is now desirable to make a beginning designed to extend to all parts of the outlying areas. A sheet lead label with names stamped by steel die would be durable and neat as well as moderate in cost.

To advance this educational feature it would be very desirable to secure the services of young men capable of being trained and ready to learn the business of horticulture in the various phases that are met with in such a system of parks as the Queen Victoria Niagara Falls Park. It does not appear that the opportunities in this honourable avocation are realized by Canadians notwithstanding that well trained men are constantly being sought out and good positions remain open or are indifferently filled from lack of skilled men to choose from. We do not pay the attention to training that is given in England, nor is the youth encouraged to make a life work of plant culture and botanical knowledge. Why could not a system of training be adopted, beginning in a small way, whereby qualified gardeners could be made available for those requiring such services? True, it would be small indeed to start with but I believe that it would be successful and this Government Park could be made to take an authoritative position in horticultural work just as the Guelph College does in Agriculture. Without increasing the staff as it is now constituted some theory could be imparted and practical work taught to several students and the larger things would come in proper time as progress was made. But above all there would be men capable of taking up the larger things that will develop with the next few years.

Ontario Power Company.

In the month of September after the close of the summer season the Ontario Power Company, having obtained permission to proceed with the second stage of its power development, commenced active operations to excavate the trench for laying No. 2 conduit required in supplying the water for another 60,000 horse-power. This extension was rendered necessary for the constantly increasing load in the development of its business and particularly to supply the current for the Ontario Government scheme to transmit power to the net-work of municipalities west of Niagara Falls that are availing themselves of the conditions made possible by the legislation creating the Hydro-Electric Power Commission. The works now under way contemplate the construction of another conduit of similar capacity to No. 1 conduit leading from the Forebay already built at Dufferin Islands through the park to the vicinity of the Administration Building. Thence the water is led by distributors to the water wheels in the Power House in the gorge at level of the lower river.

The only important alteration in design to note is in the section of the conduit and the material to be used in the construction. No. 1 conduit was circular in form, eighteen feet in diameter, and built of steel plates riveted together with a concrete envelope about the exterior. The new conduit will be oblate in section, horizontal axis 19 ft. 3 in., vertical axis 16ft. 6in., and 254.5 square feet in area, equal to an eighteen foot diameter circle, and constructed of concrete reinforced with steel, the largest pipe to be attempted in this material.

The generator station will be extended northerly to house the new units run from the second pipe, and with the completion of the present installation two-thirds of the ultimate capacity of the plant will have been reached and the head works are already complete for the full requirements.

The attempt is being made to accomplish the heavy part of the construction before the opening of the season this year, and to have water running by the month of July and to this end the organization was completed quickly and kept at high pressure all during the severe winter with the rock excavation in the heavy cuts at north and south ends. The power used for construction purposes is for the most part electric and where the steam engine is necessary, for train hauling, coke and anthracite coal are utilized to avoid the smoke and dirt nuisance.

Queenston Heights.

This popular resort appreciated by local visitors and tourists from a distance has been kept up to its usual state of attractiveness and increases in favour with all. Some improvements of a permanent nature have been completed, much to the betterment of the general appearance of the grounds. The cut stone gateway at the Lodge Building very infrequently visited has been removed and set up on substantial foundations at the pedestrian entrance to the park and is an imposing structure in full view of Belt Line cars as they pass around the Gorge. The foot-path formerly leading from an entrance through the shrubs has been reduced in grade and widened so as not to become congested by the traffic. New drainage has been constructed and the pathway newly surfaced and oiled. The spring water system has been extended to the hot water supply house and a pump installed for service, while the small restaurant building has had a kitchen added with refrigerator accommodation. The large shelter but recently erected with require some atten-

tion to be effective in time of heavy rain storms, when it is swept by strong winds. Either canvas drop awnings or movable sashes can be used, and if the latter it would be of service for storing materials during the winter season. Some planting and sodding has been done at the entrance, and during the late fall and winter the trees have been attended to. An avenue of young maples that the wind and lack of stakes has affected were taken in hand, with much promise that the treatment would be successful. The splendid view of the rural district stretching out to Lake Ontario has been opened up and extended east and west to show the escarpment.

The maintenance of the outlying parks constantly presses to the fore with increased demands for thought to improve the areas and funds to repair the yearly wear and tear, and each new road, path or lawn adds to the upkeep charges for all time to come. This will be all the more evident with the completion of the road construction from the Park proper to Bridgeburg, and the taking over of the small plots at Butler's Burying Ground and Lundy's Lane Burying Ground. The work undertaken in the outlying areas has been confined to keeping the premises in order and preserving the grounds and structures from acts of vandalism, but much still remains to be done in planting and landscape design to perfect the whole into a system of parks with boulevard connections bordering the whole of the Niagara Frontier.

Niagara Glen, with its immense wealth of plant specimens, has attracted the botanists of the district and from the surrounding cities to study its flora, and tourists in increasing numbers visit it to view the natural scenery for which it is unsurpassed. In addition to the caretaker, police protection is now provided during the summer months and parties are guided where the intricate paths might lead to confusion and much of the wanton destruction of ferns and flowers by careless parties is avoided. All of the paths have been maintained and the river pathway repaired and built up after the damage from the ice jam in the Spring.

It is desirable to design and plant the small plot at Whirlpool Point overlooking the Whirlpool and the lower rapids, and make it more attractive as a view point. The iron railing protection should be extended for some distance to make it perfectly safe. During the year this iron pipe fence has been continued northerly to the Niagara Falls City boundary and the use of this frontage by large numbers on Sundays is very noticeable.

Boulevard.

Although the land purchases along the upper river were very slow in being settled and no new contracts were entered into for constructing the macadam roadway, the two sections awarded in 1908 were pushed to completion during the summer and are now ready for use. Our roadway 30 feet in width has a 6-foot gutter on either side with 18 feet of macadam roadway for traffic. The foundation is large stone laid upon the subgrade excavated to the levels given, and after rolling and compacting a middle course of crushed stone is spread and rolled to place. This is followed by the top course puddled with screenings by means of water and rolled to the grade of the finished roadway. Owing to the length of the work and the large amount of material to move and replace with stone the construction work is necessarily slow and cannot be accelerated as a building may be when the whole

plant can be concentrated at one point. The roadway is being drained in advance of the construction and so designed as to extend when the planting is proceeded with.

All respectfully submitted,

JOHN H. JACKSON,
Superintendent.

APPENDIX B.

Agreement for Water Main.

THIS AGREEMENT made this 26th day of March, in the year 1910.

BY AND BETWEEN the Corporation of the City of Niagara Falls, in the Province of Ontario, hereinafter described and styled, The City, and

The Commissioners for the Queen Victoria Niagara Falls Park, hereinafter described and styled the Commissioners.

WITNESSETH that for and in consideration of the sum of Three Thousand One Hundred Dollars paid by the Commissioners to the City, the City doth covenant and agree with the Commissioners subject to the provisions and stipulations hereinafter contained in manner following:

1. That the City will extend as soon as reasonably practicable their water works system into the Park, by means of (1) a main distribution pipe of not less than twelve inches in diameter to extend from a point on the existing main within the Park near the Pump House of the City thence through the Park northerly to join the existing main of the City on Ferry Road, and (2) an auxiliary main of not less than four (4) inches in diameter from a point near the northerly to join the existing main of the City on Ferry Road, and (2) an on the accompanying plan.

2. The said main distribution pipe and the service pipes for Park use and purposes shall be constructed by the City and the cost of maintenance and upkeep of the same shall be borne by the said City so long as the said main distribution pipe shall be used by the City.

3. The location of the said main distribution pipe as hereinbefore described within the Park shall be as pointed out by the Commissioners, and no other location or change of such location shall be made at any time hereafter except by the consent of the Commissioners.

4. In addition to such hydrants as the City may deem to be requisite and necessary the City shall place hydrants and service pipes in the Park at points as marked on the map hereunto attached, as the Commissioners may require, the cost of such hydrants, service pipes and connections to be borne and maintained by the City.

5. The Commissioners shall have the right at any time to obtain a supply of water by a four inch main from the Pump House to the Dufferin Islands, to be put down by and maintained at the cost of the Commissioners for Park purposes.

6. The water to be obtained or supplied by means of the aforesaid works or system shall be free to the Commissioners for Park use and purposes so long as the City shall continue to use such main for the purposes of the City and if at any time the main should be abandoned by the City, the said main with piping and appurtenances shall remain for the use of the Commissioners.

7. The expression for use of Park or for Park purposes shall mean the use of water for all Park buildings, works and grounds, and for the domestic use of

persons employed by the Commissioners in and about the Park, but not to the use and consumption of water by any tenant of the Commissioners or occupant under them in respect of any tenement whereof rental is to be paid or liability incurred for use and occupation.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first above written.

THE QUEEN VICTORIA NIAGARA FALLS
PARK COMMISSION,
J. W. LANGMUIR,
Chairman.

(SEAL
The Queen Victoria
Niagara Falls Park

THE CORPORATION OF NIAGARA FALLS
WATER COMMISSION.
O. E. DORES,
Chairman.

(SEAL
Niagara Falls, Ontario.
Water Commission.

APPENDIX C.

Agreement for Conduit No. 2.

THIS AGREEMENT made the 22nd day of September, 1909,

BETWEEN The Commissioners of the Queen Victoria Niagara Falls Park, hereinafter called "the Commissioners," of the first part; and

The Ontario Power Company of Niagara Falls, hereinafter called "the Company," of the second part;

WITNESSETH AS FOLLOWS:

1. The Commissioners agree with the Company that the Company may forthwith proceed with the construction of its pipe or Conduit Number 2, from a point at or near its gate house to a point as far north approximately as the northernmost point of the retaining wall surrounding the Company's present overflow building, and may at the same time break and loosen the rock for a distance of approximately twenty-five feet northerly from the northernmost end of the pipe construction now to be proceeded with.

2. The Company agrees with the Commissioners to proceed with the construction of said pipe or Conduit Number 2, in accordance with Plan Number 1 Proposed Intake, dated 10th December, 1902, being one of the plans submitted by the Company for approval to the Commissioners and Lieutenant-Governor of Ontario, and approved by order-in-council of 23rd December, 1902.

3. The Company agrees with the Commissioners that the indemnity contained in the several agreements by the Company to the Commissioners shall be and it is hereby extended to the acts of the Company in respect of such breaking and loosening of rocks and any matters resulting therefrom.

4. The Company agrees with the Commissioners that nothing herein contained shall in any way prejudice, vary or effect any existing obligation of the Company that the location and design of the overflows for pipes Numbers 2 and 3 shall be submitted for the approval of the Commissioners and shall not be proceeded with until such approval is obtained.

IN WITNESS WHEREOF the corporate seal of the Commissioners has been hereunto affixed by the Chairman, who has also signed these presents in certification of due execution hereof by the Commissioners, and the corporate seal of the Company has been hereunto affixed by the President, who has also signed these presents in certification of due execution hereof by the Company on the day and year aforesaid.

SIGNED, SEALED AND DELIVERED:
In the presence of

The Commissioners of the
QUEEN VICTORIA NIAGARA FALLS PARK
J. W. LANGMUIR,
Chairman.

(SEAL)
The Queen Victoria Niagara Falls Park.

THE ONTARIO POWER COMPANY OF
NIAGARA FALLS.
J. J. ALBRIGHT,
President.

(SEAL)
The Ontario Power Company
of Niagara Falls.

Attest.,
R. C. BOARD, Secretary.

RESOLUTION.

WHEREAS the Company intends presently proceeding with the construction of its pipe or Conduit No. 2, from a point at or near its gate house to a point as far north approximately as the northernmost point of the retaining wall surrounding the Company's present overflow building and at the same time intends to break and loosen the rock for a distance of approximately 25 feet northerly from the northernmost end of the pipe construction now to be proceeded with, and the Commissioners of the Queen Victoria Niagara Falls Park have requested that this resolution be passed,

IT IS HEREBY RESOLVED that the construction of said pipe or Conduit No. 2 be in accordance with Plan No. 1, Proposed intake, dated 10th December, 1902, being of the plans submitted by the Company for approval to the Commissioners and Lieutenant-Governor of Ontario and approved by Order-in-Council of 23rd December, 1902; and the breaking and loosening of rock to the extent above mentioned, extending the indemnity contained in the several agreements by the Company to the Commissioners, to the Acts of the Company in respect of such breaking and loosening of rocks and any matters resulting therefrom and any matter herein contained shall not in any way prejudice, vary or affect any existing obligation of the Company that the location and design of the overflows for pipes Nos. 2 and 3 shall be submitted for the approval of the Commissioners and shall not be proceeded with until such approval is obtained.

AND IT IS FURTHER RESOLVED that a certified copy of this resolution be filed with the Commissioners and that this resolution be embodied in an agreement to be executed between the Commissioners and Company.

I, Robert C. Board, Secretary of the Ontario Power Company of Niagara Falls, hereby certify that the foregoing is a true and correct copy of a resolution adopted at a meeting of the Board of Directors duly and regularly called and held at the office of the Company, Buffalo, N.Y., on the 22nd day of September, 1909, at which meeting a quorum was present.

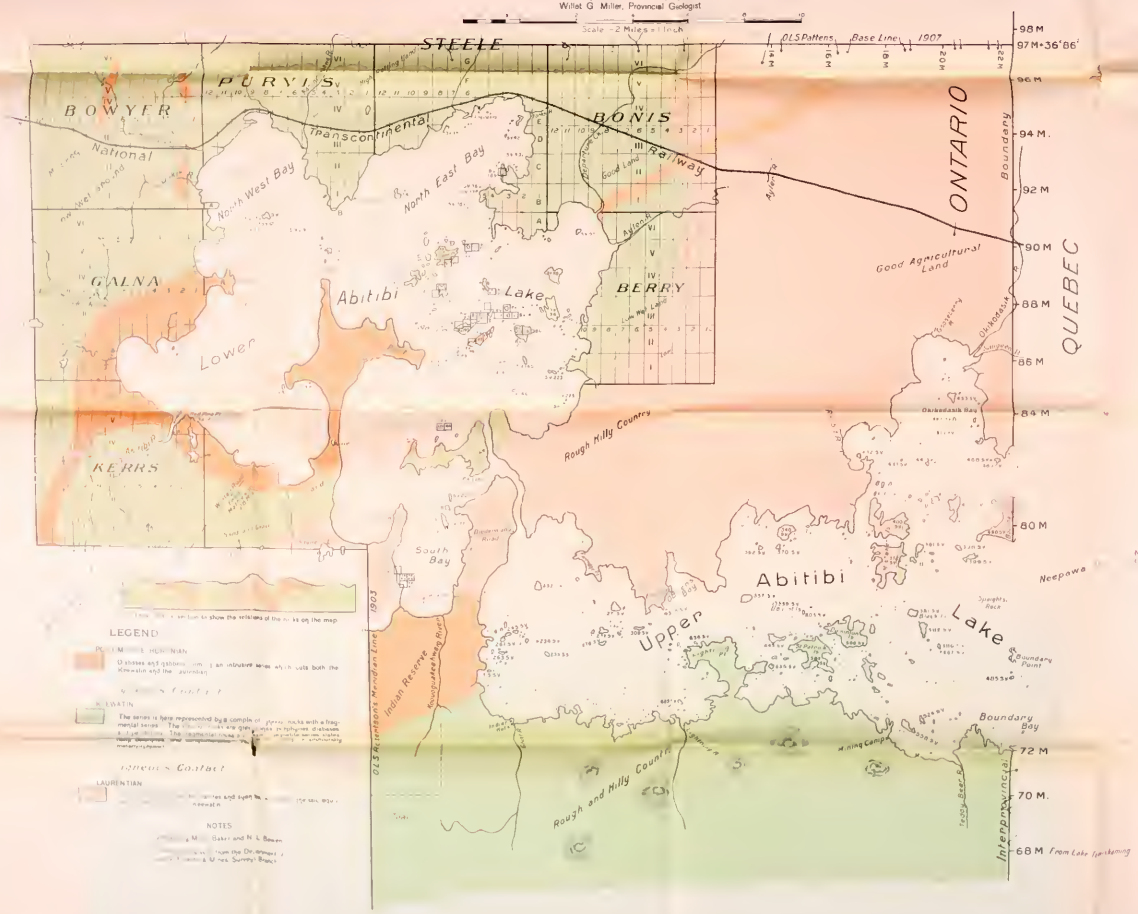
(SEAL)
The Ontario Power Company
of Niagara Falls, Ontario.

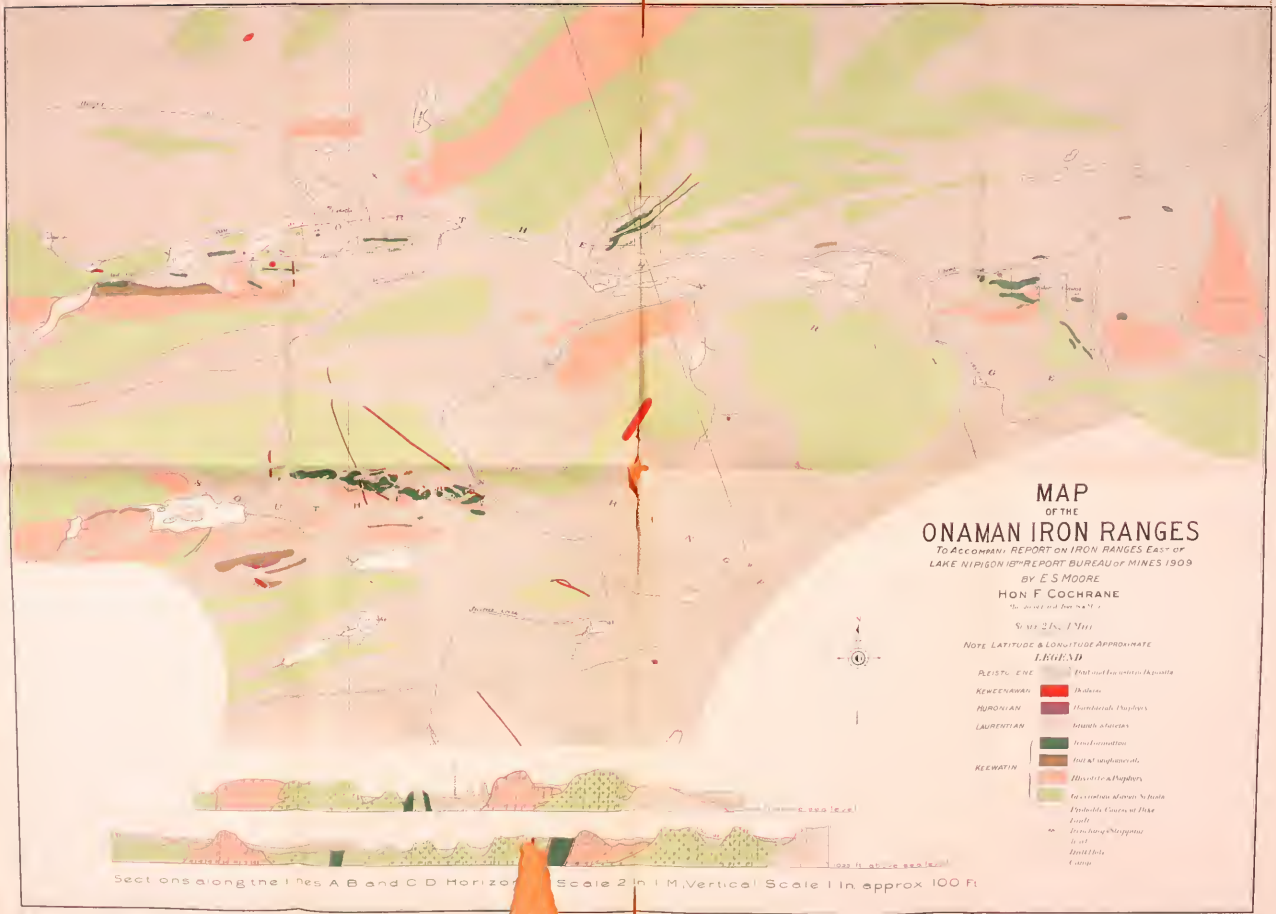
ROBT. C. BOARD,
Secretary.

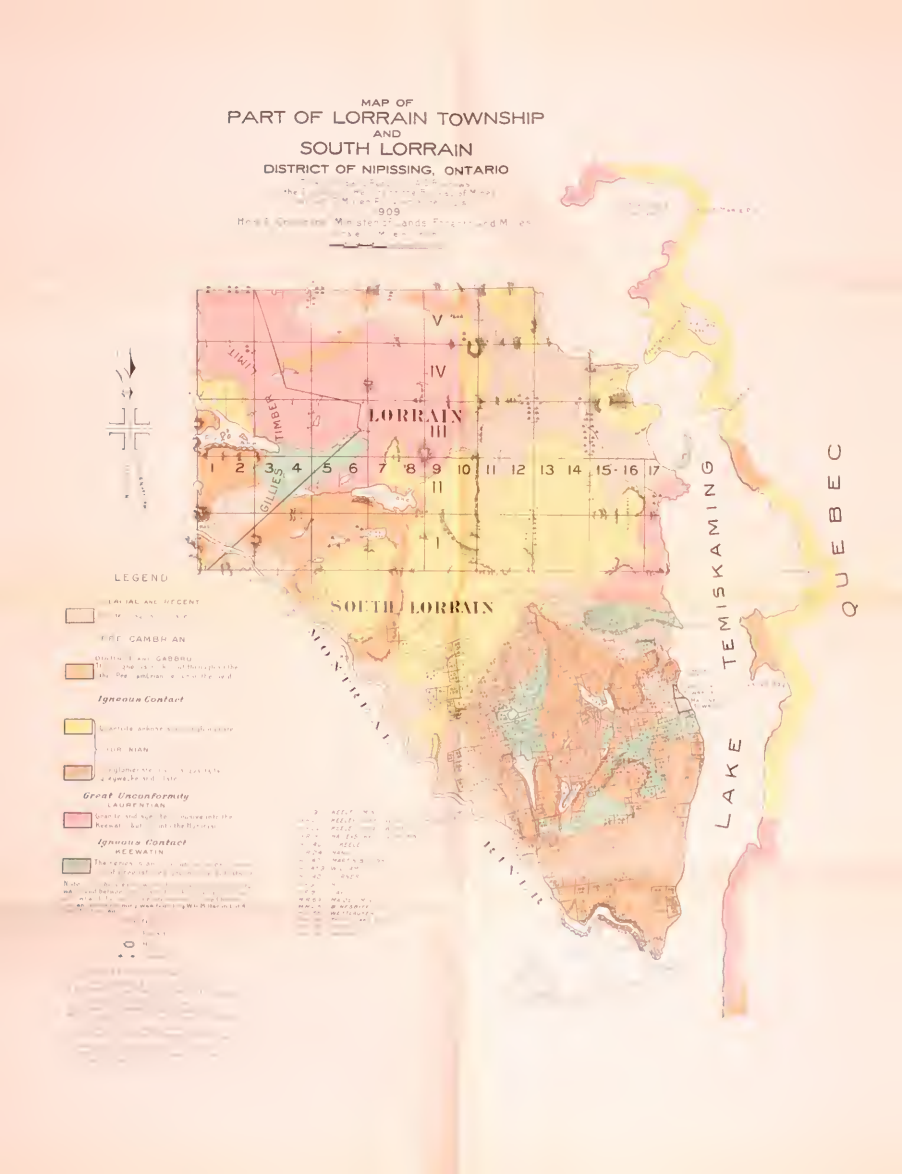
MAP
OF THE
LAKE ABITIBI AREA
DISTRICT OF NIPISSING.

TO ACCOMPANY REPORT OF N. B. BAKER IN THE EIGHTEENTH REPORT OF THE BUREAU OF MINES, ONTARIO, 1909

Hon F. Cochrane, Minister of Lands, Forests and Mines
Willet G. Miller, Provincial Geologist




MAP
OF THE
ONAMAN IRON RANGES
To Accompany Report on Iron Ranges East of Lake Nipigon 18th Report Bureau of Mines 1909
BY E. S. MOORE
HON F. COCHRANE
Scale 2 In. 1 Mile
NOTE LATITUDE & LONGITUDE APPROXIMATE
LEGEND
PLEISTOCENE
KEWEENAWAN
HURONIAN
LAURENTIAN
KEEWATIN
Sections along the lines A B and C D Horizontal Scale 2 In 1 M. Vertical Scale 1 In. approx 100 Ft


MAP OF
PART OF LORRAIN TOWNSHIP
AND
SOUTH LORRAIN
DISTRICT OF NIPISSING, ONTARIO
909
LORRAIN
SOUTH LORRAIN
V
IV
III
II
I
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
LIMIT
TIMBER
GILLIES
LAKE TEMISKAMING
QUEBEC
LEGEND
Igneous Contact
Great Unconformity
LAURENTIAN
Igneous Contact
KEEWATIN