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REPORT

OF THE

Minister of Lands, Forests and Mines

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1919

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

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Report of the Minister of Lands, Forests and Mines of the Province of Ontario

For the Year Ending 31st October, 1919

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to submit for the information of your Honour and the Legislative Assembly a report for the fiscal year ending 31st October, 1919, of the management of the Crown Lands of the Province.

CLERGY LANDS.

The collection on account of Clergy Lands was $487.70. No land was disposed of during the year. (See Appendix No. 3, page 24.)

COMMON SCHOOL LANDS.

The area of these lands sold during the year was 72.33 acres for $109.87. The collection on account of these and former sales was $7,984.02. (See Appendix No. 3, page 24.)

GRAMMAR SCHOOL LANDS.

The collection on account of former sales was $627.54. (See Appendix No. 3, page 24.)

UNIVERSITY LANDS.

The area of these lands sold during the year was 119.50 acres for $59.75. The collection on account of these and former sales was $2,064.40. (See Appendix No. 3, page 24.)

CROWN LANDS.

There was sold during the year for agricultural and town site areas 49,704.32 acres for $48,119.74. The collection on account of these and former sales was $79,841.77. There was sold for mining purposes 10,600.28 acres for $28,350.01. There was collected on account of these and former sales $28,510.54.

There was leased for mining purposes 2,137.21 acres for $1,562.99. There was collected on account of these leases and those of former years $14,270.78. There was leased of Crown Lands an area of 8,820.41 acres for $2,164.25. There was collected on account of these and the leases of former years $66,024.15.

The total area of Crown lands disposed of by sale and lease during the year was 71,454.05 acres for a value of $80,366.61, as compared with 103,701.59 acres sold and leased in 1917 for $80,345.43. The total collection on account of the sales, leases, etc., was $199,810.90. (See Appendix No. 3, page 24.)

Sales.

Throughout the fiscal year ending 31st October, 1919, more inquiries were received and answered than during any corresponding period since the outbreak of

Field peas, Boulter Ranch, Nipissing District.

the Great War. While all these did not result in actual sales it is gratifying to observe that more purchasers acquired land during the past than the previous year although the acreage involved is approximately the same. Appendix No. 15 is a compilation of all land sales and grants other than those occurring in Free Grant Territory and from this may be ascertained in detail the transactions according to townships, agencies and districts. It was necessary to cancel 208 sales for failure of the purchasers to meet the prescribed conditions of settlement while 19 sales were restored for just cause and 312 settlers, for various reasons, were permitted to assign their interests to bona fide tillers of the soil.

Settlers to the number of 539 proved up and acquired their patents for an area of 55,000 acres against approximately 400 and an acreage of 36,000 for the year 1918. An evidence of the desire of the settlers to maintain their payments in respect of land purchases is found in the fact that the collections on account of new and old sales exceeded last year's by nearly $30,000, although in a number of cases where returned soldiers presented their credentials the arrears due the Crown were remitted. Several old Clergy and Common School land sales were paid in full and the proper claimants secured titles.

The unsolved problems arising out of the war with the general state of unrest and the somewhat restricted field from which to draw desirable settlers tend to withhold for the time being a rush to the northern sections of the Province. The economic strain of modern life conduces to a desire to a hurried investment and a quick and extensive return from the land rather than to an ambition to hew out a home by steady and persistent pioneer methods.

Flock going to pasture; Boulter Ranch, Nipissing District.

With a gradual return, however, to more stable conditions and to a more general realization of the necessity of putting in labour on the undeveloped lands of the Crown to secure adequate crop results and, within a measurable degree of success, a reasonable equilibrium between production and consumption, there shall be an impetus to the "back to the land" movement. Any predictions apart from this as respects land purchases and active settlement in Northern Ontario would be unjustifiable in the face of problematical immigration conditions and the financial aid and general appeal held out to returned men to resume the many abandoned cleared farms in the older sections of the Province.

Free Grants.

There were 576 settlers who took up free homesteads within the year, or over 150 more than the previous year. The area thus located comprised 72,420 acres. Patents for such homesteads issued to 431 while assignments numbering 253

covering an area of 34,123 acres were duly approved. The privilege of buying an additional area adjacent to a homestead for pasturing fuel or cropping purposes was exercised by 140 locatees.

Although in Appendix No. 14 practically all the Free Grant townships appear for the purposes of maintaining a detailed reference according to agencies and districts a perusal of same will show that in some no locations were effected and in others but few. This is due to the fact that many of the areas involved have been in the market for a long period and all the desirable land therein has been acquired.

Checking up delinquents with a view to ascertaining the extent of their settlement requirements resulted in the cancellation of 425 persons whose locations in a number of instances had been allowed years ago.

The remarks under the previous heading "Sales" in respect of the future of settlement apply with equal force to Free Homesteading.

A list of the islands sold in Free Grant territory appears in Appendix 14.

Patents, Leases, Licenses.

Instruments to the number of 1,394 were issued through the Patents Office, an increase of 43 over the year ending 31st October, 1918.

Of the total 850 covered settlers' patents, 68 veteran grants and 377 mining grants and leases. The remaining 190 consisted of Crown Leases, Licenses of Occupation, Pine Patents and Orders-in-Council.

In addition to the entry of all such documents the Patents Office is required to prepare references, make daily searches respecting old grants, record new ones and to regularly mark and maintain the office maps showing all transactions as indicated in the instruments issued in accordance with Appendix 8.

Military Grants.

Under the Veteran Land Act, 1 Edward VII, Cap. 6, and amendments thereto, there have been issued 13,998 certificates, and although the time for receiving applications for these grants expired on the 30th September, 1908, there are still letters being received from men who were entitled to this grant, but claim that they have only now become aware of the fact. These applications, therefore, could not now be accepted and no forms of applications have been sent out.

During the past year there have been located 45 of these certificates covering 7,189 acres in the townships open for veterans, making in all a total of 8,329 certificates thus located.

In six cases the certificates have been surrendered and applied in payment of lands purchased from the Crown, covering in all 960 acres, making a total of 791 that have thus been applied.

There were three certificates surrendered to the Crown for the $50.00 commutation money, making a total of 3,263 certificates surrendered in this manner.

During the year there have been issued 34 patents for lands located by veterans, and in all 7,371 have thus been disposed of.

The total number of certificates that have, therefore, been disposed of is 12,383, leaving 1,615 that are still outstanding.

During the year 16 veteran locations, covering 2,549 acres, were cancelled for the non-performance of the settlement duties to which they became subject on account of being assigned before patent was issued.

Under the Act 1 Edward VII, Cap. 6, and amendments thereto covering these grants it is necessary for all locatees of the lands granted under this Act to apply for their patents for such lands before ten years have expired from the date of location. If this application for patent is not made within ten years then the land comes under the settlement regulations, and unless the settlement duties are proceeded with, the locations are liable to cancellation. Previous to the expiration of the ten years after location, the Department has sent a notice to each veteran, who should apply for his patent stating this fact, and in this manner has saved many of the locations from becoming subject to the settlement duties. See Appendix No. 11.

Financial Assistance to Settlers.

The Settlers' Loan Commissioner reports having received up to October 31st, 1919, a total of 2,001 applications for loans, amounting in all to $776,790.00. In all, 1,414 loans have been made to settlers amounting to $442,256.00. In addition, an advance of $12,000 was made to the Sudbury Co-Operative Creamery Company, to which reference was made in the annual report for the previous year.

Requests for loans are given most careful consideration, but advances are not made except in cases where the security offered is sufficient to afford the Department every reasonable protection.

It is worthy of note that nearly 90 per cent. of accrued interest payments have been taken care of by borrowers, and further that payments on principal have exceeded the amounts due on account—numerous loans having been paid off in advance of date of maturity.

The settlers of Northern Ontario, generally speaking, appear to appreciate fully the advantages afforded by the Settlers' Loan Commissioner, and the amounts which have been advanced, undoubtedly, have greatly assisted settlement in the north, and have also considerably increased production along agricultural lines.

Memorandum Re Mineral Industry in Ontario for 1919.

The chief metallic products of Ontario are nickel, copper, gold and silver. The effect of the great war was to stimulate the production of three of these metals, namely, nickel, copper and silver, while on gold it had the opposite effect.

Nickel and copper are essentials for modern warfare, and while the war continued their production rose to the maximum capacity of the mines. Of nickel the total output in 1918 was 46,072 tons, having a value of $27,840,422. The signing of the armistice on the 11th November, 1918, found the allied governments and munition contractors stocked with nickel and the demand at once ceased. Curtailment of operations at the mines and smelters immediately followed, and for the larger part of 1919, only a minimum amount of work was done, awaiting the absorption of the surplus nickel by peace and reconstruction industries. Towards the end of the year demand revived, and the prospect is for an early resumption on a pre-war scale. The total output in 1919 was about one-half that of the previous year, and the value fell to about $12,000,000. There was a similar reduction in the output of copper, say from 23,000 tons to about half the quantity, the value being about $3,500,000.

The extraordinary demand for silver, and the falling off of the output in all silver-producing countries, had a marked effect on the Cobalt silver mines. This

demand continued and was intensified during 1919. With silver at $1.25 and $1.30 per ounce, waste dumps became valuable, and abandoned properties were reworked. Long continued and steady production by the established mines has now told heavily on the reserves of ores at Cobalt. Labour strikes brought about a stoppage of the mines for nearly two months. When the statistics of production are compiled, they will doubtless show a heavy falling off in the quantity of silver produced as compared with 1918. The increased price of the metal will assist the figures of aggregate value, but these too will show a decline.

In the case of gold, the steadily mounting cost of supplies and labour narrowed the margin for profits while the war lasted. There has been no relaxation in these respects even since, but with the return of the skilled miners the efficiency of labour has markedly risen. The gold output for 1919 will be about $10,000,000, or an increase of $1,800,000 over 1918. In fact, the outlook of gold mining in Northern Ontario is decidedly good. The Hollinger mine at Porcupine, is one of the largest gold mines of the world, and is now producing at the rate of about $8,000,000 per annum. Ore reserves at the Hollinger and McIntyre mines are being enlarged, and the camp is on a solid basis. The position of Kirkland Lake, too, has been improved. The east-and-west vein system running through the bed of Kirkland Lake and lying to the south of it, contains high gold values, and a group of important mines is being established upon it. The Lake Shore, Wright-Hargreaves, Kirkland Lake, Teck-Hughes, and others are in this neighbourhood. Tough-Oakes and Associated Gold Mines lie further to the east. The newer gold camps, including Boston Creek, Bourkes, Fort Matachewan and others, are passing through the development stage. At Larder Lake there is also considerable activity. Gold finds have been made near Schreiber on the main line of the C.P.R. and south of Dryden station. It can be truthfully said that in the pre-Cambrian formations of Northern Ontario the gold prospector will find as promising a scene for his labours as anywhere else in the world.

Other minerals are being sought for in territory north of the Transcontinental railway. Lignite, iron ore, gypsum and refractory clay are known to exist, and these deposits are now being investigated. The limestone formations underlying the coastal slope by no means preclude the existence of oil, gas or salt. Distances are great and the expense of moving machinery is heavy, and it is proposed by some to call in the use of the seaplane to assist in exploration.

The mineral industry in older Ontario is largely a non-metallic one, except in Hastings county and the lead deposits on the Ottawa river. The output of building materials has been kept down by the high level to which prices have risen, and until there is a reduction in values, or what is more likely to happen, until the new level becomes a normal one, capital will not flow freely into the building trade. Petroleum shows an increase in production over 1918; natural gas a decline, due both to the failing supply and to the governmental efforts at restriction to domestic uses. The remaining materials on the long list of non-metallic products, continue to be produced in about the usual quantities, but in most cases in larger values.

Collections.

The total revenue of the Department from all sources was $2,755,736.28. Of this, $79,841.77 came from Agricultural lands and Town sites; Mining lands, $28,510.54; Mining and Crown Leases, $80,294.93; Miners' licenses, permits and recording fees, $63,962.90; Supplementary Revenue tax, $626,321.20. From Woods

and Forests the revenue was $1,803,081.36, made up of the following items, Bonus, $872,598.69; Timber dues, $662,928.30; Ground rent, $87,682.52; Transfer fees, $5,205.00; Fire protection charge, $174,666.85. (See Appendix No. 4, page 25.)

Disbursements.

The total expenditure of the Department for ordinary service was $1,536,766,-93. Some of the principal items were: Crown Land agents' salaries and disbursements, $18,915.79; homestead inspectors, $16,934.76; Crown timber agents, $31,580.81; Ottawa agency, $3,240.55; fire ranging, $528,734.64; forest ranging and estimation of timber, $140,338.50; forest reserves, $6,140.25; salaries, wages and expenses of men, *re* reforestation, $6,923.56; investigation in reforestation, $5,465.17; investigation of forest tree diseases, $5,651.77; surveys, $128,823.25; colonization roads, $390,621.54; printing and advertising, $21,351.13; emigration work in Great Britain, $34,052.07; grant to Brigadier-General R. F. M. Sims, $5,000.00; purchase and distribution of films, $4,543.95; mines and mining, $77,308.29; mining recorders, $24,681.62; Provincial assay, $6,075.21; natural gas advisory board, $6,460.13; contingencies, lands and forests, $31,302.37; Bureau of Mines, $12,731.91; forestry, $1,425.29; colonization, $2,100.25; colonization roads, $4,130.64.

A further sum of $177,973.35 was expended under the direction of the Department, distributed as follows: Algonquin Provincial Park, $31,223.76; Quetico Provincial Park, $11,291.69; Veterans' Commutation, $150.00; Royal Nickel Commission, $46.85; legal investigations, $2,171.50; fuel investigation, $118,089.55; fuel problem, $15,000.00. (See Appendices Nos. 6 and 7.)

Woods and Forests.

The accrued revenue from Woods and Forests for the year ending October 31st, 1919, amounted to $2,278,558.66, which exceeded that of the previous year by $642,874.33.

The revenue collected during the same period totalled $1,803,081.36, or $46,996.11 in excess of the amount collected during the year ending October 31st, 1918.

The production of pine timber during the season of 1918-19 amounted to over one hundred and ninety-two million feet board measure, as against approximately two hundred and eighteen million feet for the previous season, representing a decrease of, in round numbers, twenty-six million feet. The production of other timber amounted to somewhat over thirty-eight million feet, as against twenty-nine million feet for the previous season.

Pulpwood cut from Crown lands for the season 1918-19 amounted to 320,195 cords as against 338,563 cords for the previous season.

A very large increase will be noted in the number of railway ties removed from Crown lands. The cut for the current season amounted to 5,140,654 ties as against 2,094,099 ties cut during the season of 1917-18. The price of railway ties continues to advance.

No pulpwood concessions were disposed of during the current year.

It might also be noted that pulpwood amounting to 414,977 cords was removed from settlers' lands, also 1,064,675 railway ties.

Lands Under License.

The area under license at the close of the fiscal year was 16,231 square miles, a decrease of 657 square miles from the previous year.

Summary of Revenue from Woods and Forests.

Bonus	$872,598 69
Timber Dues	662,928 30
Ground Rent	87,682 52
Transfer Fees	5,205 00
Fire Protection	174,666 85
	$1,803,081 36

Cullers' Examination.

Two examinations were held during the year, one at North Bay and one at Kenora. Four candidates succeeded in passing the examination and were duly granted certificates authorizing them to act as Cullers. For names of Cullers who passed at these examinations, see page 41, Appendix 12. For complete list of licensed Cullers see Minister's Reports for 1917 and for 1918.

Fire Protection.

The season of 1919 was the third season during which the Forestry Branch was charged with the work relating to the Forest Fire Prevention Act of 1917. In submitting his report for 1919, the Provincial Forester suggests that consideration be given to legislation which will provide for compulsory fire fighting by local labour in cases of necessity. Attention is also drawn to the advisability of amending the Forest-Fires Prevention Act to provide more effective penalties for violation of the permit regulations. Such violations of the permit regulations are punishable at the present time by fine only.

During the season of 1919, six thousand six hundred and thirty-five fire permits were issued covering a total of 26,790 acres, as against nine thousand five hundred and ninety permits for the season of 1918, covering 39,633 acres. Twenty-three persons were prosecuted for infractions of the permit regulations and convictions were secured in twenty cases. As has been intimated above, the time seems opportune for consideration of the insertion in the Act of provisions for more drastic penalties in cases of flagrant offences.

The territory protected was divided into thirty ranger districts. The field force consisted of one Superintendent, four Inspectors, thirty Chief Rangers, forty-nine Deputy Chief Rangers, with a maximum of one thousand and fourteen rangers.

Forest Fires.

During the early part of the fire season the weather was comparatively wet, and it was accordingly possible to keep the ranging staff at a minimum. In the month of May the weather became very dry, and a period of three months of abnormally dry weather conditions followed. Fires became numerous and assumed large proportions.

Difficulty was first encountered in the Clay Belt District. The permit system undoubtedly saved the situation from becoming more serious than was actually the case. Clearing fires, however, in numerous cases got out of control, and

resulted in the destruction of considerable property but fortunately there was no loss of life.

The most serious loss and damage occurred in the central inspectorate, embracing, roughly, the middle portion of the white pine belt in Ontario. It does not appear that the loss of standing timber was the most serious factor, but rather the destruction of young growth. In the strip of country lying between Lake Nipissing and Sault Ste. Marie, lying south of the Mississauga Forest Reserve it appears that approximately 522,000 acres were burned over. The western and southern inspectorates also suffered from severe fires.

The protracted period of dry weather, in some districts, the scarcity of water and the extreme difficulty in securing competent labour, all added to the difficulties of the fire ranging staff and added to the losses occasioned.

Measures will have to be taken having in view the more thorough protection of cut-over lands, and it would seem the time is opportune to consider the more general adoption of slash disposal regulations.

The total area reported as being burned over exceeded 922,000 acres.

It is found once again that the various railways were the most fruitful causes of fires. Reports indicate that 48 per cent. of all fires reported originated from this source. 8.2 per cent. of all fires reported were attributed to settlers. 11.2 per cent. to campers, the remainder from various causes—in numerous cases unknown.

Improvement Work.

Improvement work was necessarily curtailed during the season of 1919, owing to the serious fire situation and to the shortage of labour.

Equipment.

Steps were taken to have all equipment such as canoes, railway velocipedes, etc., painted the same colour, and after a uniform pattern. All equipment was stencilled, or branded, and the main articles of equipment were numbered on a definite system, to assist in the keeping of proper records, and to determine the life of various goods supplied by different manufacturers. Considerable new equipment in the shape of canoes, power boats, tents, etc., was added.

Large provision is required for the proper storage of all equipment, and accordingly, a number of store-houses have been erected notwithstanding which it has been found necessary to rent considerable warehouse space.

The educational campaign in the way of instructing the public as to the prevention of forest fires was continued. Numerous fire signs were posted, and in addition, quantities of pencils, calendars and rulers were sent out in quarters where it was calculated that the best results would be obtained.

Locomotive Inspections.

One thousand and twelve locomotive inspections were made at an average cost of $2.07 per inspection. Two hundred and twenty-one inspections showed defects.

Forestry.

Particular attention is directed to the section of the Provincial Forester's report dealing with problems of reforestation. Valuable work is being done at the Provincial Forest Station in Norfolk County. About 40,000 trees were sent

out during the season to private planters. The work at the station has proceeded under difficulties for the past few years owing to difficulty in securing reliable seed. It is anticipated that there should be no great difficulty in placing this work on a more satisfactory basis in the near future.

Tree Diseases.

Dr. J. H. Faull continued his investigations, and has submitted a very valuable report which will be found embodied in the report of the Provincial Forester. A complete summary of the work of the Forestry Branch will be found in Appendix 40, page 105.

CROWN SURVEYS.

Instructions were given to perform the following surveys of Crown lands during the year and the work was carried out as shown in the latter portion of this report.

These surveys comprise:—

(1) Three hundred and thirty miles of meridian and base lines including parts of the boundary lines between Rainy River, Kenora and Thunder Bay Districts.

(2) Eight hundred and forty miles of township outlines in the Districts of Thunder Bay, Algoma, Timiskaming and Sudbury.

(3) Subdivision into lots and concessions of the Township of Fowler and parts of the Townships of Devon, Hanlan, Casgrain and Nansen.

(4) Traverse survey of lakes west of Lake Timagami in the Timagami Forest Reserve, Districts of Nipissing and Sudbury.

Dog Lake, Long Lake and Upper Shebandowan Lake, in the District of Thunder Bay.

Opazatika and Dog Lake, in the District of Algoma.

Missinaibi Lake, Pishkanogama Lake, Horwood Lake and Sahkatawichtah Lake, in the District of Sudbury.

Charleston Lake in the County of Leeds.

(5) Retracing of part of the boundary of the Algonquin Provincial Park, District of Nipissing.

(6) Survey of timber limit lines in the Township of Wigle, District of Sudbury, and in territory east of the Township of Askin, in the District of Nipissing.

(7) Close traverse of shores and islands in Windy Lake, Townships of Dowling and Cascaden, District of Sudbury, including soundings and the fixing of special lines of reference for mining purposes.

Twenty-five survey parties were engaged on this work and most of the surveyors report a very difficult and trying season's work due to labour and weather conditions.

The reports received from the Inspector of Surveys show that the work in general has been well performed.

MUNICIPAL SURVEYS.

Petitions for Municipal surveys were received from the municipalities of the Townships of Williamsburgh, McNab and Southwold, for the survey of certain original road allowances within the said townships, and these petitions were acted

upon as provided for under R.S.O. 1914, Cap. 166, sections 13 and 14. In addition to the above the survey performed in the Township of Goulbourn on petition of the municipality was confirmed.

Detailed description of the several surveys performed under instructions from this Department will be found in Appendices 20 to 35, inclusive.

Colonization Roads.

On March 1st, 1919, the Colonization Roads Branch of the Public Works Department was transferred to the Department of Lands, Forests and Mines. A report as to the work of the Colonization Roads Branch will be found in Appendix 42, page 126.

Northern Development Branch.

The work of the Northern Development Branch was continued as in the past under the direction of Mr. J. F. Whitson and Mr. C. H. Fullerton. The work on the Sault-Sudbury Trunk Road, together with the work on the roads on St. Joseph's Island was placed under the direction of Mr. John L. Lang, of Sault Ste. Marie. It is expected that the Sault-Sudbury road will be completed during 1920. Every endeavour is being made to keep existing portions of this road in a proper state of repair. The report of the Northern Development Branch is found in Appendix 43, page 163.

G. H. Ferguson,

Minister.

Department of Lands, Forests and Mines,
Toronto, October 31st, 1919.

APPENDICES

Appendix No. 1.

Return of Officers and Clerks of the Department of Lands, Forests and Mines for the year ending October 31st, 1919.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
	Hon. G. H. Ferguson	Minister	1914, Dec. 22	$6,000 00	
	Albert Grigg	Deputy Minister	1915, Oct. 18	4,400 00	
	C. C. Hele	Minister's Secretary and Secretary to Department	1911, Oct. 19	2,700 00	
	H. M. Robbins	Assistant to Deputy Minister	1917, Feb. 19	2,400 00	
	J. Farrington	Clerk	1907, Nov. 11	1,300 00	
	A. G. Thompson	do	1907, Sept. 23	1,000 00	Resigned August 31, 1919.
	W. A. Fleming	do	1914, Apr. 30	1,000 00	
	R. P. Ferguson	Stenographer	1918, Apr. 2	900 00	
Lands Branch	J. J. Murphy	Advisory Chief Clerk	1872, May 1	2,300 00	
	W. C. Cain	Chief Clerk	1903, Mar. 1	2,400 00	
	H. E. Johnston	Clerk of Military Grants	1905, Mar. 25	1,850 00	
	W. R. Ledger	Clerk of Sales	1894, Feb. 15	1,750 00	
	S. Draper	Clerk of Free Grants	1900, May 1	1,700 00	
	S. A. Platt	Clerk	1905, June 12	1,350 00	
	F. A. Lucas	do	1906, Dec. 18	1,400 00	
	J. E. Drinkwater	do	1915, Oct. 19	1,400 00	
	C. S. Jones	Clerk of Patents	1890, May 22	2,150 00	
	W. S. Sutherland	Engrossing Clerk	1900, Mar. 18	1,600 00	
	C. E. Burns	Reference Clerk	1897, July 29	1,700 00	
	W. Carrell	Engrossing Clerk	1899, Dec. 18	1,500 00	
	A. E. Robillard	do do	1894, May 4	1,200 00	
	A. E. Roe	Clerk of Registers	1906, Oct. 16	1,550 00	
	S. Ross	Stenographer	1917, July 9	950 00	
	M. Bengough	do	1896, Oct. 23	950 00	
	E. F. O'Neil	do	1902, July 7	950 00	
	E. G. Halliday	do	1907, Feb. 21	950 00	
	B. M. Benson	do	1909, May 25	900 00	
	E. Hills	do	1912, July 2	900 00	
	E. Singleton	do	1917, Apr. 16	850 00	
	L. V. Rorke	Director	1909, May 1	3,500 00	
	J. Hutcheon	Surveyor and Draughtsman	1913, Apr. 1	2,700 00	

Surveys	W. F. Lewis	Clerk	1872, Mar. 1	1,400 00	
	D. G. Boyd	Draughtsman	1896, Oct. 16	1,900 00	
	E. M. Jarvis	Clerk	1897, Apr. 25	1,650 00	
	J. B. Proctor	do	1897, Jan. 15	1,500 00	
	B. Rushford	Draughtsman	1910, Jan. 24	1,400 00	
	F. E. Blanchet	do	1906, May 15	1,400 00	
	A. Leaman	do	1907, Sept. 12	1,400 00	
	H. Treeby	do	1896, Jan. 25	1,500 00	
	J. Work	do	1909, May 18	1,600 00	
	M. H. Kirkland	Stenographer	1902, July 21	950 00	
	C. O'Connor	do	1907, Oct. 16	850 00	
	E. C. Armer	do	1909, Aug. 6	875 00	
Woods and Forests	J. A. G. Crozier	Advisory Chief Clerk	1867, Dec. 1	2,300 00	
	J. Houser	Chief Clerk	1905, July 17	2,150 00	
	J. B. Cook	Clerk	1894, Aug. 7	1,950 00	
	H. Gillard	do	1897, Dec. 6	1,750 00	
	F. J. Niven	do	1897, Dec. 15	1,800 00	
	W. F. Trivett	do	1900, June 25	1,600 00	
	R. H. Hodgson	do	1903, Oct. 15	1,450 00	
	A. H. O'Neil	do	1906, July 19	1,300 00	
	S. D. Meeking	do	1910, Feb. 8	1,200 00	
	E. H. Squire	do	1916, Jan. 4	1,200 00	
	E. H. Telfer	do	1915, Sept. 27	1,100 00	
	M. E. Bliss	Stenographer and Filing Clerk to Deputy Minister	1909, Aug. 16	1,000 00	
	C. Rowland	Stenographer	1912, May 1	950 00	
	H. Canton	do	1915, May 11	875 00	
Accounts	D. G. Ross	Accountant	1861, Apr. 15	3,000 00	
	H. M. Lount	Clerk	1903, Oct. 1	1,850 00	
	C. J. Clarke	do	1905, Aug. 9	1,450 00	
	R. Gordon	do	1912, July 30	1,250 00	
	W. A. Burritt	do	1907, Sept. 24	1,450 00	
	C. Bowland	Clerk and Stenographer	1908, July 9	950 00	
Forestry	E. J. Zavitz	Provincial Forester	1912, Nov. 7	3,500 00	
	J. H. White	Assistant Provincial Forester	1917, Apr. 1	3,000 00	Resigned Oct. 31, 1919.
	F. S. Newman	Forester	1913, Sept. 22	1,800 00	
	G. W. Harris	Clerk	1906, Sept. 1	1,300 00	
	N. L. Rogers	do	1911, Aug. 1	1,400 00	
	J. Bald	Stenographer	1913, June 12	850 00	

Appendix No. 1.—Concluded.

Return of Officers and Clerks of the Department of Lands, Forests and Mines for the year ending October 31st, 1919.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Colonization	H. A. Macdonell	Director	1910, Feb. 16....	2,500 00	
	J. Argue	Clerk	1905, Apr. 1....	1,750 00	
	R. A. Jones	do	1906, Mar. 1....	1,600 00	
	C. W. Garthwaite	do	1910, Apr. 1....	1,400 00	
	S. O. Dennis	Clerk and Stenographer.....	1910, Mar. 2....	950 00	
	R. Duggan	Stenographer	1903, June 30...	950 00	
	F. R. Dunlop	do	1911, Nov. 1....	900 00	
	B. McDonald	do	1910, June 21....	950 00	
Records	S. K. Burdin	Chief Clerk	1916, Apr. 6...	2,500 00	
	C. Dies	Clerk	1905, Oct. 2....	1,500 00	
	A. P. Saunders	do	1912, May 13...	1,300 00	
	C. W. St. John	do	1906, July 9....	1,250 00	
	A. Ferguson	do	1915, Dec. 15....	1,400 00	
	W. B. Baines	do	1912, Apr. 9....	1,200 00	
	F. Samuels	do	1903, Dec. 5....	1,200 00	
	N. Mathewson	do	1915, May 7....	1,100 00	
	H. Brophy	Mailing Clerk, etc.	1898, Oct. 1....	1,150 00	
Colonization Roads	C. H. Fullerton	Superintendent	1915, Oct. 15....	3,500 00	
	M. P. Doherty	Accountant and Chief Clerk.	1898, May 1...	1,850 00	
	C. H. Meader	Surveyor and Draughtsman..	1912, June 14....	1,700 00	
	J. H. Bradshaw	Clerk	1884, June 10...	1,400 00	
	A. Gamey	do	1914, July 19...	925 00	
	P. Godkin	Stenographer	1917, Aug. 27....	925 00	
Bureau of Mines	T. W. Gibson	Deputy Minister	1891, June 19...	4,500 00	
	R. D. Fisher	Secretary	1905, Feb. 21...	1,800 00	
	D. H. Barr	Clerk	1906, Aug. 7...	1,600 00	
	F. L. Godson	do	1915, Mar. 22...	1,150 00	
	W. Lemoine	do	1907, Jan. 29...	1,450 00	
	Anne Moffatt	do	1901, Feb. 25...	1,400 00	
	A. G. Scovell	do	1907, June 17...	1,450 00	
	J. L. McNaughton	Clerk and Stenographer....	1908, Feb. 10....	950 00	
	H. W. Batchelor	Stenographer	1911, Aug. 16....	900 00	
	M. G. Baptie	Clerk and Stenographer.....	1917, May 10....	850 00	
	R. McElree	do do	1916, June 19....	800 00	

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1919.

Name.	Post office address	District or County.	Date of appointment.	Salary per annum.	Remarks.
		Land Agents.			
Anderson, T. V.....	Hearst	Part District of Algoma	1913, May 9.	$800 00	
Arthurs, E.	Espanola Mills...	do do do	1915, May 7.	200 00	
Baker, R. H.	Minden	Part Victoria	1907, Oct. 1.	350 00	
Bolger, J. W.	New Liskeard...	Lake Temiskaming, District of Nipissing...	1913, July 17.	1,000 00	
Both, C.	Denbigh	Part of Frontenac and Addington	1905, Oct. 20.	200 00	
Brown, John	Markstay	do District of Nipissing and Sudbury.	1916, June 27.	500 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28.	.....	For salary see Homestead Inspector.
Burrows, W. A.	Port Arthur	Part District of Thunder Bay	1912, Jan. 30.	1,000 00	
Cameron, W.	Stratton Station.	do do Rainy River	1911, Apr. 27.	500 00	
Campbell, I. M.	Parry Sound	do do Parry Sound	1914, Nov. 12.	500 00	
Dempsay, S. J.	Cochrane	do do Nipissing	1911, Feb. 9.	1,000 00	
Dodds, T.	Thessalon	do do Algoma	1915, May 4.	500 00	
Douglas, W. J.	Maynooth	do Hastings	1912, June 12.	500 00	
Ellis, H. J.	Powassan	do District of Parry Sound	1909, May 21.	500 00	
Freeborn, Dr. J. S...	Magnetawan	do do do	1905, Nov. 10.	500 00	
Gibson, J. E.	Dryden	District of Rainy River	1914, Nov. 20.	900 00	
Ginn, F. E.	Matheson	Part District of Nipissing	1912, Mar. 20.	1,000 00	
Hales, W.	Apsley	do County of Peterborough	1911, July 20.	250 00	
Hollands, C. J.	Fort Frances ...	do Townplot of Alberta and District of Rainy River	1892, Oct. 12.	300 00	
Jenkin, W.	Emsdale	do District of Parry Sound	1908, July 29.	500 00	Died May 23rd, 1919.
McFayden, A.	Emo	do do Rainy River	1905, Sept. 8.	600 00	
MacLennan, J. K....	Sudbury	do do Sudbury	1905, July 3.	700 00	
Noble, E.	Sault Ste. Marie.	do do Algoma	1913, Feb. 1.	300 00	
Parsons, W. J.	North Bay	do do Nipissing	1908, Apr. 8.	800 00	
Philion, J. A.	Sturgeon Falls ..	do do do	1907, Sept. 13.	500 00	
Prince, A.	Wilno	do of Renfrew	1905, July 12.	500 00	
Small, R.	Mattawa	do District of Nipissing	1910, June 30.	500 00	
Spry, W. L.	Kenora	do do Rainy River	1909, Sept. 21.	600 00	Also Mining Recorder.
Teasdale, R. A.	Massey	do do Sudbury	1917, July 1.	500 00	
Thaw, D.	Emsdale	do do Parry Sound	1919, July 2.	500 00	
Watt, F.	Pembroke	do of Renfrew	1913, May 28.	300 00	
Whybourne, W. E...	Marksville	do of St. Joseph Island	1905, Apr. 7.	300 00	
Wilson, A. N.	Kinmount	do of Peterborough	1915, June 1.	175 00	
Woollings, J.	Englehart	do of District of Nipissing	1908, June 30.	800 00	

Appendix No. 2.—Continued.

List of Agents for the year ending October 31st, 1919.

Name.	Post office address	District or County.	Date of appointment.	Salary per annum.	Remarks.
		Homestead Inspectors.			
Barr, J.	Fort Frances	District of Rainy River	1906, Nov. 23.	1,200 00	
Bastien, J. A.	Chelmsford	W. part of Sudbury District	1913, May 2.	1,000 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28.	1,000 00	Also Crown Lands Agent.
Burnes, C. W.	South River	Parry Sound District	1905, Nov. 15.	1,000 00	
Cragg, W. V.	New Liskeard	S. part of Temiskaming District	1913, Mar. 27.	1,200 00	
Dean, T.	Sault Ste. Marie.	Algoma District	1908, July 29.	800 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July 20.	1,000 00	
Owens, H. B.	Cache Bay	E. part Sudbury and W. part Algoma Districts	1918, June 25.	900 00	
Smith, D.	Cochrane	N. part of Temiskaming District	1912, Apr. 16.	1,500 00	
Watson, T. P.	Englehart	Centre part of Temiskaming District	1905, May 10.	1,200 00	
Wigle, R. G.	Dryden	Kenora District	1914, May 27.	1,200 00	
		Timber Agents.			
Bremner, G.	Cochrane	Part Temiskaming and Algoma Districts	1913, May 20.	1,800 00	
Christie, W. P.	Parry Sound	Part Parry Sound and Muskoka Districts	1903, Dec. 4.	1,700 00	
Darby, E. J.	Ottawa	Part Ottawa District	1889, July 26.	1,500 00	
Hawkins, S. J.	Webbwood	Part Algoma and Sudbury Districts	1905, Aug. 16.	1,700 00	
Henderson, C.	Sudbury	do do	1902, Jan. 1.	2,100 00	
Huckson, A. H.	Sault Ste. Marie.	Part District of Algoma	1914, Apr. 1.	1,800 00	
Jones, W. M.	Fort Frances	Rainy River District	1918, Nov. 15.	1,500 00	
MacDonald, S. C.	New Liskeard	Part Temiskaming District	1907, Jan. 21.	1,700 00	
Margach, W.	Kenora	Kenora District	1889, May 16.	1,600 00	
McDonald, H.	Thessalon	Part District of Algoma	1905, Apr. 20.	1,500 00	
McDougall, J. T.	North Bay	Nipissing and Part Sudbury District	1908, July 8.	1,800 00	
Oliver, J. A.	Port Arthur	Thunder Bay District	1905, Sept. 30.	1,850 00	
Stevenson, A.	Peterborough	Belleville	1905, Oct. 4.	1,500 00	
Wood, W. G. A.	South Porcupine.	Porcupine District	1917, Feb. 28.	1,400 00	

Appendix No. 2.—Continued.

List of Agents for the year ending October 31st, 1919.

Name.	Post office address.	District or County.	Date of appointment.	Salary per annum.	Remarks.
		Mining Recorders.			
Campbell, C. A.	Sudbury	Sudbury Mining Division	1910, Jan. 6.	1,250 00	
Gauthier, G. H.	South Porcupine.	Porcupine Mining Division	1912, July 16.	1,500 00	
Hough, J. A.	Matheson	Larder Lake Mining Division	1907, May 22.	1,550 00	
Miller, N.	Sault Ste. Marie.	Sault Ste. Marie Mining Division	1915, June 9.	1,200 00	
Morgan, J. W.	Port Arthur	Port Arthur Mining Division	1906, Dec. 28.	1,200 00	
Morgan, M. R. ...	Elk Lake	Gowganda and Montreal River Min. Div....	1919, May 19.	1,100 00	
McAulay, N. J.	Haileybury ...	Temiskaming Mining Division	1915, May 8.	1,900 00	
McQuire, H. F.	Parry Sound	Parry Sound Mining Division.....	1906, Sept. 26.	500 00	
Sheppard, H. E. ...	Elk Lake	Gowganda Mining Division	1909, Feb. 10.	1,100 00	Transferred to Northern Development Branch, May 1, 1919.
Spry, W. L.	Kenora	Kenora Mining Division	1909, Sept. 21.	1,050 00	Also Crown Lands Agent.
		Emigration Agents.			
Sims, Brig.-General R. F. M.	London	England	1918, Dec. 3.	6,500 00	
Clark, J. M.	do	do	1913, Mar. 17.	3,500 00	

D. GEO. ROSS,
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ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1919.

Service.	Acres sold and leased.	Amount of sales and leases.	Collection on sales and leases.
Lands Sold:		$ c.	$ c.
Agricultural and Townsites	49,704.32	48,119 74	79,841 77
Mining	10,600.28	28,350 01	28,510 54
Clergy Lands	.....	.....	487 70
Common School Lands	72.33	109 87	7,984 02
Grammar School Lands	.....	.....	627 54
University Lands	119.50	59 75	2,064 40
Lands Leased:			
Mining	2,137.21	1,562 99	14,270 78
Crown	8,815.06	2,094 25	64,950 00
Temagami	5.35	70 00	1,074 15
	71,454.05	80,366 61	199,810 90

D. GEO. ROSS,
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Appendix No. 4.

Statement of Revenue of the Department of Lands, Forests and Mines for the year ending October 31st, 1919.

Service.	$ c.	$ c.	$ c.
Land Collections.			
Crown Lands:			
Agricultural	74,799 49		
Townsites	5,042 28		
		79,841 77	
Mining Sales	.....	28,510 54	
Clergy Lands	487 70		
Common School Lands	7,984 02		
Grammar School Lands	627 54		
University Lands	2,064 40		
		11,163 66	
			119,515 97
Rent:			
Mining Leases	14,270 78		
Temagami Leases	1,074 15		
		15,344 93	
Crown Leases	25,894 27		
Sand and Gravel Royalty	25,218 16		
" " Rentals	3,479 47		
Water Powers	9,388 85		
Algonquin Provincial Park	969 25		
		64,950 00	
			80,294 93
Miners' Licenses	27,178 55		
Permits	1,697 25		
Recording Fees	35,087 10		
		63,962 90	
Supplementary Revenue:			
Acreage Tax	33,126 34		
Profit Tax	553,027 15		
Gas Tax	38,797 71		
Gas License	1,370 00		
		626,321 20	
			690,284 10
Woods and Forests.			
Bonus	.....	872,598 69	
Timber Dues	.....	662,928 30	
Ground Rent	.....	87,682 52	
Transfer Fees	.....	5,205 00	
Fire Protection	.....	174,666 85	
			1,803,081 36
Provincial Assay Fees	729 60		
Casual Fees	1,172 53		
Cullers' Fees	538 50		
Forest Reserves Guides' Fees	50 00		
		2,490 63	
Algonquin Provincial Park	.....	29,484 44	
			31,975 07
Refunds.			
Forest Ranging	.....	24,324 32	
Fire Ranging	.....	4,202 65	
War Relief	.....	840 00	
Emigration Work, Great Britain	.....	462 07	
Fuel Investigation	.....	348 41	
Explorations and Investigations	.....	153 50	
Agents' Salaries	.....	85 00	
Quetico Provincial Park	.....	82 00	
Contingencies	.....	46 90	
Forest Reserves	.....	40 00	
			30,584 85
			2,755,736 28

D. GEO. ROSS,
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ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands, Forests and Mines for the year ending October 31st, 1919, which are considered as Special Funds.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	254 80	
Interest	232 90	
		487 70
Common School Lands.		
Principal	4,515 87	
Interest	3,468 15	
		7,984 02
Grammar School Lands.		
Principal	360 28	
Interest	267 26	
		627 54
University Lands.		
Principal	1,424 20	
Interest	640 20	
		2,064 40
		11,163 66

D. GEO. ROSS,
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ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands, Forests and Mines, for the year ending October 31st, *1919*.

Service.	$ c.	$ c.	$ c.
AGENTS' SALARIES AND DISBURSEMENTS.			
Land, $18,915.79.			
Anderson, T. V.	633 32		
Disbursements	66 00		
		699 32	
Arthurs, E.	.....	200 00	
Baker, R. H.	.....	350 00	
Bolger, J. W.	916 66		
Disbursements	206 39		
		1,123 05	
Both, C.	.....	200 00	
Brown, John	500 00		
Disbursements	43 98		
		543 98	
Burrows, W. A.	1,000 00		
Disbursements	365 20		
		1,365 20	
Cameron, W.	500 00		
Disbursements	43 00		
		543 00	
Campbell, Miss I. M.	500 00		
Disbursements	15 00		
		515 00	
Dempsay, S. J.	1,000 00		
Disbursements	73 50		
		1,073 50	
Dodds, T.	500 00		
Disbursements	4 00		
		504 00	
Douglas, W. J.	500 00		
Disbursements	36 40		
		536 40	
Ellis, H. J.	.....	500 00	
Freeborn, J. S.	500 00		
Disbursements	18 00		
		518 00	
Gibson, J. E.	816 67		
Disbursements	158 85		
		975 52	
Ginn, F. E.	916 66		
Disbursements	81 90		
		998 56	
Hales, W.	250 00		
Disbursements	4 90		
		254 90	
Hollands, C. J.	.....	300 00	
Jenkin, W.	291 00		
Disbursements	6 26		
		297 26	
McFayden, A.	600 00		
Disbursements	42 77		
		642 77	
MacLennan, J. K.	.....	700 00	
Carried forward	.....	12,840 46	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	12,840 46	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Land—Concluded.			
Noble, E.	.....	300 00	
Parsons, W. J.	716 32		
Disbursements	176 50		
		892 82	
Philion, J. A.	500 00		
Disbursements	23 67		
		523 67	
Prince, A.	500 00		
Disbursements	30 00		
		530 00	
Small, R.	500 00		
Disbursements	29 00		
		529 00	
Spry, W. L.	600 00		
Disbursements	488 80		
		1,088 80	
Thaw, D.	166 00		
Disbursements	2 87		
		168 87	
Teasdale, R. A.	.....	500 00	
Watt, F.	.....	300 00	
Whybourne, W. E.	300 00		
Disbursements	4 10		
		304 10	
Wilson, A. N.	175 00		
Disbursements	7 75		
		182 75	
Woollings, J.	716 32		
Disbursements	39 00		
		755 32	
Homestead Inspectors, $16,934.76.			
Barr, J.	1,200 00		
Disbursements	792 90		
		1,992 90	
Bastien, J. A.	916 66		
Disbursements	235 25		
		1,151 91	
Brown, J. B.	1,000 00		
Disbursements	311 35		
		1,311 35	
Burnes, C. W.	1,000 00		
Disbursements	349 68		
		1,349 68	
Cragg, W. V.	1,200 00		
Disbursements	333 63		
		1,533 63	
Dean, T.	800 00		
Disbursements	186 65		
		986 65	
Hughes, T.	1,000 00		
Disbursements	433 30		
		1,433 30	
Owens, H. B.	838 48		
Disbursements	914 75		
		1,753 23	
Carried forward	.....	30,428 44	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	30,428 44	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Homestead Inspectors—Concluded.			
Smith, D.	1,500 00		
Disbursements	418 11		
		1,918 11	
Watson, T. P.	1,200 00		
Disbursements	614 75		
		1,814 75	
Wigle, R. G.	1,200 00		
Disbursements	489 25		
		1,689 25	
Timber, $31,580.81.			
Bremner, G.	1,800 00		
Disbursements	440 38		
		2,240 38	
Christie, W. P.	1,616 00		
Disbursements	347 80		
		1,963 80	
Hawkins, S. J.	1,616 00		
Disbursements	351 15		
		1,967 15	
Henderson, C.	2,018 67		
Webster, W. A., Assistant	210 00		
Disbursements	419 21		
		2,647 88	
Huckson, A. H.	1,800 00		
Disbursements	750 78		
		2,550 78	
Jones, W. M.	1,442 30		
McDonald, A., Assistant	1,500 00		
Watts, G.	57 70		
Disbursements	242 55		
		3,242 55	
MacDonald, S. C.	1,700 00		
Disbursements	198 33		
		1,898 33	
Margach, W.	1,600 00		
Legris, J., Assistant	1,600 00		
Cunningham, Mrs. E. A., Stenographer	442 75		
Gamble, Miss V., Stenographer	24 75		
Disbursements	524 37		
		4,191 87	
McDonald, H.	1,500 00		
Disbursements	215 55		
		1,715 55	
McDougall, J. T.	1,716 67		
Disbursements	416 26		
		2,132 93	
Oliver, J. A.	1,724 83		
Campbell, Miss M., Stenographer	119 23		
Godfrey, Miss S., Stenographer	530 93		
Disbursements	565 80		
		2,940 79	
Stevenson, A.	1,500 00		
Disbursements	373 40		
		1,873 40	
Carried forward	.....	65,215 96	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		65,215 96	
AGENTS' SALARIES AND DISBURSEMENTS—*Concluded.*			
Timber—Concluded.			
Whelan, P. J., disbursements		442 59	
Wood, W. G. A.	1,400 00		
Disbursements	372 81		
		1,772 81	
Miscellaneous, $1,562.20.			
Green, H. P., Caretaker, Islands in Charlston Lake		50 00	
Jamieson, W. H., Caretaker, Islands in Dog and Laboria Lakes		50 00	
McArthur, T. A., Inspector of Agencies	750 00		
Disbursements	712 20		
		1,462 20	
			68,993 56
OTTAWA AGENCY.			
Darby, E. J., Agent		1,500 00	
Larose, S. C., Clerk		1,000 00	
Rent	700 00		
Disbursements	40 55		
		740 55	
			3,240 55
CULLERS' ACT.			
Greer, Wm.	12 00		
Disbursements	3 60		
		15 60	
Jones, W. M. ..... Disbursements		35 70	
Oliver, J. A. ..... Disbursements		9 66	
			60 96
FIRE RANGING			528,734 64
FOREST RANGING			140,338 50
FOREST RESERVES			6,140 25
SALARIES, WAGES AND EXPENSES OF MEN, RE RE-FORESTATION			6,923 56
PURCHASE, CARE AND FEED OF HORSES, AND PURCHASE OF SEED, NURSERY STOCK, FERTILIZER AND NURSERY EQUIPMENT			2,316 63
PURCHASING OPTIONS AND RENTALS OF LAND			90 00
INVESTIGATION IN REFORESTATION			5,465 17
ALLOWANCE TO SCHOOL SECTION IN TOWNSHIP OF SOUTH WALSINGHAM			150 00
CARE AND MAINTENANCE OF BUILDINGS			59 46
INVESTIGATION OF FOREST TREE DISEASES			5,651 77
SURVEYS			128,823 25
Carried forward			896,988 30

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			896,988 30
Board of Surveyors			200 00
Colonization Roads			390,621 54
Annual Membership Fees			49 93
Workmen's Compensation			150 00
Insurance			711 73
Miscellaneous			117 86
Unforeseen and Unprovided			370 92
Grant to Canadian Forestry Association			1,000 00
Refunds (Miscellaneous)			3,201 33
Colonization and Immigration.			
Printing, Advertising, etc.			21,351 13
Land Guides			254 00
Emigration Work in Great Britain			34,052 07
War Relief			2,544 07
Women's Welcome Hostel			1,400 00
Women's Hostel and Travellers' Aid, Ottawa			500 00
Grant to Brigadier-General R. F. M. Sims			5,000 00
Rental Immigration Office			572 15
Purchase and distribution of films and moving picture machines			4,543 95
Allowance to J. M. Clark			350 00
Mines and Mining.			
Miller, W. G., Provincial Geologist, services	5,000 00		
Disbursements	130 36	5,130 36	
Knight, C. W., 1st Assistant Geologist, services	3,000 00		
Disbursements	1,611 21	4,611 21	
Burrows, A. G., 2nd Assistant Geologist, services	2,850 00		
Disbursements	546 33	3,396 33	
Hopkins, P. E., 3rd Assistant Geologist, services	2,400 00		
Disbursements	524 63	2,924 63	
Rogers, W. R., Topographer, services	2,500 00		
Disbursements	952 45	3,452 45	
Bell, W. J., Cartographer, services		1,350 00	
Mickle, G. R., Mine Assessor, services	4,400 00		
Disbursements	245 40	4,645 40	
Carried forward		25,510 38	1,363,978 98

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	25,510 38	1,363,978 98
MINES AND MINING—*Continued.*			
Godson, T. E., Mining Commissioner, services	5,000 00		
Morris, W. H., Mining Commissioner's Clerk, services	1,850 00		
White, Miss N., Stenographer	811 84		
Booth, Miss E., do	98 67		
Disbursements	687 74		
		8,448 25	
Sutherland, T. F., Chief Inspector of Mines, services	3,800 00		
Disbursements	1,292 29		
		5,092 29	
Collins, E. A., 1st Assistant Inspector of Mines, services for one month. Resigned	.....	125 00	
Brown, A. H., 1st Assistant Inspector of Mines, services for nine months. Died	2,250 00		
Disbursements	361 10		
		2,611 10	
McMillan, J. G., 2nd Assistant Inspector of Mines, services	2,546 28		
Disbursements	182 85		
		2,729 13	
Bartlett, J., 3rd Assistant Inspector of Mines, services	2,817 00		
Disbursements	1,353 32		
		4,170 32	
Webster, A. R., 4th Assistant Inspector of Mines, services	3,000 00		
Disbursements	1,359 90		
		4,359 90	
Jackson, P. A., Surveyor, services	1,700 00		
Disbursements	310 19		
		2,010 19	
Estlin, E. S., Natural Gas Commissioner, services	3,600 00		
Beno, J. W., Inspector Gas and Oil Wells, services	755 73		
Scott, J., Inspector Gas and Oil Wells, services	937 48		
Near, A. E., Inspector Gas and Oil Wells, services	937 48		
Burn, B. D., Natural Gas Inspector, services	427 88		
Estlin, Miss M., Stenographer	234 62		
Estlin, Miss E. M., do	530 76		
Estling, H., services	18 00		
Disbursements	3,480 39		
		10,922 34	
McArthur, T. A., Inspector of Recorders' Offices, services	900 00		
Disbursements	552 66		
		1,452 66	
Burwash, Dr. E. M., services	558 65		
Disbursements	999 10		
		1,557 75	
Carlyle, A. W., services	199 23		
Disbursements	15 95		
		215 18	
Conners, F. J., services	.....	129 23	
Cross, J. G., services	875 00		
Disbursements	833 53		
		1,708 53	
Dingman, A. H., services	.....	191 53	
Carried forward	.....	71,233 78	1,363,978 98

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	71,233 78	1,363,978 98
MINES AND MINING—*Concluded.*			
Elliot, G. R., services	.....	233 08	
Fair, H. A., services	.....	244 62	
Gibson, G. A. L., services	300 00		
Disbursements	204 85		
		504 85	
Heisey, K. B., services	136 16		
Disbursements	60 00		
		196 16	
Hunnisett, J. E., services	.....	120 00	
Howell, Edwin, services	.....	253 85	
Kerr-Lawson, D. E., services	.....	199 42	
Kirkconnell, J. R., services	.....	203 08	
Montgomery, R. W., services	.....	191 53	
Parsons, Prof. A. L., services	713 46		
Disbursements	634 19		
		1,347 65	
Presgrave, R., services	.....	233 08	
Stevens, Joseph, services	.....	124 00	
Tyrrell, Geo., services	.....	153 64	
Weelands, J. E., services	.....	244 62	
Nicholas, F., preparing index	.....	250 00	
King's Printer	.....	1,111 52	
Express	.....	47 57	
Telegraphing	.....	177 60	
Typewriter repairs, etc.	.....	12 00	
Sundries	.....	226 24	
			77,308 29
MINING RECORDERS.			
Campbell, C. A., Recorder	1,219 24		
Loudon, W. E., Travelling Draughtsman	330 77		
LeClair, Miss H., Stenographer	437 50		
Disbursements	371 05		
		2,358 56	
Gauthier, G. H., Recorder	1,500 00		
O'Brien, J. D., Clerk	1,138 80		
Disbursements	1,153 49		
		3,792 29	
Hough, J. A., Recorder	1,457 73		
Ginn, H. G., Clerk	641 00		
Loudon, W. E., Travelling Draughtsman	276 92		
Matchett, Miss F., Stenographer	135 00		
Robertson, Miss M., do	127 69		
Disbursements	270 30		
		2,908 64	
Miller, N., Recorder	1,138 48		
Disbursements	227 45		
		1,365 93	
Morgan, J. W., Recorder	1,140 48		
McDonald, Mrs. M. M., Acting Recorder	256 73		
Disbursements	384 73		
		1,781 94	
McAulay, N. J., Recorder	1,900 00		
Sarsfield, J. M., Clerk	1,318 24		
Munro, Miss E., Stenographer	796 74		
Disbursements	772 77		
		4,787 75	
McQuire, H. F., Recorder	500 00		
Disbursements	157 05		
		657 05	
Carried forward	.....	17,652 16	1,441,287 27

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	17,652 16	1,441,287 27
MINING RECORDERS—*Concluded.*			
Sheppard, H. E., Recorder	550 00		
Disbursements	165 03		
		715 03	
Morgan, M. R., Recorder	541 50		
Loudon, W. E., Travelling Draughtsman	359 62		
Disbursements	180 05		
		1,081 17	
Spry, W. L., Recorder	956 73		
Disbursements	215 40		
		1,172 13	
Ginn, H. G., Recorder	477 24		
Loudon, W. E., Travelling Draughtsman	112 49		
Matchett, Miss F., Stenographer	357 50		
Disbursements	2,324 05		
		3,271 28	
Express	86 40		
King's Printer	686 57		
Telegraphing	6 53		
Typewriter repairs, etc.	10 35		
		789 85	
			24,681 62
PROVINCIAL ASSAY OFFICE.			
McNeill, W. K.	2,456 73		
Disbursements	49 55		
		2,506 28	
Rothwell, T. E.	1,736 48		
Disbursements	100 55		
		1,837 03	
Leat, Arthur	.....	556 00	
Supplies	896 99		
Disbursements	278 91		
		1,175 90	
			6,075 21
MINERAL DISPLAY AT EXHIBITIONS.			
Johns, Chas., Services *re* Toronto Exhibition	.....	31 50	
McCarthy, C. P., Services *re* Toronto Exhibition	150 50		
Disbursements	69 80		
		220 30	
West, W. J., Services *re* Toronto Exhibition	.....	66 00	
General Disbursements *re* Exhibitions	.....	2,316 73	
			2,634 53
RESEARCH WORK	.....	.....	6 10
SOCIETY MEMBERSHIP FEES	.....	.....	243 89
EXPERIMENTAL TREATMENT OF ORES	.....	.....	2,085 43
SPECIAL SURVEYS IN MINING DISTRICTS	.....	.....	1,602 29
NATURAL GAS ADVISORY BOARD	.....	.....	6,460 13
CONTINGENCIES.			
Departmental.			
Printing and Binding	1,166 21		
Stationery	7,066 65		
		8,232 86	
Carried forward	.....	8,232 86	1,485,076 47

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	8,232 86	1,485,076 47
CONTINGENCIES—*Continued.*			
Departmental—Concluded.			
Express	258 68		
Postage	1,519 97		
		1,778 65	
Telegraphing	682 38		
Car Fare	60 00		
		742 38	
Subscriptions	331 23		
Advertising	3,675 55		
		4,006 78	
Typewriters, repairs, etc.	.....	382 50	
Bindon, F. W., travelling expenses	50 00		
Cain, W. C., travelling expenses	246 15		
Carrell, W., travelling expenses	11 27		
Ferguson, Hon. G. H., travelling expenses	1,000 00		
Grigg, A., travelling expenses	58 85		
Hele, C. C., travelling expenses	255 58		
Hutcheon, J., travelling expenses	498 81		
Keefer, F. H., Services *re* Level of Lake of the Woods	1,503 00		
Robbins, H. M., travelling expenses	44 30		
Rorke, L. V., travelling expenses	140 55		
Work, J., travelling expenses	129 75		
		3,938 26	
Extra Clerks	9,278 79		
Maps	2,200 80		
Sundries	741 35		
		12,220 94	
			31,302 37
Bureau of Mines.			
Printing and Binding	2,594 72		
Stationery	4,483 55		
		7,078 27	
Postage	822 05		
Telegraphing	118 38		
Express and Cartage	21 60		
Advertising	2,205 14		
Subscriptions	324 02		
		3,491 19	
Typewriters, repairs, etc.	208 40		
Gibson, T. W., travelling expenses	124 07		
Boogers, L. H., translations	37 80		
Douglas, D. S., compiling index	100 00		
George, H., rock sections	62 30		
Stewart, W. A., rock sections	6 00		
Royal Ontario Museum, rock sections	3 00		
Work, J., services	150 00		
		691 57	
Extra Clerks	1,432 44		
Sundries	38 44		
		1,470 88	
			12,731 91
Forestry.			
Printing and Binding	190 90		
Stationery	382 11		
		573 01	
Carried forward	.....	573 01	1,529,110

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	573 01	1,529,110 75
CONTINGENCIES—*Concluded.*			
FORESTRY—*Concluded.*			
Zavitz, E. J., travelling expenses	224 08		
White, J. H., travelling expenses	34 45		
		258 53	
Postage	250 00		
Telegraphing	14 57		
Express and Cartage	15 15		
Typewriters, repairs, etc.	19 00		
Supplies	51 08		
Sundries	243 95		
		593 75	
			1,425 29
Colonization.			
Printing and Binding	34 08		
Stationery	353 89		
		387 97	
Postage	350 49		
Express	236 59		
		587 08	
Telegraphing	285 21		
Subscriptions	49 36		
Typewriter repairs, etc.	29 25		
		363 82	
Bindon, F. W., travelling expenses	24 50		
Argue, J., travelling expenses	25 25		
Jones, R. A., travelling expenses	332 15		
Macdonell, H. A., travelling expenses	258 92		
McGillivray, A. D., travelling expenses	64 35		
Tutt, H., travelling expenses	4 19		
Sundries	52 02		
		761 38	2,100 25
Colonization Roads.			
Printing and Binding	448 07		
Stationery	418 89		
		866 96	
Postage	248 82		
Express	4 64		
		253 46	
Telegraphing	49 00		
Subscriptions	6 50		
Typewriters, repairs, etc.	317 50		
		373 00	
Fullerton, C. H., travelling expenses	511 02		
Meader, C. H., travelling expenses	589 15		
		1,100 17	
Extra Clerks	1,485 00		
Sundries	52 05		
		1,537 05	4,130 64
			1,536,766 93

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of 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 the year ending October 31st, 1919.

Service.	$ c.
Algonquin Provincial Park	31,223 76
Quetico Provincial Park	11,291 69
Fuel Investigation	118,089 55
Royal Nickel Commission	46 85
Veterans' Commutation	150 00
Legal Investigations	2,171 50
Fuel Problem	15,000 00
	177,973 35

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 8.

PATENTS OFFICE.

Statement of Patents, etc., issued from 1st November, 1918, to 31st October, 1919.

Public Lands (late Crown)	514
" " (late School)	32
" " (late Clergy)	4
" " (University)	8
Free Grant Lands (Act of 1913)	292
" " " (Act of 1901) Veterans	68
Mining Lands (Patents)	310
" " (Leases)	67
Crown Leases	13
Licenses of Occupation	51
Temagami Island Leases	4
Sand and Gravel Licenses	12
Quarry Claims	3
Pine Patents	6
Orders-in-Council	10
Total	1,394

CHARLES S. JONES,
Clerk of Patents.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

W. C. CAIN,
Chief Clerk.

Appendix

WOODS AND

Statement of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				Boom and	
		Pine.		Other.		Pine.	
	Square miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.	Feet B.M.
Western Timber District	11,700½	4,979,650	174,165,661	793,696	23,476,842	46,321	5,353,802
Belleville Timber District	657¼	5,661	315,899	100,600	3,349,668	43	5,639
Ottawa Timber District	3,873¾	328,997	11,662,880	319,253	9,439,867	3,952	356,888
	16,231	5,314,308	186,144,440	1,213,549	36,266,377	50,316	5,716,329

General Statement

Agencies.	Tan Bark.	Railway Ties.	Posts.	Poles.	Bolts.	Pulp-wood.		
	Cords.	Pieces.	Pieces.	Pieces.	Cords.	Cords.	Transfer Fees.	Interest.
							$ c.	$ c.
Western Timber District	1,633	5,131,073	44,853	12,806	1,196	304,017	5,095 00	27,108 86
Belleville Timber District	329	3,397	5,562	20	.....	450	.....	.....
Ottawa Timber District.....	946	6,184	429	2,347	.....	15,728	110 00	127 13
	2,908	5,140,654	50,844	15,173	1,196	320,195	5,205 00	27,235 99

JOHN HOUSER,
Chief Clerk in charge.

No. 9.

FORESTS.

Rent and Bonus during the year ending 31st October, 1919.

DESCRIPTION OF TIMBER.

Dimension.		Square Timber.		Piling.			Pine.		Cordwood.	
Other.									Hard.	Soft.
Pieces.	Feet B.M.	Pieces.	Cubic Feet.	Lineal feet.	Pieces	Feet B.M.	Pieces	Lineal Feet.	Cords.	Cords.
9,517	1,070,460	1,131	70,287	197,233	3,415	343,399	596	17,960	22,595	45,141
1,440	258,266	.....	.....	.....	.....	.....	.....	.....	216	.....
4,205	466,489	.....	.....	.....	.....	.....	.....	.....	1,500	5,424
15,162	1,795,215	1,131	70,287	197,233	3,415	343,399	596	17,960	24,311	50,565

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber dues.	Bonus.	Deposit timber sales.	Ground rent.	Fire protection.	Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
23,863 60	883,668 03	597,062 77	438,115 00	63,978 25	143,758 85	2,182,650 36
4,988 18	2,997 90	154 68	.....	3,360 00	4,603 80	16,104 56
556 93	32,455 58	.....	.....	20,250 00	26,304 20	79,803 84
29,408 71	919,121 51	597,217 45	*438,115 00	*87,588 25	*174,666 85	2,278,558 76

* Amount actually received.

ALBERT GRIGG,
Deputy Minister.

Appendix No. 10.

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending October 31st, 1919.

Amount of Western Collections at Department		$1,733,550 52
do Belleville Collections at Department		10,582 26
do Ottawa Collections at Department		58,948 58
		$1,803,081 36

WOODS AND FORESTS.

Bonus	$872,598 69
Timber dues	662,928 30
Ground rent	87,682 52
Transfer fees	5,205 00
Fire protection	174,666 85
	$1,803,081 36

WOODS AND FORESTS BRANCH REVENUE,

October 31st, 1919.

WESTERN DISTRICT—		
Timber dues	$621,318 02	
Bonus	434,176 54	
Ground rent	63,978 25	
Interest on dues	27,069 38	
Interest on ground rent	39 48	
Transfer fees	5,095 00	
Timber sale deposit	438,115 00	
Fire protection	143,758 85	
		$1,733,550 52
OTTAWA DISTRICT—		
Timber dues	$12,157 25	
Ground rent	20,250 00	
Interest on dues	72 34	
Interest on ground rent	54 79	
Transfer fees	110 00	
Fire protection	26,304 20	
		$58,948 58
BELLEVILLE DISTRICT—		
Timber dues	$2,311 31	
Bonus	307 15	
Ground rent	3,360 00	
Fire protection	4,603 80	
		10,582 26
		$1,803,081 36

JOHN HOUSER,
Chief Clerk in Charge.

ALBERT GRIGG,
Deputy Minister.

Appendix No. 11.

Statement of work done in the Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1919.

Reference for Veterans' Patents issued	34
Locations under military certificates	45
Certificates applied in payment of lands	6
Certificates surrendered for commutation money	3
Letters received	1,572
Letters written	1,869
Special letters to agents	200
Special letters to mining recorders	260
Maps and reports supplied to veterans	150
Printed forms sent out	90
Copies of Veteran Act supplied	27

H. E. JOHNSTON,
Military Clerk.

ALBERT GRIGG,
Deputy Minister.

W. C. CAIN,
Chief Clerk in Charge.

Appendix No. 12.

Memorandum of parties who passed the Cullers' Examination of 1919.

Acheson, Lloyd, Box 1792, North Bay, Ontario, examined at North Bay, October 8th, 1919, licensed October 14th, 1919.

Mantel, Ross, Milnet, Ontario, examined at North Bay, October 8th, 1919, licensed October 14th, 1919.

McCool, Lawrence, Sudbury, Ontario, examined at North Bay, October 8th, 1919, licensed October 14th, 1919.

McGregor, W. H., Sturgeon Falls, Ontario, examined at North Bay, October 8th, 1919, licensed October 14th, 1919.

JOHN HOUSER,
Chief Clerk in Charge.

ALBERT GRIGG,
Deputy Minister.

Appendix No. 13.

RECORD BRANCH, 1918-19.

Communications received:

From Crown Lands Agents				7,183
" Mining Recorders				3,476
" Crown Timber Agents				4,389
" Homestead Inspectors				1,527
" Superintendent, Algonquin Park				460
" Superintendent, Quetico Park				112
Orders-in-Council				297
Telegrams				398
Soldiers and Sailors (letters)				526
Nickel Commission	(Figures supplied by them)			800
Northern Development Branch	"	"	"	8,367
Colonization Branch	"	"	"	9,381
Loan Commissioner	"	"	"	2,767
Mining Commissioner	"	"	"	3,123
Forestry Branch	"	"	"	13,134
Mine Assessor	"	"	"	1,826
Mine Inspector	"	"	"	818
Provincial Geologist	"	"	"	472
Colonization Roads (since May 14th, 1919)	"	"	"	3,529
All other sources				28,060
Total incoming (Minister's office not included)				90,645

Communications sent out:

To Crown Agents, Inspectors, Rangers and Park Superintendents				18,872
" General Public				22,340
" Circular Letters (timber sales)				3,210
Maps and blue prints				3,606
Mining Reports to foreign countries				580
Mining Reports to United States and other countries				3,000
Mining Acts				2,200
Nickel Commission (letters)	(Figures supplied by them)			600
Nickel Commission (reports)	"	"	"	450
Northern Development Branch (letters)	"	"	"	6,715
Northern Development Branch (seed grain)	"	"	"	1,509
Colonization Branch (letters)	"	"	"	7,781
Colonization Branch (Northern Ontario literature)	"	"	"	28,568
Colonization Branch (Ontario maps)	"	"	"	7,177
Loan Commissioner				4,955
Mining Commissioner (letters)				7,067
Mining Commissioner (orders)				878
Forestry Branch (letters)				6,504
Forestry Branch (circulars)				2,300
Forestry Branch (parcels by post)				810
Mine Assessor				1,865
Mine Inspector				711
Provincial Geologist				318
Colonization Roads (since May 14th, 1919)				2,906
Total outgoing (Minister's office not included)				134,922

Postage:

Postage for the year,	Records Branch		$2,975 20
" " "	Colonization Branch		306 12
" " "	Loan Commissioner		180 00
" " "	Forestry Branch		350 00
" " "	Colonization Roads (since May 14th)		153 40

Files:

New files issued,	general	4,623
" " "	accounts chargeable	549
" " "	accounts free	175

S. K. BURDIN,
Chief Clerk, Records Branch.

ALBERT GRIGG,
Deputy Minister.

Appendix No. 14.

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 in Free Grant Townships during the year ending 31st October, 1919.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Baxter	Muskoka.	J. B. Brown, Bracebridge	2	281	1	3	1	201	3	277
Brunel	"	" "	1	201	1	1	1	201	1	201
Cardwell	"	" "	4	652	...	.....	2	380	2	352½
Chaffey	"	" "	2	298	...	.....	3	298	1	200
Draper	"	" "	....	.....	...	.....	....	.....	1	95
Franklin	"	" "	1	95	1	3	1	95	4	208
Freeman	"	" "	1	100	1	25	....	.....	3	200
Macaulay	"	" "	2	164	...	.....	1	64	....	.....
Medora	"	" "	3	203	...	.....	1	203	....	.....
Monck	"	" "	....	.....	...	.....	....	.....	....	.....
Morrison	"	" "	6	1,007	1	25/100	4	553	3	120
Muskoka	"	" "	....	.....	4	111	....	.....	5	225
McLean	"	" "	1	134	1	34	1	134	4	500
Oakley	"	" "	2	185	1	3	1	85	3	280
Ridout	"	" "	1	199	1	6	1	199	3	267
Ryde	"	" "	5	701	...	.....	4	601	....	.....
Sherborne	"	" "	2	145	1	14½	1	55	3	360
Sinclair	"	" "	1	228	2	28	1	228	....	.....
Stephenson	"	" "	....	.....	...	.....	....	.....	....	.....
Stisted	"	" "	2	287	...	.....	1	100	1	200
Watt	"	" "	3	309	1	1	2	200	4	220
Wood	"	" "	3	479	4	17	5	779	6	675
Blair	Parry Sound.	Miss I. M. Campbell, Parry Sound	....	.....	1	19	....	.....	....	.....
Burpee	"	" "	....	.....	...	.....	....	.....	....	.....
Carling	"	" "	5	654	3	205½	2	278	10	900
Christie	"	" "	2	200	...	.....	2	200	....	.....
Conger	"	" "	3	300	1	100	4	782	3	10
Cowper	"	" "	....	.....	...	.....	....	.....	1	4
Foley	"	" "	....	.....	...	.....	....	.....	1	20
Ferguson	"	" "	3	306	...	.....	2	200	....	.....
Hagerman	"	" "	1	202	...	.....	....	.....	....	.....
Harrison	"	" "	....	.....	...	.....	3	25¼	13	85
Henvey	"	" "	1	50	...	.....	....	.....	1	83½
Humphrey	"	" "	....	.....	...	.....	....	.....	....	.....
McConkey	"	" "	1	100	...	.....	....	.....	3	134
McDougall	"	" "	1	100	1	83	1	100	1	83
McKellar	"	" "	3	500	...	.....	2	400	....	.....
McKenzie	"	" "	....	.....	...	.....	....	.....	2	375
Monteith	"	" "	8	1,152	...	.....	5	717	1	254
Shawanaga	"	" "	....	.....	1	16	....	.....	4	32
Wilson	"	" "	3	386	1	3	1	98	1	200
Chapman	Parry Sound.	Dr. J. S. Freeborn, Magnetawan	1	64	2	95	1	64	1	100
Croft	"	" "	2	200	...	.....	3	404	1	200
Ferrie	"	" "	....	.....	...	.....	....	.....	....	.....
Gurd	"	" "	3	273	1	2	3	276	3	402
Lount	"	" "	2	300	...	.....	2	300	....	.....
Machar	"	" "	1	196	...	.....	1	99	6	860
Mills	"	" "	1	100	...	.....	....	.....	....	.....
Pringle	"	" "	4	500	2	107	1	200	4	695

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Ryerson	Parry Sound	Dr. J. S. Freeborn, Magnetawan	....	.....	1	100	....	.....	4	479
Spence	"	" "	....	.....	...	.....	....	.....	1	200
Strong	"	" "	1	100	...	.....	2	299	4	480
Armour	Parry Sound	David Thaw, Emsdale	....	.....	1	8	....	.....	2	300
Bethune	"	" "	....	.....	...	.....	....	.....	....	.....
Joly	"	" "	6	792	1	108	7	891	4	580
McMurrich	"	" "	1	100	1	8	2	300	2	200
Perry	"	" "	1	100	...	.....	1	100	....	.....
Proudfoot	"	" "	1	91	...	.....	....	.....	....	.....
Hardy	Parry Sound	H. J. Ellis, Powassan.	....	.....	...	.....	....	.....	....	.....
Himsworth	"	" "	8	1,100	...	.....	6	911	7	1,186
Laurier	"	" "	4	603	...	.....	3	500	1	100
Nipissing	"	" "	3	483	...	.....	2	326	4	325
Patterson	"	" "	....	.....	...	.....	....	.....	1	186
Bonfield	Nipissing	W. J. Parsons, North	6	768½	1	11	4	368½	4	330
Boulter	"	" " Bay	3	350½	...	.....	3	250½	1	200
Chisholm	"	" "	14	1,666	2	14	11	1,132	5	685
Ferris	"	" "	6	559	...	.....	5	459	3	395
Anson	Haliburton	R. H. Baker, Minden	1	182	...	.....	1	182	1	100
Glamorgan	"	" "	....	.....	...	.....	....	.....	2	287
Hindon	"	" "	....	.....	...	.....	....	.....	1	98
Lutterworth	"	" "	....	.....	...	.....	....	.....	1	160
Minden	"	" "	....	.....	...	.....	1	100	....	.....
Snowdon	"	" "	....	.....	...	.....	....	.....	....	.....
Stanhope	"	" "	1	100	...	.....	1	100	....	.....
Anstruther	Peterborough	William Hales, Apsley	1	98	...	.....	....	.....	....	.....
Burleigh, N.D.	"	" "	....	.....	...	.....	....	.....	....	.....
" S.D.	"	" "	....	.....	...	.....	2	93	1	175
Chandos	"	" "	1	110	...	.....	....	.....	1	174
Methuen	"	" "	2	300	...	.....	1	100	1	200
Cardiff	Haliburton	A. N. Wilson, Kinmount	3	388	1	122	4	392	4	450
Cavendish	Peterborough	" "	3	348	4	62	2	224	....	.....
Galway	"	" "	1	125	1	17½	....	.....	2	117½
Monmouth	Haliburton	" "	4	333	1	7	5	420	3	369
Bangor	Hastings	W. J. Douglas, May-	3	268	...	.....	2	189	....	.....
Carlow	"	" "nooth	1	199	...	.....	1	100	4	277
Cashel	"	" "	1	100	...	.....	....	.....	1	200
Dungannon	"	" "	4	474½	...	.....	1	88	....	.....
Faraday	"	" "	2	203	1	½	....	.....	1	66
Herschel	"	" "	6	639½	2	104	3	345	5	640
Limerick	"	" "	1	200	1	5	2	300	1	100
Mayo	"	" "	1	256	1	56	1	128	5	740
Monteagle	"	" "	1	101	3	7	....	.....	6	1,000
McClure	"	" "	2	200	...	.....	....	.....	1	97
Wicklow	"	" "	4	400	2	89	....	.....	2	247
Wollaston	"	" "	....	.....	...	.....	1	195	....	.....
Algona, S.	Renfrew	Adam Prince, Wilno	1	100	...	.....	....	.....	....	.....
Brougham	"	" "	....	.....	...	.....	....	.....	3	500
Brudenell	"	" "	6	590	...	.....	4	362	1	200
Burns	"	" "	....	.....	1	2	....	.....	2	56½

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Grattan	Renfrew	Adam Prince, Wilno	....	.....	2	128	....	.....	2	128½
Griffith	"	" "	2	150	...	.....	....	.....	....	.....
Hagarty	"	" "	....	.....	...	.....	....	.....	1	50
Jones	"	" "	2	143½	...	.....	....	.....	2	200
Lyell	"	" "	3	250	...	.....	2	205	....	.....
Lyndoch	"	" "	....	.....	...	.....	....	.....	....	.....
Matawatchan	"	" "	1	100	...	.....	1	100	2	260
Radcliffe	"	" "	4	551	2	103	2	269	1	195
Raglan	"	" "	3	283	...	.....	3	410	2	325
Richards	"	" "	6	797	...	.....	4	401	4	400
Sebastopol	"	" "	3	285	..	.....	3	285	....	.....
Sherwood	"	" "	1	121	...	.....	2	171	1	87
Algona, N.	Renfrew	Finlay Watt, Pembroke	....	.....	...	.....	....	.....	1	100
Alice	"	" "	....	.....	...	.....	....	.....	5	475
Buchanan	"	" "	7	817	2	82	....	.....	2	200
Clara	"	" "	3	461	1	57	....	.....	....	.....
Fraser	"	" "	1	99	...	.....	1	100	1	55
Head	"	" "	2	196	...	.....	1	100	1	165
Maria	"	" "	....	.....	...	.....	....	.....	....	.....
McKay	"	" "	....	.....	...	.....	....	.....	....	.....
Petawawa	"	" "	5	472	...	.....	3	301	2	200
Rolph	"	" "	1	112	...	.....	1	100	....	.....
Wilberforce	"	" "	....	.....	...	.....	....	.....	1	170
Wylie (pt.)	"	" "	1	200	...	.....	1	100	1	100
Calvin	Nipissing	Robt. Small, Mattawa	2	212	...	.....	3	283	2	310
Cameron (pt.)	"	" "	13	1,466	...	.....	7	686	3	500
Lauder	"	" "	4	493	...	.....	2	292	....	.....
Mattawan	"	" "	1	100	...	.....	3	291	1	198
Papineau	"	" "	2	200	...	.....	3	300	1	111
Korah	Algoma	Edward Noble, Sault	....	.....	...	.....	....	.....	....	.....
Parke	"	" Ste. Marie	....	.....	...	.....	....	.....	....	.....
Prince	"	" "	1	160	...	.....	1	160	1	108
Aberdeen	Algoma	Thos. Dodds, Thessalon	....	.....	1	80	....	.....	7	580
" ad.	"	" "	....	.....	...	.....	....	.....	....	.....
Galbraith	"	" "	....	.....	...	.....	....	.....	2	318½
Lefroy	"	" "	....	.....	...	.....	....	.....	....	.....
Plummer	"	" "	....	.....	...	.....	....	.....	....	.....
" ad.	"	" "	....	.....	...	.....	....	.....	....	.....
St. Joseph Is'd	Algoma	W. E. Whybourne, Marksville	7	722	...	.....	7	733	7	826
St. Joseph Ch'nl Is'd	"	" "	....	.....	...	.....	....	.....	....	.....
Baldwin	Algoma	Edward Arthurs,	8	1,118½	1	157½	1	162	1	158½
Merritt	"	" Espanola	2	309½	...	.....	1	150	1	159½
Blake	Thunder Bay.	W. A. Burrows, Port	1	160	...	.....	1	160	....	.....
Conmee	"	" Arthur	3	400	2	13½	4	554½	6	600
Crooks	"	" "	....	.....	1	30	1	72	3	508
Dawson Road	"	" "	7	569	1	40	6	469	4	475
Dorion	"	" "	2	280	1	80	3	429½	5	625
Gillies	"	" "	1	80¾	...	.....	...	.....	3	465
Gorham	"	" "	2	223½	2	96½	1	160	7	950
Lybster	"	" "	....	.....	1	80	2	181	....	.....
Marks	"	" "	1	80	2	81¼	3	401	2	321½
McGregor	"	" "	3	457	3	66	4	616	1	2
McIntyre	"	" "	....	.....	1	10¼	....	.....	....	.....

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
O'Connor	Thunder Bay.	W. A. Burrows, Port	1	162	2	4	1	162	3	478
Oliver	"	" Arthur	3	481	...	.....	3	482	3	400
Paipoonge, N R	"	" "	1	100	...	.....	1	100	1	100
" S R	"	" "	....	.....	....	.....	....	.....	1	189
Pardee	"	" "	1	160	...	.....	....	.....	....	.....
Pearson	"	" "	3	354	...	.....	1	160	4	641
Scoble	"	" "	5	678	...	.....	4	558½	3	429
Stirling	"	" "	12	1,836¾	3	103¼	9	1,435	3	196
Strange	"	" "	....	.....	....	.....	....	.....	1	156
Ware	"	" "	3	480	1	63½	8	1,253½	8	950
Atwood	Rainy River	William Cameron,	....	.....	....	.....	....	.....	....	.....
Blue	"	" Stratton	5	430½	1	2	4	472½	2	243
Curran	"	" "	....	.....	1	2	2	322	1	162
Dewart	"	" "	....	.....	....	.....	....	.....	....	.....
Dilke	"	" "	....	.....	....	.....	....	.....	....	.....
Morley	"	" "	5	487	1	4	3	405	1	81
Morson	"	" "	12	1,685¾	4	284½	11	1,166¼	1	140
McCrosson	"	" "	4	479¾	...	.....	5	641¼	....	.....
Nelles	"	" "	2	239½	1	9	2	238	3	242
Pattullo	"	" "	4	406	4	167	3	322	3	488
Pratt	"	" "	3	381½	...	.....	1	40	1	160
Rosebery	"	" "	....	.....	....	.....	....	.....	....	.....
Shenston	"	" "	1	81	...	.....	1	81	1	155
Sifton	"	" "	4	561¼	...	.....	3	440¼	1	160
Spohn	"	" "	2	323	1	2	2	344	2	159½
Sutherland	"	" "	6	881	2	96¾	6	791¾	1	40
Tait	"	" "	2	164	2	8	2	246	1	164
Tovell	"	" "	3	498½	...	.....	3	357¾	5	880
Worthington	"	" "	....	.....	1	114	....	.....	....	.....
Aylsworth	Rainy River	Alex. McFayden, Emo.	....	.....	....	.....	....	.....	....	.....
Barwick	"	" "	....	.....	....	.....	....	.....	....	.....
Burriss	"	" "	1	159½	...	.....	1	159½	....	.....
Carpenter	"	" "	2	223	2	100½	2	223	2	358
Crozier	"	" "	3	444	1	2	2	281	1	162
Dance	"	" "	3	514	1	2	6	1,029½	1	162
Devlin	"	" "	....	.....	....	.....	....	.....	....	.....
Dobie	"	" "	3	465½	2	27½	3	465½	3	413
Fleming	"	" "	....	.....	....	.....	1	160½	....	.....
Kingsford	"	" "	2	318½	...	.....	2	318½	1	40½
Lash	"	" "	1	81	1	2	1	81	1	162
Mather	"	" "	3	496½	1	79¼	2	336	2	159
Miscampbell	"	" "	4	656½	...	.....	4	596½	3	460
Potts	"	" "	4	638½	1	16	5	803½	1	176
Richardson	"	" "	2	319	1	80	2	368½	....	.....
Roddick	"	" "	....	.....	....	.....	....	.....	....	.....
Woodyatt	"	" "	....	.....	....	.....	....	.....	....	.....
Aubrey	Kenora	J. E. Gibson, Dryden	6	842½	...	.....	6	810½	4	485
Britton	"	" "	....	.....	....	.....	1	160½	....	.....
Eton	"	" "	4	547	1	80	3	400	6	960
Langton	"	" "	2	243½	...	.....	1	160	....	.....
Melgund	"	" "	....	.....	....	.....	3	476	2	60
Mutrie	"	" "	2	302½	...	.....	....	.....	3	415
Redvers	"	" "	2	359	...	.....	1	160½	....	.....
Rowell	"	" "	....	.....	....	.....	....	.....	....	.....
Rugby	"	" "	....	.....	....	.....	....	.....	....	.....
Sanford	"	" "	4	552	1	354¼	16	2,293½	3	400
Southworth	"	" "	7	744	...	.....	4	421	....	.....

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of persons located.	No of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Temple	Kenora	J. E. Gibson, Dryden	....	.....	1	10	1	80	1	10
Van Horne	"	" "	2	316	1	80	2	316	3	160
Wabigoon	"	" "	1	160½	1	75¼	7	1,033¾	1	145½
Wainwright	"	" "	6	953½	...	.....	5	795½	1	118½
Zealand	"	" "	2	444½	5	270	5	763	6	276
Melick	Kenora	W. L. Spry, Kenora	1	160	1	1	6	881	4	460
Pellatt	"	" "	1	110	1	36	4	519	1	125
Balfour	Sudbury	J. K. MacLennan, Sudbury	....	.....	...	.....	1	159½	....	.....
Blezard	"	" "	1	160	...	.....	1	40	2	200
Broder	"	" "	2	268½	...	.....	1	114½	2	262½
Capreol	"	" "	1	163½	...	.....	1	163½	1	144
Chapleau	"	" "	....	.....	...	.....	....	.....	....	.....
Dill	"	" "	....	.....	...	.....	....	.....	1	160
Garson	"	" "	2	253½	1	88	1	160	1	248
Hanmer	"	" "	....	.....	...	.....	....	.....	....	.....
Lumsden	"	" "	3	323	...	.....	2	317½	....	.....
Morgan	"	" "	2	240	1	80	....	.....	....	.....
Neelon	"	" "	....	.....	...	.....	....	.....	1	157
Rayside	"	" "	....	.....	...	.....	....	.....	....	.....
Appelby	Sudbury	John Brown, Markstay	4	639½	...	.....	....	.....	....	.....
Casimir	"	" "	4	627½	1	7	1	160½	3	487
Dunnet	"	" "	1	161	1	1	....	.....	1	161
Hagar	"	" "	22	3,458½	1	160	12	1,891	3	462¾
Jennings	"	" "	1	166½	1	1¼	....	.....	....	.....
Kirkpatrick	"	" "	4	649	1	7	1	183¼	1	120
Ratter	"	" "	5	814½	...	.....	2	320	....	.....
Caldwell	Nipissing	J. A. Philion, Sturgeon Falls	2	320	...	.....	....	.....	2	231
Cosby	"	" "	2	319½	...	.....	....	.....	5	650
Grant	"	" "	3	452½	...	.....	1	135	....	.....
Macpherson	"	" "	....	.....	...	.....	....	.....	3	477½
Martland	"	" "	2	298	...	.....	3	455	2	309½
Springer	"	" "	3	340	...	.....	1	100	....	.....
Abinger	Lennox and Addington	Charles Both, Denbigh	2	196	...	.....	1	96	1	100
Canonto, S.	Frontenac	" "	....	.....	...	.....	....	.....	....	.....
" N.	"	" "	....	.....	...	.....	....	.....	....	.....
Clarendon	"	" "	....	.....	...	.....	....	.....	4	500
Denbigh	Lennox and Addington	" "	5	681	...	.....	5	654	2	398
Miller (pt.)	Frontenac	" "	....	.....	...	.....	....	.....	....	.....
Palmerston	"	" "	....	.....	...	.....	....	.....	....	.....
McClintock	Haliburton	Unattached	....	.....	...	.....	....	.....	....	.....
Airy	Nipissing	"	6	667	...	.....	....	.....	3	472
Finlayson	"	"	5	64	6	74	....	.....	7	89
Murchison	"	"	4	388½	...	.....	1	200	1	41
Sabine	"	"	3	391	...	.....	....	.....	4	650
*O'Brien	Temiskaming	"	29	2,535	...	.....	....	.....	....	.....
*Owens	"	"	10	990	...	.....	....	.....	....	.....
*Williamson	"	"	2	194	...	.....	....	.....	....	.....
			576	72,420½	140	4,878½	425	55,278¼	431	49,685½

*Located under Returned Soldiers' and Sailors' Land Settlement Act, 1917

No. of lots assigned ..... 253 No. of acres assigned 34,123

By Special Regulations under Order in Council, dated 7th February, 1919, Returned Soldiers were permitted to acquire free grant locations or have their arrears due the Crown in respect of land for settlement purposes remitted, and the following list comprises the extent of such transactions.

IN SALE TERRITORY.

District.	Agency	Number Locations	No. arrears remitted	Total
Algoma	Thessalon	1	..	
Nipissing	North Bay	3	1	
"	Markstay	1	..	
Sudbury	Espanola	2	..	
"	Massey	1	..	
Timiskaming	Haileybury	2	1	
"	New Liskeard	1	9	
"	Elk Lake	1	..	
"	Englehart	9	7	
"	Matheson	23	30	
"	Cochrane	66	32	
Algoma	Hearst	24	10	
Peterboro	Unattached	2	..	
		136	90	226

IN FREE GRANT TERRITORY.

Thunder Bay	Port Arthur	4	..	
Parry Sound	Parry Sound	2	..	
Kenora	Kenora	3	..	
Nipissing	North Bay	1	..	
"	Unattached	1	..	
Rainy River	Stratton	2	..	
Sudbury	Sudbury	5	..	
Muskoka	Bracebridge	1	..	
Hastings	Maynooth	1	..	
Renfrew	Pembroke	1	..	
		21	..	21
				247

Appendix No. 14.—Concluded.

ISLANDS SOLD

Township	District or County	Agent	No. of Acres sold
Harrison: Parcels 4 & 5 of Island 1143a	Parry Sound	Miss J. M. Campbell, Parry Sound	10
Conger: Part Island B 90	"	" "	7.10/100
Shawanaga: Island C 389	"	" "	1½
Cowper: Island B 349	"	" "	3.70/100
Harrison: " 13a	"	" "	6.90/100
Carling: " C 372	"	" "	1.36/100
" " C 42	"	" "	1¾
" " C 23	"	" "	7.35/100
" " C 24	"	" "	5.15/100
Harrison: " 178	"	" "	15/100
" " 419	"	" "	1.02/100
Conger: " B 17	"	" "	1.80/100
" " B 19	"	" "	1.40/100
Shawanaga: Island 395a	"	" "	16.40/100
" " 987b	"	" "	16
Harrison: Parcel 6 of Island 96a	"	" "	9
" " 14 & 75 " "	"	" "	21
" " 2 of " 26a	"	" "	14
" Island 497a	"	" "	2.40/100
" " 516a	"	" "	60/100
" " 553a	"	" "	¼
" " 559a	"	" "	1.30/100
" " 557a	"	" "	90/100
Cavendish: Island No. 2 Catchacoma Lake	Peterborough	A. N. Wilson, Kinmount.	8
" Island No. 3 Catchacoma Lake	"	" "	16
" Island No. 4 Catchacoma Lake	"	" "	28
" Island No. 6 Catchacoma Lake	"	" "	2
Franklin: Vimy Ridge Island	Muskoka	J. B. Brown, Bracebridge	53/100
Watt: Balthayock	"	" "	6½
Sherborne: Pt. Denison Island, Hollow Lake	Haliburton	" "	14½
Morrison: Lalla Rookh Island	Muskoka	" "	1.27/100
Temple: Pt. Island 55, Eagle Lake	Kenora	J. E. Gibson, Dryden	10
Melick: Island N, Black Sturgeon Lake	"	W. L. Spry, Kenora	1
Nipissing: Pt. Island B, South Bay	Parry Sound	H. J. Ellis, Powassan	23
Macgregor: Island No. 17	Thunder Bay	W. A. Burrows, Port Arthur	2
			244

SELBY DRAPER, Free Grants Clerk.
W. C. CAIN, Chief Clerk.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 15.

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1919.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Blount	Temiskaming.	S. J. Dempsay, Cochrane	.....	....	....	.....	....	.....
Brower	"	" "	135	1	2	295¼	....	.....
Calder	"	" "	.....	....	....	.....	6	649
Clute	"	" "	1,653	13	13	1,920	5	780
Colquhoun	"	" "	.....	....	....	.....	....	.....
Fauquier	"	" "	1,984	14	4	599	5	863
Fournier	"	" "	.....	....	....	.....	1	158½
Fox		" "	1,116	8	10	1,589½	1	149½
Glackmeyer	"	" "	152	1	4	601	8	1,112
Kennedy	"	" "	151	1	1	150	....	.....
Lamarche	"	" "	168½	1	....	.....	2	319
Leitch	"	" "	289	2	1	145	....	.....
Newmarket	"	" "	638¼	6	3	470	....	.....
Pyne	"	" "	966½	7	2	319	....	.....
Shackleton	"	" "	501	3	....	.....	1	23½
Catharine	Temiskaming.	Jos. Woollings, Englehart	318½	3	4	625½	....	.....
Chamberlain	"	" "	158½	1	1	159	4	588½
Dack	"	" "	200	2	2	319	3	456
Eby	"	" "			1	37¾	1	37¾
Evanturel	"	" "	160½	1	2	317	1	161½
Gross	"	" "	319½	2	3	479½	....	.....
Ingram	"	" "	916	8	7	1,054	2	242
Marter	"	" "	480	3	1	160	3	350
Marquis	"	" "	3	1	....	.....	....	.....
Otto	"	" "	320	2	....	.....	4	241½
Pacaud	"	" "	360	10	1	159½	19	917½
Pense	"	" "	430¾	4	1	160	....	.....
Robillard	"	" "	45	2	1	161	6	918½
Savard	"	" "	161	1	3	481	3	467½
Sharpe	"	" "	159	1	....	.....	2	248½
Truax	"	" "	41	1	....	.....	1	162½
Armstrong	Temiskaming.	J. W. Bolger, New Liskeard	80	1	....	.....	6	716¼
Auld	"	" "	.....	....	....	.....	....	.....
Beauchamp	"	" "	468½	3	3	472	8	1,281½
Brethour	"	" "	687	5	1	158	5	784
Bryce	"	" "	160	1	3	480	2	317½
Bucke	"	" "	.....	....	....	.....	5	500½
Cane	"	" "	160	1	....	.....	4	479
Casey	"	" "	200	3	2	80	10	1,332½
Dymond	"	" "	.....	....	....	.....	4	558½
Firstbrook	"	" "	162½	1	8	1,249½	3	250
Harley	"	" "	.....	....	....	.....	9	1,174
Harris	"	" "	316¼	2	....	.....	6	684
Henwood	"	" "	962½	6	3	480	7	1,042
Hilliard	"	" "	784	5	....	.....	6	937
Hudson	"	" "	.....	....	....	.....	3	483½
Kerns	"	" "	.....	....	....	.....	12	1,238
Lundy	"	" "	.....	....	1	165½	....	.....
Tudhope	"	" "	.....	....	2	283½	5	204½
Smyth	Temiskaming.	Mark Morgan, Elk Lake	163½	1	....	.....	3	180¾
Lorrain	Temiskaming	Neil J. McAulay, Haileybury	201	3	2	319½	1	176

Appendix No. 15.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Beatty	Temiskaming.	F. E. Ginn, Matheson	150½	1	3	247½	8	793¼
Benoit	"	" "	483½	3	7	828	5	161
Bond	"	" "	323½	2	11	1,768	1	1
Bowman	"	" "	160½	1	4	640½	3	375
Calvert	"	" "	251	2	1	140	4	243½
Carr	"	" "	670	4	6	817½	8	1,400
Clergue	"	" "	.....	....	3	486	5	223
Currie	"	" "	.....	....	2	322	4	423
Dundonald	"	" "	613	4	4	618	....	.....
Evelyn	"	" "	.....	....	....	.....	....	.....
German	"	" "	165½	1	....	.....	....	.....
Hislop	"	" "	760	4	2	387	2	172
Matheson	"	" "	.....	....	1	36	1	36
Mountjoy	"	" "	1,134½	8	4	603	2	76
McCart	"	" "	620	4	2	321½	....	.....
Playfair	"	" "	1,767½	12	4	638½	6	900
Stock	"	" "	.....	....	1	151½	1	144
Taylor	"	" "	317	3	....	.....	3	470½
Walker	"	" "	.....	....	....	.....	1	14
Casgrain	Algoma	T. V. Anderson, Hearst.	430	3	3	446	5	750
Eilber	"	" "	.....	....	....	.....	....	.....
Hanlan	"	" "	882	7	19	2,810	1	97
Kendall	"	" "	113	2	....	.....	6	710
Lowther	"	" "	595	4	2	302	....	.....
Forbes	Thunder Bay.	W. A. Burrows, Port Arthur	384	3	1	112	1	7
Lyon	"	" "	161	1	2	320	3	291
Nepigon	"	" "	464½	4	13	1,981	8	1,224
Aweres	Algoma	E. Noble, Sault Ste. Marie	.....	....	....	.....	....	.....
Tarentorus	"	" "	80	1	....	.....	....	.....
Vankoughnet	"	" "	188	3	1	142	1	1.6/100
Watten	Rainy River	C. J. Hollands, Fort Frances	296	2	4	258	7	400
Bright	Algoma	Thos. Dodds, Thessalon.	.....	....	....	.....	....	.....
Day	"	" "	.....	....	....	.....	1	135
Gladstone	"	" "	.....	....	....	.....	1	156
Haughton	"	" "	.....	....	1	135½	4	472
Johnson	"	" "	289	1	....	.....	1	127
Kirkwood	"	" "	230	1	....	.....	1	230
Parkinson	"	" "	.....	....	2	83¼	2	83¼
Patton	"	" "	.....	....	....	.....	3	680
Rose	"	" "	.....	....	....	.....	1	154
Striker	"	" "	.....	....	....	.....	....	.....
Thompson	"	" "	.....	....	....	.....	....	.....
Wells	"	" "	.....	....	....	.....	....	.....
Drayton	Kenora	W. L. Spry, Kenora	160	1	....	.....	2	93
Hallam	Sudbury	R. W. Teasdale, Massey	974	6	....	.....	6	964
Harrow	"	" "	160½	1	....	.....	1	159½
May	"	" "	159½	1	....	.....	3	418
Salter	"	" "	.....	....	....	.....	1	160
Shedden	Algoma	" "	.....	....	....	.....	2	301½
Victoria	"	" "	102¾	1	1	160	3	220
Dowling	Sudbury	J. K. MacLennan, Sudbury	.....	....	....	.....	3	583
Scollard	Nipissing	J. A. Philion, Sturgeon Falls	160½	1	....	.....	1	161½
Mason	"	" "	162½	1	....	.....	1	2

Appendix No. 15.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Hugel	Nipissing	John Brown, Markstay.	2,024½	15	....	.....	6	995
Widdifield	Nipissing	W. J. Parsons, North Bay	1,832½	12	9	1,313½	8	1,078
Nairn	Sudbury	Edward Arthurs, Espanola	.....	....	....	.....	....	.....
Admaston	Renfrew	Unattached	248	2	....	.....	5	654
Bagot	"	"	500	4	....	.....	7	1,800
Blithfield	"	"	290	2	....	.....	2	480
Horton	"	"	100	1	....	.....	....	.....
McNabb	"	"	100	1	....	.....	2	180
Westmeath	"	"	.....	....	....	.....	1	78½
Effingham	Lennox	Unattached	117	1	....	.....	....	.....
Kaladar	"	"	84	1	....	.....	3	310½
Sheffield	"	"	45	1	....	.....	3	200
Bentinck	Grey	Unattached	.....	....	....	.....	5	401
Derby	"	"	.....	....	....	.....	1	76
Egremont	"	"	.....	....	....	.....	3	200
Glenelg	"	"	.....	....	....	.....	5	404
Holland	"	"	30	1	....	.....	5	411½
Normanby	"	"	½	1	....	.....	1	½
Osprey	"	"	.....	....	....	.....	2	198¼
Proton	"	"	.....	....	....	.....	4	347½
Sullivan	"	"	.....	....	....	.....	3	250
Arran	Bruce	Unattached	.....	....	....	.....	4	243
Brant	"	"	.....	....	....	.....	....	.....
Bruce	"	"	.....	....	....	.....	8	523
Elderslie	"	"	.....	....	....	.....	5	583
Huron	"	"	.....	....	....	.....	3	200
Barrie	Frontenac	Unattached	67	3	....	.....	2	2
Olden	"	"	200	1	....	.....	1	200
Beckwith	Lanark	Unattached	.....	....	....	.....	....	.....
Darling	"	"	100	1	....	.....	1	100
Pakenham	"	"	200	1	....	.....	....	.....
Sandwich, E.	Essex	Unattached	684/1000	1	....	.....	1	684/1000
Haughton	Norfolk	Unattached	.....	....	....	.....	2	50
Rama	Ontario	Unattached	.....	....	....	.....	1	100
Carden	Victoria	Unattached	.....	....	....	.....	3	284
Dalton	"	"	.....	....	....	.....	....	.....
Laxton	"	"	.....	....	....	.....	1	100
Somerville	"	"	299	2	....	.....	2	251
Edwardsburgh	Grenville	Unattached	50	1	....	.....	1	50
Harvey	Peterborough	Unattached	145	2	2	144	3	535
Smith	"	"	.....	....	....	.....	1	100
Elzevir	Hastings	Unattached	61½	1	....	.....	....	.....
Grimsthorpe	"	"	224	1	....	.....	....	.....
Tudor	"	"	99	1	....	.....	4	367
Ashby	Lennox and Addington	Unattached	100	1	....	.....	....	.....
Sheffield		"	151	1	....		9	380

Appendix No. 15.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Kitely	Leeds	Unattached	151	1	....	.....	1	151
Elizabethtown.	"	"	.....	....	....	.....	1	100
Cornwall	Stormont	Unattached	145	2	....	.....	2	145
Roxborough	"	"	100	1	....	.....	2	200
Matchedash	Simcoe	Unattached	16	2	....	.....	....	.....
Arthur	Wellington	Unattached	.....	....	....	.....	1	100
Bertie	Welland	Unattached	42	4	....	.....	3	41½
Barton	Wentworth	"	69	1	....	.....	1	69
Cody	Temiskaming.	Unattached	¾	1	....	.....	6	183
Maisonville	"	"	1	1	....	.....	1	1
Bigwood	Sudbury	Unattached	17	1	....	.....	2	17
Burwash	"	"	319	2	....	.....	1	159
Creighton	"	"	.....	....	....	.....	4	313½
Dennison	"	"	323	2	....	.....	2	233
Drury	"	"	164	1	....	.....	1	80
Dryden	"	"	160½	1	....	.....	....	.....
Falconbridge	"	"	160½	1	....	.....	....	.....
Lorne	"	"	341	4	....	.....	1	167½
Louise	"	"	.....	....	....	.....	3	283½
McKinnon	"	"	248	2	....	.....	1	154½
MacLennan	"	"	.....	....	....	.....	1	351½
Shakespeare	"	"	161	1	....	.....	3	320½
Snider	"	"	.....	....	....	.....	7	330
Waters	"	"	402	3	....	.....	4	361
Badgerow	Nipissing	Unattached	1,452	11	1	160½	7	890
Crerar	"	"	1,248½	11	....	.....	10	1,480
Delamere	"	"	308	2	....	.....	....	.....
Field	"	"	1,033½	7	....	.....	6	561
Gibbons	"	"	665	4	....	.....	3	460
Malachi	Kenora	"	64	4	....	.....	3	41
Jaffray	"	"	.....	....	....	.....	5	538
McTavish	Thunder Bay.	"	160	1	....	.....	1	160
Townsites—								
Armstrong	Thunder Bay.	Unattached	½	2	....	.....	....	.....
Grant	"	"	8	2	....	.....	5	1
MacFarlane	Kenora	"	¼	1	....	.....	....	.....
Dryden	"	"	.....	....	....	.....	1	½
Sioux Lookout	"	"	.....	....	....	.....	1	¼
Waldhof	"	"	17/100	1	....	.....	1	17/100
Winnipeg River Crossing	"	"	¾	1	....	.....	8	23
Hearst	Algoma	T. V. Anderson	¼	1	....	.....	....	.....
Hilton	"	W. E. Whybourne,	19¼	20	....	.....	15	16¾

Appendix No. 15.—Concluded.

Townsites.	District or County	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented
Capreol	Sudbury	Unattached						
Frederickhouse	Temiskaming.	"	1	5			5	$1\frac{55}{100}$
Iroquois Falls	"	F. E. Ginn, Matheson						
Kirkland Lake	"	Unattached	1	3				
Smyth	"	"					3	$1\frac{3}{4}$
Muskokaville	Muskoka	J.B. Brown, Bracebri'ge	$\frac{1}{3}$	1			2	$3\frac{32}{100}$
Alma	Wellington	Unattached	1	1			1	1
Ayton	Grey	"	$\frac{1}{2}$	1			1	$\frac{1}{2}$
Petewawa	Renfrew	Finlay Watt, Renfrew.	2	17			10	$3\frac{83}{100}$
Bobcaygeon	Victoria	Unattached					1	$\frac{1}{2}$
		WATER LOTS.						
City & Towns: Kingston	Frontenac	Unattached	$2\frac{96}{100}$	1			1	$2\frac{96}{100}$
Sombra	Lambton	"	$\frac{35}{100}$	1				
Ford City	Essex	"					1	$\frac{684}{1000}$
Windsor	"	"	$\frac{2}{3}$	1			1	$\frac{2}{3}$
Keswick	York	"	2	2			2	2
Pembroke	Renfrew	"	$1\frac{12}{100}$				1	$\frac{12}{100}$
Belle Ewart	Simcoe	"	$\frac{1}{3}$	1			1	$\frac{1}{3}$
		ISLANDS.						
Burgess—Whiskey Is'd	Lanark	Unattached					1	$\frac{27}{100}$
Bastard—Kitchener Island	Leeds	"	$5\frac{1}{2}$	1			1	$5\frac{1}{2}$
Mink Island	"	"	$2\frac{1}{2}$	1			1	$2\frac{1}{2}$
Barrie—Pyne Island	Frontenac	"	1	1			1	1
Island in Shahbomekah Lake	"	"	2	2			2	2
Bedford—Bedford Is'd	"	"						
Ashby—Round Island	Lennox and Addington	"						
Honeymoon Island	" "	"	$\frac{65}{100}$	2			2	$\frac{65}{100}$
Matchedash—Island in Burrows Lake	Simcoe	"	1	1			1	1
Malachi—Island G	Kenora	"					1	$1\frac{3}{10}$
	Total		$49,864\frac{2}{5}$	414	208	$30,363\frac{1}{2}$	566	$55,078\frac{56}{125}$

Number of lots assigned.....312 Number of acres assigned.....$44,201\frac{3}{4}$
Number of sales restored.....19 Number of acres restored..... $2,703\frac{3}{4}$

W. R. LEDGER, Sales Clerk.
W. C. CAIN, Chief Clerk in Charge.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 16.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1919.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount Paid	No. in Acres
1	Sept. 7, 1917.	A. L. Russell....	Survey of the shores of Lower Shebandowan Lake, District of Thunder Bay	$756 90	
2	June 17, 1918.	Phillips & Benner	Survey certain boundaries of the Black Sturgeon Pulp and Timber Limit, District of Thunder Bay..	1,766 75	
3	Apr. 20, 1918.	H. J. Beatty.....	Survey of certain township outlines, District of Timiskaming..	1,117 05	
4	May 20, 1918.	David Beatty ...	Survey of the Township of Williamson, District of Timiskaming....	3,062 25	51,878
5	June 14, 1918.	E. R. Bingham...	Survey of certain base and meridian lines, District of Thunder Bay...	1,614 25	
6	June 26, 1918.	Lang & Ross.....	Survey of the Township of Cumming, District of Algoma	3,548 10	51,898
7	Nov. 19, 1918.	Lincoln Mooney..	Survey of a line dividing the Township of Wigle in the District of Sudbury into north and south halves	499 85	
8	Apr. 15, 1919.	M. E. Crouch....	To survey certain boundary lines of the Pic River Pulp and Timber Limit, District of Thunder Bay..	8,605 68	
9	May 16, 1919.	Lincoln Mooney..	To survey timber limits in the Timagami Forest Reserve, east of the Township of Askin, District of Nipissing.....	1,078 25	
10	Apr. 15, 1919.	Sutcliffe & Neelands	To survey certain township outlines in the District of Timiskaming..	7,618 23	
11	Apr. 15, 1919.	T. J. Patten	To survey a meridian line in the Districts of Kenora and Patricia.	3,723 88	
12	Apr. 15, 1919.	Speight & Van Nostrand	To survey certain township outlines on the Ground Hog River, Districts of Sudbury and Timiskaming	5,697 75	
			Scythes & Co., Ltd., iron posts....	575 00	
				39,663 94	103,776

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 17.

Statement of Surveys in progress during the twelve months ending October 31st, 1919.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount Paid
1	May 16, 1919.	E. R. Bingham...	Survey of part of the Township of Devon, District of Thunder Bay	$3,320 00
2	July 8, 1919.	E. R. Bingham...	Survey outlines of certain townships west of the Townships of Marks and Conmee, District of Thunder Bay	2,700 00
3	Apr. 30, 1919.	David Beatty ...	Traverse certain lakes in the Timagami Forest Reserve, Districts of Nipissing and Sudbury	4,000 00
4	Apr. 15, 1919.	H. J. Beatty.....	Survey certain township outlines, north of Lake Abitibi, District of Timiskaming..	5,650 00
5	Apr. 15, 1919.	A. S. Code	Survey certain township outlines in the District of Algoma	4,000 00
6	May 2, 1919.	T. G. Code	Traverse certain lakes and rivers in the Districts of Sudbury and Algoma.....	3,440 00
7	May 8, 1919.	S. B. Code	Traverse the shores of Charleston Lake, Townships of Lansdowne and Escott, County of Leeds	1,350 00
8	Apr. 22, 1919.	Cavana & Watson	Survey certain township outlines, District of Sudbury	3,200 00
9	Apr. 15, 1919.	Jas. S. Dobie....	Survey a meridian line between the Districts of Thunder Bay and Kenora.....	11,900 00
10	Apr. 15, 1919.	J. W. Fitzgerald.	Survey a meridian line in the vicinity of the Ground Hog River, and the residue of the Township of Nansen, District of Timiskaming	4,550 00
11	Apr. 25, 1919.	C. E. Fitton	To inspect Crown Surveys	3,650 00
12	May 9, 1919.	D. J. Gillon	Survey a part of the boundary line between the Districts of Rainy River and Kenora, and certain meridian lines in Rainy River	4,900 00
13	May 8, 1919.	C. R. Kenny	Traverse Missinaibi Lake and River and tributary waters, Districts of Algoma and Sudbury	3,240 00
14	May 1, 1919.	Lang & Ross	Survey certain township outlines, District of Algoma	5,700 00
15	Aug. 6, 1919.	J. L. Morris	To re-establish part of the boundary of the Algonquin Provincial Park, District of Nipissing	2,500 00
16	Apr. 15, 1919.	McAuslan & Anderson	Survey certain townships in the District of Algoma	5,312 50
17	May 1, 1919.	N. B. MacRostie.	Survey certain township outlines on the Kapuskasing River, District of Algoma.	4,000 00
18	Sept. 30, 1919.	Phillips & Benner	Survey a meridian line and that portion of Dog Lake lying north of the Township of Fowler, District of Thunder Bay.....	500 00
19	Apr. 15, 1919.	Phillips & Benner	To survey the Township of Fowler, in the District of Thunder Bay	5,860 31
20	May 1, 1919.	G. L. Ramsey....	To survey certain base and meridian lines, District of Thunder Bay	4,586 50
21	June 30, 1919.	A. L. Russell....	Traverse the shore of Upper Shebandowan Lake and Green Water Lake, District of Thunder Bay	500 00
22	Apr. 15, 1919.	Wm. A. Sibbett..	Survey the residue of the Townships of Casgrain and Hanlan, District of Algoma.	2,500 00
23	July 22, 1919.	G. L. Ramsey ...	Traverse Long Lake, District of Thunder Bay	1,800 00
				89,159 31

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 18.

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1919.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	Geo. L. Brown	720	July 2, 1919.	To survey the road allowance between the 4th and 5th concessions of the Township of Williamsburg, across lots 10, 11 and 12, in said township, and that stone or other durable monuments be placed to mark the boundaries of the same.
2	H. J. Beatty..	721	Aug. 26, 1919.	To survey the road allowance between the 9th and 10th concessions across lots 1, 2 and 3 in the Township of McNab, and that stone or other durable monuments be placed to mark the boundaries of such road allowance.
3	James A. Bell & Son	722	Aug. 27, 1919.	To survey the boundary line between the Village of Port Stanley and the Township of Southwold, in the County of Elgin, and that stone or other durable monuments be placed marking such boundary and the intersections of the roads or streets running from the said village into said township.

L. V. RORKE,
Dirrctor of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 19.

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1919.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under R. S. O. 1914, Chapter 166, Secs. 10-15, Inclusive.
1	S. B. Code	717	June 4, 1918.	To survey the road allowance between concessions 5 and 6, in the Township of Goulburn, across lots 16, 17 and 18, and that stone or other durable monuments be placed to mark the limits of the said road allowance	Nov. 18, 1918.

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 20.

SURVEY OF CERTAIN TOWNSHIP OUTLINES IN THE DISTRICTS OF SUDBURY AND TIMISKAMING.

TORONTO, October 31st, 1919.

SIR,—We have the honour to submit the following report on the survey of certain township outlines in the Districts of Sudbury and Timiskaming, made by us during the past summer, under instructions from your Department, dated 15th April, 1919.

Upon receipt of the instructions, arrangements for the organization and equipment of the necessary party were begun, and, on the 15th of July, a party in charge of T. B. Speight, O.L.S., assisted by R. M. Anderson, O.L.S., was assembled at Kukatush on the Canadian National Railways. The following day part of the supplies was taken from there some distance down the Ground Hog River. Great difficulty was found, however, in obtaining sufficient men of the proper stamp for survey work, owing partly to the abundant opportunities for employment at points along the railways, and partly, to the high prices recently obtained for furs having rendered the Indians, who usually form a large proportion of the party, less inclined to supplement the proceeds of the hunt in this way. It was, therefore, the 18th of July before the survey was commenced, at the north-east corner of the Township of Muskego. The point of commencement had been reached the previous day by a good canoe route of about ten miles from the railway crossing at Winter Spawning Lake, a few miles west of the Ground Hog River. We found the north-east corner of the Township of Muskego marked by an iron post planted beside a wooden post, both of which were marked "IX M" on the south side, and "Muskego" on the south-west side. From this point we ran due east, astronomically, delimiting the south boundaries of the Townships of Melrose and Frey. We intersected the west boundary of the Township of Keefer at chainage seven miles and 3.07 chains from the south-west corner of Frey. Wooden posts of the most durable material obtainable within reasonable distance were planted at the end of every mile on each of the boundaries run, and were marked on the west side with the distance from the south-west angle of the township. In addition, iron posts, 1¼ inches in diameter were planted at the ends of the third and sixth miles in each case. Iron posts were also planted at the south-east corners of the townships, and both wooden and iron posts marked with the names of the adjoining townships.

From the south-east corner of Melrose, we ran eight miles and 73.92 chains due north between the Townships of Melrose and Frey, to O.L.S. Niven's base line of 1899. Wooden posts were planted at every mile, and iron posts at the third and sixth miles. At the intersection of O.L.S. Niven's base line, a wooden post and an iron post 1⅞ inches in diameter, both marked "Melrose" on the south-west, and "Frey" on the south-east, and "Eight miles and 73.92 chains" on the south side, were planted.

We then proceeded west to the 45th mile of O.L.S. Niven's line, which we found defined by an iron post and a wooden post marked "XLV M" on the east sides. We ran north, astronomically, from this point, three miles and 54.37 chains to the south boundary of the Indian Reserve surveyed by O.L.S. J. S. Dobie, in 1909.

Returning to the Ground Hog River, we proceeded down it to the north boundary of the Township of Strachan. O.L. Surveyors, Sutcliffe and Neelands had, earlier in the season, run this line from the north-west corner of the township, as far as the west bank of the Ground Hog River, and planted a post on that bank at two miles and 62.69 chains. We continued the line east from this point to chainage eight miles and 78.12 chains, where we planted iron and wooden posts to mark the north-east corner of the township. From there we continued east, astronomically, along the south boundary of the Township of Fortune, eight miles and 66.35 chains to the west boundary of the Township of Cote.

From the north-east corner of the Township of Strachan, we ran south, astronomically, one mile and 20.21 chains, to the north boundary of the Indian Reserve, which boundary we intersected at a point 6.98 chains east of post No. IV on that boundary. From the same corner we ran north, astronomically, nine miles along the east boundary of the Township of Montcalm to the north-east corner of that township.

It became evident at this time that it would be impossible to complete the work described in your instructions this season, owing to the trouble we had experienced and were experiencing in obtaining and holding men, so it was decided not to attempt to complete the north boundary of Montcalm or the lines to the north at this time, beyond doing what work was possible from our camp at this corner. Accordingly, after running two miles to the north, and two miles to the west, we proceeded to run the north boundary of the Township of Fortune to the Township of Byers. The west boundary of Byers was reached at chainage eight miles and 63.71 chains.

We returned to the railway via the Nat and Ground Hog Rivers, reaching the steel on the 16th of September.

All east and west lines were run as chords of the parallels of latitude, passing through the corners of the respective townships.

All lines were well opened up and properly blazed. Wherever possible, cairns of stone were built about the posts planted, and bearing trees, in each case, were carefully marked, with bearings and distances noted. Frequent astronomic observations were taken on Polaris throughout the survey. The notes of a number of these accompany the field notes.

General Features.

Practically all the area embraced by this survey lies in the valley of the Ground Hog River, and its tributary the Nat River. Generally speaking the country is rolling in the southern part, gradually becoming flatter to the north. Along the south boundaries of Melrose and Frey, the line crossed a succession of low to moderately abrupt sandy and gravelly ridges with a few outcrops of granite rock. Between Melrose and Frey, and north of O.L.S. Niven's base line, considerable stretches of flat land were crossed, varied in places by rock and gravel ridges. Few lakes were encountered, nor were any streams of any size crossed with the exception of the two rivers—the Ground Hog and the Nat. Large sections of the townships were burnt, apparently about twenty-five to thirty years ago, and more recent burns were crossed on the south boundary of Melrose, and on the south and west boundaries of Fortune.

Soil.

No clay soil was found on the south boundaries of Melrose and Frey, but on the boundary between Melrose and Frey considerable stretches were crossed. This boundary lies between the Ground Hog and Nat Rivers, and the ground was, generally speaking, flat and wet, with clay and sand sub-soil alternating. The section north of O.L.S. Niven's base line showed about 30 per cent. clay soil, most of it light and intersected by sandy ridges. Much of the land was swampy, but there was comparatively little muskeg, the only large muskeg crossed being at the south-east corner of Poulett.

Timber.

Much of this area has been burnt over within the last twenty-five or thirty years, but some good stands of timber were noted. The best timber seen was along the south boundary of Melrose on both sides of the Nat River, where there is a considerable area of exceptionally fine Banksian pine. In this area there are also some heavy stands of spruce of pulpwood size. Along the boundary between Melrose and Frey, the timber, mostly spruce, is generally light, with much balsam and undergrowth. Along the south boundary of Strachan; spruce, poplar, and birch, with occasional groves of Banksian pine, were found, and similar country was encountered as far as mile six of the south boundary of Fortune. Between miles six and seven there are some gravel ridges, which are heavily timbered with Banksian pine, birch, poplar, and scattered Norway pine. Here was the only place we found Norway pine, and at no place did the lines pass through stands of white pine. From mile seven eastward the timber has been burnt off leaving sand hills almost bare except for small groves of spruce and cedar.

Between Fortune and Parke there is a fair stand of spruce and Banksian pine, poplar, and birch, and the timber along the north boundary of Fortune is of the same general character.

Water.

The Ground Hog River supplies a good canoe route from the railway as far north as the north limit of the Indian Reserve. Several rapids and a fall of about fifteen feet are capable of supplying considerable power. From near the north limit of the Indian Reserve to well below the crossing of the north boundary of Strachan lie what are known as the Six Mile Rapids, practically continuous swift water.

The Nat River between the south boundary of Melrose and the Indian Reserve, is a sluggish stream with, generally speaking, low marshy banks. Bromley Lake and a large marsh to the south form considerable storage basins. From the Indian Reserve north, there are several rapids and small falls, but the river forms an excellent canoe route to the south boundary of the township of Aitken. The Nat may be reached from the Ground Hog River by several portages, of which the best is about five miles south of the south limit of Melrose.

Minerals.

The rocks seen were mostly granite, and the area does not look promising from a mining standpoint.

GAME.

Moose were numerous, and signs of bear and wolves were noted at various times. Beaver, too, were present in all streams. Pike and pickerel were plentiful in the Nat River, and sturgeon were found in the Ground Hog.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) SPEIGHT & VANNOSTRAND,

Ontario Land Surveyors.

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

Appendix No. 21.

SURVEY OF CERTAIN TOWNSHIP OUTLINES IN THE DISTRICT OF ALGOMA.

NORTH BAY, November 19th, 1919.

SIR,—In accordance with instructions from your Department dated April 15th, 1919, we have surveyed certain township outlines in the District of Algoma, and beg to report thereon as follows:—

Commencing our survey at the north-east corner of the Township of Coderre on June 1st, we ran north astronomically nine miles between the Townships of Mons and Champlain; thence west astronomically to O.L.S. Speight's meridian line of 1910. Returning to our meridian, we proceeded across country to O.L.S. Speight's line of 1909, which had been run two miles between the Townships of Mons and Radisson. We produced this line west astronomically to intersect our meridian line. We then continued our meridian line north astronomically between the Townships of Ericson and Radisson and between Cromlech and Usnac, intersecting O.L.S. Speight's base line of 1910, forming the north boundary of Cromlech. From this point we ran the line between the Townships of Usnac and Opazatika east astronomically, returning to our meridian we ran north astronomically between the Townships of Abbott and Opazatika. Returning to the south-west angle of Usnac, we ran west astronomically to the Missinaibi River between the Townships of Ericson and Cromlech and east astronomically between the Townships of Usnac and Radisson to intersect O.L.S. Speight's meridian of 1909 forming the east boundary of Radisson; thence we ran north astronomically between the Townships of Usnac and Oscar and between Opazatika and Bourinot intersecting O.L.S. MacRostie's lines forming the north and south boundaries of the township of Oscar and posting these intersections, returning via Opazatika Lake and portage to the Missinaibi River we picked up our line between Ericson and Cromlech and continued it west astronomically to O.L.S. Speight's meridian of 1910, thus completing the survey.

A large portion, probably 40 per cent. of the eastern portion of the lands traversed by the survey, i.e., the Townships of Mons, Radisson, Usnac and Opazatika and the eastern part of the Townships of Champlain, Ericson, Cromlech and Abbott has been burned over within the last fifteen or twenty years and is covered with a very thick growth of small poplar and birch or spruce and jack pine and alder brush. With regard to the timber the balance of the land may be divided into two classes, i.e., the high land and the low land. The former being generally heavily timbered with white spruce, ranging from 5 in. to 24 in., birch, 5 in. to 16 in., and balsam, 2 in. to 16 in., with an occasional ridge of jack pine, chiefly with black spruce 4 in. to 14 in., and in some places cedar 5 in. to 20 in.

The lines dividing the Townships of Ericson, Champlain, Mons and Radisson indicate mostly sandy land with some areas of good clay land and occasionally a rock ridge. Generally speaking, the townships lying to the north of these are of good clay land, but slightly broken with rock ridges and swamps. Most of the swamps, however, could be drained and are of very fertile soil having from 18 in. to 30 in. of moss and black muck with a clay subsoil. Judging by the numerous varieties of wild fruits which grow abundantly in this country, it is very suitable for agricultural purposes.

No economic minerals were met with. The country rock is generally of a coarse-grained granite of the Laurentian Series, containing numerous veins of quartz and dykes of trap.

There are no water powers of any importance in the territory embraced by this survey, though the Missinaibi River throughout, has a very considerable fall.

Accompanying this report are the usual return of field notes, etc., together with mounted plan and timber plan.

All of which is respectfully submitted.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) McAuslan & Anderson,
Per H. M. Anderson.

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

Appendix No. 22.

Survey of Certain Township Outlines in the District of Timiskaming.

Pembroke, December 12th, 1919.

Sir,—I have the honour to submit the following report on the survey of certain township outlines in the District of Timiskaming made by me under instructions from your Department, dated April 15th, 1919.

On July 2nd, I left Pembroke with my party and proceeded via C. N. Railway and T. & N. O. Railway to Cochrane, thence via C. N. Railway to Low Bush Station where I arrived on the 5th about eleven o'clock and proceeded up Low

Bush River that afternoon and camped at the north boundary of Bowyer Township, about a mile and a quarter east of north-west corner of that township, that being the starting point of my first meridian, the survey of which was commenced on the morning of the 6th, and then run north a distance of fifteen miles in accordance with your instructions. At the sixth mile post I ran west along the north boundary of Findlay Township a distance of six miles, but owing to the north-east corner of the Township of Sweatman coming in open muskeg which has been frequently burned over, I was not able to locate it, and after searching for half a day, returned to the north-east corner of Findlay and ran east along north boundary of Henley Township. I then went down to the corner of Bowyer and Purvis Townships and ran north between Henley and Pliny intersecting my base line at five miles and seventy-eight chains and twenty-six links. I then continued east along north boundary of Pliny Township intersecting the west boundary of Steele Township one chain, thirty-seven and seven-tenth links south of its north-west corner.

I then packed my outfit across the north boundary to the north-east corner of the Township of Steele and ran the north boundary of the Township of Scapa, a distance of six miles, then went south to north-east corner of Bonis Township and ran the east boundary of Scapa north, intersecting my base line at five mile, seventy-eight chains and ten links, I then continued my base line, and established the corner of Abbotsford and Adair Townships at a distance of nine miles from north-east corner of Steele, from here I ran the line forming boundary between Abbotsford and Adair Townships north a distance of nine miles, and returning south to my base line I continued east intersecting the Quebec boundary at a point thirty-six chains and eighteen links north of the one hundred and third mile post. I ran the meridian forming west boundary of Abbotsford Township north from the north-east corner of Steele, a distance of nine miles and then turned east along north boundary of Abbotsford and at chainage eight miles plus seventy-nine chains and five links, I intersected the east boundary at seventy-nine chains and three links north of the eight-mile post. I then continued along north boundary of Adair Township intersecting the Quebec boundary at a point thirty-six chains and forty-five links north of mile post one hundred and twelve, I then packed down the Interprovincial boundary to my southerly base line which I followed west to the old portage on which I went south to the Okikodasik River where I had sent my canoes. We came down this river to La Reine Station on the Canadian National Railway.

Meridian lines were all run north astronomically and base lines east or west on chords of latitude. Wooden posts of the most durable material available, properly marked, were firmly planted at intervals of one mile with iron posts alongside, where shown on plan and in field notes, two bearing trees for each post were taken where available and stones were placed alongside posts when they were procurable within a reasonable distance.

All lines were well opened and properly blazed. Frequent observations for azimuth were taken, a number of which are recorded in the field notes, but owing to the magnetic needle on my transit being out of order, I have not obtained the magnetic variation.

The area embraced by this survey has a total depth of eighteen miles north and south and a breadth of forty and one-half miles east and west.

Soil.

Along the base and meridian lines run by me forming boundaries of Findlay, Henley and Pliny Townships, the soil is practically all clay with comparatively small swampy areas covered by deep moss, and the land is suitable for agricultural purposes, this also holds true with reference to my first meridian for a distance of about four miles north of my first base line. The remainder of this meridian is not good land, and on the northerly two miles the soil is mostly sandy with occasional granite outcrops.

Along the base and meridian lines forming boundaries of Scapa, Abbotsford and Adair Townships I do not consider the land suitable for agricultural purposes, about fifty per cent. being sandy soil and of the balance a considerable percentage is swampy.

Timber.

The timber throughout is principally spruce from four to eight inches in diameter with scattered areas of spruce, jack pine and poplar from six to ten inches in diameter, a fairly dense growth of underbrush covers the country generally.

A small area of jack pine up to fifteen inches in diameter is situated in the south-west corner of Abbotsford Township.

Old brule was found on the sixth mile of the north boundary of Findlay Township, on the second, third and fourth miles of the west boundary of Abbotsford Township and along the easterly three miles of the south boundary of Adair Township.

Fresh brule of 1919 origin was encountered on northerly thirty chains of my first meridian, the southerly limit of this fire apparently extended in a south-easterly direction for a distance of about two miles, that being as far as we could see from the high ground just west of the north end of this meridian. I can give no estimate of the distance it extended to the west. Fire also ran through the south-east corner of Adair Township this season, crossing south boundary just east of five mile post and extends southwesterly about two miles, while in a northeasterly direction it extended to Joe Lake, crossing Interprovincial boundary about mileage one hundred and seven.

On August 22nd, we saw smoke rising about three miles to the north of fifth mile post on north boundary of Adair Township.

Minerals.

No indications of economic minerals were noted.

Streams and Lakes.

Low Bush River is navigable by canoes from station of that name on Canadian National Railway to where it crosses north boundary of Findlay Township, there being three short portages in Boyer Township and one in Henley. Circle River is also navigable by canoes from Low Bush Station, the first portage being about a half mile south of north boundary of Pliny Township and I understand there is a long portage commencing about thirty chains north of this boundary. I understand that Mud River which runs along west boundary of Abbotsford is occasionally used as a canoe route but we did not use canoes there.

Patten or Woman River flowing through Township of Adair is a stream of considerable size, has its source in Province of Quebec and flows through Joe Lake near south-east corner of Adair Township, thence in a north-westerly direction crossing the north boundary of that township about one mile east of the north-west corner, where it is between three and four chains wide, but we did not use it as a canoe route. From Joe Lake there are two portages south to the Okikodasik River. The one crossing the south boundary of Adair near the five mile post is the shorter and is used by the Indians in high water, this portage is very wet and swampy; the other is the older and longer portage and crosses a high granite ridge and strikes the river about two miles lower down. The Okikodasik River is navigable by canoes from both of these portages to La Reine Station on the Canadian National Railway, there being five or six portages varying from five chains to thirty-five chains in length.

There are no water powers capable of development.

Game.

Game was very scarce, only a few moose being seen during the season, and only occasionally evidence of beaver noticed.

Generally speaking, the Townships of Findlay, Henley and Pliny appear to be suitable for agricultural purposes, with a fair amount of timber suitable for pulpwood. I do not consider the Townships of Scapa, Abbotsford or Adair suitable for agricultural purposes, but there is considerable timber of pulpwood size throughout these townships, but the streams practically all flow north.

Accompanying this report are a plan and field notes of the entire survey, with accounts in triplicate, and the customary affidavits.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) Herbert J. Beatty,
Ontario Land Surveyor.

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

Appendix No. 23.

Traverse of the Shores of Charleston and Red Horse Lakes and of the Islands Therein.

Smith's Falls, November 10th, 1919.

Sir,—In accordance with your instructions dated the 8th day of May, 1919, to make a traverse of the shores of Charleston Lake and Red Horse Lake and of the islands in each, I have the honour to transmit herewith my report, plan on linen on a scale of 20 chains to the inch, field notes and affidavits, etc., in connection therewith.

After a few preliminaries, I commenced my survey of the traverse of the shore of Charleston Lake on the 3rd day of June, from an iron pin planted on Slack's Point, near the intersection of the 11th concession line with the shore. I ran easterly and southerly from this point to the outlet reach, and then came back and continued the traverse westerly and southerly to this same reach.

On the opposite shore from the iron pin at the outlet four feet above, which marks the height to which the Gananoque Water Power Company may hold the water in the lake, I established a bench mark, a cross in the rock, Station 123 of my traverse, which is seven feet and three inches above the iron pin.

The Power Company are entitled to keep the water four feet above the iron pin.

The astronomic bearing and distance of this bench mark from the iron pin is north 57 degrees 49 minutes east 73 feet.

On August 19th, I ran a line of levels from the shore of Donaldson's Bay in Charleston Lake, to the easterly shore of Red Horse Lake, following along the portage, and found the elevation of the water surface in Red Horse Lake to be 3.69 feet lower than the surface of the water in Charleston Lake.

I fixed a bench mark on a maple tree near the shore of Red Horse Lake, as shown by the notes, and also one on the rock surface, Station H, eight feet westerly therefrom.

As shown by the attached index there are 133 islands in Charleston Lake and ten islands in Red Horse Lake.

Most of the desirable islands in both lakes appear to be claimed by some person or other. The information furnished me on the ground was to the effect that Mr. Joe Banta, a wealthy American, owns several islands including Sheep Island, on which he has his summer home. I was unable to locate Sheep Island on the plan furnished me by the Surveys Branch, but concluded that the small one directly south of Orange Island must be intended for it. This is probably the most valuable island in the lake from the viewpoint of location, trees and timber, and general appearance. It was formerly the property of the late Walter Beatty, O.L.S. Mr. W. Parish, of Athens, is also the owner of several islands. He has his summer home on Little Bluff. Rabbit Island is partly cleared and cultivated, and the remainder is covered with second growth pines and other small timber. William Crozer appears to have squatted upon this island some years ago, cleared up part of the island, built a house and barns upon it, cultivated the cleared portion, and raised his family there.

I have divided the lower or southerly end of what was known as Democrat Island into two new numbered islands, viz., 11 and 12.

There was a separation by water from the mainland at the places shown on the plan to justify making separate islands of these two. J. Mulvenna, of Athens, has a cottage on the southerly end of No. 11.

I cannot find any islands in the lake to correspond with what is marked on the Department's plan as "Hobson's Choice." There are only five small islands in this locality; three of these, viz., Grape and Twin Islands are owned by Norman Dowsley, and "Heart's Delight" and "Happy Thought" by John R. Wemple. Bear Island near these is owned by E. Donovan, M.P.P.

As will be noticed by the plan the sideline between Lots 15 and 16 intersects the 10th Concession on the westerly shore of the lake.

I have renewed the high water mark cut on the rocky shore between Charleston and the Townline Road Allowance between Escott and Lansdowne, by Willis Chipman, C.E., some years ago.

I placed a water gauge on the wharf on Bertha Island at the commencement of my work, and from then, that is about the first of June until the 4th of September, the water had fallen by 2½ feet.

I have shown the principal shoals by a small cross for each on the plan.

I am also enclosing with my field notes and report, my diary, as directed in your instructions.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) S. B. Code,
Ontario Land Surveyor.

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

Appendix No. 24.

Survey of Windy Lake, in the Townships of Dowling and Cascaden, District of Sudbury.

North Bay, May 27th, 1919.

Sir,—The survey of Windy Lake in the Townships of Dowling and Cascaden, performed under instructions from your Department of February 21st last, has been finished and we are sending you herewith our plan of the same and our report.

Governed by those instructions we ran a close inshore traverse of the lake, carrying continuous azimuth and station to station chainage.

The original survey lines were picked up at their shore intersections and marked at these points by iron posts, on which posts were carved the distinguishing lot and concession numbers. Certain other prominent points on the shore line were also marked by iron posts and these posts were consecutively marked "I.P.1," "I.P.2," etc.

No trace of the original line between Lots 2 and 3, Concession IV, Cascaden, could be found except on Green Island and at the mainland immediately north and south of it.

Islands were also tied into the traverse, and on each island a squared tree or stump was likewise marked "R.P." with a designating number.

The contact line between the Laurentian and the nickle eruptive series was delineated across the ice and for a distance of 10 chains on each side thereof soundings were taken at five chain intervals, while throughout the rest of the lake similar soundings were taken at ten chain intervals, east and west, by twenty chains north and south.

No traverse was made of the C.P.R. track, but a copy was made of the revised plan from the company's own survey and this is included in our returns. The track was tied in to our traverse at one point.

The level of the lake as at March 27th, 1919, stood at 1,106.7 feet above mean sea level, deduced from C.P.R. base of rail at Windy Lake Station, there

being no other available bench mark from their records. This base of rail elevation 1,233-0 is recorded in "Canadian Altitudes" last edition.

A profile of the soundings is also included showing the depths of these soundings except those along the contact line, and indicated from west to east by consecutive numbers and each line is indicated alphabetically from north to south.

An imaginary base line was run from point number 2 on the traverse south astronomically and the numbers are indicated by a plus sign if to the east of that line and by a minus sign if to the west.

Field notes are included showing the length and azimuth of each course, the stations being numbered consecutively from 1 up. Shore offsets are shown together with ties to all the iron reference points.

We trust all returns may be found in order.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) McAuslan & Anderson,
Per H. M. Anderson.

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

Appendix No. 25.

Survey of Lower and Middle Shebandowan Lakes.

Port Arthur, March 22nd, 1919.

Sir,—I beg to report as follows on the survey of Lower and Middle Shebandowan Lake undertaken in accordance with your instructions of September, 1917, for the purpose of ascertaining the area of the lake, the contour of the shore line and islands therein.

As previously reported the very early advent of winter and unusually stormy and wet weather rendered it impossible for me to continue the field work without serious loss and impairment of efficiency. Micrometer work was consequently abandoned, as approved by your Department, and survey resumed with stadia measurements in the following spring on the ice.

As you will notice by the field notes every detail in the shore line has been carefully outlined—the number of measurements being in excess of the actual requirement of the instructions. The chief difficulty lay in tracing out the lines and posts of the old Mining Location Surveys, an especially difficult matter when the snow is deep. Many could not be found. Their proper position on the map can, however, be readily approximated by the interaccordance of the two outline surveys. Hereafter an explorer or prospector will find no trouble, by means of this map, in locating his find so that the area intended will be distinctly evident and the work of the Department likewise greatly lightened. Delay in making out the more than usually intricate set of field notes and plan occurred by my

appointment as Registrar for this District under the "Canada Registration" Act, also as supervisor for the subsequent "Resources Committee" work. The urgency of "winning the war" tempted me to undertake these responsibilities. The loyalty of this District becomes conspicuous when I state that, with the exception of only three specially avidious workers, the numerous deputies and other officials volunteered their services free of cost. Another unfortunate delay was caused by the accidental omission by one of my assistants to record one of the larger (5 chain) stadia rod divisions, causing a break in the survey, which was not found out and corrected until much time and labour had been expended.

I discovered amongst the effects of the late S. J. Dawson, C.E., of Dawson Route fame—a large (800 foot to an inch) plan of Shebandowan Lake, being a trigonometrical survey made by the then (1869) Department of Public Works of Canada. This plan is very unsatisfactory and highly erroneous in many places but the long distance trig. measurements afford a good check on the stadia and micrometer survey. The extremes in sixteen miles apparently coincide very closely with my plotting, as you will observe on comparing the reduction to 20 chains to an inch, which I made and forwarded with my original plan—the original is available if desired.

As over sixty-two (62) islands, many very small, had to be surveyed and tie lines run to them, the work occupied more time, both in the field and office than was anticipated.

The total mileage of shore line of main land was:—

Mainland	68.30	miles
Islands (shoreline only)	14.17	"
Total	82.47	"

The results of observations and stadia and micrometer comparisons are shown at various intervals in the field notes. There is a small dam at the outlet of Shebandowan Lake to assist in lumbering operations. Its height is necessarily limited—a further increase would endanger the National (C.N.O.R.) Railway roadbed besides affecting mining and summer resort properties. In future patents it might possibly be well to guard against any claims which might arise from a slight increase in level for hydro-electric storage purposes.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) ALEX. L. RUSSELL,
Ontario Land Surveyor.

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

Appendix No. 26.

SURVEY OF BASE AND MERIDIAN LINES IN THE DISTRICT OF THUNDER BAY.

FORT WILLIAM, ONT., January 23rd, 1919.

SIR,—I have the honour to submit the following report on the survey of base and meridian lines in the District of Thunder Bay, carried out under your instructions dated the 14th of June, 1918.

Before the receipt of my instructions I was notified that this was to be a cruising proposition as well as a survey, and was instructed to find a cruiser. I spent at least two weeks endeavouring to secure a satisfactory man for the work. I hired two men for this purpose, but both cancelled the arrangements made, one two days before the date set for leaving, after shipping arrangements and connections for the men had been made. In this awkward situation I was fortunate in engaging at the last moment so desirable a man as Mr. Ben Howson for the work.

Immediately after receipt of my instructions I proceeded to Whitefish Lake with a small party, located my starting point, took an observation for azimuth and carried the line across Whitefish Lake. It will be noted that the line strikes at the mouth of Sucker Creek, which flows in from the west, and not on the headland as shown on the compiled plan accompanying the instructions. Several of the lines strike points considerably different and at different distances from those shown on this plan, particularly on the boundary waters.

Returning to the city I completed the organization and equipment of my party, and proceeding once more to Whitefish, had my party and outfit taken down the lake to a point convenient to Sucker Creek. From this point the line was carried south in accordance with the instructions.

The country was so mountainous, however, that it was impossible to move the whole outfit along the line, particularly with the men available, and I made arrangements to have the outfit and party moved back up the lake to the Old Pigeon River Lumber Company's tote road. A raft was built and horses brought across the lake, and a waggon hauled through the water close to shore from a point some two or three miles above the road. The whole party was then set to brushing out the road, laying corduroy, re-building bridges, etc., and the outfit was hauled to old Pigeon River Company's Camp 3, where we camped for some days.

The line work was then proceeded with according to instructions, but throughout the first half of the survey the country was so rough that nearly all moving was done along the old trails which I opened up, in many instances at considerable distances from the work, involving long walks and lost time and slow progress.

Labour conditions were such, both as to the securing of men and getting them to camp—owing to the phenomenal wages then being paid in Fort William on war work being done on a percentage basis, and which eventually proved a disturbing factor in labour conditions from coast to coast—and the keeping up of camp supplies in the rough country with the shortage of men who could pack anything was becoming such a serious problem, that I engaged the services of Mr. John Shaw, O.L.S., to assist me in the work, when about half was completed.

From this time I devoted myself more particularly to securing bushmen and the forwarding of supplies, but even so, only for a very short time were there

enough men available to run double party.

The weather throughout was exceptionally fine, and was possibly responsible for the comparative absence of fly pests. On the other hand, in a rocky, hilly country, continued dry weather made the water problem serious, and it became necessary to procure closed vessels to carry water along the line for use during the day and at meal time.

Before commencing the work the chainmen were well posted in their work, but frequent change of the front chainman after the original man gave out through exhaustion made constant watchfulness and checking necessary.

The lines will be found to be well opened, well blazed, and with large well marked posts planted throughout, and bearing-trees well chosen and marked where such were at all available.

All points required by the instructions were marked by iron posts, except at Mountain Lake. A raft broke up on the Arrow River, and this post with other things was lost. At this point, however, I personally constructed a stone cairn almost as high as the post, and in a well protected position.

The traverse of the part of the south shore of Whitefish Lake was left by arrangement to be done on the ice. An attempt was made to carry out this work during the week before Christmas, but owing to the peculiar winter weather, including heavy rain, this had to be abandoned, and this work was only recently completed.

Watch was kept for signs of old survey lines throughout the progress of the work, but at only one point were lines and post found. Connection was made, however, at the termination of all lines where such existed with international or township boundaries.

Observations for azimuth were taken at least once on each line. Observations on the sun for time were frequently taken.

Soil.

All lands of an agricultural nature are shown on the plan of survey coloured brown. These areas are carefully plotted not only from the field notes of survey, but from the observations made by the cruiser. The greater part of the lands passed through or cruised are totally unfit for agriculture, being mostly rock, sometimes bare, but usually with a shallow covering of leafy loam.

The agricultural land referred to consists mostly of clay, white to light brown in colour, and clay loam. Except in some wet areas there is not heavy moss. As the hills are approached stones and boulders are met in increasing quantities. Frequently in the larger clay area patches were seen several acres in extent where fires had removed most of the timber, and very little clearing was necessary before ploughing could be done.

In some of these patches and along the old tote roads clover and timothy grew spendidly.

Minerals.

The rock throughout the greater part of this country is granite, hornblendic rocks being found in the south, while east of South Fowl Lake there is considerable showing of low grade iron. The variation of the compass going round the sharp point on the south shore of Whitefish Lake near its east end, differences of 25 deg. being noted in going half a mile round the point, would indicate bodies of iron ore.

Timber.

This whole country has been lumbered over at a comparatively recent date. Nearly all of it shows signs of having been burnt over at some period. There is practically no valuable timber apart from what is now being taken out immediately south of Whitefish Lake. There are odd clumps of trees to be met with, at one or two points considerable parcels of white pine, as on the range of hills south of the first mile of the line running west to South Fowl Lake, but these are usually so situated as to make their removal a losing proposition, though in the future, settlers may find it worth while to cut and remove for their own use.

The country is covered principally by small birch and poplar. On the first meridian immediately south of the Arrow River is a small area of spruce that would make pulpwood were it more accessible and of a larger area.

Game.

There was seen but little trace of the small fur-bearing animals, mink, marten, etc., but bears are very plentiful, as are moose; there were some red deer seen. Beaver are the principal occupants of the region, in fact, not a member of the party had seen them so plentiful elsewhere. At nearly every point where there was enough water available beaver dams were to be seen; at times several, one above the other, on the same stream. There are beaver houses along the Arrow River. In fact, the one thing the westerly part of the territory is suitable for is a game preserve.

There are numerous trails throughout the country covered, opened up originally by the various lumber companies who have operated here. Most of these have grown up considerably with brush, and are obstructed by fallen logs, but should it be decided to lay out the agricultural area for settlement a little attention would make these available for the first needs of the settler, the South Fowl Lake Road and the road north of the Arrow River as far as the dam in particular, requiring little to make them at least travelable; in fact, they were both travelled this last summer, but would be better for some attention in the wet spots.

The "Hospital" bridge, over which the former road crosses the Arrow River, is still in fair condition, and well worth taking care of.

I am forwarding herewith field notes of survey and lake traverse, plan of survey, plans of traverses, timber plan, affidavits, etc., and trust that everything upon inspection will be found satisfactory.

All of which is respectfully submitted.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) E. R. Bingham,
Ontario Land Surveyor.

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

Appendix No. 27.

SURVEY OF A MERIDIAN LINE IN THE DISTRICT OF KENORA.

LITTLE CURRENT, ONT., October 1st, 1919.

SIR,—I have the honour to submit to you the following report on the survey of a meridian line in the District of Kenora under instructions from your Department dated Toronto, April 15th, 1919.

I commenced the work on the 12th of June at the iron posts at the north-west angle of the Township of Rowell, as directed, with a party of 18, composed of 9 from this vicinity and 9 from the Lac Seul country. My intention was to add to the party, Indians, as guides and canoemen, after crossing Lac Seul, and for which I had arranged with the Hudson's Bay Co.

Owing to the Winnipeg strike which interrupted seriously the transportation of supplies on the Canadian Government Railways, I was unable to proceed earlier with the work.

The line was continued to the north shore of Lac Seul, a distance of 33 miles and 5 chains, which point was reached about the 10th of July. Here the Indian packers from the Lac Seul country refused to proceed any further—three of them had deserted some miles back—and of the canoemen and guides arranged for only three arrived. They also intimated that they could remain only a few weeks. An effort was then made to obtain more help at the Lac Seul and Pine Ridge posts, but hardly any good men appeared to be available. Finding, therefore, that I would probably not be able to proceed much farther this season, and being much broken in health, I concluded to discontinue the work for the time.

At the end of each mile a wooden post 6 inches square, of the most durable wood convenient was planted and marked on the south side the number of miles, as 1 M., etc., from the initial point. In addition to this at the end of every third mile an iron post 1¼ inches in diameter was planted beside the wooden one and similarly marked. Where a mile came in a lake a post was planted on the nearest shore and the miles and chains marked on it. Two bearing trees were also marked at every post, all of which was duly entered in the field notes.

The line was well blazed in the usual way—a blaze on the side of the tree facing the line and on the north and south sides of it.

Frequent observations of Polaris were made to check the bearing of the line which was projected north astronomically.

The first mile is mostly large timber, the swamp areas containing much black spruce and some cedar, and the higher ground jack pine, poplar and balsam.

From the 2nd to the 16th miles the country is principally brule, on the high land, with a growth of jack pine, birch, spruce, balsam and poplar about 3 inches in diameter. In the lower tracts which escaped the fire there is considerable black spruce up to 12 inches in diameter. Between Ord and Miller Lakes, in the 6th mile, there is big green timber. From the 16th mile to the end of the work it is mostly big timber of the same kind and quality. In many places there is some good cedar.

The entire country traversed appears to be red granite and destitute of mineral.

Rocky ridges with sand, boulders and gravel interlying are the main features up to the 17th mile where the south cove of Lac Seul was intersected. From

the 17th mile to the end of the line there is considerable clay land and probably a sufficient area of it might be found fit for farming settlements.

I enjoined on every member of my party the necessity of great care being exercised in order to prevent fire.

Moose and deer abound, also the smaller game, and fish.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) T. J. PATTEN,
Ontario Land Surveyor.

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

Appendix No. 28.

SURVEY OF THE BLACK STURGEON RIVER PULP AND TIMBER LIMIT, IN THE DISTRICT OF THUNDER BAY.

PORT ARTHUR, ONT., December 9th, 1919.

SIR,—We beg to report that in accordance with your instructions dated June 21st, 1918, we have completed the survey of the south boundary, west boundary and part of the north boundary of the Black Sturgeon River Pulp and Timber Limit.

This survey was commenced from the north-west angle of the Township of Hele, where an iron post 1¾ in. in diameter and a cedar post were planted by M. E. Crouch, O.L.S., in 1916. From this point the south boundary was run west astronomically a distance of thirty miles, fifty-one chains and twenty-one links to the south-west angle of the limit. This line was run in chords of six miles, with reference to a meridian through their central points, the deflections being made at the 7th, 13th, 19th and 25th miles. The west boundary was run north astronomically, from the south-west angle, a distance of twenty-eight miles to the north-west angle of the limit. From the north-west angle the north boundary was run east astronomically a distance of twenty-one miles, eleven chains and forty links to intersect the high water line of McIntyre Bay of Lake Nipigon. This boundary was run in chords of six miles with reference to a meridian through their central points, the deflections being made at the 6th, 12th, and 18th miles. A careful stadia traverse was made of the shore line of McIntyre Bay from the point where our line intersected it to the west boundary of the Township of Innes. Frequent astronomical observations were taken to verify the accuracy of the direction of the line.

Wooden posts were planted according to instructions, the first post on the south boundary being planted at chainage fifty-one chains and twenty-one links and this chainage was marked on the post. Thereafter posts were planted at intervals of one mile, the next post being marked "2M" and so on to the 31

mile post. The posts on the west boundary were marked from 1 to 28 from south to north and on the north boundary from 1 to 21 from west to east, the final post being marked "21M 10 chains" and being planted at the chainage. Iron posts 1¼ in. in diameter were planted at intervals of three miles from east to west on the south boundary, from south to north on the west boundary and from west to east on the north boundary. Iron posts 1¾ in. in diameter were planted at the south-west and north-west angles of the limit and a chainage 21M 10 chains on the north boundary. These posts were all marked with the mileage at which they were planted.

The ends of the 21st and 29th miles on the south boundary and the 13th on the west boundary came in places where it was impossible to plant posts. The first two being in lakes, the posts were planted on the nearest shores. In the third instance the mile point came on top of a large boulder and the post was moved forward. These posts were marked with the chainage at which they were planted.

Survey Lines.

The only line established by an Ontario Land Surveyor encountered was a meridian run by A. H. Macdougall, in 1903. This was intersected by our south boundary at chainage 6M 51.805 and the distance to the nearest mile post was ten chains and thirteen links to the south, the post being marked "XIV M." This line was also found at its intersection with McIntyre Bay, or the closing point of our survey.

Other lines found were numerous trial lines surveyed by the Canadian Pacific Railway Company, about eight years ago, in an endeavour to locate suitable grades for a railway from Nipigon to Savanne. The direction of these lines was not noted but the chainage of those intersecting our lines are indicated in the field notes.

Topography.

The region in the vicinity of the Black Sturgeon River is very rough, the river valley being about four hundred feet deep with summits from twenty chains to three miles inland. For two miles after crossing Sucker Creek the land is fairly level and from here west to the Spruce River is a very rough broken country with hills from fifty to three hundred feet high. The land along the west boundary is not rough but has a continual slope to the north. There would be a drop of about six hundred feet in this line. On the north boundary from the Poshkokagan River to the north-west corner of the limit there is a slope to the east. East of the Poshkokagan River to the portage from Lake Nipigon to Black Sturgeon Lake is fairly level and from the portage east to the twenty mile post is a high rocky country the slope being to the south. East of the twenty mile post is nearly level.

Soil.

On the south boundary the best soil found was from about the 3rd mile post to the 6th mile post. This graded from sandy loam at the east to a red clay loam on the west. The subsoil is clay. West of here to the Spruce River the country was nearly all rocky and the soil either light or very stony. West of the river good land was again found. This area extended from the 25th mile to the 28th and is nearly all a sandy loam. On the west boundary good

soil was found along the greater part of the line. The best areas are from the corner to the 10th mile post and from the 17th mile to the north-west corner and of these areas the first mentioned is probably the better since in the latter there is a considerable area of swamp land. Between the 10th and 17th miles the soil, though good in places is mostly rocky. On the north boundary good land was found from the north-west corner to the eleventh mile and east of this to the 20th mile is mostly all rocky. The remaining part is fairly good though rather stony.

Rock Formation.

The predominant formation is diabase. Intrusions of the red stones of the Nipigon Formation were observed in places. Banded granite was found in the hills east of the Spruce River. No minerals of economic value were found.

Timber.

The country within the limit is nearly all well timbered, the only burned over area observed being between the 11th and 15th miles on the north boundary. This was burned in 1917 and nearly all the timber was destroyed. A fire of considerable extent has passed over portions of the limit about forty years ago. The second growth timber on these portions extend from the 19th mile to the 26th mile on the south boundary, from the 11th mile to the 21st mile on the west boundary (areas of large timber intruding in places here), and from the 10th mile to the end of the line on the north boundary. In these areas the young growth on the higher lands is mostly birch, spruce, jack pine and poplar, the amount of each being in the order mentioned. On the low land the predominant species is spruce. The average size of the timber would be about four inches. The remaining portions of the line are well timbered with spruce, birch, poplar and jack pine with considerable balsam. The average size would be between seven and ten inches. The spruce is the species occurring most often in the blocks of any value. The largest areas of this species on the south boundary are between the 3rd mile and the 6th mile and between the 26th mile and the south-west corner. Here the timber is very suitable for pulpwood on the lower land and on the high land for logs and piling. On the west boundary good spruce is found from the south-west corner to the 11th mile. This is larger than that on the south boundary but there is a considerable amount of it blown down by wind. From the 21st mile to the northwest corner is a better stand, this area containing many swamps where spruce is the only species found. On the north boundary it extends from the north-west corner to about the 10th mile and here the best spruce was found. There appeared to be a very large area of spruce swamps to the north of the line here and also extending to the west for several miles. Two areas of jack pine were noticed, the first being from the 5th mile to midway between the 6th and 7th miles on the south boundary and the second along the 17th mile on the west boundary. No white pine of value was seen.

Routes, Waterways, etc.

The main rivers draining the Limit are the Black Sturgeon, Nonwatin, Spruce and Poshkokagan. The Black Sturgeon is the outlet of the Nonwatin and Spruce and is the most important one. It is navigable by canoe at all seasons and would require very little improvement for driving timber. The

Spruce is very shallow and can be used to advantage for canoeing only in the early summer months. It was necessary for us to use it, however, and from Little Sturgeon Lake to the south boundary of the limit between twenty and thirty portages were cut out. The Spruce is joined by a smaller stream, the Eaglehead River about eight miles from the south boundary. The Poshkokagan River appears to have a greater flow than the Spruce. It was only used from Chief Bay to the north boundary of the limit (about ten miles) and in this distance there are only two portages and both are short. The portages further up the river are well cut out and are used by Indians in the spring.

Black Sturgeon Lake was made the supply base for the performance of the survey. Supplies were brought here via Lake Nipigon and were cached with the forest rangers. The main party was taken in via Black Sturgeon River and the first meet with the packers made at the Spruce River.

Water.

All water was free from alkali. The water in all the lakes was clear and clean while that in the rivers and small creeks was dark in colour but had no objectionable taste or odour.

Game.

Moose are plentiful in all parts and particularly near the Black Sturgeon River. No caribou tracks were seen but signs of deer were noticed on the north boundary.

Beavers are the most numerous fur bearing animals and nearly all creeks and lakes showed indication of their work. Bears are also numerous along the Black Sturgeon River but further in no signs of them were seen. The Indians report lynx, fisher, mink and fox in abundance, but rabbits, partridge and wolves are almost extinct.

The lakes and rivers are well stocked with fish, pike being the most numerous. Black bass are found in the Black Sturgeon River and in Black Sturgeon Lake. The waters tributary to Lake Nipigon are nearly all good trout streams.

The magnetic variation remained fairly constant at one degree and twenty-five minutes to one degree and thirty minutes.

The maps supplied by your Department were found to be very reliable in most cases as also were those of the Geological Department of the Dominion Government.

We have the honour to be, Sir

Your obedient servants,

(Sgd.) Phillips & Benner,

Per J. K. Benner.

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

Appendix No. 29.

SURVEY OF THE TOWNSHIP OF WILLIAMSON, IN THE DISTRICT OF ALGOMA.

PARRY SOUND, October 15th, 1918.

SIR,—I have the honour to submit the following report on the survey of the Township of Williamson, in the District of Algoma.

This township is bounded on the south by the Township of Owens, surveyed by O.L.S. Anderson in 1917, on the west by the Township of Idington, surveyed by O.L.S. Dobie in 1917-18, on the north and east by the unsurveyed Townships of Nixon and Teezel, respectively. The National Transcontinental Railway crosses the south boundary about seventy-six miles west of Cochrane near the corner of lots eleven and twelve, a short distance west of Secord Station, and bearing in a direction a little north of west, crosses the west boundary in the fourth concession. It is therefore well supplied with railway facilities.

I commenced my survey by chaining and posting the south boundary, making the lots the width shown in the field notes and from this boundary meridians were projected north astronomically in the centre of the road allowances, between lots six and seven, twelve and thirteen, eighteen and nineteen and between lots twenty-four and twenty-five.

The centre lines of road allowances between the concessions were run as chords of latitude making the depths of the concessions as shown on plan and in the field notes, the survey being carried on in accordance with instructions; the lines being well cut out and blazed and substantial wooden posts planted at the corners of the lots with guide posts in the centre of the road allowances between the concessions opposite the lot corners. Bearing trees were marked for all lot posts as recorded in the field notes. Iron posts were planted alongside wooden posts where directed and their location is shown on plan and recorded in the field notes. I endeavoured faithfully to carry on my survey throughout in accordance with my instructions and the results in detail are shown on the plan and recorded in the field notes. Frequent observations for azimuth were taken, the magnetic variation being about seven degrees and fifteen minutes west of north.

A road allowance one chain in perpendicular width was laid out on each side of the right of way of the Trancontinental Railway, on each side of Lost River and around the lakes shown. I made a careful traverse of Lost River, the course of which is very crooked, particularly in the first eight concessions, this stream has a considerable volume of water during spring freshets and early summer, and is navigable throughout by loaded canoes, but in August it became very shallow and had very little water in it so that we had difficulty moving our outfit up to the railroad, although canoes were not heavily loaded. That part of the river between lot fourteen, concession seventeen and the north boundary as well as that flowing through concessions eighteen to thirteen is obstructed with boulders in many places and must be rather turbulent in high water. I understand that the fire rangers travel up this river from the Kapuskasing to the railway. During August the water did not appear to be safe for drinking purposes without boiling.

TIMBER.

The township is thickly covered with timber and fire has run over about six per cent. of it, there being two small brules in the south-east corner, covering about four hundred acres, there is also between six and seven hundred acres

burned over in the south-west corner of the township and the largest area extends easterly from the west boundary in concession nine and covers an area of about two thousand acres. About fifty per cent. of the township is covered with spruce swamp with deep moss, the timber being from four to seven inches in diameter, the balance is principally spruce, poplar, balsam and white birch from four to twelve inches in diameter, the timber plan accompanying the report shows the different areas as accurately as could be ascertained during progress of survey. The largest timber being located east of Lost River, concessions one to six, inclusive.

Soil.

The soil generally is clay, about fifty per cent. of the area being covered with moss from six inches to two feet in depth and the balance with little or no moss. I estimate that about seventy-five per cent. is suitable for development for agricultural purposes but it will require considerable drainage, the highest area is along the railway and in the south-easterly portion of the township.

Minerals and Rock.

No indications of economic minerals were observed and comparatively few outcrops of rock were noted. A small quarry was opened on lot seventeen, concession three, on the east side of Lost River by the railway contractors. There are frequent rock outcrops in the bed of river in lots twelve and thirteen, concession eighteen.

Lakes and Streams.

Lost River varies in width from about one chain near the south boundary to one and one-half chains at the north and east boundaries. It has a good strong current during times of freshet and is rapid from concession seventeen to the north boundary and where it flows through the easterly part of township. Freshet level is about six feet higher than low water level and there are no falls within the limits of this township. There are only a few small lakes and they are shallow with low banks.

Fish and Game.

The fishing is rather poor but during June and July we caught a few fair sized pike in Lost River and Solomon Creek and I understand pickerel and pike are plentiful in some of the lakes, particularly in the one on lots nineteen and twenty, concession five.

Moose were very plentiful along Lost River.

In conclusion, I consider that about seventy-five per cent. of this township will be available for agricultural development, the timber being chiefly valuable for pulpwood. Summer frosts occurred throughout the season which was a cold one, in places we found that the frost did not go out of the ground this year.

Accompanying this report are a timber plan, general township plan, field notes, account in triplicate and the customary affidavits.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) David Beatty,
Ontario Land Surveyor.

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

Appendix No. 30.

SURVEY OF TOWNSHIP OUTLINES BETWEEN GROUND HOG AND KAPUSKASING RIVERS, IN THE DISTRICT OF TIMISKAMING.

NEW LISKEARD, ONT., August 30th, 1919.

SIR,—Under instructions to us from Mr. L. V. Rorke, Director of Surveys, bearing date April 15th, 1919, our Mr. Neelands proceeded to Foleyet on the Canadian Northern Railway, May 19th, and personally conducted the survey up to the time of its completion, July 10th. The party was supplied and outfitted by Mr. Henry Charron, Foleyet, and everything found satisfactory. Through the courtesy of Mr. Cyril T. Young, Supt. of The Eastern Lands Co., our supplies and equipment were delivered at Sandy Lake, two miles west of Foleyet, from which point a good canoe route via the Pishkanogama River led directly to our starting point—the 63rd mile post on the late O.L.S. Niven's base line, N. lat. 48 degrees, 27 minutes, 54 seconds; longitude 82 degrees, 26 minutes west.

Sun and stellar observations were taken May 25th and 26th, at the post marked 63 M. 2 chains on the west bank, the 63 Mile Post coming in said river; and the two chain offset made to the east and the meridian started the latter date. A wooden post and 1⅞ in. iron post was planted on the north bank of the river 1.15 chains due north of said 63 M. point in river and wooden posts planted every mile and marked consecutively on the north side, while 1¼ in. iron posts were planted beside every third mile post except at township corners where 1⅞ in. iron posts were planted.

Our assistant, a returned man, was unable to handle the instrument, due to the rough nature of the ground in places and the extreme heat, but rendered valuable service in keeping notes copied and checked.

Our original intention was to keep a small party on the meridian while a larger party took the east and west lines, but circumstances made it compulsory to conduct only one party. The 15 mile lake and the innumerable watercourses with which the country was reported to abound in, evaporated and we were forced to abandon canoes and use the pack strap to the end of the work.

After the meridian had been run 9 miles, we ran east on a 9 mile chord of a parallel of latitude intersecting the Pishkanogama River 1¾ miles east of said meridian, and planting posts as indicated above, except that a wooden and 1⅞ in. iron post was left at the 9 mile point with only township names thereon to be moved to the intersection by O.L.S. Fitzgerald. This line was then continued on another 9 mile chord of the same parallel of latitude to the Ground Hog River, a distance of 2 M. 62.69 chains where a wooden post was planted at high water mark and the above chainage inscribed thereon. Two 1¼ in. iron posts were left beside said wooden post and Mr. Speight notified by letter concerning same.

Returning to the starting point, a line was run west on a 9 mile chord of a parallel of latitude a distance of 8 M. 77.95 chains to its intersection with O.L.S. Speight's meridian of 1909 hitting said line 0.87 chains north of the post as shown on copy of notes of said line furnished by your Department, but 0.02 chains south of a 2 in. hub planted in sink hole marking the intersection of a surveyed line running due west and on which was planted 0.54 chains west of said intersection and on the westerly bank of said sink hole a 6 in. spruce post

marked on east side 54 and tied in two by two bearing trees, namely, 10 in. spruce N. 15 degrees west—0.17 chains and 5 in. Balsam S. 45 degrees west—0.076 chains.

The hour being late and the distance to camp long and never doubting at the time but that the latter post was due west of the 9 mile point, the markings on the other post were neglected. So far we have been unable to get any light on the matter.

The meridian was then produced another 9 miles and from this point a second east line run 9 miles with posts planted as per instructions, and a line west to said O.L.S. Speight's line, a distance of 8 miles 75.73 chains intersecting said line 0.49 chains south of XVIII mile post.

The meridian was then produced 9 miles further and a third line run east and west, the latter at VIII M. 73.73 chains intersecting the production of said O.L.S. Speight's meridian 1.33 chains north of the XXVII mile post.

Provisions by this time were running low, but we were able to run six more miles of meridian before being forced to abandon the work within sight of the goal. Had we been able to bring all the canoes along we would have completed the contract but the one small canoe was capable of carrying only our assistant and two canoemen to Fauquier on the T. C. Ry. over a route, the nature of which we did not know, but which if navigable would prove the most convenient route by which to return to complete same or continue the outline work farther north another year. With this idea in mind we had our assistant make a compass survey of the route and have drafted same as per his notes on our returns to your Department.

Instrument Work.

A Light Mountain Gurley instrument was used on the work, and from two to four observations taken every night that polaris was visible. These observations were facilitated by the use of curves previously plotted in our office for the latitude and longitude of the work, a copy of which we attach, and our watch set for solar time and corrected every few days.

We found observations solved by the use of this curve to check to the half minute.

Chainage.

A chain of 400 links was used and the chainers cautioned not to break chain but read the inclination with an Abney hand level and reduce to horizontal distance, curves being also used for this purpose, a copy of which we attach. The chainers were duly sworn in on the ground at the starting point, the chain tested and re-checked twice during the survey, and we believe they strived hard to render correct measurements.

Elevations of all hills were solved from the inclination angles taken while chaining.

Posts and Bearing Trees.

The most durable wood obtainable was selected and often carried many chains and marked by a scribe, while the iron posts were marked with a cold chisel. The largest trees were not selected for bearing trees but smaller and more healthy ones which would not likely for some time fall a prey to the axe of the lumberman, and these trees were chosen as far as possible in such a

position that lines drawn from them to the post, formed an angle of approximately 90 degrees or less, thereby making it the more easy at a future date to relocate the position of the post, should such be lost.

Astronomic bearings of these trees were taken by the use of a wooden disk, so constructed that it rested firmly on the top of the post planted, in whatever position set, and the face of this circular disk was carved into ridges and grooves radiating from the centre and along which the chainman sighted after having set the cardinal points to correspond with the direction of the line being posted.

Blazing of Lines.

As five axemen in all were used on line the picket man was held responsible for the blazing and very satisfactorily accomplished same almost unaided.

Timber.

A great portion of the land lying east of the meridian has been burned over some twenty or thirty years ago and is being rapidly reforested with birch, poplar, spruce and tamarac.

In this section on the first line east and on the fifth mile a narrow but good belt of jack pine has escaped and apparently runs in a northerly direction while scattered trees occur a few miles east on same line.

Very narrow ridges crossing the second line running east indicate what may be the northern boundary of a fair belt of tie timber, as jack pine suitable for tie timber also is present between the tenth and fifteenth mile posts on the meridian.

The forest bordering the third line running east and as far north as the Wokomeesee River, for the most part is second growth as far as we could observe from the tops of hills and trees.

West of the meridian the timber is very large and dense in many places, particularly in the Township of Wadsworth where spruce, balsam, balm of Gilead, poplar, birch and cedar attain a large size being sound as well, and some white pine and much scattered jack pine also is present although the white pine is not sound.

The only clearly defined spruce forest present within the limits of our survey is located along the western side of the Townships of Wadsworth and Lisgar, apparently widening out farther north and following the western bank of the Wokomeesee River. Much of this timber is suitable for pulp and the balance will soon be large enough.

Water Courses.

Due to the drought, navigable routes, if they exist in average years, were limited in our case to the Osishana Creek and Paypeeshekameka River as far west as the meridian, also the Wokomeesee River for some distance south into Lisgar Township, but the Koamakashekak Creek and Otapingshewee River might be improved for driving purposes.

Many of the lakes and creeks within the township lines were obtained from sketches by trappers familiar with the country and although vouched for by them are not considered authentic by us, but have been shown with a view to giving all the information acquired during the progress of the survey.

Rock Formation.

The country rock met with was for the most part granite with a high percentage of mica present in places, the only other formation met with being two outcroppings of schist, one in the third line east on the second mile and the other north of the XXIX mile post on the meridian.

Agriculture.

Most of the arable land is somewhat sandy and in places is suited for farming, but on the whole we think it better left unoccupied until present merchantable timber has been removed.

Animal Life.

Moose abound, indications of a few red deer were seen, wolves and bear are numerous, while the better class of fur bearing animals appear plentiful.

Brook trout were caught in the Koamakashekak Creek and the Paypeeshekameka River with hook and line, and pike and pickerel in several lakes with the trawl, but further than this we cannot say with what varieties the lakes and streams are stocked.

Flowers and Shrubs.

None other than the varieties commonly met with in the great clay belt were observed along the lines surveyed by us.

Water Powers.

We did not have occasion to pass by any waterfalls but know of the existence of four in the Township of Stanley on the Pishkanogama River, with an average head each of possibly 15 or 20 feet, three being within sight of each other.

In conclusion, we beg to thank you for the work allotted to us and assure you that every effort was made to accomplish the character of work required by your Department, and at the same time make a few sorely needed dollars to help tide us over another year.

We sincerely trust that the accompanying plan and field notes together with the timber plan will meet with your approval, all of which is respectfully submitted.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) Sutcliffe & Neelands,
Ontario Land Surveyors.

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

Appendix No. 31.

SURVEY OF THE OUTLINES OF THE PIC RIVER PULPWOOD AND TIMBER LIMIT, DISTRICT OF THUNDER BAY.

NIPIGON, ONT., August 2nd, 1919.

SIR,—I beg to submit the following report on the survey of the outlines of the Pic River Pulp and Timber Limit, surveyed by me under instructions from the Department of Lands, Forests and Mines, dated Toronto, April 15th, 1919.

Pursuant to instructions, I commenced my survey at the point in which the centre line of the main track of the Canadian Pacific Railway is intersected by the line between townships numbers 73 and 74, as located on the ground by E. Stewart, O.L.S., in his survey of township outlines along the C.P.R. in 1894. From this said point I ran north astronomically a distance of 32 miles and 25 links to the north-east angle of the pulp limit, this said line forming the easterly boundary thereof. I planted the 4 Mile Post as directed in my instructions and at the end of each mile thereafter I planted a wooden post. These posts were made of the most durable wood obtainable. In a very few instances it was found absolutely necessary to use balsam posts but the great majority of the posts, as shown on my field notes, are either of spruce or of Banksian pine. Wherever possible, I placed a cairn of stones about the post. I planted iron posts beside the wooden posts at the end of every third mile, as instructed and marked the iron posts with a cold chisel. The iron and wooden posts are marked with Roman numerals, marked with the number of the mile from the initial point of each line. I marked two bearing trees, wherever possible, for each mile post. These are shown on my field notes. In some instances, it was impossible to get any bearing trees; these instances are also noted in field notes. Unless otherwise specified in my field notes, all wooden posts planted were dressed six inches square. All posts were firmly planted in the ground, and after being set, stand at least three feet above the ground.

From the north-east angle of the Pulp Limit, I ran west astronomically on six mile chords of the parallel of latitude, a distance of 46 miles to the north-west angle of the limit, and from that point, I ran south astronomically to the shore line of Lake Superior. Where the end of a mile came in a lake, as it did in several instances, I planted a post on the nearest shore and marked it to show its distance from the true position.

Where the distance across a lake or river could not be obtained with a steel tape in the usual way, I obtained the width by triangulation. The base of the triangles employed in this work was, in all but two or three instances, made of sufficient length to give an angle opposite the base of not less than ten degrees. Frequent astronomical observations for azimuth were taken and the notes of these I am enclosing with my field notes. My lines of survey were well cut out and particular attention was paid to the blazing thereof. On the north boundary there is a burnt area of eleven miles in extent. There was no timber on this area so no blazing at all could be done. However, I had my picket man plant pickets with a mound of stone about them whenever he could do so, to render it possible to find and follow this line. Wherever there was green timber, the line was well blazed in the prescribed manner.

Soil.

The easterly boundary of the limit, ran, for the better part of its length through rocky country, this being granite. There were some sandy areas, as shown on the field notes, but for the most part, this line ran through a rough, rolling, rocky country. This kept up along the northerly boundary until I had crossed the Pic River. From this point on, along the northerly boundary, the soil was clay, where it was not rocky. The westerly boundary was also rocky, very rough, with, however, sandy soil between the areas of rocky land. In general, the entire outline of this limit may be said to be very rough and rocky, especially along the northerly boundary where sheer cliffs of from 100 to 400 feet are met with. The areas of clay and sandy soil met with were so small in extent as to be of no interest from an agricultural standpoint.

Timber.

As shown on the field notes for the several lines, the prevailing timber is spruce and balsam, birch and poplar. There was some Banksian pine met with but not in sufficient quantities or of sufficient size to be of commercial value. In fact, no tie timber was encountered at all on this survey except through the small area that had previously been cut over on the westerly boundary. Although the survey lines ran through spruce and balsam, in some cases of considerable size, there were no areas encountered that would be of interest commercially. It was a constant source of wonder to me as to where the areas of pulpwood did lie, I having heard that this was a wonderful limit for pulpwood. Undoubtedly, the areas referred to must lie well within the limit. There was no white or red pine, and no cedar met with. As stated above, there is an eleven-mile burn on the north boundary, twice burnt over, extending four miles to the south and two miles to the north of the northerly limit.

Minerals.

The formation for the greater part of the area, as covered by me, was of granite. There were small areas, especially on the northerly boundary which would warrant the attention of prospectors. My men brought back samples of free gold and some samples of copper. If it is the wish of the Department, I will be glad to forward these to Toronto. I might add that iron pyrites were found to some extent along the westerly boundary.

Game.

The country abounds in wild game. Moose and cariboo were found in great abundance. The smaller lakes along the northerly boundary being great natural feeding places for them. Partridges were found in large numbers. As shown on the notes, there are many small beaver meadows. Beaver are very plentiful in this area. The fishing is excellent, speckled trout being in abundance in all of the streams met with. The lakes are full of pike and pickerel. On two of the larger lakes, lake trout seemed very plentiful.

Lakes and Streams.

A glance at the plan will show better than a description can, the lakes and rivers met with on this survey. The principal rivers being the Pic, Little Pic

and Steel. The larger lakes being the Whitefish, Trout and Owl. There are innumerable small streams and small lakes in this large area. I have endeavoured to show these and the connections between them on my plan. It must be understood, however, that this is a most incomplete plan, as far as water routes are concerned. There were no places where I considered that a reservation should be made to the Crown of water powers. There may be such areas within the limit, but at or near the boundaries as run by me, there were no areas of sufficient importance to warrant any special attention.

Conclusion.

I feel, sir, that this report is not complete in detail, but the plan and field notes will show the extent of the timber areas, will show the rivers and lakes, canoe routes, burnt and cut-over areas, better than they can be covered in any report. If there are any inquiries that you, sir, may wish to make, or that the Department wishes to make, I will be glad to go into further detail as well as I can. As a timber report, this report will be of no value, for we encountered no timber on the survey—that is, no timber of commercial value and in sufficient quantity to warrant timbering operations to drive it to the lake.

I trust, sir, that my plan and field notes will be found to be correct and in good order, and that the lines of survey as run on the ground, may be found by your Inspector to be well cut out and blazed, the posts well marked and planted. All possible care was taken to follow the instructions, both written and printed in this and other respects.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) M. E. Crouch,
Ontario Land Surveyor.

The Honorable, the Minister of Lands, Forests and Mines,
Toronto, Ontario.

Appendix No. 32.

Survey of the Township of Cumming, District of Algoma.

Sault Ste. Marie, January 16th, 1919.

Sir,—We have the honour to report that under instructions dated the 26th of June, 1918, we have subdivided the Township of Cumming into farm lots of approximately 100 acres each. We commenced the survey by running south astronomically the sideline between Lots 6 and 7 from the north boundary of the township. This line is a continuation of the corresponding sideline in the Township of Idington subdivided by O.L.S. Dobie. We cut this line for approximately 9 miles taking a number of observations. We next ran the south boundary of the township running due west from a post marked 9 M. planted by O.L.S. Niven in 1906 to the intersection with another meridian also run by O.L.S. Niven in 1906.

These meridian lines are approximately 9 miles apart. We continued the survey throughout the township observing Polaris frequently for meridian and correcting any small errors found in the direction of the lines. A traverse was made of all lakes found in the township.

There are no rivers of importance in the township. Lost River is not navigable and cannot be used even for canoe travel as it is filled with log jams and contains many beaver dams. During the summer season parts of this river are practically dry.

The whole of the township is quite level, there are a few clay ridges which are unimportant. Rock outcrops only in three or four places in the whole township. The formation consists of Keewatin greenstone and schist. Near the south boundary of the township there are strong indications of magnetic deposits. A few mining claims were staked on these indications in 1913 but were apparently abandoned as there are no signs of work having been done.

The soil is principally clay or clay loam. This is covered in the green bush with about twelve inches of moss and black muck but in the brule the clay is lying exposed. We would consider fully seventy-five per cent. of this township fit for agricultural purposes. Portions of the brule are sparsely timbered and could be cleared with very little work.

The timber in the township is nearly all spruce up to about 8 in. in diameter. On the ridges and higher ground considerable poplar and birch is found. There are also quantities of cedar in the swamps near the west boundary of the township. The brule is generally covered with small spruce and alders and is about twenty years of age. Evidently this country was fire swept about eighty years ago as no standing timber exists older than this.

No fish of any importance were noticed in the township. The lakes are all marshy and shallow and only a few pike exist in these. Moose and beaver are quite plentiful. There is no settlement of any description within the limits of the township.

The average magnetic variation we found to be 7 deg. west of north.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) LANG, ROSS & RAMSEY,
Ontario Land Surveyors.

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

Appendix No. 33.

TRAVERSE SURVEY OF THE OPAZATIKA RIVER AND LAKES, PISHKANOGAMA LAKE, GROUND HOG AND HORWOOD LAKE, AND SAHKATAWICHTAH RIVER AND LAKE.

COBALT, November 12th, 1919.

SIR,—In obedience to your instructions, dated May 2nd, 1919, to traverse certain lakes and rivers in the Districts of Sudbury and Algoma, I have surveyed as much of my contract as was possible and beg to report as follows:—

Routine of Work.

On May 16th, I left Cobalt with my party. We commenced the survey of Opazatika River at the south boundary of McCrea Township on May 19th, and worked upstream in a southerly direction through Opazatika River, Rufus, Penelton and Opazatika Lakes, finishing this portion of the work on July 4th. From Opazatika Lake we came down stream to the National Transcontinental Railway and boarded train to Foleyet on Canadian Northern Ontario Railway.

The survey of Pishkanogama Lake was commenced at the south boundary of Foleyet Township on July 14th, and finished on August 5th. Camp was moved to Ground Hog Lake.

The survey of Ground Hog Lake was commenced at the south boundary of the north half of Keith Township on August 9th, continued through Ground Hog River to Horwood Lake. Through Horwood Lake and the north-east arm thereof and tied on to the north boundary of Dale Township. This work was finished on September 12th and camp moved south to Sahkatawichtah River.

The survey of Sahkatawichtah River was commenced at the south boundary of Dale Township on September 16th and continued southerly to Sahkatawichtah Lake. The survey of this lake was completed with the exception of a small portion at the north-west end. This is shown dotted on the plan.

For some time the weather had been stormy and wet, making it difficult to get readings and dangerous for men in canoes owing to the size of the lake. On the morning of September 30th I moved camp to Ground Hog. On October 1st, I paid off my party with the exception of C. E. Code, O.L.S., who has assisted me in preparing plans of the work.

From considerable traverse work I have done in winter I think that about as good progress can be made then as in summer. As blazed trees are used to tie in traverse points, the difficulty of planting posts in winter is not encountered. The main traverse being chained on the ice, is very accurate. Even with the snow, the shore line can be determined very accurately. If you so desire, I shall be glad to continue the survey as soon as the ice becomes good.

The following is the mileage of traverse:—

Opazatika—		
River	25.5	
Lakes	83.5	
Islands	16.5	
		125.5
Ground Hog—		
Horwood Lake	45.8	
Ground Hog River	4.5	
Ground Hog Lake	10.5	
Islands G. H. L.	2.0	
Islands Horwood Lake	3.0	
		65.8
Sahkatawichtah River	6.5	
Sahkatawichtah Lake	20.0	
Sahkatawichtah Islands	1.5	
		28.0
Pishkanogama—		
Shore Line Blue	61.7	
Shore Line Brown	69.8	
Islands	4.7	
		136.2
Total		355.5

This total is only approximate.

Method of Survey.

(*a*) *Instruments used.*

Except in the survey of Pishkanogama Lake, where most of distances between stations were chained on the sand, the traverse was made by stadia readings for distance. Azimuth angles were carried through with a transit.

The stadia rods used read direct to tenths of links. The accuracy of readings was checked from time to time by readings on measured lines and also on the sides of triangles, calculated from chained base measurements. They were found to be very accurate. Results are shown in the field notes.

Field Notes.

(*b*) One form of field notes was kept throughout the course of the work. The notes were transcribed in ink and carefully checked. They show—station, azimuth, distance, angle right, bearing, and under remarks, the point on which the reading was taken.

(*c*) Observations.—Observations were taken frequently on Polaris and the sun for azimuth. The calculations are shown in the field notes.

(*d*) Posts and blazed trees.—On rivers and around the shores of lakes, trees were blazed at intervals of about one mile and were marked "1 M," "2 M," "3 M," etc. Records of these are shown on the plans and in the field notes.

On islands, stump posts were made. A good sound tree was felled and the stump squared and marked with a letter "A, B, C," etc. Except in a few cases where the islands were very small, when a tree was blazed. The bearings shown to posts and trees are astronomical.

(*e*) Survey lines, township boundaries.—In all cases where survey lines were found; they were tied in and are shown on the plans. Posts were planted one chain from the shore on each side of the river or lake, where this had not been done in the original survey.

At the south end of Pishkanogama Lake, on the west side, we found what appears to be the production across the lake of O.L.S. Sinclair's line, run in 1867. We tried to find more blazed trees by turning an azimuth of 90 degrees, but the others seemed to have been burned as it is a very old brule at this point. The tree we found is a fourteen-inch cedar, blazed on three sides and marked "IXMIX." The wood grown over the blazes seems to be about 32 years old and the cedar has been dead probably 20 years.

Descriptions of Lakes and Rivers.

(*a*) *Opazatika River and Lakes.*

Shores.—Opazatika River has an average width of about two chains. The shores are clay, except in a few places where rock outcrops. The land back from the banks is nearly all an old brule grown up with poplar of from three to four inches in diameter down to mere brush. The soil is a good clay loam very suitable for agriculture, and very easily cleared at present while this growth is small.

The shores of Rufus, Penelton and Opazatika Lakes are rocky and, as the brule extends here also, there is very little valuable timber.

Water Powers.—There is only one falls of real value from a power viewpoint. This is on the Opazatika River at the eleventh mile post of the traverse, south of McCrea Township.

Owing to wind I was unable to get the flow measurement. The head is 22.7 feet.

One hundred and sixty acres should be quite sufficient land for development purposes. The two snapshots shown below are of this falls.

Islands.—There are thirty-six islands in Opazatika Lake. The largest one contains 776.8 acres. The next largest 24 acres. The majority of the remainder are small. They are almost all very rocky and timbered with jack pine, spruce, birch, poplar and balsam. A3 which is the largest is nearly all brule.

(*b*) *Pishkanogama Lake.*

Shores.—The shores at the north end of Pishkanogama Lake are of sand. Sandhills rising from the original shore line are timbered with jack pine, some spruce and balsam, birch and poplar. At the narrows of the lake rock outcrops. From this point to the south end of the lake, the shores are rocky.

A considerable amount of the timber has been destroyed by fire, particularly at the south end of the lake and along the west shore from the narrows south. There is, however, considerable good timber on the west side of the lake. Jack pine and spruce averaging from 10 to 12 inches in diameter, also balsam, birch and poplar.

Towards the south end of the lake the ground rises very quickly from the shore line, and from portions I was over, I would say was not favourable for agriculture.

The original water level of the lake has been lowered at the north end 19.4 feet. This leaves a series of small mud rapids at the narrows. The water immediately above the narrows is very shallow, making progress in canoes difficult for a distance of about one mile. The difference in elevation between the original and present water level above the rapids at the narrows is 10.8 feet. At the south end of the lake the water has been lowered 11.7 feet. The two snapshots shown below were taken from the north end of the lake looking south.

At the north end of the lake, the bottom exposed is sand. From the narrows south, it is a mixture of sand and clay.

On the plan of survey I have shown the land between the original and present water level coloured a light brown.

Islands.—There are fifteen islands in Pishkanogama Lake. The largest, Island F, containing 34.6 acres. The next largest, Island C, 6.8 acres. The remainder are very small. With the water at its present elevation, most of the islands are really mainland. The acreage shown on the plan is for that area which is within the original shore line. All the islands are well timbered, and under natural conditions must be very pretty. The soil is sandy with rock outcroppings.

(*c*) *Ground Hog Lake and River.*

Shores.—The shores of Ground Hog Lake are fairly high. The ground rises sharply from the shore line. The land is rocky covered in places with a heavy overburden of clay and gravel.

The north, west and south shores are fairly well timbered, but the east shore is most brule.

Islands.—There are five islands in Ground Hog Lake. Island A, containing 28.8 acres. The next largest, Island C, containing 5.2 acres. The remainder are very small. With the exception of A, which is sand and gravel, they are rocky. All are well timbered.

The river south from Ground Hog Lake has an average width of five chains. The current is slow. At station 16, 17 and 18, there are rapids with a total fall of 4.6 feet. The banks of the river are mostly flat. Considerable ash is to be found along them, some of it running as large as ten inches in diameter.

(*d*) *Horwood Lake.*

Shores.—The shores of Horwood Lake are very rocky. The north-east arm shores being particularly high and rough.

Timber.—The west side and the north-east end of the lake proper, are well timbered with jack pine, spruce, balsam, birch and poplar, while the remainder is old brule with patches of second growth jack pine, spruce, poplar and birch.

The north-east arm from the narrows at its outlet up to about half way up the arm, say to station 64, is old brule with patches of jack and red pine. From station 64 to the north end is good timber, jack pine, spruce, balsam, birch and poplar with good cedar along the shores.

Islands.—The islands in Horwood Lake are all rocky and with the exception of the large island at the north end of the lake proper, which is brule, are all well timbered.

(*e*) *Sahkatawichtah River and Lake.*

Shores.—The shores of Sahkatawichtah River and Lake are fairly rocky. The ground back from the shore is high and rough.

Timber.—The shores along the river are mostly old brule.

The north-west side and the north-east end of the lake are practically all brule, while the south-east shore is well timbered with spruce, jack-pine and balsam.

Islands.—The islands are all rocky and fairly well timbered. They are all small.

Accompanying this report are:—

Plans.

Opazatika River and Lakes.
Pishkanogama Lake.
Ground Hog and Horwood Lakes.
Sahkatawichtah River and Lake.

Field Notes.

Three field books containing notes of all the above plans.

The above is respectfully submitted.

I have the honour to be, Sir

Your obedient servant,

(Sgd.) T. G. Code,
Ontario Land Surveyor.

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

Appendix No. 34.

SURVEY OF TOWNSHIP OUTLINES IN THE DISTRICT OF SUDBURY.

ORILLIA, October 31st, 1919.

SIR,—Upon receipt of your instructions bearing date of the twenty-second day of April, 1919, for the survey of township outlines in the District of Sudbury, we proceeded to make such preparations as were necessary to carry out the work outlined therein.

The unsettled condition due to after-war unrest, effecting especially the labour market, and to a lesser extent the procuring of certain kinds of supplies and their transportation, consumed a good deal of time, and it was not until the 27th day of June following, that we were able to leave with our party for the site of the work, although we had men stationed at Agate for some time previously awaiting the arrival of supplies. All through the work this state of unrest was reflected in the working forces, and added not a little to the difficulties ordinarily encountered.

The Indians in the upper country also, admittedly the best men procurable for this class of work, experienced a heavy mortality during the past winter, through the outbreak of Spanish influenza, and many of those who were fortunate enough to recover, were in poor condition to withstand the hard work and exposure involved.

Heavy bush fires to the south and west lent an occasional smoke pall of some days' duration, at times thick enough to render sighting difficult; while from the latter part of August and through September, there was a period of almost constant rain.

Sending our main supplies to Agate to be transported up the Chapleau River, we left the Canadian National Railway at Missonga and proceeded to the south-west angle of the Township of Shenango, where the survey was commenced. Running the meridian from this point due south to its intersection with the base line run by O.L.S. Speight, we proceeded west, and in general followed the programme laid down in the instructions. Six inch square wooden posts were planted at every mile, or at the nearest shore where water interruptions occurred, with the addition of an iron post at three mile intervals, and marked with the mileage or the township names. Astronomical observations were taken wherever desirable, when weather conditions permitted, and a close alignment maintained. Base lines were run on the chord of the parallel. Details of all operations will be found in the plans and field notes returned herewith.

The country traversed, lying as it does along the southerly edge of the clay belt, possesses the characteristics of border topography, and marks the transition from the rougher rockbound hill country to the south, to the level expanses of the clay belt. The surface is one of short broken undulations, seldom interrupted by sharply rising hills, and such of these as do occur rarely exceed forty or fifty feet in altitude. Comparing this section with surrounding areas, we might say that to the south are storm tossed waves, here a rippled surface and to the north a placid calm.

Rock outcrops are not numerous, the country being well covered, and such exposures as do occur apparently belonging to the Laurentian formation.

Two main drainage channels traverse this area, flowing toward the north. Trout River crossed by the base line between Sherlock and Lincoln at VI 3-4 M.

and following closely the course of the meridian between Lincoln and Copperfield, is a leisurely stream affording an excellent canoe route, and imposes only one obstacle in its course through these townships, in the form of a fall of some fifteen feet, opposite the four mile post, where a portage of about five chains is required. From opposite V½ to VIII½ miles, this stream widens into a lake expansion, with well wooded shores and four islands of six to eighteen chains in length. From the last mentioned point the course of the river turns south-easterly.

Chapleau River, crossed by the base line between Bonar and Copperfield at mileage 3¼ and by the meridian Sherlock-Bonar at VI M + 22.70 chains and entering Agate Lake in the Township of Kapuskasing; is of quite a different character; and is marked by many shallow rapids in its course through Bonar and Sherlock, rendering it a poor stream for travel by canoe. A fall of about fifteen feet occurs a short distance north of the south boundary of Bonar, and another about two and a half miles further south. The banks of this stream are usually low, and must occasion a good deal of flooding at spring levels. Its general width is from one hundred and fifty to two hundred feet, of comparatively shallow depth, and good current.

A creek or river enters the Chapleau about opposite IV M. on the Bonar-Sherlock meridian. This stream flows from a considerable lake, approaching the south boundary of Bonar at V. M. and in its westerly continuation crosses the meridian Bonar-Lloyd at II M + 67 chains. It is also shallow and tortuous, with many rapids, and difficult of navigation. Its general width is about one hundred feet.

The lake through which this latter river passes, is of peculiar bifurcated outline, about two and a half miles from north to south by an extreme width of a mile and a quarter. It possesses deep, clear water, high and beautifully wooded shores and sand beaches; a campers' playground were it for difficulty of access.

The only other considerable lakes noted were that at the intersection Shenango-Sherlock-Lemoine-Lincoln; and one whose easterly end is crossed by the meridian Lemoine-Lincoln between VII and VIII M. Both these lakes find an outlet to the east.

Soil.

The soil throughout the area through which the outlines pass is of a sandy character, usually mixed with boulders or gravel, and cannot be classed as even fair agricultural land. In places, notably along the Sherlock-Bonar meridian, a very hard subsoil occurs, of a sand-clay mixture, at a depth of a foot, and effectually prevents trees from obtaining an adequate roothold.

Timber.

Extending from II½ M. to VII¼ M. on base line Sherlock-Lincoln, there is an area of heavy timber, chiefly of jack pine of a diameter from six to twenty inches. This is in thick stand, tall and good, and would afford excellent opportunity for log and tie making. Many of the trees of smaller size would cut out five to six railway ties. Large single trees of spruce, poplar and birch also occur in this area.

Considerable jack pine of merchantable size also grows along the south boundary of Bonar west of the Chapleau River from IV M. westerly and extends northerly

along the west boundary of that township, where, however, it takes on a more limby character, than that further east.

Red pine up to twenty inches, and to the extent of perhaps a thousand trees, was found growing on the peninsula separating the two arms of the lake opposite V M. south boundary of Bonar. Exclusive of scattered trees of rare occurrence, this was the only block of white or red pine observed, save for a clump of mature white pine apparently of small extent, on the hill at IV M. + 50 chains on the meridian Lemoine-Lincoln.

Outside of the two areas above described, the central southerly part of Sherlock-Lincoln, and southwesterly part of Bonar, the forest throughout this region, in so far as could be observed from outlines run, does not appear to offer great encouragement for timbering operations. Everywhere large single trees are met with, especially of spruce which furnishes some fine examples of tree growth, and occasional large poplar and white birch. In some of the swamps, also, and along the river banks, cedar from fifteen to twenty-four inches in diameter is found growing. This is of fair length and sound, but no large area of this species was seen.

The general character of the growth, however, is immature and would afford but a small proportion of timber of logging size. This condition may be due to former fires, where sufficient time has not elapsed to give a mature growth, except for those trees which weathered the conflagration. In some localities it would appear, however, to be due to a hard impenetrable subsoil; where as soon as a tree attains a height of thirty to forty feet, it is in imminent danger of being uprooted by the wind. This latter condition is specially evident along the Sherlock-Bonar meridian. Indeed, through the whole area windfallen timber is much in evidence and constitutes a serious fire menace. Almost everywhere the ground is covered with a thick undergrowth; alder on the lower levels, moosewood and hazel on the higher lands.

To the southward and extending up to the lake expansion of the Trout River in the southwesterly part of Lincoln, which marks its northerly limit; the country has been effectually fire scorched, and is occupied by young growth of a few years. Crossing the south boundary of Bonar from V M. + 16 chains to 40 chains and extending northeasterly to the lake shore; there is also a small burnt area, but only in these two localities does the country show the effect of fires of the past thirty or forty years, being uniformly green.

In common with much of the country to the south, this area would probably find its most advantageous disposition by being included in forest reserve; and the greater part of it by being allowed a considerable time to mature its timber before logging operations are undertaken. This, of course, being contingent upon the feasibility of properly protecting it from fire.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) CAVANA & WATSON,
Ontario Land Surveyors

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

Appendix No. 35.

TRAVERSE SURVEY UP LAKES, RIVERS AND PORTAGES IN THE TIMAGAMI FOREST RESERVE, DISTRICTS OF SUDBURY AND NIPISSING.

PARRY SOUND, December 5th, 1919.

SIR,—I have the honour to submit the following report of the traverse survey uplakes, rivers and portages in the Timagami Forest Reserve, Districts of Sudbury and Nipissing under instructions bearing date April 30th, 1919.

I left Parry Sound with cook and one man May 15th, and proceeded by rail to Timagami Station, reaching there in the afternoon of May 16th, where I was met by assistant Coltham.

Owing to the high wind on Timagami Lake, I was compelled to secure the services of a gasoline launch to transport my men and supplies to Bear Island which I reached late Tuesday evening, thus compelling me to put up my men and myself at the hotel for night. Owing to rain on May 17th, we were compelled to seek the shelter of the hotel until evening, when we were able to pitch our tents where we remained until the following Monday morning. At Bear Island we secured the services of two Indians.

May 18th we proceeded to Gull Lake which we reached the same evening in time to pitch our tents. After testing our micrometer by chained distances, we commenced the traverse of Gull Lake the following Tuesday. This is a fair size lake with numerous islands, covered with red and white pine. The shores of Gull Lake are high and very rocky and in some places are steep.

After completing this lake we traversed Skunk and Allan Lake, and also made a chained traverse of the portages between these lakes.

On June the 3rd, we moved camp to Turtle Lake, where on the following morning we obtained a Polaris observation. The shores of this lake are high and rocky.

From here we moved camp back to Gull Lake, where we traversed the two small lakes Long and Cummings.

June 16th we moved from Gull to Devil's Lake, which we commenced to traverse on the following day. This lake appears very deep with high rocky shores. There are the remains of a mining shack on the east shore of this lake.

The next lake to be traversed was Emerald, a beautiful lake with numerous sand beaches and projecting points. The remains of a mining camp with numerous buildings are found along the west shore.

On June 27th, we proceeded to make a traverse of the small lakes, Aleck, Woods, Moses and Kibble. These lakes are situated among high hills with high rocky shores, therefore, joined by portages.

From here we moved camp to Obabika Lake. This is the largest lake that we encountered on our work and was visited by a large number of tourists during the summer. The shores are generally high and rocky with numerous sand beaches and a few marshy bays. Along the banks are red and white pine, cedar and birch. On completing this lake, and smaller ones adjacent thereto, we made a traverse of the Obabika River as far as the storage dam.

Our next lake was Wakimika which was reached by a river of the same name. The south end of this lake is marshy with high rocky shores elsewhere.

From here we proceeded across two portages to Diamond Lake. The shores of this lake are high and rocky with high hills surrounding them.

Completing this lake we moved across a one and three-quarter mile portage to Willow Island Lake. This is a long narrow lake with a few scattered islands. The shores are generally rocky with numerous sand beaches. This lake is connected by a narrow strait of water with Lake Sucker Gut, the survey of which was completed on August 27th. From here we moved camp across many lakes and portages to the Obabika River, on arrival there we traversed river to the junction with the Sturgeon. The Sturgeon River averages between one and one-half to two chains wide with high clay banks ranging between six feet and fourteen feet high, very few outcrops of rock are found. The land is a sandy loam and appears well adapted for agricultural purposes. Considerable horse-power could be developed on the Upper and Lower Goose Falls met with on this river.

Our next work was the traverse of Grassy Lake which was reached by canoe and portage. The west end of this lake is marshy with sand beaches on the east side. After completing the traverse of portage route to Devil's Lake, we connected up our survey with previous work.

Along the shores of the lakes and rivers trees were blazed and marked with a designating number as 1, 2, 3, etc., where shown.

On each island of any size a tree was blazed and marked with the numbers "A," "B," "C," etc., as shown in plans.

Fish and Game.

Fish of many kinds, especially trout and black bass were found in the different waters throughout the work.

Moose and red deer were very plentiful, with many signs of beaver workings.

Accompanying this report are my diary; plans of lakes on linen, scale twenty chains to an inch; field notes of part of line between Townships of MacBeth and Clement; and my account in triplicate, which I trust you will find in order.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) David Beatty,
Ontario Land Surveyor.

Appendix No. 36.

Settler's Loan Commissioner.

Toronto, October 31st, 1919.

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

Sir,—I beg to herewith submit a report of the operations conducted by this Department under the Northern & Northwestern Ontario Development Act, Amending Acts 1916 and 1918.

Up to October 31st, 1919, a total of 2,001 applications for loans were received, asking for an amount of $776,790.00, an average of $382.39 per application. With

every desire to co-operate and assist deserving settlers, careful consideration was given to each individual request, and loans advanced, on the basis of security offered in the way of improved land, where it was clearly shown the money could be used to good advantage in the improvement of settlement conditions.

A total of 1,414 loans were made to settlers amounting to $442,256.00, an average of $312.76, and in addition a loan of $12,000.00 was advanced to the Sudbury Co-operative Creamery Co., Ltd., the loans being distributed over the various districts as follows:

District.	No. of Loans.	Amount.
Algoma	17	$4,525 00
Kenora	115	33,545 00
Nipissing	64	22,750 00
Rainy River	121	38,300 00
Sudbury	29	21,725 00
Temiskaming	635	197,265 00
Thunder Bay	434	136,146 00
Totals	1,415	$454,256 00

Reports received and observations made would indicate that the loans granted have been of great benefit to the settler struggling to get sufficient clearing to enable him to stay at home and work the land, and to get some live stock with which to carry on.

Repayment of loans has been very satisfactory as is evidenced by the fact that almost 90 per cent. of the interest payments are up-to-date and payments of principal have exceeded the amount due, on account of some loans being paid off in advance.

In conclusion, would direct your attention to the following memorandum giving further details of operations carried on, and would say that appreciation of the small loans granted under easy conditions of repayment has often been expressed by the individual settlers concerned.

MEMORANDUM OF SETTLERS' LOANS TO OCTOBER 31ST, 1919.

APPLICATIONS.

Total number of applications received	2,001
Total amount applied for	$776,790 00
Average per application	382 39
Amount applied for under approved applications	564,640 00

LOANS.

Number of loans issued	1,415
Equal to 70% of applications.	
Amount granted	$454,256 00
Equal to 58% of total amount applied for and	
Equal to 80% of total amount applied for under approved applications.	
Average loan	$312 76
Total acreage covered by liens	217,040
Acreage improved land	29,729
Equal to 13.6% of total acreage.	
Average loan per acre on total acreage	$2 03
Average loan per acre on acreage improved land	14 87

NOTE.—Figures, except averages, include application for, and loan of $12,000 to Sudbury Co-operative Creamery Co., Ltd.

REPAYMENTS.

Accrued interest due	$48,402 90	
Accrued interest received	42,974 63	or 88.78%
Payments on principal due	70,469 71	
Payments on principal received	70,500 25	or over 100%
Total payments due	118,872 61	
Total payments received	113,474 88	or 95.45%

UNPAID PRINCIPAL AND ACCRUED INTEREST OUTSTANDING.

District.	Amount.
Algoma	$4,026 74
Kenora	28,492 00
Nipissing	19,042 50
Rainy River	33,184 15
Sudbury	20,544 55
Timiskaming	162,168 78
Thunder Bay	121,725 30
Total	$389,184 02

Yours very truly,

F. DANE,

Settlers' Loan Commissioner.

Appendix No. 37.

ALGONQUIN PROVINCIAL PARK.

SUPERINTENDENT'S REPORT.

ALGONQUIN PARK, October 31st, 1919.

HONOURABLE SIR,—I beg to hand you my twenty-first annual report on the Algonquin Provincial Park for the fiscal year ending October 31st, 1919.

Situated as Algonquin Park is, only 169 miles from the capital of Canada, 206 miles from Toronto, within easy journey of the principal cities of the United States and crossed by two important railways, the Grand Trunk and Canadian National, it has become a very popular health and pleasure resort. The angler, too, from all over the continent has found in the hundreds of lakes and the numerous rivers which take their rise in the Park, sport that cannot be surpassed in any part of America. Salmon trout are found in all our lakes, and speckled trout in most of them and all our streams. During the past season some very fine specimens were taken, the largest being a salmon trout weighing about 26 lbs. The small-mouthed bass was introduced here a number of years ago and has proven a great success. It has not only furnished splendid sport within the park, but has stocked the waters for a distance of a hundred miles tributary to the Madawaska river. Bass are not native to these waters, but thrive wonderfully where introduced.

The Park covers an area of some 2,741 square miles or 1,754,240 acres, in the district of Nipissing. It is a net-work of lakes and rivers, five important rivers taking their rise here. It is densely wooded with pine, maple, birch, beech, hemlock, spruce, etc.

That the object in setting aside this territory as a game preserve and breeding ground for wild life and a health and pleasure resort for the people of the

Province has been attained, is beyond dispute. Thousands of visitors annually enjoy the attractions of this health-giving region.

There are five hotels, all of which have been filled during the past season to their utmost capacity, and many visitors had to be refused for want of room. The largest hotel is the Highland Inn, situated on Cache Lake at Headquarters, which is owned and operated by the Grand Trunk Railway Company. Here one hundred guests can be accommodated and many more in tents. In connection with the Inn are two camps, Nominigan, situated on Smoke Lake some eight miles away, and Minising on Big Island Lake, ten miles distant. Each of these consists of one main lodge with large dining room and assembly hall, also a number of bedrooms, and several cottages that will each accommodate eight people, and supplied with bathrooms, open fire-places, etc. The sanitary arrangements are first class. Meals are served at the main lodge. Each of these camps can take care of some sixty people; they are reached by stage from Algonquin Park station, or by canoe from Cache Lake and Joe Lake respectively. Hotel Algonquin at Joe Lake, some seven miles west of headquarters, is owned and operated by J. E. Colson. Here some fifty people can be accommodated, and as many more in well furnished tents. Mowat Lodge, owned and operated by J. S. Fraser, at Canoe Lake, is really a part of the old Gilmour headquarters, and can accommodate some twenty-five people. In connection with each of these places is a good outfitting store and boat and canoe liveries. The lakes most frequented by the tourist are kept stocked annually; this year we put in here something like one hundred thousand salmon trout fry, and as many small-mouthed bass from the Government hatcheries, also a car of matured bass.

Game of all kinds is also very abundant. Otter, mink, marten and fisher are on the increase, while all our lakes, rivers and creeks are full of beaver, the annual increase of which runs into many thousands, the number taken out yearly being scarcely perceptible. I am glad to report that those sent to stock the waste lands of the townships of Lavant and Dalhousie have done well. James Park, of Maple Ridge Farm, writes they have had no trouble protecting them, as the residents take a lively interest in the matter, and there are already several healthy colonies. Those, too, sent to Rondeau Provincial Park, in Kent County, have taken hold and have not only adapted themselves to the altered conditions, but on my visit there this fall, a friend many miles from the Park told me he knew of a colony who had built a dam and were making a home not far from his place. The fishermen also tell me they are frequently seen swimming in the Eau.

It is certain with the war over there will be a big demand for live beaver for stocking purposes. The Board of Game Commissioners for the Commonwealth of Pennsylvania have asked for one hundred for the game preserves of that State. Some of these have been sent and they arrived in first-class condition, but owing to the late date at which the order was received, we will not be able to ship them all this fall.

Deer and moose are increasing all over the Park, especially the deer, and they afford a great deal of pleasure to the tourists as they pass through our lakes and streams, their tameness giving abundant evidence that they know they are protected. These animals overflow and stock the many hunting grounds surrounding the Park, thus keeping up the supply and thereby adding to the revenue of the Province in the hunting licenses sold.

Wolves, I regret to say, are still very much in evidence and very bold, notwithstanding the large number killed each winter by our rangers. Of course the abundance of game in the Park is responsible for this. The wolf soon learns where food is most easily obtained. The men get a bounty of $20.00 for each wolf killed, the skins going to the Government and being worth as much or more than the bounty paid.

We took out the usual amount of fur this year, which was sold by tender at the Parliament Buildings, bringing the substantial sum of $11,781.44. The fur is taken out by our regular rangers, the only extra cost being for traps. Fishing licenses were issued to the amount of $1,612.00, residents paying $3.00 and non-residents $5.00. We also collected $30.00 for guide's licenses. This does not include moneys paid direct to the Department.

We have several large boys' school camps in the Park, where from thirty to fifty boys spend a healthful and in all ways a beneficial holiday. At Cache Lake we have a large girls' school camp under the able management of Miss F. L. Case, of Rochester, N.Y. Here sixty girls spend the summer holidays under careful teachers and are instructed in woodcraft, canoeing and swimming. The entire camp this year consisted of seventy-five people. There are also a number of cottages on this and Canoe Lake, held under a twenty-one year lease, paying under the old regulations $7.50 per year, and under the new $10.00. The school camps pay $75.00 a year. The sum of $592.00 was collected here this year for rents, the hotels and some others paying direct to the Department. During the summer and fall hundreds of anglers and canoeing parties are scattered all over the Park tenting and canoeing from lake to lake.

Our staff consists of thirty-five men and superintendent and one housekeeper at the rangers' quarters, whose husband takes care of the grounds, etc., at headquarters and helps the lineman keep the phone line in order. The duty of our men during the trapping season is to patrol the beats under their charge in order to prevent illegal trapping. In general, two rangers travel together, having a stated section to look after in which they keep the portages cut out and the shelter houses in order. These shelters are usually a day's journey apart, and the practice is for the ranger to spend several days at each looking over adjacent territory. We have built seven new shelters this year, one in each of the following sections, Eagle Lake, South River, Opeongo, one near the boundary at Aylwin Lake and three along the Canadian Northern Railway. All these are good substantial buildings. Several of the other shelters have been re-roofed. This work is done by the rangers during the summer months.

I am especially glad to report no damage from fire during the past year. Several fires were started, but the rangers got them out before they had time to do any damage. The tank car was not called out at all this season. The telephone line was a great assistance to us in getting to fires promptly.

A large quantity of wood for fuel was cut by the contractors and our staff during the past season as follows: By contractor C. McConkey, 622 cords, all of which is drawn out to the siding at Rainy Lake ready for shipment; by contractor Ivol, 4,785 cords, all delivered at Potter Lake siding ready for shipment; by Randolph Macdonald Company, at Canoe Lake, 1,253 cords, drawn out to Canoe Lake siding and 409 cords left in the woods to be drawn out during the winter of 1920. Of the wood cut at this point, 15 cars have been shipped containing 239½ cords. At Source Lake siding (M.P. 306) the Macdonald Company has drawn out 6,016½ cords and left 3,272½ cords in the woods yet to be drawn.

Of this wood 12 cars have been shipped out, representing 1,165¾ cords, making a total cut by the Macdonald Company of 10,951 cords, of which there remain at the siding and in the woods 9,545½ cords. At headquarters we took out with our own men and some hired help 1,544 cords, 63 cars of which were shipped containing 1,003 cords, the balance, 541 cords, being drawn out to the sand pit siding ready for shipment. During the summer some of the staff were stationed at each of these points to guard against loss by fire. Water barrels were also placed along the line of railway; these our men kept full of water, our greatest danger being from passing trains. We did not, however, lose a single cord. I would strongly recommend that all this wood be disposed of during the coming winter. It is now in fine shape, but if left another season will deteriorate on account of dry rot, etc. That left in the woods should be drawn out on the first snow.

Considerable work was done by our men at headquarters. The water system has been extended so that we have a hydrant convenient to all the buildings. The two houses and all the outbuildings were painted, and the year's wood and ice cut and put in. The telephone line too was kept in order. We had very little poaching. Fines were imposed to the amount of $150.00 after our men got back to their beats, but before that poachers took advantage of the fact that our men were away cutting wood.

I should like very much to see a good public hall erected here. It could be done at comparatively little cost, our men doing the work during the summer months. Such a place is badly needed for holding court, and during most of the year we could have divine service, had we a place suitable, as several ministers spend a great deal of time here. It would be convenient for public meetings and lectures, holding poll and many other ways. The Government furnish large dancing pavilions in much less important places. We do not want anything for that purpose, but we do need a good hall badly. I trust you will give this matter favourable consideration. The principal expense would be for material. We have hundreds of visitors here from all over the globe, and I am confident such a building would be much appreciated.

On the limits acquired by the Government from the Munn Lumber Company in the Park, there are many million feet of the choicest hardwood. This has now become valuable, and I would strongly recommend that some arrangement be made whereby the matured timber could be judiciously taken out and the Province get the benefit of the revenue. After timber matures there is no advantage in leaving it stand, as it soon becomes diseased and the younger timber becomes infected also. There is a very fine growth of young timber all through the Park. The timber to be taken out would consist of birch, maple, beech, ash, elm in small quantities, and hemlock, spruce and balsam. A lot of this timber would be convenient to the mills at Whitney and Belwood; the remainder would best be manufactured by a portable mill. Or the whole could be sold to one party and mill moved as the timber was cut out. There is such a large territory of the finest hardwood, that it should be easy to dispose of it to good advantage.

Yours very truly,

(Sgd.) G. W. BARTLETT,
Park Superintendent.

Honourable G. Howard Ferguson,
Minister of Lands, Forests and Mines,
Toronto, Ontario.

Appendix No. 38.

QUETICO PROVINCIAL PARK.

SUPERINTENDENT'S REPORT.

KAWENE P.O., October 31st, 1919.

HONOURABLE SIR,—I beg to submit my report for the fiscal year ending October 31st, 1919.

The staff consisted this year of ten rangers, and this I think is not enough to patrol the area properly. During the season the water has been exceptionally low, making canoeing much more difficult, and necessitating the cutting of many new portages and building of small dams. The Eva Lake narrows became so low that it precluded the passage of our barge with supplies, and to overcome this difficulty I had a dam built on the outlet which will hold the water at a normal level, thus preventing trouble in the future.

Some small fires occurred in the Park this summer, but little damage was done, as they ran in old cuttings mostly, and were got under control before reaching timber of value. These fires were caused by lightning, except one which no doubt was due to a campfire left burning, but we could not ascertain which of three parties was responsible.

Influenza caused us much worry and trouble in the forepart of the season. Ranger Harry Mack contracted the disease, and died on Basswood Lake although he had every attention and the best medical aid available.

Moose are very numerous and may be seen anywhere. Deer are also increasing rapidly. Very few moose calves have been seen this summer. This has been remarked by many in the vicinity, but is as yet unaccounted for. Beaver-dams may be found on nearly all lakes and rivers. Smaller fur-bearing animals are also increasing. Seven large timber wolves were brought in by my rangers last winter for which they received bounty. No doubt many more were killed although not found. These animals are terribly destructive on deer, especially in the spring when a crust forms on the snow. The carcasses of deer partially devoured are often seen, and at this time of the year the wolves seldom visit the carcass a second time, preferring to kill a fresh victim.

Suitable men for rangers have been very hard to get this year, there being a great demand for bushmen in this section. The Shevlin-Clarke Co., of Fort Frances, are operating five lumber camps in the Park this season, mostly in the vicinity of Quetico and Beaverhouse Lakes. Their output will be about twenty millions.

We have had two very heavy snow storms since October 21st, followed by cold weather, which stopped canoeing and blocked our trails with snow-laden trees. All my available men have been working to clear our telephone line and a trail to Kawene.

I am preparing to take a quantity of beaver and other fur from the Park as instructed by you and expect a goodly catch.

One hundred and ninety-five dollars have been collected for Fishing and Guides' Licenses this year, and no doubt many more tourists would visit here were it more easy of access to the railway. I have received some communications

from officials of the C.N.R. Company regarding accommodation for tourists at Kawene station, but nothing definite has been proposed.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) HUGH MCDONALD,

Superintendent Quetico Park.

HON. GEORGE HOWARD FERGUSON,

Minister of Lands, Forests and Mines,
Toronto, Ont.

Appendix No. 39.

COLONIZATION AND IMMIGRATION.

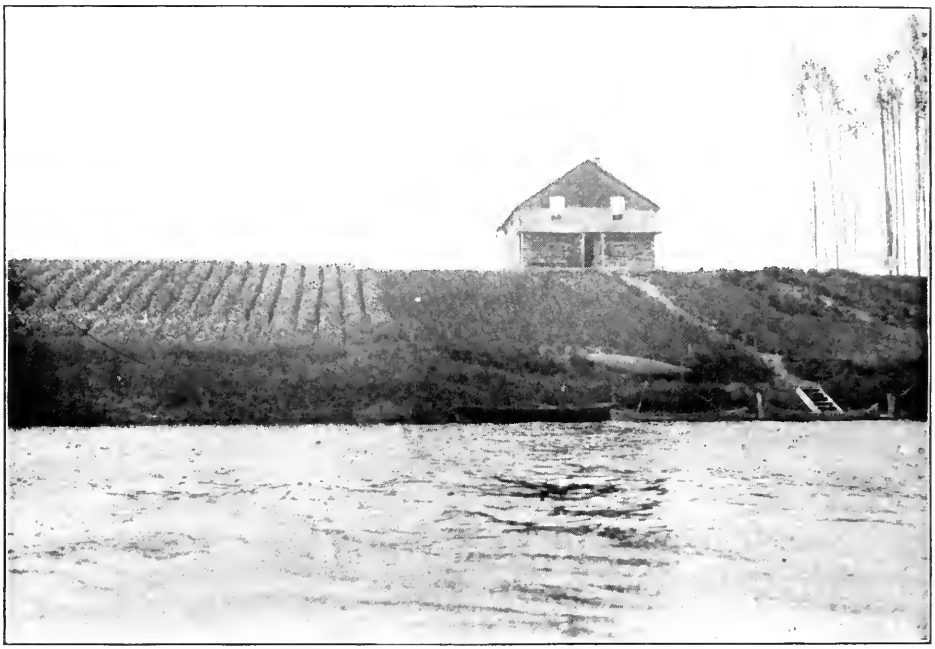
To the Honourable G. Howard Ferguson, Minister of Lands, Forests and Mines, Toronto, Ontario:—

SIR,—I have the honour to submit the following report of the Bureau of Colonization for the fiscal year ending October 31st, 1919:

Number of letters received	9,381
Number of letters sent out	7,781
Literature dispatched includes—	
"A New Land Nearby"	
"Farming Opportunities in Ontario"	
"Hints to Settlers in Northern Ontario"	
"Ontario Handbook"	28,568
"Greater Ontario"	
"Heaton's Opportunities in Ontario"	
"The Province of Ontario in the War"	
Ontario maps	7,177
Railway certificates issued to settlers proceeding to Northern Ontario (including 821 adults and 50 children)	725

The above figures, compared with those of last year, are indicative of the growing interest in Old and Northern Ontario, particularly the latter. Our new booklet, "Northern Ontario," was circulated extensively during the year, and we conducted our usual newspaper and magazine advertising, but apart from these mediums there has been an appreciable increase of enquiries from homeseekers and others, mainly from the Western Provinces, the U.S.A. and Great Britain.

Our Northern Ontario exhibits at the Canadian National Exhibition, Toronto, and the Central Canada Exhibition, Ottawa, proved greater features of attraction than ever before. Continuous streams of interested visitors called daily and our representatives dispensed information on the possibilities of the North in general. A free-to-all motion picture show exhibiting the industries of the North, such as agriculture, mining, lumbering, fishing, etc., also accompanying lectures by a representative gave the visitors, many of whom had but little knowledge of the vastness, resources or possibilities of this section of the Province, educative and



Ontario Government Experimental Plot, Ground Hog River, Northern Ontario.

Modern Barns and Silo, Northern Ontario.

interesting entertainments. After seeing the "movies" and the products, an elderly farmer exclaimed, "Those roots, vegetables and grains are wonderful. I really can hardly believe it."

Now that the war is over, the outook in regard to immigration and colonization has been changed to a very marked degree. Through our office at 163 Strand, London, England, an energetic campaign is being carried on in the United Kingdom with a view to attracting British capital, farmers, farm labourers and domestic servants to our Province. There can be no doubt that considerable capital, as well as many settlers, will be the result of advertising, lectures, correspondence and personal interviews, as well as the distribution of thousands of pieces of literature, together with the "boosting" that our soldiers gave Ontario while abroad. Our Agent-General advises me that his office is besieged daily by intending settlers and that his staff are forced to work overtime distributing information. The work, of course, is confined mainly to securing farm labourers and domestic servants. For a good many years this office has proved of great use in connection with migration of people from Great Britain who desire to make new homes for themselves in Ontario. A very efficient organization has been perfected for assisting emigrants in their journey to Ontario. From time to time personally conducted parties are arranged, each under the care of an experienced traveller. The first of these parties, since the beginning of the war, recently arrived, consisting of sixty-three domestics. These girls were as fine a type of womanhood as could be wished for, and all, I am sure, will prove their worth.

During the coming year of reconstruction this Bureau will undoubtedly be instrumental in playing no small part in the upbuilding of this, the banner Province of the Dominion.

I have the honour to be, Sir,

Your obedient servant.

H. A. MACDONELL,

Director of Colonization.

Toronto, October 31st, 1919.

Appendix No. 40.

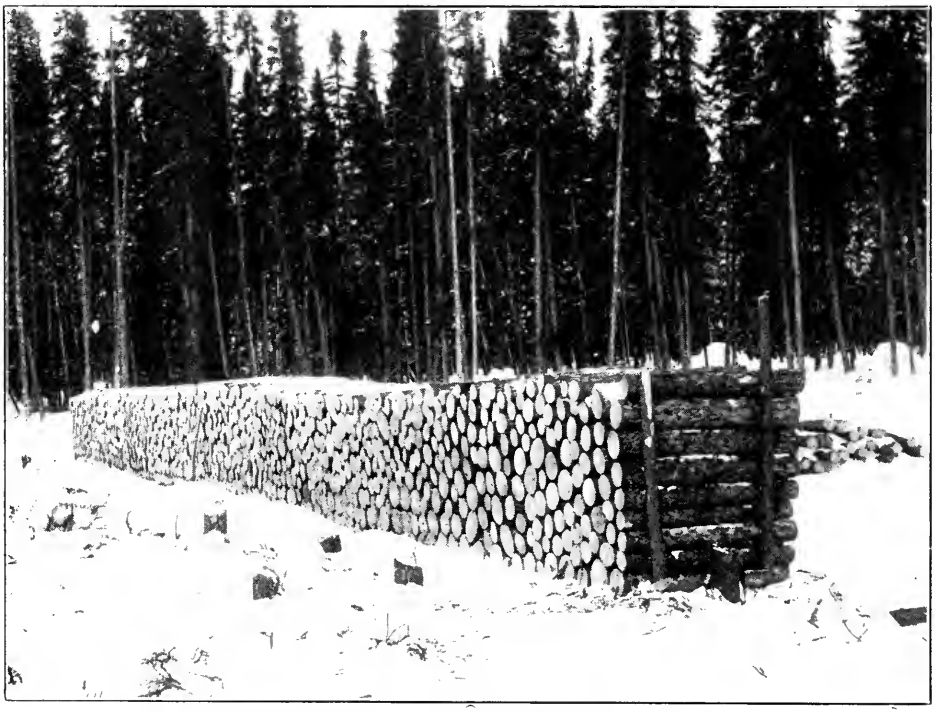
REPORT OF THE FORESTRY BRANCH, 1919.

SIR,—The report of the work of the Forestry Branch for the year ending 31st October, 1919, is given under the three sections of Forest Protection, Reforestation and Forest Pathology.

I. FOREST PROTECTION.

(1) *Legislation.*

The past season is the third during which this Branch has been charged with the work relating to The Forest Fires Prevention Act of 1917. No changes have been made in the Act since the last annual report, but this season's experience



Twenty-five Cords of Pulpwood, Northern Ontario.

Trophies of the Deer Hunt, Northern Ontario.

indicates that amendments in two directions are desirable. In some instances this summer it was found that local labour could not be engaged to fight fire no matter what wage was offered, and such cases should be provided for in the Act by a compulsory clause. Most modern forest fire legislation contains such a provision. A further amendment is needed to cover deliberate defiance of the Permit Regulations. At present infringements can be punished by a fine only, and this becomes merely nominal, in fact cheap land clearing, under certain conditions. Accordingly the power of imprisonment should exist in the Act to serve as sufficient deterrent.

(2) *Organization and Personnel.*

For administrative purposes the forest region of Ontario is divided into four inspectorates, as follows:

(1) Western Inspectorate—Rainy River, Kenora, Thunder Bay.

(2) Northern Inspectorate—Timiskaming (exclusive of Timagami), Clay Belt area in northern Algoma.

(3) Central Inspectorate—Algoma, Sudbury, eastern Timagami, northern Nipissing.

(4) Southern Inspectorate—South of French and Mattawa Rivers.

The above territory was handled as 30 ranger districts with a field force composed of: 1 Superintendent, 4 Inspectors, 30 Chief Rangers, 49 Deputy Chief Rangers, 1,014 Rangers (during peak of season).

The fire season opened late, the weather being comparatively wet, so that men went on duty slowly. In April, a small force was engaged in getting equipment ready and the work as a whole organized. On May 1, there were 152 on the pay lists, and this number was slowly increased so that by the middle of May one-half of the staff were on duty, and by the end of the month the force numbered 900. This represented a considerable saving as compared with May of last year. During the critical months of June, July, and August the staff averaged 1,014 men daily. With September the weather once more became favourable, and the field force was gradually reduced, being down to half strength by the 18th, and numbering 126 by September 30. A small number was kept on at work into October to overhaul and store equipment.

The average daily force was: During April, 26; May, 548; June, 1,007; July, 1,025; August, 1,009; September, 611; October, 29. The total number of persons employed for at least a part of the season was 1,338; of these, 276 resigned after a time, and 51 were dismissed for various reasons.

The expenditure for the fiscal year was as follows, the figures for 1918 (rounded off) being given for comparison.

CLASSIFICATION OF EXPENDITURE, 1919

—	1919	1918	—	1919	1918
	$ c.	$ c.		$ c.	$ c.
Pay roll	405,212 30	416,500 00	Extra fire fighting	53,863 92	1,445 00
Equipment	22,899 02	28,350 00	Express, postage, etc.	5,646 47	5,365 00
Expendable property	13,903 06	10,700 00	Miscellany	5,955 02	.....
Travel (Inspection)	15,826 37	13,440 00			
Improvement work	4,765 35	4,280 00	Total	528,071 51	480,080 00

Against this total stands the fire tax collected from licensees. Geographically the expenditure was approximately, thus:—

Central Inspectorate	41%
Western Inspectorate	22%
Northern Inspectorate	21%
Southern Inspectorate	16%
	100%

(3) *Fires.*

The summer of 1919 was characterized by an unusually prolonged drought, and the fire season was a bad one. The early part of May was wet, but after that came three months which were abnormally dry. Under such conditions fires became more numerous than usual, and also assumed much larger proportions. This is seen in the number of fires reported for June, July and August—414, 613, and 377 fires respectively—as against 296, 141 and 192, the average for 1918 and 1917.

The situation became serious first in the Clay Belt region. From the settlers' point of view this season was more satisfactory than either 1918 or 1917 for land clearing operations, because conditions were favourable to a "good burn." From the nature of things the activity in land clearing increases as the weather conditions develop which render it more dangerous. Thus, almost as many permits were issued in the first half of June as were granted during the whole of that month last year. It must be kept in mind that the welfare of such new agricultural settlements is bound up with land clearing by fire, and it is necessary to adopt a considerable latitude of risk in order not to hamper pioneer farming operations unduly. In an average year one counts on occasional showers which help to extinguish the dying fires which are seldom absolutely out when the permit expires. But this season it was otherwise. The situation developed rapidly, for some 4,300 fires had been set out under permit, a large percentage of which had not died out after the ordinary way. By June 21, existing permits had been cancelled and the issuance of new ones stopped. No rain fell, however, till the early part of August. The result was that old, clearing fires gradually enlarged and met, and that sparks from these set fresh areas of slash on fire. Added to these, of course, was a larger number than usual due to railways, campers, etc. The situation was enlarged by certain persons taking advantage of the existing confusion to defy the permit suspension order. In fact, the number of fires reported from the Northern Inspectorate, despite the small area, reached almost one-quarter of the number for the Province. The situation was aggressively faced and fires fought vigorously everywhere. The long drought, however, made water scarce in many regions, and even the peaty soil turned up in trenching around fires at last became a case of merely adding more fuel. Considerable loss in buildings and crops occurred, but no loss of life. There is no doubt that the permit system in enabling control of setting out fire averted a more serious result.

The total area reported burned over in the Northern division was 58,383 acres or 6.3 per cent. of the whole for the Province. Considerable of this acreage had been previously burned in 1916 and 1911. The largest fires were in the Cochrane and Timmins ranger districts. Among the townships suffering most were O'Brien, Shackleton, Calder, Leitch, Blount, Clute, Lamarche, Brower, Fox, Newmarket, Dundonald, Matheson, Bristol, Ogden, Mountjoy and Tisdale. In the

Matheson ranger district the townships of Clergue, Carr, Playfair and Pacaud had considerable fire.

But while much damage was done in the Northern Inspectorate it was relatively insignificant when one turns to a consideration of the fire record in the Central Inspectorate. The fires in the north were largely on lands being cleared or which will eventually be cleared for farming purposes. From the one standpoint of the timber supply of the Province they are of less concern than in the case of those regions which are to remain centres of timber production. The Central Inspectorate embraces roughly the middle portion of the white pine belt in Ontario, and little of the soil is suited to agricultural pursuits. Fire in this region means not only the loss of standing timber, but also the growing crop for future logging.

In this inspectorate the area reported burned over totalled 618,496 acres. The largest fires occurred in the Chapleau, Sudbury, Webbwood and Soo Ranger Districts. In the strip of country between Lake Nipissing and Sault Ste. Marie, lying south of the Mississagi forest reserve, approximately 522,000 acres were reported burned over—in other words, around 13 per cent. of this region. Large general fires occurred in the townships of Curtis, Gillmor, McMahon, Morin, 201, 195, Bridgland, Wells, Grassett, 182, 175, 169, 168, 167, Mack, Striker, 145, 144, 143, Proctor, 132, 131, 130, 129, 120, Bigelow, Dunlop, Merritt, Craig, Moncrieff, Totten, Cascaden, Trill, Dowling, Foster, 91, 90, 83, 82, 10, Blezard, Neelon, Dill, Dryden, Cleland, Burwash, Street, Hawley, Hagar, Appelby, Latchford, Bertram. In quite a number of cases whole townships were swept over.

The Western and Southern Inspectorates also suffered severely—to the extent of 181,458 acres and 63,824 acres, respectively. In the former, the Nipigon, Rainy River and Thunder Bay districts suffered most; and in the latter, Muskoka and Parry Sound.

The total area reported burned over in the Province in 1919 was 922,161 acres, or 1,441 square miles. It is hard to realize what such an area is, but a conception may be formed by trying to visualize a strip of country six miles wide from Toronto to North Bay.

No complete estimates of the loss are available. Included in the total burned area are 247,266 acres of land classed as timbered, mostly with white pine. At the extremely low estimate of 1,000 feet per acre, this would mean as much timber as the Province received dues on last year. Of course, some of the damaged timber will be salvaged. Heavy losses were also sustained by lumber concerns by the burning of camps, logging equipment, supplies and sawmills. These losses, of course, must ultimately be passed on to the consumer.

In addition, there were burned over 251,355 acres classed as "logged over with some timber left," and 233,196 acres of young growth; in other words, around 485,000 acres of cut-over lands. The loss here is very high because it means the wiping out of a large potential crop without any salvage. To put that crop back artificially by planting would take at least $5,000,000, to say nothing of the loss in time as represented in the age of the burned stands of young trees.

Before going into a discussion of the situation presented above it may be well to point out that forest protection in Ontario has three distinct phases. In the Clay Belt country the yearly expenditure is proportionately high because of the permit system and the scattered nature of this work. It is not justifiable on timber account alone, because most of the region will not be kept as a permanent timber area, but will pass to farming. A part of the cost of protection in this

district is chargeable to making life and property in general safe. Another phase appears in connection with land under license; here the lumberman's timber must be protected because he pays a fire tax, while the Crown is further interested in the unmerchantable young growth on the limit. The third phase is to be found in the immense area of cut-over land, largely reverted to the Crown. Protection of this is necessary if we are to have any timber from which to derive revenue in the future. In fact, expenditure on this account is more justifiable than for unlicensed timber, because it is usually possible in case of fire damage to arrange for logging the latter at once. Adequate protection of cut-over lands is expensive, because they are acreages of the highest hazard owing to the logging slash. For the same reason the fires are extremely hot and resulting damage to the young trees is high. The only definite information that we have regarding the effect of repeated forest fires upon the restocking of pine lands in Ontario is derived from a report on a study, a few years ago, of 85,000 acres in the southern part of the pinery. This study showed that the numbers of young pine trees one inch and above in diameter surviving after fire were as, 110, 14, 7 and 3 trees per acre, according as the area was burned severely, once, twice, three or many times. These figures demonstrate the great damage done by fire to cut-over lands. As already pointed out, some 485,000 acres of such lands were burned over this season. Protection of this type of forest land is by far the cheapest method of producing forests, even if general tree planting were within the financial ability of the Province.

CLASSIFICATION OF FOREST FIRES, 1919.

By Month	1919	By Origin	1919		1917–1918 average	By Size	1919		1917–1918 average
	No.		No.	%	%		No.	%	%
May	362	Settlers	137	7.7	8.2	¼ ac. and under	543	30.5	38.4
June	414	Campers	163	9.2	11.2	Over ¼ to 5 ac.	493	27.7	26.6
July	613	Railways	659	37.0	48.0	Over 5 to 10 ac.	109	6.1	5.4
August	377	Lightning	54	3.0	3.3	Over 10 to 100 ac.	293	16.5	11.6
September	14	Logging operations	44	2.5	4.1	Over 100 to 500 ac.	155	8.7	4.9
		Miscellaneous	76	4.3	4.1	Over 500 ac.:			13.1
		Unknown	647	36.3	20.5	500–1,000	58	3.3	
						1,000 to 10,000	105	5.9	
						Over 10,000	24	1.3	
	1780		1780	100.0	100.0		1780	100.0	100.0

Railway Fires.—Of the fires occurring along railway lines, 659 fires were attributed to railway origin, either defective locomotives or employee carelessness. This was 37 per cent. of the total number of fires reported for the season, a gratifying improvement over the record for 1918 and 1917. But, as the table of locomotive inspections farther on shows, there is opportunity for better results yet, since there is no reason why all companies cannot reach the standard of the best one in this respect.

FIRES OF RAILWAY ORIGIN, 1919.

Railway	Mileage forest section	No. of fires	Per cent of railway fires
C.N.R. (exclusive of Transcontinental)	1,455	162	24.6
C.N.R. (Transcontinental)	950	171	25.9
C.P.R.	1,430	173	26.3
T. & N.O.	253	118	17.9
G.T.R.	375	23	3.5
A.C. & H.B.	330	10	1.5
A.E.	95	2	0.3
	4,888	659	100.0

Other Causes.—The tourist, surveyor, prospector, fisherman, berry picker, picnicker, etc., were responsible for 9.2 per cent. of the total fires. Settlers caused 7.7 per cent. of the fires. In all, 23 persons were prosecuted for violations of the Permit Regulations, and convictions secured in 20 cases. The percentic increase in fires whose origin was not determined is a direct result of the general fire conditions of this season.

Area Burned.—Thirty per cent. of all fires did not exceed one-quarter acre in size, and nearly 60 per cent. of them did not get beyond 5 acres in extent. The corresponding figures for last year were 40 and 75 per cent. respectively. Over 10 per cent. of the fires exceeded 500 acres.

The total area reported burned over was 922,161 acres, classified thus:—

Timber land	247,266 acres	(26.8%)
Cut-over land (with some timber left)	251,355 "	(27.3%)
Young growth (below 6 inches diameter)	233,196 "	(25.3%)
Barren and grass land	190,344 "	(20.6%)
	922,161 acres	100.0%

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1919

Ranger District	Number of fires	Timber land mainly coniferous (i.e.softwo'd)	Timber land mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth mainly coniferous	Young growth mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate—										
1 Kenora District	49	876	.....	1,500	.....	1,493	79	2,759	23	6,730
2 Rainy River	64	15,348	250	6,000	6,000	1,020	2,649	45	11	31,323
3 Thunder Bay	103	2,520	10	6,894	228	3,313	4,138	7,034	49	24,186
4 Nipigon	18	67,863	7	.....	.....	700	.....	9,030	7	77,607
5 C.G.R.—Western	79	2,240	.....	.....	.....	686	3	816	21	3,766
6 C.G.R.—Central	92	54	.....	.....	.....	10,456	3,420	23,906	10	37,846
	405	88,901	267	14,394	6,228	17,668	10,289	43,590	121	181,458
II. Northern Inspectorate—										
1 Hearst	14	176	.....	.....	569	.....	.....	10	.....	755
2 Cochrane	212	2,264	12	982	.....	1,087	777	6,472	131	11,725
3 Abitibi	11	236	.....	2,072	.....	75	5	3,078	6	5,472
4 Timmins	23	1,075	.....	11,676	60	307	.....	14,206	2	27,326
5 Matheson	94	631	.....	344	260	332	445	2,778	18	4,808
6 New Liskeard	61	1,836	21	1,240	100	1,125	448	3,518	9	8,297
	415	6,218	33	16,314	989	2,926	1,675	30,062	166	58,383
III. Central Inspectorate—										
1 Soo	40	21,202	2,040	10,520	34,440	9,230	19,160	2,920	17	99,529
2 Webbwood	56	75,310	19,630	40,515	95,338	44,370	44,945	36,251	19	356,378
3 Sudbury	80	6,032	1,500	5,867	3,050	7,854	27,190	14,615	13	66,121
4 North Bay	80	6	29	500	501	413	741	1,828	12	4,030
5 Mississagi	19	15,365	300	3,564	.....	18	.....	40	2	19,289
6 Chapleau	71	2,262	300	2,295	.....	11,291	7,981	22,566	6	46,701
7 Foleyet	111	201	.....	4,025	.....	104	458	4,071	5	8,864
8 Timagami, W. & S.	13	151	.....	1,920	7,040	1,436	.....	2,720	3	13,270
9 Timagami, East	15	53	.....	.....	.....	14	7	.....	1	75
10 Timagami, North	21	407	.....	40	11	130	153	3,467	1	4,209
11 T. & N.O., South	82	.....	.....	.....	.....	.....	1	17	12	30
	588	120,989	23,799	69,246	140,380	74,860	100,636	88,495	91	618,496
IV. Southern Inspectorate—										
1 Parry Sound	63	2,380	7	1,650	868	3,204	4,280	3,057	14	15,460
2 Muskoka	70	2,501	58	880	.....	8,752	4,113	18,672	149	35,125
3 Algonquin, North	87	826	.....	.....	.....	190	649	1,168	59	2,892
4 Algonquin, South	63	830	.....	400	6	112	398	3,443	7	5,196

5 Madawaska	14	25	27	.....	.....	2,022	202	891	14	3,181
6 Trent	70	352	53	.....	.....	16	1,177	121	16	1,735
7 Eastern Reserve	5	.....	.....	.....	.....	2	25	202	6	235
	372	6,914	145	2,930	874	14,298	10,844	27,554	265	63,824
Totals	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
Per Cent	.....	24.2	2.6	11.2	16.1	11.9	13.4	20.6	0.07	100.00
1918 Totals	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

(4) *Permits.*

Forest protection in a considerable portion of the northern Clay Belt is largely effected through control of land clearing fires by the permit system. This system is costly, since a large force of rangers is required owing to the scattered nature of the work. Permits were issued in 136 townships. This is not such a large area if the work were consolidated, but scattered townships require the same number of men to issue permits whether the number used in a season be large or small. For instance, there were 80 townships in which not over 25 permits per township were issued in the whole season; and there were only 25 townships in which more than 100 permits each were called for. As time goes on, however, and a township becomes more cleared and mostly patented, there seems no reason why the municipality should not be called upon to provide for the protection of its own property.

The number of permits issued the past season was relatively small since the weather and fire conditions led to the general suspension of permits from June 21 until into August. During that period permits were issued only in a few localities where conditions made it safe. In all, 6,635 permits to burn over 26,790 acres were issued, as compared with 9,590 permits in 1918, and 3,486 in 1917.

STATEMENT OF PERMITS, 1919.

Ranger District	Number of Permits		Area Burned Over 1919
	1919	1918	
Cochrane	2,275	3,493	5,437 acres
Matheson	1,691	2,346	4,760 "
New Liskeard	1,557	2,179	13,521 "
Hearst	702	514	1,379 "
Timmins	199	651	925 "
Remaining 11 districts	211	407	768 "
	6,635	9,590	26,790 acres

MONTHLY SUMMARY OF PERMITS, 1919.

Month	Number		Area 1919
	1919	1918	
May	1,536	2,248	5,636 acres
June	2,786	2,899	12,607 "
July	496	2,050	2,197 "
August	1,475	2,156	5,333 "
September	342	237	1,017 "
	6,635	9,590	26,790 acres

For infractions of the Permit Regulations 23 persons were prosecuted, and convictions secured in 20 cases. As already pointed out, it is desirable that the Act be amended to allow a jail sentence in flagrant cases.

(5) *Improvement Work.*

The character of the fire season permitted very little attention to new projects along the lines of improvement work. Time was found for very little telephone, trail or cabin construction. The new headquarters buildings for the Nipigon reserve were completed, an equipment storehouse built at Fort Frances, and a combined storehouse and boathouse at Kenora.

(6) *Equipment.*

With the opening of this season steps were taken to have all equipment, such as canoes, railway velocipedes, etc., and buildings painted the same colour and after a uniform pattern. Also all equipment was stencilled "Ontario Forestry Branch," and branded or stamped "O. F. B." with steel letters. In addition, all main articles of equipment such as canoes, boats, railway velocipedes, railway motor cars, tents, etc., were numbered on a definite system, to facilitate keeping records and to learn the life of different manufacturers' goods.

The major equipment added this year included: fifty canoes, seven large power boats, eighty tents, four hundred pairs of blankets, forty-five railway velocipedes, three railway motor cars.

The total equipment necessary for such a large organization requires the maintenance of about $100,000 of stock. The Branch now has 10 Ford auto trucks, 10 power cruisers (30 feet and over), 6 smaller power boats, 400 canoes and small boats, 65 railway velocipedes, 8 railway motor cars, 430 tents, 2,000 pairs of blankets, 5 portable fire pumps with 7,700 feet of hose, besides very large numbers of camp stoves, axes, shovels, tools, cooking utensils, etc. There is still a shortage in spare equipment which should be on hand for emergency crews of fire fighters.

It may be in order to point out that provision for storage of such a large equipment calls for much space. Considerable warehouse space is rented yearly, but the following storehouses have been erected during the past three seasons: Gowganda, Gogama, Bisco, Cochrane, Nipigon, Fort Frances, Kenora. In addition to the above seven main storehouses, a number of boathouses, railway motor car houses, truck garages, hose houses, etc., have been built.

In addition to the usual quantity of fire signs, 12,000 calendars and 10,000 pencils with 10,000 rulers were sent out for educational effect. The calendars were of two types, one specially designed for distribution in the Clay Belt, and the other for tourist country. The pencils and rulers bearing appropriate fire warnings were placed in all the northern schools.

(7) *Railway Inspection Under B. R. C.*

Two inspectors devoted their whole time to the inspection of fire protective appliances on locomotives, because of the large percentage of fires of railway origin. The railway mileage through forest section in Ontario is very great, approximately 5,000 miles, and more locomotive inspections are made in this Province than in the other provinces of Canada combined. A change was made for the past season in the basis of payment for inspection, with the result that 10 per cent. more inspections than in 1918 were made in 80 per cent. of the time, so that the average cost per inspection fell to $2.07 as compared with $2.59 in 1918.

LOCOMOTIVE INSPECTION, 1919.

Railway	Number Inspected — Times					Total Number Locomotives	Total Number Inspections			Inspections Showing Defects	Percentage Defective		
	1	2	3	4	5		1919	1918	1917	1919	1919	1918	1917
C.P.R.	114	96	48	11	1	270	499	448	328	149	29.9	36.4	19.5
C.N.R.	78	47	30	10	3	167	317	232	154	49	15.5	22.4	39.6
G.T.R.	80	28	5	1	....	114	155	184	60	17	11.0	28.3	20.0
A.C.	7	8	....	....	....	15	23	36	37	3	13.0	38.8	45.9
A.E.	....	1	1	2	1	5	18	20	36	3	16.7	70.0	55.5
						571	1,012	920	615	221	21.8	32.1	28.3

Average cost per inspection $2.07 (as compared with $2.59 for 1918)

In all, 1,012 inspections were made of 571 locomotives, and of these, 221 inspections or about one in five showed fire protective appliances defective in one respect or another. This is a decided improvement over the years 1917 and 1918 for which the average was 30 per cent. defective. Further, the record for this year would have been very much better if the C.P.R. had kept its engines up to the standard of the other roads. C.P.R. locomotives were defective to the extent of almost 30 per cent., and in 1918 it was 36.4 per cent. If one road can keep its defective locomotives down to 11 per cent. of inspections, it should be possible for all other roads to reach the same record; the matter is entirely one of organization. This matter is of extreme importance in Ontario because of the large number of fires of railway origin.

Because of the unsatisfactory results in past seasons with special patrolmen put on by the C.N.R. between Pembroke and Nipigon as a Board requirement, this year it was arranged that the Forestry Branch take over the work, the company paying part cost. The arrangement has been justified by the relatively low fire damage along the C.N.R. this season.

Thirty-six inspections of locomotives on private lines used in logging, etc., were made and the owners required to be brought up to the equivalent of B. R. C. specifications under authority of the Provincial Act.

(8) *Summary.*

The disastrous fire season we have experienced calls for a close examination. The season was undoubtedly a difficult one for fire control, but this Branch feels that such a record is below the attainable; certainly it is below the average of several organizations protecting forest areas of similar magnitude.

As to origin of fires, a study of our statistics for the last three years shows a general uniformity. Apparently we may expect the following situation as regards causes:

About 8 per cent due to land clearing
10 " " " " neglected camp fires
3 " " " " lightning
3 " " " " summer logging
5 " " " " other known causes
45 " " " " railways
26 " " " " unknown causes

A reduction in the number of fires traceable to carelessness in land clearing and as regards camp fires will be a matter of slow education. Lightning fires as a rule do not reach large proportions. While fires caused in summer logging show a small percentage, these fires are frequently very costly. To reach the camps in operation it is necessary to pass over tote roads which are frequently piled up with slash from the previous season's operation. The question of general slash disposal should be considered, but in the meantime regulations should be adopted requiring the disposal of slash along main tote roads, about camps and dump grounds. Summer operators should also be required to give special assistance in fire patrol during dangerous periods.

The machinery for reducing railway fires exists. Various protective measures are required of the railways such as special patrol, clearing the right-of-way and keeping up proper protective appliances in locomotives, yet within a few feet of the right-of-way timber operators are allowed to create fire hazards which make fire prevention almost impossible when small grass fires get away from the right-of-way. Again, slash disposal within reasonable distance of railways is imperative if the problem is to be solved. Accordingly, we conclude that the problem is one of eliminating the causes as much as possible and then controlling fires which do get a start.

The public as a whole seem very slow to realize that forest fire protection differs in no way from general property fire protection as provided for in cities. The same principles underlie both—reduction of inflammable hazard, familiarity with conditions in all parts of the area under protection, early detection and speed in reaching the scene of the fire, and fighting by men specially trained for that work. Applying these in turn to forest property, we note that the hazard must remain high till the operation of logging carries with it as an integral part the disposal of the slash nuisance it creates. Early detection and early fighting is a matter of lookout towers, telephone systems, and strategic systems of roads and trails; while fighting forest fires is no more the work of an amateur than fighting city fires.

These considerations lead to the argument that forest protection calls for specially qualified men. The direction of the protective work in any district must be in the hands of a man who knows the basic principles of fire protection; who will make it his business to become thoroughly familiar with conditions of timber, hazard, settlement, etc., in every part of his district: who is capable of planning and constructing a system of lookout towers, telephone lines, roads, trails, etc., so as to make his district relatively safe at the least cost. Along with these, he must be able to follow instructions, to give an intelligent report on any field matter, to estimate burned timber, to administer the forest laws, Railway Act, etc. In short, he must have been previously trained in the principles and work of forest protection.

Turning to the existing system in Ontario, we find that each spring a temporary organization of around 1,000 men is built up, only to be disbanded every fall. During the last three seasons about one-half the ranger force has been new, inexperienced men each year. Any protection system must depend upon a permanent skeleton organization for efficiency. Moreover, this skeleton force must be made up of men with capabilities of the order outlined in the preceding paragraph. This is impossible if appointments are made on any other basis than the applicant's fitness for the work.

Forest fire control in Ontario will be at a standstill until it is recognized:

(1) That forest protection is a specialized business requiring a permanent trained organization, and

(2) That no organization can give efficient service without the adoption of the merit system in making appointments and promotions.

II. Reforestation.

Reforestation is a term which is used in Ontario, in rather a loose way, with various meanings. Reforestation is frequently spoken of in a broad way to mean the regulation of timber operations to protect the young or second growth; that is, securing a new crop by leaving parent seed trees or undersized young growth which will eventually develop a future harvest. This may be spoken of as natural reforestation to distinguish it from artificial reforestation where a new crop is secured by planting either seed or young plants.

Ontario presents two distinct problems in regard to reforestation:

The securing of continuous wood crops on the Crown lands of the Laurentian plateau which comprise at least fifty million acres of northern Ontario.

The reforesting of the larger waste areas and assisting and encouraging the private waste land and woodland owner of southern Ontario.

The writer believes that artificial reforestation in the Laurentian plateau of the north is not feasible at present, although many districts within this region are at present almost destitute of the more valuable species such as pine and spruce. Before any consideration can be given this problem we must secure some assurance of reasonable protection for this area. Owing to the excessive cost of artificial reforesting we must do everything possible to regulate timber operations so that natural reproduction will be given some chance to insure future crops. During this last season we have had whole townships swept over with fire. To re-stock a thirty-six square mile township with pine or spruce would cost at least $100,000.00. Our first problem in the forest regions of the Laurentian plateau is to secure a forest organization which will give adequate fire protection and regulation of cutting in order to insure natural re-stocking.

Turning to the problem in southern Ontario, where the land has largely left the Crown, we find that there exists only about 9 per cent. of woodland of inferior quality with many townships having less than 5 per cent.

In addition to the inferior wood lots and smaller waste areas of the farm, there exist throughout older Ontario many large areas of waste land almost devoid of tree growth, and in many cases composed of blowing sand.

While the industries of southern Ontario must largely depend upon the north for timber supplies, yet it is imperative that an effort be made to reforest these local waste areas if we are to secure a future wood supply. The writer believes that this problem can best be solved by the creation of demonstration forest stations throughout older Ontario similar to that now established in Norfolk county. These stations will not only reclaim waste lands but will supply planting material to private owners and will be a local demonstration of reforestation.

At the provincial forest station in Norfolk County we have about three hundred acres of forest plantations in various stages. These plantations are thriving and have become splendid demonstrations of what may be expected from work of this kind. The influence of this work is demonstrated in the fact that a large number of private owners in this district have taken advantage of the government

distribution of trees and have made some very good plantations on waste portions of their farms.

This last autumn a three-acre mixed hardwood plantation was made with the intention of experimenting on the relative values of the various hardwoods in artificial reforesting.

During the past season about forty thousand trees were shipped out to private planters. This is far below our pre-war output as our distribution at one time had reached about half a million trees. We have had difficulty in securing reliable seed of the kind of trees desired in connection with this work and it will take at least two years to reach a reasonable supply of nursery stock.

The work at this station, which has been held up during the war, should now be placed on a better basis. This will require improvements in buildings, a better watering system, more seed bed areas, in fact, a general enlargement of the plant if the growing requirements for trees are to be met.

The following is an approximate list of the nursery stock at the Provincial Forest Station in Norfolk County:

Scotch Pine seedlings	600,000
Scotch Pine transplants	40,000
White Pine transplants	30,000
Larch seedlings	50,000
Larch transplants	40,000
Miscellaneous conifers, as red pine, jack pine, cedar, etc	80,000
Miscellaneous hardwoods, as elm, sugar maple, white ash, black walnut, etc	100,000

In addition to the above stock, fifty bushels each, of red acorns and black walnut were collected and planted this autumn.

III. Forest Pathology.

The work in connection with tree diseases has been chiefly confined to the eradication of Ribes (currants and gooseberries) at the forest station in Norfolk and the investigations of Dr. Faull into diseases affecting trees in the Timagami region.

As indicated last year the general eradication of diseased Ribes cannot be carried out on a large scale throughout Ontario, but our efforts should be directed towards local control wherever white pine values warrant the expenditure. The work of eradication is being carried on at the Provincial Forest Station in Norfolk County. About 500 acres have been cleared of Ribes and it is expected that white pine can be grown at this station with little danger of infection. Last year the Department inaugurated work of investigation into the diseased condition of pine in the Timagami region. This work was continued this season and I am glad to report that valuable information has been obtained in respect to the "needle blight" which has become so prevalent in parts of Ontario. A report upon this work follows:

Report of Dr. J. H. Faull for 1919.

Sulphur Fumes.

In the last week of May a trip was made into Cleland Township in the District of Sudbury for the purpose of observing the effects on the coniferous forest of sulphur fumes from winter roast beds located from four to six miles distant. The same area had been visited the preceding September in order to

check over conditions with respect to the needle blight of white pine—of which at that time there was little trace. Notes were made then on individual serially marked trees with healthy new leaves for reference the following spring. The forest as a whole was found to be in a much better condition than in the spring of 1918, the date of my first inspection. None of the marked trees had undergone any visible change, their foliage looking apparently as green as in the foregoing autumn. It was reported that roasting had not been begun until after the winter had set in, and had been discontinued before the oncoming of spring thaws. It seems not improbable that where damage has resulted in the past, it has been at temperatures above that of the freezing point. Strangely enough, there appears to be no definite information in the literature based on experiments with respect to the susceptibility of white pine and others of our native conifers to sulphur fume injuries at the lower temperatures.

"Needle Blight" of White Pine.

Considerable attention was given during the summer to "needle blight" or "leaf blight" of the white pine, concerning which so many inquiries have been made by lumbermen through your office, in continuation of observations instituted in 1918. Throughout I was accompanied by Mr. A. W. McCallum, M.A., B.Sc.F., who was sent up as an observer by the Federal Government.

The "needle blight" is most abundant in the northern parts of the Province, but it also occurs in various other parts of Ontario, and in Quebec. Judging from inquiries received, it has widely attracted the attention of owners of white pine and has been the cause of some alarm. Reports of its occurrences and specimens have been sent in from Norfolk County, Barrie, Toronto, Ottawa, Nipissing District and elsewhere. The general situation, however, is better than in 1918.

The blight appeared this year in the latter half of June, just after the young needles were beginning to grow out, and as has been formerly observed was restricted to the new growth. The sequence of events was identical with the developments of 1918, although the blight developed almost a month earlier this year than last as there was a difference of about four weeks in the two seasons between the times of leafing. The new needles, usually on all parts of the tree, soon after they have emerged from the bud turn lighter in colour at the tips and then redden from their tips downwards. This process goes on for two weeks or more, the needles meanwhile growing in length from their bases; the resultant discoloration involves from a quarter to three-quarters, more or less, of each of the affected leaves. There is a remarkable uniformity in the extent of the discoloration in each tuft and each branch. No causal agent is evident in the diseased needles.

At first sight it appeared as though the blight was as severe as last year. In the Timagami Forest Reserve, where some hundreds of trees had been serially marked with metal tags or otherwise located, the frequency of blighted trees in some parts appeared to be undiminished. Thus standing on the observation tower at Bear Island and looking over miles of country all about, it was not possible to decide that there had been any marked amelioration. Everywhere there were scattered the bright reddened trees among the normal sombre conifers. A careful review was then made of the ground prepared the preceding summer.

Beginning with Rondeau Park on Lake Erie, four blighted white pines had been found there in 1918—no others were discovered. Mr. Geo. Coldworthy, the

Chief Ranger, who had accompanied me when these trees had been located, covered our course again in August and forwarded a report, backed up by specimens, showing that the same four trees were again badly blighted, and one other in the same neighbourhood.

Turning to the Timagami Forest Reserve, where in some areas a large percentage of the trees of all ages had shown the blight in 1918, and where extensive observations had been made, the results afford surer ground for the conclusions arrived at. The trees examined fall into three general classes—young trees with trunks up to 3 or 4 inches in diameter; large trees, many of them mature, with trunks 10 inches and upwards, and those that lie between. In the first instance it was found that there had been a general recovery. Thus on Island No. 976 where 75 per cent. or more had been affected in a count of all the young white pines on the eastern half of the island—a total of 400 trees, not more than 10 per cent. displayed blight this year. Those of the middle class exhibited greater variation. Some were again severely blighted, while others showed no signs of blight, and between these two conditions there were all grades. Almost invariably the recovered trees of this size were clothed with abnormally short needles, and often the foliage was scantier and paler than in healthy trees. The large trees, however, showed less than 1 per cent. recovery, and there was a mortality of about 5 per cent. Likewise there were scattered cases in this class of trees of what appeared to be new instances of blight; at all events, some vividly blighted trees were numbered for the first time that had been passed by in 1918—probably because of uncertainty as to their condition at that time.

A renewed effort has been made to discover the cause of "needle blight." As there are no causal organisms to be detected in the affected crowns, several hundred inoculations were carried out on healthy twigs of healthy trees with the juice from diseased foliage. Certain so-called physiological diseases are known to be contagious and such disorders have been communicated in this way. No results followed. The season before interlocking diseased and healthy branches of contiguous trees had been grafted at the point of contact. An examination showed that the branches had formed an organic union but that the virus, if there be one, had not been transmitted. The bark was then carefully examined throughout the entire extent of trunk and roots of diseased trees, and then stripped and the exposed wood examined. No indications of disease were manifest. The first signs of organic trouble were discovered in the root tips.

An examination of root tips of trees is an arduous business. Two methods were followed. First, the root system of a six inch blighted tree was exposed by carefully following the main roots outward from the base of the trunk carefully disentangling the branches and picking away the adhering soil and vegetation. Secondly, several isolated small blighted trees with trunks one to three inches in diameter were removed in their entirety from the shallow rock sub-soil characteristic of that region, and a number of healthy trees of similar size as checks. The root systems of these trees were carefully washed free from soil by vigorous immersion in water. A study of the cleaned roots located the seat of the trouble. The roots of the check trees were normal, the root tips were white, frequent and vigorous. By contrast the tips of the main branches of the root system of the diseased trees were almost invariably killed back from 4 to 12 inches or more. Some of the smaller lateral branches were not so clearly dead, but few appeared in good condition, and not one healthy main root tip was uncovered in the entire lot. It was at once apparent that the absorbing areas of the root system had

been destroyed. Therefore, it comes about that when there is a sudden increase in the water requirements of the plant, as at the time of leafing, the absorbing organs are unable to supply the demand; the succulent young needles are the first organs of the crown to exhibit the resulting distress. It also seems apparently sound to assume that young trees are able the more quickly to repair the damage done; and under favourable weather conditions, as in the summer of 1918, to produce new roots in sufficient amount to provide an increased, if not fully sufficient, flow of water for the growing leaves and tissues of the next season. The older, more nearly mature, trees, and especially as is so often the case if handicapped by a certain amount of butt rot, are incapable of recovery, or if so, must recuperate more slowly. It will be necessary to follow our trees of this group for a few years, and incidentally in the case of recovery to note the effect on wood accretion.

The cause of the disturbance to the root system remains undemonstrated. Drought seems the most reasonable explanation. It may be possible to test this theory out by a simulation of drought conditions and by a study of the course of these outbreaks in connection with the rainfall and temperature reports for affected districts. That severest blight occurs on shallow and on sandy soil appears significant in this connection. A more detailed account of needle blight will be prepared after the completion of the present investigation.

The following conclusions may be tentatively offered:

1. "Needle blight" is at present the most serious of the needle troubles of our white pine.
2. In some localities it will kill a good many trees and seriously retard the growth of others—to such an extent as to be reckoned with in determining the time at which a stand has attained maximum productivity.
3. It is at least a menace to young stands.
4. Young trees recover, older trees may recover though more slowly; a variable percentage of old trees die—according to observations so far, up to 5 per cent.
5. It is now possible to distinguish between sulphur fume injury, or winter injury on the one hand, and needle blight on the other.
6. The blight is not of biotic origin.
7. The blight is not a communicable physiological disease.
8. The blight is not contagious.
9. The blight is related to root injury—possibly due to drought.

Survey of Diseases of Timber Trees in Ontario.

A more extended survey was made of the diseases of the timber trees in Ontario, especially in the Timagami Forest Reserve. At least two new to science were discovered, and many not before reported for Ontario were found. Researches on some of those are now in progress. A first contribution to the list follows under the technical names of the causal agents. Collections were made of the various forms, both of the fungi and of the diseased hosts, and they have been catalogued and stored for future reference.

In addition, valuable collections have been received from the United States laboratories of plant pathology, from agents of the Canadian Conservation Commission, and the Forest Products Laboratory, Montreal, including a collection of fungi on diseased spruce pulpwood from Thorold, Ontario, and individual contributions from various other sources. Exchanges in some cases have been effected.

BALSAM (Abies balsamea (L.) Mill.)

Armillaria mellea (Vahl.) Quel. Not infrequent on the roots and also found causing heart rot of trunk—the latter an apparently unreported occurrence.

Bjerkandera adusta (Willd.) Karst. A form common on hardwoods, but rare on conifers.

Calyptospora columnaris (A. & S.) Kühn. This needle rust is common on balsam, and on its alternate hosts, the blueberries (Vaccinium), in the Timagami Forest Reserve, though not especially injurious. It appears to have been reported on balsam not more than once or twice previously from America.

Coriolus balsameus (Pk.) Murr. Not uncommon on dead wood. For the first time reported as the cause of a heart-rot.

Frost injuries. A great many small dead branches on living balsams are common throughout the Timagami Forest Reserve. An examination of the bases of these branches discloses a wound apparently caused by the gnawing of some insect, at the end of the growing season. Frost presumably completes the destruction.

Fuscoporia marginella (Peck) Murr. Rare on fallen trunks.

Hyphoderma. An interesting form, apparently the cause of a needle disease.

Lophodermium nervisequum Fries. Frequent on the living needles and sometimes causing complete defoliation.

Macrophoma. Common on the needles but whether or not the cause of their death remains undecided.

Melampsorella elatina (A. & S.) Murr. This rust which is the cause of the witches' brooms on balsam is not rare.

Phaeolus sistotremoides (A. & S.) Murr. (Polyporus Schweinitzii Fries). The cause of by far the worst disease of balsam and of most other conifers of the Timagami Forest Reserve. Some stands are fully 75 per cent. buttrotted by this fungus.

Porodaedalea pini (Thore) Murr. (Trametes Pini Fries). A common and important cause of heart rot of many conifers; in Ontario it is occasionally the cause of heart rot of balsam.

Pucciniastrum pustulatum (Pers.) Diet. Common, and found both on the needles of the balsam and the leaves of its alternate host, the fireweed (Epilobium angustifolium).

Spongipellis borealis (Fries) Pat. (Polyporus borealis Fries). Cause of a heart rot, apparently not frequent.

Uredinopsis mirabilis (Peck) Magn. Common on the leaves of the balsam and its alternate host, the ferns (especially the beech fern, Phegopteris dryopteris).

Valsa Friesii (Duby) Fckl. Apparently the cause of cankered branches.

WHITE SPRUCE (Picea canadensis (Mill.) BSP.)

Phaeolus sistotremoides (A. & S.) Murr. White spruce is fairly free from fungus diseases in the Timagami Forest Reserve. This and the one following are the two commonest causes of heart rot.

Porodaedalea pini (Thore) Murr.

Tyromyces guttulatus (Pk.) Murr. Infrequent on dead wood.

Black Spruce (Picea mariana (Mill.) BSP.)

Arceuthobium pusillum Peck. The dwarf mistletoe is not uncommon on black spruce throughout Ontario. In some cases entire swamps are badly diseased, the trees loaded with witches' brooms, due to the stimulation of this parasite.

Armillaria mellea Quel. Frequent on the roots. It is also reported here for the first time as the cause of a heart rot.

Coltricia tomentosa (Fr.) Murr. Occasional on roots.

Fomes roseus (A. & S.) Cooke. Occasional on dead wood; whether or not the cause of a heart rot remains undetermined.

Fomes ungulatus (Schaeff.) Sacc. Very abundant on dead wood. It has also been found causing heart rot.

Melampsoropsis abietina (A. & S.) Arth. This leaf rust and the following one are abundant, in some cases causing considerable defoliation. They are reported here on both hosts, namely, black spruce, and Labrador tea (Ledum groenlandicum).

Melampsoropsis cassandrae (Peck & Clint.) Arth. This rust, as in the case of the last, is reported here as wintering over in the alternate host. Found on both hosts in the Timagami Forest Reserve, namely, black spruce, and cassandra (Chamaedaphne calyculata).

Phaeolus sistotremoides (A. & S.) Murr. Common, and like the following, the cause of a destructive heart rot.

Porodaedalea pini (Thore) Murr.

Tyromyces anceps (Pk.) Murr. This fungus has been regarded as very rare in eastern America, but in our northern country it is found to be the frequent cause of decay in the fallen trunks of various conifers.

Banksian or Jack Pine (Pinus banksiana Lamb.)

Cronartium cerebrum (Pk.) Hedg. & Long. This stem rust occurs abundantly and often destructively on the jack pine. It is also found abundantly on the leaves of the red oak in the Timagami Forest Reserve, on which, however, it causes no appreciable injury.

Cronartium comptoniae Arth. This interesting stem rust of the jack pine was found on both of the alternate hosts, the sweet fern (Myrica asplenifolia) and sweet Gale (Myrica Gale). It is quite certain that it will be found on its coniferous hosts in the Timagami Forest Reserve, the locality referred to in this note.

Cronartium pyriforme (Pk.) Hedg. & Long. Found on its alternate host, the bastard toad-flax (Comandra umbellata), south of Parry Sound. It is to be expected that this stem rust will be found on the jack pine in Northern Ontario.

Lophodermium pinastri (Schw.) Chev. Frequent and causing more or less extensive leaf fall.

Phaeolus sistotremoides. This together with the following are the commonest cause of heart rot in this pine.

Porodaedalea pini.

Red Pine (Pinus resinosa Ait.)

Cronartium cerebrum (Peck) Hedg. & Long. A rare rust on red pine in the Timagami Forest Reserve.

Fomes roseus (A. & S.) Cooke. Fairly common on dead wood.

Phaeolus sistotremoides. This, together with the following are the commonest cause of heart rot in this pine.

Porodaedalea pini.

Tyromyces anceps (Peck) Murr. On dead wood.

Coleosporium solidaginis (Schw.) Thum. Abundant on asters as an alternate host. It is to be looked for on the needles of both the red and jack pine.

WHITE PINE (Pinus strobus L.)

Cronartium ribicola Fischer. This destructive stem rust of white pine is widely distributed throughout southern Ontario on white pine and on various Ribes. It has not yet been found in Northern Ontario.

Lophodermium pinastri (Schr.) Chev. A cause of leaf fall, but apparently not serious.

Polyporus osseus Kalch. Infrequent, possibly the cause of a not hitherto reported heart rot.

Phaeolus sistotremoides. Very common, doing extensive damage to mature or nearly mature timber.

Porodaedalea pini. A serious heart rot, common in some localities. The white-spotted lumber made from diseased trunks is utilizable to a certain extent such as is not the case with the last.

Tyromyces anceps (Pk.) Murr. On fallen trunks.

WHITE CEDAR OR ARBOR VITAE (Thuja occidentalis L.)

Armillaria mellea (Vahl.) Quel. Apparently a common root-rot of cedars of all ages. Is also reported here for the first time as a cause of heart rot.

Coriolus balsameus (Pk.) Murr. Found by Mr. A. W. McCallum for the first time as a probable cause of a heart rot of cedar in the Timagami Forest Reserve.

Keithia thujina Durand. An extremely interesting leaf disease of cedar. This fungus has recently been reported as the cause of a highly destructive leaf blight of young western cedars on the Pacific coast. Little else except the original record of its occurrence in Wisconsin is known, so that the finding of it in the Timagami Forest Reserve is of special interest.

Pestalozzia spec. The cause of a leaf disease.

Phaeolus sistotremoides (A. & S.) Murr. Probably the cause of the commonest of the heart rots of the cedar in Northern Ontario.

Porodaedalea pini (Thore) Murr. Reported for the first time as the cause of a heart rot in arbor vitae.

I have the honour to be sir,

Your obedient servant,

E. J. ZAVITZ,

Provincial Forester.

Appendix No. 41.

FUEL SUPPLY—WOOD-CUTTING PERMITS TO MUNICIPALITIES.

Attention was directed in the Annual Departmental Report for 1918, to the efforts of the Department toward relieving the fuel situation in various municipalities throughout the province. The Crown Timber Agents were instructed to select areas upon which wood was suitable chiefly for fuel purposes. They were instructed to co-operate in every way with the municipal authorities in locating such areas.

In cases where suitable areas were found to exist, and where municipalities applied to cut thereon, permits were issued for the cutting of fuel free of Crown dues.

Returns which have been received indicate that the following quantities of wood have been cut by the municipalities indicated:—

Municipality of Port Arthur	1,879	cords.
Town of Keewatin	326	"
Municipality of Bucke	200	"
Town of Kenora	1,115	"
City of Fort William	211¾	"
Municipality of North Bay	781½	"
City of Port Arthur	2,828	"
Total	7,341¼	"

In addition, mention might be made of the large quantities of fire-wood secured by operations in Algonquin Park.

JOHN HOUSER,
Chief Clerk.

ALBERT GRIGG,
Deputy Minister.

Appendix No. 42.

HONOURABLE G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines,
Toronto, Ont.

SIR,—I have the honour to submit my report of the work performed by the Colonization Roads Branch of the Department of Lands and Forests for the fiscal year ending October 31st, 1919.

This report is in tabulated form and gives the details of each work with the expenditure made upon it, and a summary on the final page shows the total amounts of the various classes of work done.

Part of the work was done by direct expenditure of the Government, to the amount of $273,744.24. The balance was expended by Township Municipalities under Colonization Road By-laws, towards which the Government made grants amounting to $116,877.30, making a total of $390,621.54.

A great improvement could be made in the service by the employment of more technically trained men to educate and instruct the rural roadmaker, and to lay out and supervise his work. Many mistakes in road location and construction are due to lack of knowledge and errors of judgment of the local men upon whom we must depend to carry on road work.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Superintendent of Colonization Roads.

Dated at Toronto, October 31st, 1919.

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO,

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	NORTH DIVISION.								
1	Aberdeen, Leeburn, con. 3	120	35	160	18	gravel	70	5	.....
2	Aberdeen Additional, lot 3, con. 2	.....	....	.....	....	.....	.....	....	15
3	Aberdeen, McClure & Stewart's Hill	.....	....	.....	....	.....	.....	....	125
4	Aberdeen, Miller Valley road	.....	....	.....	....	.....	.....	....	.....
5	Aberdeen Additional, con. 1, lot 5	.....	....	.....	....	.....	.....	....	60
6	Ansonia to Nesterville	200	40	320	35	.....	.....	....	.....
7	Aubrey Township roads	195	45	195	20	gravel	160	5	370
8	Aubrey & Eaton Township roads	.....	....	.....	....	.....	.....	....	65
9	Assiginack, Bidwell-Green Bay road	.....	....	.....	....	.....	.....	....	.....
10	Balfour, lots 6-5, con. 5	.....	....	.....	....	.....	.....	....	50
11	Balfour & Morgan, lot 2, con. 5	.....	....	.....	....	.....	.....	....	.....
12	Balfour Township road	.....	....	.....	....	.....	.....	....	.....
13	Blake & Pardee, lot 8, cons. 1-2	.....	....	.....	....	.....	.....	....	.....
14	Bright, con. 4	.....	....	.....	....	.....	.....	....	160
15	Bright and Gladstone Twp. road	.....	....	.....	....	.....	.....	....	.....
16	Bright, con. 5, lot 7	.....	....	.....	....	.....	.....	....	.....
17	Bouchard Road in Plummer Add'l	.....	....	.....	....	.....	.....	....	.....
18	Bridgland road	.....	....	.....	....	.....	.....	....	.....
19	Broder, Lambi road	.....	....	.....	....	.....	.....	....	160
20	Broder, lot 8-10, con. 2	160	66	.....	....	.....	.....	....	.....
21	Broder, 6 in 10, con. 4	160	50	160	15	.....	.....	....	320
22	Broder, Kelly Lake road	.....	....	.....	....	.....	.....	....	480
23	Broder, Long Lake road	.....	....	.....	....	.....	.....	....	.....
24	Broder, lot 6, con. 2	.....	....	.....	....	.....	.....	....	.....
25	Broder, Cæsar road	.....	....	.....	....	.....	.....	....	80
26	Capreol, Con. 2, lots 5-8	.....	....	.....	....	.....	.....	....	1,200
27	Capreol, Con. 4, in 5	.....	....	.....	....	.....	.....	....	190
28	Capreol, 5 in 8, con. 3	.....	....	.....	....	.....	.....	....	640
29	Cartier-Geneva road	.....	....	.....	....	.....	.....	....	.....
30	Chapleau Township road	.....	....	.....	....	.....	.....	....	1,600
31	Claughley road	.....	....	.....	....	.....	.....	....	20
32	Cobden road	.....	....	.....	....	.....	.....	....	.....
33	Copper Bay location	.....	....	.....	....	.....	.....	....	.....
34	Creighton, lots 7-8, con. 6	.....	....	.....	....	.....	.....	....	.....
35	Creighton and O'Donnell road	.....	....	.....	....	.....	.....	....	640
36	Creighton, lot 5, con. 5	320	25	.....	....	.....	.....	....	.....
37	Creighton, lots 2-3, cons. 5-6	.....	....	.....	....	.....	.....	....	80
38	Cuthbertson, north from C.P.R.	.....	....	.....	....	.....	.....	....	.....
39	Cuthbertson, con. 7, road	440	40	.....	....	.....	.....	....	.....
40	Day, Kirkwood road	.....	....	.....	....	.....	.....	....	.....
41	Day, con. 3, lot 4	160	40	90	20	.....	.....	....	.....
42	Dawson Road Township roads	960	20	160	10	earth	160	10	.....
43	Dill, McFarlane Lake road	.....	....	.....	....	.....	.....	....	480
44	Dill, Leedale road	80	60	.....	....	.....	.....	....	80
45	Dill, con. 5, lots 7-8	.....	....	.....	....	.....	.....	....	80
46	Dorion Township roads	40	24	40	20	earth	40	20	.....
47	Dowling and Fairbanks Twp. road	400	66	400	16	.....	.....	....	640
48	Dowling, lot 2, con. 2	.....	....	.....	....	.....	.....	....	.....
49	Dowling, Larchwood road	.....	....	.....	....	.....	.....	....	.....
50	Dowling, Bridge approach	.....	....	.....	....	.....	.....	....	20

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, 1919.

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	405 04	1
...	...	.....	3	wood	.....	.....	.....	..	75	24	gravel	75	5	.23	200 85	2
...	...	.....	2	wood	.....	.....	.....	..	240	22	gravel	125	5	.75	299 99	3
...	...	.....	...	.....	.....	.....	100	12	560	18	gravel	480	6	1.75	500 59	4
...	...	.....	...	.....	.....	.....	.....	..	160	20	gravel	120	5	.50	300 00	5
...	...	.....	1	wood	earth	100	.....	..	.....	..	.....	.....	..	1.00	499 99	6
2	20	wood	4	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.50	344 25	7
...	...	.....	4	wood	cord'roy	220	85	45	60	14	gravel	70	6	2.00	641 50	8
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	280	6	.85	400 00	9
1	16	wood	1	wood	.....	.....	.....	..	80	12	.....	.....	..	.25	205 25	10
...	...	.....	...	.....	.....	.....	.....	..	660	10	.....	.....	..	2.00	500 00	11
...	...	.....	3	wood	.....	.....	.....	..	320	16	.....	.....	..	.25	114 00	12
...	...	.....	9	wood	.....	.....	160	20	240	18	gravel	240	6	.75	500 00	13
...	...	.....	4	wood	.....	.....	.....	..	480	18	gravel	80	5	1.50	352 13	14
...	...	.....	...	.....	.....	.....	.....	..	360	20	gravel	160	6	1.56	450 84	15
...	...	.....	4	wood	.....	.....	100	14	460	22	gravel	70	5	1.50	351 52	16
...	...	.....	2	wood	.....	.....	100	35	140	20	gravel	140	5	.50	199 99	17
...	...	.....	...	.....	earth	366	160	16	440	24	gravel	130	6	1.41	804 63	18
...	...	.....	3	wood	.....	.....	.....	..	320	16	.....	.....	..	1.00	200 00	19
...	...	.....	4	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	100 00	20
...	...	.....	5	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	200 50	21
...	...	.....	2	wood	.....	.....	.....	..	820	9	.....	.....	..	2.50	302 09	22
...	...	.....	...	.....	.....	.....	.....	..	540	16	.....	.....	..	1.50	150 00	23
...	...	.....	2	wood	.....	.....	.....	..	320	16	.....	.....	..	1.00	150 00	24
...	...	.....	6	wood	.....	.....	.....	..	720	16	.....	.....	..	2.00	199 87	25
...	...	.....	9	wood	.....	.....	.....	..	1,200	18	.....	.....	..	3.75	300 88	26
...	...	.....	...	.....	.....	.....	.....	..	160	12	.....	.....	..	.50	251 00	27
...	...	.....	2	wood	.....	.....	.....	..	320	15	.....	.....	..	1.00	150 50	28
...	...	.....	...	.....	.....	.....	.....	..	480	12	.....	.....	..	1.50	253 30	29
...	...	.....	5	wood	.....	.....	80	60	800	16	.....	.....	..	4.00	2,000 00	30
...	...	.....	...	.....	.....	.....	.....	..	960	22	gravel	90	5½	3.00	504 17	31
1	30	wood	...	.....	earth	10	.....	..	.....	..	.....	.....	..	0.00	359 16	32
...	...	.....	...	.....	earth	110	.....	..	.....	..	gravel	135	5	.50	250 00	33
1	16	wood	3	wood	.....	.....	.....	..	320	15	.....	.....	..	1.00	203 50	34
1	16	wood	...	.....	.....	.....	.....	..	320	11	.....	.....	..	1.00	738 55	35
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	104 50	36
...	...	.....	8	wood	.....	.....	.....	..	400	17	.....	.....	..	1.25	290 25	37
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	190	6	.59	300 00	38
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.38	699 75	39
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	170	5	.53	349 85	40
...	...	.....	5	wood	.....	.....	.....	..	100	20	.....	.....	..	.81	349 76	41
...	...	.....	17	wood	.....	.....	.....	..	.....	..	.....	.....	..	3.00	750 00	42
...	...	.....	2	wood	.....	.....	.....	..	.....	..	stone	240	5	.75	249 99	43
1	16	wood	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.25	150 63	44
1	16	wood	3	wood	.....	.....	240	25	.....	..	.....	.....	..	.75	175 00	45
...	...	.....	5	wood	.....	.....	300	15	940	24	gravel	1,100	6	3.56	1,500 00	46
...	...	.....	5	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.25	408 55	47
...	...	.....	1	wood	.....	.....	160	25	320	16	.....	.....	..	1.00	252 00	48
...	...	.....	...	.....	.....	.....	.....	..	320	12	.....	.....	..	1.00	100 78	49
...	...	.....	1	iron	.....	.....	.....	..	.....	..	.....	.....	..	.6	303 48	50

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	NORTH DIVISION.—*Continued.*								
51	Dryden, lot 11, con. 5	100	40	160	12	.....	.....	....	100
52	Dryden, lot 12, con. 6	.....	....	.....	....	.....	.....	....	160
53	Dryden, lots 10-11, con. 6	.....	....	.....	....	.....	.....	....	640
54	Falconbridge and Garson Twp. road	.....	....	.....	....	.....	.....	....	.....
55	Fenwick Township road	.....	....	.....	....	.....	.....	....	44
56	Galbraith, con. 2, lot 11	.....	....	.....	....	.....	.....	....	.....
57	Galbraith, con. 3, lot 11	.....	....	.....	....	.....	.....	....	40
58	Galbraith, cons. 2-3	109	40	109	24	.....	.....	....	109
59	Gillies Township roads	.....	....	.....	....	.....	.....	....	.....
60	Goldenberg road, east	.....	....	.....	....	.....	.....	....	60
61	Gorham Township roads	560	40	240	18	gravel	240	6	320
62	Gould, con. 2	400	40	.....	....	.....	.....	....	.....
63	Hagar, Appleby and Markstay road	.....	....	.....	....	.....	.....	....	.....
64	Hagar, lots 12-13, con. 1	.....	....	.....	....	.....	.....	....	320
65	Hagar, 1 and 6 in 4-5	.....	....	.....	....	.....	.....	....	480
66	Hagar-Awrey road	.....	....	.....	....	.....	.....	....	.....
67	Hagar, lots 13-14, cons. 1-2	.....	....	.....	....	.....	.....	....	240
68	Hagar, Loughrin road	.....	....	.....	....	.....	.....	....	180
69	Hagar, McGillis road	.....	....	.....	....	.....	.....	....	.....
70	Hagar, lots 8-9, con. 5	.....	....	.....	....	.....	.....	....	160
71	Hagar, lots 10-11, con. 5	.....	....	.....	....	.....	.....	....	100
72	Hagar, lots 13-14, cons. 2-3	.....	....	.....	....	.....	.....	....	160
73	Hagar, lots 11-12, cons. 1-2	320	35	.....	....	.....	.....	....	.....
74	Hagar-Awrey road	80	50	160	16	.....	.....	....	.....
75	Hagar, Nepowassan road	.....	....	.....	....	.....	.....	....	320
76	Hagar, North Finlans Corners	.....	....	.....	....	.....	.....	....	.....
77	Hallam, con. 1, lots 7-8	160	40	.....	....	.....	.....	....	.....
78	Hallam, con. 1, lots 4-6	.....	....	.....	....	.....	.....	....	.....
79	Hallam, Mackay & Lee Valley road	.....	....	.....	....	.....	.....	....	20
80	Hallam, Lee Valley road	300	601	120	18	.....	.....	....	.....
81	Hallam, con. 5	.....	....	.....	....	.....	.....	....	.....
82	Hallam, Birch Lake road	.....	....	.....	....	.....	.....	....	40
83	Hanmer, lots 7-8, con. 5	80	25	114	10	.....	.....	....	.....
84	Hilton, Canoe Point road	320	30	.....	....	.....	.....	....	.....
85	Ignace Township roads	.....	....	.....	....	.....	.....	....	.....
86	Iron Bridge and Bellingham road	.....	....	.....	....	.....	.....	....	.....
87	Jocelyn, P. line road	.....	....	.....	....	.....	.....	....	.....
88	Johnson, from Rathwell's corner	70	45	.....	....	.....	.....	....	.....
89	Johnson, Desbarats south road	.....	....	.....	....	.....	.....	....	100
90	Kirkwood, con. 3, lot 4	.....	....	.....	....	.....	.....	....	.....
91	Korah Township roads (hill)	.....	....	.....	....	.....	.....	....	.....
92	Laird-McDonald C.P.R. crossing	.....	....	.....	....	.....	.....	....	.....
93	Laird, secs. 20-29	160	40	.....	....	gravel	100	5	.....
94	Laird, bet. P.O. and Government road	.....	....	.....	....	.....	.....	....	.....
95	Laird, secs. 8-9, and 16-17	200	30	.....	....	.....	.....	....	.....
96	Laird, secs. 3-10	.....	....	.....	....	.....	.....	....	.....
97	Lefroy, Main road, lot 15	.....	....	.....	....	.....	.....	....	.....
98	Lefroy, Hopper Main road	.....	....	.....	....	.....	.....	....	.....
99	Lumsden, con. 2	80	15	80	15	.....	.....	....	.....
100	Lumsden, lot 1, con. 4	.....	....	.....	....	.....	.....	....	.....

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, 9.—*Continued.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	8	wood	.....	.....	...	....	.....	..	.....	.....	..	1.00	259 00	51
2	16	wood	1	wood	.....	.....	...	....	10	12	.....	.....	..	.25	199 70	52
...	...	.....	...	.....	.....	.....	...	....	480	10	.....	.....	..	1.50	152 62	53
...	...	.....	2	wood	earth	480	...	....	80	16	.....	.....	..	.25	198 76	54
1	...	cedar	...	.....	rock	176	...	....	44	8	gravel	59	6	.50	449 50	55
...	...	.....	...	.....	earth	500	...	....	.....	..	gravel	40	5	.12	200 00	56
...	...	.....	...	.....	earth	30	...	....	80	20	gravel	80	6	.31	300 00	57
...	...	.....	2	wood	.....	.....	...	....	.....	..	.....	.....	..	.34	301 00	58
...	...	.....	7	wood	earth	78	400	10	480	18	gravel	680	6	2.12	1,000 00	59
...	...	.....	3	cedar	.....	.....	800	12	320	18	gravel	155	5	2.50	600 00	60
2	16	wood	30	wood	cor'ry	55	...	....	1,120	24	gravel	3,040	6	10.25	2,500 00	61
...	...	.....	2	wood	.....	.....	...	....	.....	..	.....	.....	..	1.25	505 25	62
...	...	.....	2	wood	.....	.....	...	....	160	12	.....	.....	..	.50	155 17	63
...	...	.....	...	.....	.....	.....	...	....	160	14	.....	.....	..	.50	102 25	64
1	16	wood	...	.....	.....	.....	...	....	480	15	.....	.....	..	1.50	200 50	65
...	...	.....	...	.....	.....	.....	...	....	160	12	.....	.....	..	.50	250 00	66
...	...	.....	4	wood	.....	.....	...	....	320	12	.....	.....	..	1.00	102 00	67
...	...	.....	3	wood	.....	.....	150	10	180	15	.....	.....	..	.50	111 00	68
...	...	.....	5	wood	.....	.....	...	....	320	16	.....	.....	..	1.00	200 00	69
...	...	.....	4	wood	.....	.....	...	....	240	18	.....	.....	..	.75	99.91	70
...	...	.....	...	.....	.....	.....	...	....	160	15	.....	.....	..	.50	150 00	71
...	...	.....	2	wood	.....	.....	...	....	80	9	.....	.....	..	.25	101 00	72
...	...	.....	...	.....	.....	.....	...	....	.....	..	.....	.....	.	1.00	100 00	73
...	...	.....	2	wood	.....	.....	80	50	.....	..	.....	.....	..	.75	200 53	74
...	...	.....	4	wood	.....	.....	...	....	160	9	.....	.....	..	.50	90 00	75
...	...	.....	...	.....	.....	.....	...	....	160	16	.....	.....	..	.50	200 00	76
...	...	.....	...	.....	.....	.....	...	....	160	24	.....	.....	..	1.00	300 00	77
...	...	.....	...	.....	.....	.....	...	....	90	20	gravel	82	5	.28	239 72	78
...	...	.....	2	wood	earth	800	...	....	160	24	.....	.....	..	.75	300 00	79
...	...	.....	2	pipe	.....	.....	...	....	.....	..	.....	.....	..	.94	989 90	80
...	...	.....	2	wood	.....	.....	160	12	640	16	gravel	10	6	2.00	302 25	81
...	...	.....	3	wood	.....	.....	...	....	620	18	gravel	160	6	2.00	799 45	82
...	...	.....	...	.....	.....	.....	...	....	.....	..	.....	.....	..	.35	150 50	83
...	...	.....	1	wood	.....	.....	...	....	.....	..	.....	.....	..	1.00	252 50	84
...	...	.....	2	wood	cor'ry	500	300	45	.....	..	gravel	600	9	3.00	442 74	85
...	...	.....	2	wood	earth	130	...	....	320	20	gravel	480	7	2.00	708 34	86
...	...	.....	...	.....	earth	150	...	....	.....	..	gravel	80	5½	.25	250 00	87
...	...	.....	...	.....	earth	150	70	24	.....	..	gravel	110	5½	.65	400 00	88
...	...	.....	...	.....	.....	.....	...	....	.....	..	gravel	200	5	.62	300 00	89
...	...	.....	...	.....	.....	.....	310	20	610	20	.....	.....	..	1.88	300 00	90
...	...	.....	3	cedar	earth	4,100	...	....	.....	..	.....	.....	..	.12	2,175 00	91
...	...	.....	...	.....	earth	55	...	....	8	20	gravel	75	5	.22	200 00	92
...	...	.....	1	wood	earth	200	...	....	.....	..	.....	.....	..	.50	400 00	93
...	...	.....	...	.....	.....	.....	...	....	.....	..	gravel	150	5	.47	400 00	94
...	...	.....	...	.....	earth	200	...	....	60	18	gravel	30	6	.94	300 00	95
...	...	.....	...	.....	.....	.....	...	....	.....	..	gravel	110	5	.34	275 00	96
...	...	.....	...	.....	.....	.....	...	....	120	22	gravel	175	6	.54	297 81	97
...	...	.....	...	.....	.....	.....	...	....	.....	..	gravel	100	5½	.31	300 00	98
...	...	.....	...	.....	cor'ry	440	...	....	.....	..	.....	.....	..	.25	101 50	99
...	...	.....	...	.....	.....	.....	...	....	480	9	.....	.....	..	1.50	151 08	100

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	NORTH DIVISION.—*Continued.*								
101	Lybster Township roads								268
102	Marks Township roads	280	25	80	18	gravel	80	6	85
103	May, from Main road south								
104	May, Massey-Lee Valley, lot 7								
105	May, Spanish River bridge, con. 1								
106	May, lots 9-10, con. 1								
107	May, cons. 3-4, lots 9-10								160
108	May, Massey-Birch Lake, con. 3								
109	McDonald, sec. 20-21								
110	McDonald, from sec. 16								100
111	McDonald, sec. 1 on T. L.	320	40						
112	McDonald, sec. 26-27								
113	McDonald, Saunder's Hill, sec. 16	80	40	87	24	gravel	30	5	
114	McKim Township road, con. 5								
115	McKim, Sudbury-Copper Cliff road								
116	McKinnon, con. 5, lot 9	206	35	32	18				
117	Mellick Township road								66
118	Meredith, secs. 29-30								
119	Meredith, sec. 28, Sault road								
120	Michipicoten Township roads								10
121	Morgan, con. 1, lots 5-6								160
122	Morgan, lots 10-11, con. 1	no work.							
123	Nairn to Spanish River road								28
124	Nipigon Township roads	320	40			gravel	320	7	
125	Oliver Township roads								
126	Patton, con. 3, to Trunk road								70
127	Patton and Gladstone T. L. road								160
128	Patton and Gladstone from McLaughlins								
129	Pearson Township road	1,280	40	40	24	gravel	40	7	
130	Plummer, Northern road	30	50	80	21	gravel	30	6	8
131	Plummer, con. 6, lot 12								160
132	Plummer, from Gilroy's hill								9
133	Plummer Additional road								
134	Plummer, from con. 3, lot 2								
135	Plummer, con. 3								
136	Plummer Additional, from con. 3								
137	Point Aux Pins road								
138	Pellatt Township roads	480	40						125
139	Rose, Maguire road								25
140	Salter, from lot 20	320	40	160	20				
141	Scoble Township road, west								
142	Scoble Township road, east	120	40	40	18	gravel	40	5	
143	Shakespeare, Centre line road								
144	Shedden, Spanish and Walford road.								
145	Shedden, south from Spanish								
146	Stirling Township roads	105	40	105	24	earth	105	5	310
147	St. Joseph, F. & G. line								
148	St. Joseph, B. line								
149	Strange Township roads								140
150	Striker, Jensen road								

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES,
9.—*Continued.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
1	r.	plank	10	wood	.....	.....	120	10	1,560	18	gravel	1,600	6	5.00	999 45	101
...	...	.....	8	wood	earth	310	300	24	760	18	gravel	780	6	3.25	999 96	102
...	...	.....	2	wood	.....	.....	70	12	307	18	.....	.....	..	1.00	252 00	103
...	...	.....	...	.....	.....	.....	.....	..	10	20	gravel	167	5½	.52	302 00	104
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	204	5	.75	350 00	105
...	...	.....	...	.....	earth	55	.....	..	.....	..	gravel	290	5	1.00	301 06	106
...	...	.....	2	wood	.....	.....	.....	..	160	17	gravel	160	5	1.00	404 05	107
...	...	.....	...	.....	earth	175	.....	..	140	20	gravel	140	5	.50	300 00	108
...	...	.....	1	wood	.....	.....	.....	..	.....	..	gravel	72	5	.22	200 00	109
...	...	.....	1	wood	.....	.....	.....	..	.....	..	gravel	100	5½	.50	299 95	110
...	...	.....	3	wood	earth	500	.....	..	.....	..	.....	.....	..	1.00	399.91	111
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	160	5½	.50	397 65	112
...	...	.....	1	wood	earth	1,600	.....	..	.....	..	.....	.....	..	.28	400 00	113
...	...	.....	...	.....	.....	.....	.....	..	640	20	.....	.....	..	2.00	200 00	114
...	...	.....	...	.....	stone	660	.....	..	.....	..	.....	.....	..	.11	1,343 20	115
...	...	.....	3	wood	.....	.....	.....	..	.....	..	.....	.....	..	.64	399 40	116
...	...	.....	3	stone	earth	32	.....	..	45	18	gravel	45	5	.32	590 59	117
...	...	.....	...	.....	earth	80	.....	..	480	22	gravel	110	5	1.50	301 00	118
...	...	.....	1	wood	.....	.....	.....	..	160	24	gravel	120	5	.50	202 25	119
28	16	wood	19	wood	earth	79	2,201	6	17	12	gravel	284	6	7.00	2,175 00	120
1	r.	wood	1	wood	eord'y	175	160	40	240	16	.....	.....	..	1.00	200 50	121
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.....	175 00	122
...	...	.....	4	cedar	.....	.....	300	10	408	18	gravel	148	7	1.27	978 11	123
...	...	.....	4	wood	.....	.....	1,120	15	.....	..	gravel	967	5	5.00	1,001 20	124
...	...	.....	2	wood	.....	.....	320	10	160	21	gravel	320	6	1.00	499 99	125
...	...	.....	...	.....	earth	100	100	14	240	22	gravel	60	5	1.50	486 16	126
...	...	.....	...	.....	.....	.....	160	40	160	20	gravel	160	5½	.50	349 12	127
...	...	.....	...	.....	.....	.....	.....	..	70	24	gravel	257	5½	1.00	451 35	128
...	...	.....	17	wood	earth	20	.....	..	720	20	gravel	720	5	6.25	999 25	129
...	...	.....	...	.....	earth	200	.....	..	.....	..	.....	.....	..	.34	350 00	130
...	...	.....	2	wood	.....	.....	240	20	100	24	gravel	100	5	.75	301 25	131
...	...	.....	1	wood	.....	.....	.....	..	15	22	gravel	108	5	.41	248 00	132
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	110	5	.34	300 00	133
...	...	.....	...	.....	earth	20	2	..	240	22	gravel	240	5	.25	365 75	134
...	...	.....	1	wood	.....	.....	.....	..	60	18	gravel	180	5	.75	248 70	135
...	...	.....	...	.....	.....	.....	400	40	.....	..	.....	.....	..	1.25	345 37	136
...	...	.....	...	.....	.....	.....	.....	..	720	18	gravel	1,329	6	4.75	3,775 86	137
2	18	wood	4	wood	stone	187	480	20	1,780	15	gravel	1,368	10	10.00	1,395 36	138
...	...	.....	...	.....	.....	.....	.....	..	480	22	gravel	160	5	1.50	299 90	139
...	...	.....	4	wood	earth	50	.....	..	.....	..	.....	.....	..	1.00	300 00	140
...	...	.....	12	wood	.....	.....	800	10	800	18	earth	800	6	4.00	505 55	141
...	...	.....	3	wood	.....	.....	140	20	160	18	gravel	160	6	.88	500 00	142
...	...	.....	2	wood	earth	1,200	.....	..	240	20	gravel	80	5	1.00	375 00	143
...	...	.....	2	wood	.....	.....	.....	..	80	18	gravel	90	6	.28	199 95	144
...	...	.....	...	.....	.....	.....	.....	..	160	18	gravel	140	5	.50	202 25	145
...	...	.....	2	wood	.....	.....	106	40	106	24	gravel	106	5	.65	649 70	146
...	...	.....	1	wood	earth	170	.....	..	.....	..	gravel	90	5	.28	199 52	147
...	...	.....	2	wood	.....	.....	40	30	120	30	gravel	50	5	.75	201 50	148
1	re	paired	17	wood	earth	362	.....	..	400	24	gravel	400	5	2.00	749 99	149
...	...	.....	6	wood	.....	.....	320	25	320	18	gravel	90	5	2.00	558 15	150

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	NORTH DIVISION.—*Continued.*								
151	Striker, Dazzy bridge, con. 1	.....	....	.....	....	.....	.....	....	.....
152	Striker, con. 2	90	40	90	18	gravel	90	....	.....
153	Striker, Ritchie's hill	.....	....	.....	....	.....	.....	....	70
154	Tarbutt, cons. 2-3	100	40	.....	....	.....	.....	....	110
155	Tarbutt, con. 5	160	30	480	24	gravel	35	6	.....
156	Tarbutt, Maclennan & Pt. Finlay road	.....	....	.....	....	.....	.....	....	.....
157	Tarbutt, Maclennan & Pt. Finlay road	.....	....	.....	....	.....	.....	....	160
158	Tarbutt & Laird T. L.	.....	....	.....	....	.....	.....	....	.....
159	Tarentorous, Heyden road	290	40	290	10	gravel	40	6	.....
160	Thessalon, along Lake Sore	640	40	.....	....	.....	.....	....	.....
161	Thompson, Draper road	.....	....	.....	....	.....	.....	....	7
162	Van Horne Township roads	320	40	320	20	gravel	25	6	1,700
163	Vankoughnet Township roads	365	36	336	20	gravel	11	6	.....
164	Victoria, Brown Lake to Cedar Lake	.....	....	.....	....	.....	.....	....	60
165	Victoria, secs. 23-21	.....	....	.....	....	.....	.....	....	.....
166	Ware Township roads, east	320	40	.....	....	.....	.....	....	.....
167	Ware Township road, west	640	40	40	16	.....	.....	....	640
168	Mond and Fairbank Lake road	.....	....	.....	....	.....	.....	....	320
	Total	12,660	....	5,751	....	.....	1,616	....	15,779

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES,
9.—*Concluded.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$. c.	
...	...	.....	...	.....	.....	.....	160	14	120	20	gravel	160	5½	1.00	399 00	151
...	...	.....	...	.....	earth	400	.....	..	.....	..	.....	.....	..	.31	349 44	152
...	...	.....	...	.....	earth	838	.....	..	40	24	gravel	40	6	.25	358 93	153
...	...	.....	...	.....	.....	.....	.....	..	85	20	.....	.....	..	.57	304 70	154
...	...	.....	1	wood	earth	300	.....	..	.....	..	.....	.....	..	1.50	312 15	155
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	240	5	.75	274 55	156
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	190	5½	.59	514 59	157
...	...	.....	...	.....	earth	90	.....	..	77	24	gravel	147	7	.50	299 98	158
...	...	.....	3	cedar	rock	333	.....	..	.....	..	.....	.....	..	.91	829 36	159
1	12	cedar	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	2.00	310 49	160
...	...	.....	...	.....	earth	729	40	12	55	22	gravel	150	6	.75	697 67	161
1	15	wood	7	wood	earth	862	55	40	560	20	gravel	440	6	4.25	1,482 90	162
1	16	wood	15	wood	earth	973	40	20	.....	..	gravel	40	7	2.00	1,500 00	163
...	...	.....	...	.....	.....	.....	.....	..	320	18	gravel	80	5	1.00	400 62	164
...	...	.....	2	wood	.....	.....	.....	..	320	20	gravel	200	5½	1.00	400 50	165
...	...	.....	4	wood	stone	500	.....	..	.....	..	gravel	640	6	3.00	1,550 00	166
1	16	wood	7	wood	earth	75	.....	..	.....	..	gravel	640	7	4.00	1,555 83	167
...	...	.....	...	.....	.....	.....	.....	..	160	16	.....	.....	..	1.00	297 58	168
51	...	.....	409	.....	.....	20,113	11337	..	35,962	..	.....	25,772	..	216.95	78300 85	

SCHEDULE SHOWING THE AMOUNT OF ROAD CONSTRUCTION,

Number	Township	Cleared and Stumped		Graded		Surfaced		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
	North Division.							
1	Alberton, By-law No. "H"	100	66	404	28	gravel	715	5
2	Assiginack By-law No. 414	.....	....	28	24	gravel	1,677	5
3	Atwood By-law No. 102	290	28	567	24	.....	.....	....
4	Balfour By-law No. 59	.....	....	2,240	16	.....	.....	....
5	Blezard By-law No. 105	.....	....	2,880	24	.....	.....	....
6	Blue By-law No. 43	208	28	242	28	gravel	100	5
7	Billings By-law No. 247	.....	....	120	20	gravel	113	7
8	Burpee By-law No. 90	.....	....	668	18	gravel	177	5
9	Carnarvon By-law No. 323	.....	....	400	18	gravel	260	7
10	Chapple By-law No. 247	250	66	725	26	gravel	2,351	5
11	Conmee By-law No. 40	920	30	860	20	gravel	860	8
12	Dilke By-law No. 88	.....	....	540	28	gravel	193	5
13	Drury, Denison & Graham, By-law No. 180	960	25	8,640	12	.....	.....	....
14	Emo By-law No. 230	690	20	567	24	gravel	2,421	5
15	Gordon By-law No. 157	.....	....	2,130	12	gravel	934	6
16	Hilton By-law No. 399	160	14	593	22	gravel	716	7
17	Howland By-law No. 148	.....	....	24	20	gravel	381	6
18	Jaffray & Mellick By-law No. 99	2,136	30	5,071	18	gravel	4,056	8
19	Jocelyn By-law No. 297	60	20	.....	....	gravel	395	5
20	Johnson By-law No. 95	167	14	227	20	gravel	69	6
21	Korah By-law No. 179	365	66	4,427	24	gravel	3,370	7
22	Laird By-law No. 126	.....	....	310	24	gravel	537	6
23	Lavalle By-law No. 192	731	66	420	24	gravel	1,602	6
24	McDonald, Meredith and Aberdeen Additional By-law No. 143	.....	....	1,060	20	gravel	780	7
25	McIrvine By-law No. 220	.....	....	.....	....	gravel	360	5
26	Morley and Patullo By-law No. 183	111	33	653	28	gravel	1,272	5
27	Neebing By-law No. 377	840	40	1,000	20	gravel	400	5
28	O'Connor By-law No. 158	800	40	1,320	18	earth	1,480	18
29	Oliver By-law No. 183	1,440	10	1,440	18	gravel	2,240	7
30	Paipoonge By-law No. 164	80	66	2,060	18	gravel	2,700	7
31	Plummer Additional By-law No. 163	.....	....	3,020	12	gravel	871	6
32	Prince By-law No. 74	320	10	450	24	gravel	200	6
33	Rayside By-law No. 216	320	60	1,120	18	.....	.....	....
34	Sanfield By-law No. 241	.....	....	12	18	gravel	263	7
35	Shuniah By-law No. 448	.....	....	4,300	18	gravel	5,240	8
36	St. Joseph By-law No. 433	.....	....	210	18	gravel	889	6
37	Tarentorus By-law No. 188	200	20	56	33	gravel	1,253	9
38	Thessalon By-law No. 12	.....	....	580	20	gravel	480	5
39	Thompson By-law No. 114	.....	....	100	20	gravel	70	5
40	Worthington By-law No. 91	260	20	320	28	gravel	210	5
	Total	11,308	....	49,784	....	.....	39,635	....

COLONIZATION ROADS BRANCH, UNDER MUNICIPAL BY-LAWS, 1919.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cu. yds.	Number	Span, feet	Material	Number	Material			$ c.	
46	clay....	300	.....	.....	.....	4	cedar...	.31	3.25	899 85	1
40	clay....	120	.....	.....	.....	2	cedar...	.....	6.00	1,000 00	2
.....	clay....	50	.....	.....	.....	1	cedar...	1.50	.50	573 77	3
2,880	.....	.....	.....	.....	.....	8	wood ...	.....	9.00	1,500 00	4
4,320	.....	.....	.....	.....	.....	19	wood ...	.....	9.00	500 00	5
30	.....	.....	.....	.....	.....	.....	.....	1.25	.31	625 00	6
.....	earth...	76	1R	18	wood.	4	rock....	.....	1.00	350 00	7
.....	stone...	260	.....	.....	.....	.....	.....	.....	3.00	175 00	8
.....	.....	.....	.....	.....	.....	7	cedar...	.....	2.00	450 00	9
160	earth...	130	4	16	wood.	17	cedar...	1.25	9.00	4,500 00	10
498	earth...	600	.....	.....	.....	23	wood ...	3.00	1.00	1,000 00	11
.....	earth...	300	.....	.....	.....	5	cedar...	2.00	2.00	500 00	12
1,920	.....	.....	.....	.....	.....	9	wood ...	3.00	24.00	2,500 00	13
70	earth...	300	.....	.....	.....	7	cedar...	.75	8.50	2,919 56	14
.....	stone...	70	.....	.....	.....	11	cedar...	.....	11.00	825 00	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	600 00	16
110	earth...	466	1	16	wood.	8	cedar...	.....	1.50	675 00	17
4,115	.....	.....	7	18	wood.	38	wood ...	.50	21.00	1,623 02	18
620	earth...	230	.....	.....	.....	2	wood ...	.....	1.50	600 00	19
119	rock....	70	.....	.....	.....	.....	.....	.....	1.00	300 00	20
809	earth...	2,386	.....	.....	.....	9	wood ...	1.00	25.00	3,613 52	21
.....	earth...	40	.....	.....	.....	.....	.....	.....	2.00	400 00	22
25	earth...	50	.....	.....	.....	2	wood ...	2.50	6.00	1,996 99	23
272	earth...	300	.....	.....	.....	.....	.....	.....	4.00	600 00	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.15	500 00	25
228	earth...	890	.....	.....	.....	7	metal ..	.....	5.00	1,991 37	26
1,200	earth...	300	1	14	wood.	10	wood ...	2.25	3.00	3,163 97	27
.....	.....	.....	2	18	wood.	11	wood ...	1.50	4.12	1,000 00	28
240	.....	.....	1	16	wood.	20	wood ...	.....	9.50	1,600 00	29
1,280	earth...	200	.....	.....	.....	15	wood ...	.25	9.00	3,064 97	30
.....	.....	.....	.....	.....	.....	6	wood ...	.....	11.75	775 00	31
100	earth...	50	.....	.....	.....	11	wood ...	.....	6.50	300 00	32
880	.....	.....	.....	.....	.....	5	wood ...	.....	3.50	600 00	33
18	.....	.....	.....	.....	.....	5	wood ...	.....	.90	200 00	34
720	earth...	100	6	18	wood.	30	wood ...	.....	27.00	3,750 00	35
37	.....	.....	.....	.....	.....	5	wood ...	.....	3.00	1,200 00	36
800	earth...	644	.....	.....	.....	42	metal ..	.....	11.00	2,500 00	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	300 00	38
.....	earth...	125	.....	.....	.....	.....	.....	.....	.40	150 00	39
8	.....	.....	.....	.....	.....	1	cedar...	.....	1.25	575 00	40
21,575	.....	8,057	23	.....	.....	344	.....	19.06	253.13	50,397 02	.....

SCHEDULE SHOWING THE AMOUNT OF ROAD CONSTRUCTION UNDER THE MINES ONT

Number	Name and Location of Work	New Road							Ditched
		Cleared and Stumped		Graded and Shaped		Surfaced			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	West Division.								
1	Albemarle, 20th sideroad	.....	....	.....	....	.....	.....	....	.....
2	Albemarle, west road	.....	....	.....	....	.....	.....	....	.....
3	Amabel, lot 20, con. 4	.....	....	.....	....	.....	.....	....	.....
4	Armour, lot 24, con. 14	.....	....	.....	....	.....	.....	....	.....
5	Armour, lot 5, con. 5	.....	....	.....	....	.....	.....	....	240
6	Baysville and Bracebridge main road	280	66	280	18	gravel	280	8	1,360
7	Bethune, con. 6, lot 8-15	320	20	160	18	.....	.....	....	3
8	Bethune, lots 7-10, con. 8	.....	....	.....	....	.....	.....	....	.....
9	Brunel, Huntsville-Baysville road	.....	....	.....	....	.....	.....	....	.....
10	Cardwell, 25th sideroad	.....	....	.....	....	.....	.....	....	.....
11	Carling, con. 9, N.W. road	640	36	.....	....	.....	.....	....	.....
12	Carling, 10th con. to Snug Harbour	.....	....	.....	....	.....	.....	....	.....
13	Carling, Nobel road, lots 7-16	160	25	50	16	gravel	50	5	.....
14	Chaffey, east road to Huntsville	160	30	160	16	gravel	160	6	.....
15	Chaffey, Huntsville-Ravinscliffe	.....	....	.....	....	.....	.....	....	.....
16	Chapman and Lount T. L. road	.....	....	160	14	gravel	160	7	.....
17	Chapman, Bullocks Hill road	.....	....	.....	....	.....	.....	....	.....
18	Chapman, 10th sideroad	80	40	80	18	gravel	80	6	.....
19	Christie Township roads	.....	....	.....	....	.....	.....	....	.....
20	Draper, new road from Oakley	.....	....	.....	....	.....	.....	....	.....
21	Draper-Muskoka townline	.....	....	.....	....	.....	.....	....	.....
22	Eastnor, 15th sideroad, cons. 1-2	.....	....	.....	....	.....	.....	....	.....
23	Eastnor, cons. 2-3, lot 11	.....	....	.....	....	.....	.....	....	.....
24	Gurd and Patterson road	.....	....	.....	....	.....	.....	....	.....
25	Ferguson, McKellar Village road	.....	....	.....	....	.....	.....	....	.....
26	Foley, Blackstone road	.....	....	.....	....	.....	.....	....	.....
27	Foley, Christie road from P.S. road	.....	....	.....	....	.....	.....	....	.....
28	Foley, Christie road	.....	....	.....	....	.....	.....	....	.....
29	Franklin, Big Peninsula road	.....	....	.....	....	.....	.....	....	.....
30	Franklin and Sinclair, Bobcaygeon	.....	....	.....	....	.....	.....	....	.....
31	Freeman, Footes Bay to Mactier	160	30	160	18	earth	160	14	.....
32	Hagerman, Nipissing-Dunchurch road	.....	....	.....	....	.....	.....	....	.....
33	Himsworth, N., con. 24	.....	....	.....	....	.....	.....	....	.....
34	Himsworth, N., 20th sideroad	240	40	160	16	gravel	160	2	.....
35	Himsworth, N., con. 22	160	20	160	20	gravel	160	6	.....
36	Himsworth, S., 5th sideroad	.....	....	.....	....	.....	.....	....	.....
37	Himsworth, S., con. 4, lots 8-9	.....	....	.....	....	.....	.....	....	.....
38	Humphrey, Parry Sound road	.....	....	.....	....	.....	.....	....	.....
39	Humphrey, Peninsula road	.....	....	.....	....	.....	.....	....	.....
40	Lindsay, Bury road	.....	....	.....	....	.....	.....	....	.....
41	Lindsay, cons. 2-3, from S. Bd.	.....	....	.....	....	.....	.....	....	.....
42	Lount, Distress River road	.....	....	.....	....	.....	.....	....	.....
43	Machar, 20th sideroad	.....	....	.....	....	.....	.....	....	.....
44	Machar, lots 8-20, cons. 8-9	.....	....	.....	....	.....	.....	....	.....
45	Machar, North road to Gurd, con. 10	.....	....	.....	....	.....	.....	....	.....
46	Machar and Gurd, lots 25-26	.....	....	.....	....	.....	.....	....	.....
47	Machar and Strong, T. L.	.....	....	.....	....	.....	.....	....	.....
48	Matchedash, Station road, con. 2	.....	....	.....	....	.....	.....	....	.....
49	Matchedash sideroad, cons. 1-2	.....	....	.....	....	.....	.....	....	.....
50	McDougall, N.W. road	320	40	320	20	.....	.....	....	.....

COLONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND ARIO, 1919.

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
..	..	.....	....	.....	.....	.....	100	12	140	16	.....	.....	..	.44	$100 00	1
..	..	.....	....	.....	.....	.....	.....	..	.....	..	gravel	125	7	.39	150 00	2
1	16	wood	....	.....	.....	.....	.....	..	.....	..	gravel	101	7	.31	250 00	3
..	..	.....	2	concrete	.....	.....	.....	..	160	14	gravel	160	6	.50	300 52	4
..	..	.....	3	concrete	.....	.....	.....	..	240	16	gravel	240	6	.75	300 00	5
..	..	.....	18	stone	rock	8,420	320	10	1,280	16	gravel	1,500	8	5.28	12656 31	6
1	12	cedar	....	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	300 00	7
..	..	.....	6	cedar	.....	.....	.....	..	240	12	gravel	240	12	.75	319 55	8
..	..	.....	4	wood	.....	.....	640	50	350	18	gravel	95	5	2.50	400 00	9
1	12	wood	....	.....	.....	.....	180	40	180	18	.....	.....	..	.50	250 00	10
..	..	.....	4	cedar	.....	.....	.....	..	.....	..	.....	.....	..	2.00	302 73	11
..	..	.....	3	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	257 86	12
..	..	.....	4	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	299 99	13
..	..	.....	....	.....	.....	.....	.....	..	210	18	gravel	200	5	.75	403 80	14
..	..	.....	1	stone	earth	100	.....	..	400	18	gravel	200	5	1.25	400 00	15
..	..	.....	3	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	249 31	16
..	..	.....	2	cedar	.....	.....	.....	..	160	16	gravel	169	6	.50	200 50	17
..	..	.....	2	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.25	300 00	18
..	..	.....	3	cedar	.....	.....	.....	..	240	16	gravel	240	8	.75	350 64	19
3	16	wood	....	.....	.....	.....	.....	..	320	18	gravel	100	5	1.25	200 00	20
..	..	.....	1	stone	rock	20	.....	..	60	20	gravel	60	6	.25	300 00	21
..	..	.....	....	.....	.....	.....	.....	..	.....	..	gravel	80	8	.25	100 00	22
..	..	.....	....	.....	.....	.....	.....	..	15	20	gravel	85	8	.31	150 00	23
..	..	.....	4	cedar	.....	.....	.....	..	160	16	gravel	160	6	.50	251 12	24
..	..	.....	7	cedar	.....	.....	.....	..	800	7	gravel	800	7	2.25	980 81	25
..	..	.....	3	cedar	.....	.....	.....	..	320	17	gravel	320	7	1.00	280 10	26
..	..	.....	....	.....	.....	.....	.....	..	320	10	gravel	320	4	1.00	301 45	27
1	14	cedar	3	cedar	.....	.....	.....	..	170	14	gravel	170	7	.53	299 50	28
..	..	.....	....	.....	earth	560	.....	..	80	20	.....	.....	..	.25	275 00	29
..	..	.....	1	wood	earth	300	.....	..	320	20	gravel	340	5	1.25	300 00	30
..	..	.....	....	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	314 75	31
..	..	.....	4	wood	.....	.....	.....	..	160	16	gravel	160	4	.50	299 99	32
..	..	.....	6	cedar	.....	.....	.....	..	320	16	gravel	320	6	1.00	400.00	33
..	..	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	.75	300 00	34
..	..	.....	5	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	400 00	35
..	..	.....	....	.....	.....	.....	.....	..	320	16	gravel	320	8	1.00	300 00	36
..	..	.....	3	cedar	.....	.....	190	35	190	18	gravel	160	8	.59	300 00	37
..	..	.....	6	iron	.....	.....	.....	..	240	18	gravel	240	8	.75	358 50	38
..	..	.....	3	cedar	.....	.....	.....	..	80	16	gravel	80	8	.25	252 00	39
..	..	.....	....	.....	.....	.....	.....	..	.....	..	gravel	80	7	.25	150 00	40
..	..	.....	....	.....	.....	.....	.....	..	.....	..	gravel	70	7	.21	100 00	41
..	..	.....	4	cedar	.....	.....	.....	..	240	10	gravel	240	8	.75	301 03	42
..	..	.....	4	cedar	.....	.....	80	30	80	16	gravel	80	6	.25	200 00	43
..	..	.....	2	cedar	.....	.....	.....	..	240	16	gravel	240	4	.75	301 81	44
..	..	.....	....	.....	.....	.....	.....	..	30	12	earth	30	8	.09	197 52	45
..	..	.....	3	cedar	.....	.....	.....	..	170	16	gravel	170	5	.53	300 00	46
..	..	.....	....	.....	.....	.....	.....	..	240	8	gravel	240	6	.75	301 25	47
..	..	.....	1	iron	.....	.....	.....	..	20	18	stone	20	8	.06	156 50	48
..	..	.....	1	wood	earth	60	.....	..	15	22	gravel	85	8	.31	200 00	49
..	..	.....	....	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	313 38	50

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARI

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	WEST DIVISION.—*Continued.*								
51	McKenzie, lot 35, con. 1	.....	....	.....	....	.....	....	....	.....
52	McMurrich and Ryerson road	.....	....	.....	....	.....	....	....	.....
53	McMurrich, Beggsboro Creek road	.....	....	.....	....	.....	....	....	.....
54	McLean, Lake Shore road	.....	....	.....	....	.....	....	....	.....
55	Medonte, lot 11, con. 11	.....	....	.....	....	.....	....	....	.....
56	Medonte, lot 20, con. 12	.....	....	.....	....	.....	....	....	.....
57	Medonte, lot 21, con. 12	....	....	.....	....	.....	....	....	.....
58	Medonte, con. 1, lot 55	40	20	40	20	.....	....	....	.....
59	Medonte, sideroad 10-11, con. 12	60	24	106	24	.....	....	....	.....
60	Medora, Ferndale road	.....	....	.....	....	.....	....	....	.....
61	Medora, Peninsula road	.....	....	.....	....	.....	....	....	.....
62	Medora and Wood, Long Point road	(no rep	rt)	.....	....	.....	....	....	.....
63	Mills, con. 12, lot 11	.....	....	160	16	gravel	160	8	.....
64	Mills, lots 22-28, con. 8	120	35	80	20	gravel	120	6	.....
65	Mills, 30th sideroad	.....	....	.....	....	.....	....	....	.....
66	Monteith, Axe Lake road	.....	....	.....	....	.....	....	....	.....
67	Morrison Township roads	.....	....	.....	....	.....	....	....	.....
68	Muskoka, Musquosh road	.....	....	.....	....	.....	....	....	.....
69	Nipissing, 5th sideroad	780	40	320	18	.....	....	....	.....
70	Nipissing, cons. 10-14	.....	....	.....	....	.....	....	....	.....
71	Nipissing and Rosseau road	.....	....	.....	....	.....	....	....	.....
72	North Orillia sideroad 15-16	.....	....	.....	....	.....	....	....	.....
73	North Orillia, Boyd road	.....	....	.....	....	.....	....	....	.....
74	Oakley, Mud Lake road	.....	....	.....	....	.....	....	....	.....
75	Orillia, Muskoka road	.....	....	.....	....	.....	....	....	.....
76	Orillia, Rama road	.....	....	.....	....	.....	....	....	.....
77	Oro, lots 21-22, con. 11	.....	....	.....	....	.....	....	....	8
78	Patterson, North side Restoule L.	.....	....	.....	....	.....	....	....	.....
79	Patterson, West bd. lot 24	.....	....	.....	....	.....	....	....	.....
80	Pringle and Gurd, T.L.	.....	....	.....	....	.....	....	....	.....
81	Pringle and Mills, 5th sideroad	.....	....	160	14	gravel	160	7	.....
82	Ridout, Baysville road	.....	....	.....	....	.....	....	....	.....
83	Ryde Township roads	.....	....	.....	....	.....	....	....	.....
84	Ryde Township road, con. 10	.....	....	.....	....	.....	....	....	.....
85	Ryerson, lots, 1-10, con. 12	.....	....	.....	....	.....	....	....	.....
86	South Orillia road, cons. 1-2	.....	....	.....	....	.....	....	....	.....
87	Spence, Sudgen road	.....	....	.....	....	.....	....	....	.....
88	Stephenson, Utterson road	.....	....	.....	....	.....	....	....	.....
89	St. Edmunds, Bury road	.....	....	.....	....	.....	....	....	.....
90	Stisted, sideroad 15-16	.....	....	.....	....	.....	....	....	.....
91	Strong, con. 13, lot 14	330	40	.....	....	.....	....	....	.....
92	Strong, 10th sideroad, con. 7	80	30	160	16	.....	....	....	.....
93	Strong, cons. 13-14	.....	....	.....	....	.....	....	....	.....
94	Sunnidale Township roads	.....	....	.....	....	.....	....	....	.....
95	Tay, lot 8, con. 4	.....	....	.....	....	.....	....	....	.....
96	Tay, Victoria Harbour road	.....	....	.....	....	.....	....	....	.....
97	Tay, Port Severn road	.....	....	.....	....	.....	....	....	.....
98	Tay, con. 4 to C.P.R.	.....	....	.....	....	.....	....	....	.....
	Total	3,930	....	2,716	....	.....	1650	....	1,611

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, O, 1919.

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
..	..	.....	5	cedar	.....	.....	.....	..	240	12	gravel	240	12	.75	300 00	51
..	..	.....	...	.....	.....	.....	.....	..	640	16	gravel	640	8	2.00	305 75	52
..	..	.....	...	.....	stone	234	.....	..	.....	..	.....	.....	..	.00	300 00	53
..	..	.....	...	.....	.....	.....	.....	..	320	18	gravel	100	5	1.50	205 20	54
..	..	.....	...	.....	.....	.....	.....	..	140	18	gravel	45	7	.44	100 00	55
..	..	.....	...	.....	earth	400	.....	..	40	18	.....	.....	..	.12	100 00	56
..	..	.....	...	.....	.....	.....	.....	..	44	20	gravel	44	8	.14	200 00	57
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.12	100 00	58
..	..	.....	1	iron	.....	.....	.....	..	.....	..	gravel	90	7	.52	250 00	59
..	..	.....	4	wood	.....	.....	300	50	240	18	gravel	240	7	1.75	400 00	60
..	..	.....	...	.....	.....	.....	600	50	200	18	gravel	200	5	2.00	500 00	61
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.00	450 00	62
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	286 38	63
..	..	.....	2	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.38	200 00	64
..	..	.....	2	cedar	.....	..	.....	..	160	12	gravel	160	8	.50	300 00	65
..	..	.....	4	wood	.....	.....	640	20	80	8	gravel	80	12	2.00	300 00	66
..	..	.....	...	.....	.....	.....	.....	..	480	20	gravel	200	5	1.50	300 00	67
..	..	.....	...	.....	.....	.....	.....	..	1,200	18	gravel	400	5	4.00	503 33	68
1	16	cedar	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	2.50	513 75	69
..	..	.....	5	cedar	.....	.....	.....	..	320	16	gravel	320	8	1.00	305 78	70
..	..	.....	2	cedar	.....	.....	.....	..	160	16	gravel	160	6	.50	199 00	71
..	..	.....	2	tile	.....	.....	.....	..	.....	..	gravel	190	6	.59	300 00	72
..	..	.....	...	.....	.....	.....	60	30	60	24	.....	.....	..	.18	175 00	73
..	..	.....	...	.....	.....	.....	200	50	160	18	gravel	100	5	1.50	200 00	74
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	130	7	.41	280 00	75
..	..	.....	...	.....	.....	.....	.....	..	.....	..	stone	56	7	.16	250 00	76
..	..	.....	...	.....	.....	.....	.....	..	440	22	gravel	70	7	1.38	207 60	77
..	..	.....	2	cedar	.....	.....	.....	..	150	14	gravel	150	7	.47	250 75	78
..	..	.....	6	wood	.....	.....	.....	..	160	16	gravel	160	6	.50	299 43	79
..	..	.....	7	cedar	.....	.....	.....	..	240	16	gravel	240	6	.75	300 71	80
1	16	cedar	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	300 00	81
..	..	.....	...	.....	.....	.....	200	40	320	16	gravel	200	5	1.50	300 00	82
..	..	.....	2	wood	stone	5	10	..	250	18	gravel	250	5	2.00	300 00	83
..	..	.....	3	stone	.....	.....	100	40	600	18	gravel	400	12	2.00	200 00	84
..	..	.....	6	cedar	.....	.....	160	16	320	16	gravel	320	6	1.00	300 00	85
..	..	.....	...	.....	earth	160	.....	..	72	20	gravel	84	7	.26	198 00	86
..	..	.....	...	.....	.....	.....	.....	..	240	14	gravel	240	6	.75	399 92	87
..	..	.....	6	iron	.....	.....	1,000	50	1,200	20	gravel	1,200	6	4.50	355 26	88
..	..	.....	2	wood	stone	40	.....	..	.....	..	gravel	130	7	.41	250 00	89
..	..	.....	...	.....	.....	.....	160	30	160	16	gravel	160	5	.50	399 28	90
..	..	.....	3	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.03	300 00	91
..	..	.....	2	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	256 50	92
..	..	.....	...	.....	earth	225	.....	..	.....	..	.....	.....	..	.00	303 00	93
..	..	.....	1	iron	.....	.....	.....	.	960	24	gravel	659	8	3.00	500 00	94
..	..	.....	1	concrete	clay	710	.....	..	.....	..	.....	.....	..	.02	420 00	95
..	..	.....	...	.....	stone	90	.....	..	.....	..	gravel	45	7	.16	203 40	96
..	..	.....	4	stone	stone	330	.....	..	.....	..	gravel	230	7	2.00	500 60	97
..	..	.....	...	.....	.....	.....	.....	..	100	20	gravel	100	8	.31	200 00	98
9	..	.....	192	.....	.....	11,654	4,940	..	17,916	..	.....	16,273	..	87.65	40,745 06	

SCHEDULE SHOWING THE AMOUNT OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIP	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length rods	Width, feet
	WEST DIVISION.							
1	Albemarle By-law No. 574	60	25	696	18	gravel	1,243	8
2	Amabel By-law No. 218	.....	....	250	18	gravel	437	7
3	Chapman By-law 5	.....	....	1,848	18	gravel	1,570	8
4	Draper By-law No. 378	1,380	50	5,210	18	gravel	620	7
5	Eastnor By-law No. 34	.....	....	40	20	gravel	1,143	8
6	Himsworth South By-law No. 58B	.....	....	160	22	gravel	160	6
7	Joly By-law No. 169	10	16	115	18	gravel	115	7
8	Keppel By-law No. 12	640	18	575	18	stone	854	8
9	Lindsay By-law No. 285	.....	....	675	18	gravel	901	7
10	Macaulay By-law No. 60	480	50	2,200	18	gravel	990	5
11	Machar By-law 552	215	24	202	22	gravel	278	7
12	Matchedash By-law No. 197	50	40	.....	....	gravel	390	8
13	Medonte By-law No. 564	.....	....	1,405	18	gravel	490	7
14	Medora and Wood By-law No. 322	3,322	50	1,900	18	gravel	900	7
15	Monck By-law No. 460	200	50	4,811	20	gravel	1,285	7
16	Muskoka By-law No. 289	1,020	50	3,787	18	gravel	1,347	7
17	Oro By-law No. 449	330	66	45	22	gravel	165	7
18	Orillia By-law No. 968	100	10	360	20	gravel	765	8
19	Perry, By-law No. 144	220	20	.....	....	gravel	229	8
20	Sarawak By-law No. 7	.....	....	505	20	stone	793	7
21	St. Edmunds By-law No. 232	50	15	170	20	gravel	305	7
22	Stisted By-law No. 238	300	50	1,240	18	gravel	340	7
23	Strong By-law No. 403	.....	....	80	24	gravel	203	6
24	Tay By-law No. 676	.....	....	777	20	gravel	885	7
25	Tiny By-law No. 593	220	40	875	20	gravel	530	7
26	Vespra By-law No. 619	30	35	120	20	gravel	750	7
27	Watt By-law No. 520	640	40	1,395	20	gravel	415	7
28	Tiny By-law No. 565, 1918	.....	....	930	22	gravel	395	7
	Total	9,267	....	30,371	....	.....	18,498	....

COLONIZATION ROADS BRANCH, UNDER MUNICIPAL BY-LAWS, 1919.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cubic yards	Number	Span, feet	Material	Number	Material				
										$ c.	
.....	rock	20	.....	.....	.....	6	wood	.....	5.50	750 00	1
.....	earth	270	.....	.....	.....	.....	.....	.....	2.50	500 00	2
.....	.....	.....	3	12	wood	12	wood	.....	9,00	1,000 00	3
30	earth	160	2	18	wood	37	wood	.....	21.00	496 89	4
200	earth	200	.....	.....	.....	.....	.....	.....	4.00	700 00	5
50	.....	.....	.....	.....	.....	.....	.....	.....	.55	100 00	6
.....	.....	.....	.....	.....	.....	1	wood	.....	,40	100 00	7
.....	.....	.....	.....	.....	.....	8	wood	.....	8.00	1,000 00	8
.....	rock	16	.....	.....	.....	2	wood	.....	3.50	900 00	9
.....	earth	30	.....	.....	.....	13	wood	.....	8.00	500 00	10
.....	.....	.....	1	12	wood	.....	.....	.....	1.00	300 00	11
.....	.....	.....	.....	.....	.....	4	wood	.17	1.25	300 00	12
.....	earth	660	1	18	cem'nt	.....	.....	.....	5.00	800 00	13
.....	.....	.....	1	16	wood	13	wood	.....	18.00	700 00	14
.....	rock	60	.....	.....	.....	28	wood	.....	29.00	1,520 16	15
.....	.....	.....	42	16	wood	30	wood	.....	14.00	1,000 00	16
.....	earth	1,015	.....	.....	.....	.....	.....	1.00	.75	525 00	17
.....	.....	.....	.....	.....	.....	2	concrete	.....	2.50	1,000 00	18
215	rock	15	.....	.....	.....	4	wood	.....	.75	150.00	19
.....	.....	.....	.....	.....	.....	2	wood	.....	2.50	797 13	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.50	300 00	21
.....	.....	.....	.....	.....	.....	6	wood	.....	4.00	300 00	22
.....	.....	.....	.....	.....	.....	1	metal	.....	.75	199 47	23
.....	stone	360	1	30	cedar	4	metal	.....	4.00	1,000 00	24
20	earth	100	.....	.....	.....	5	metal	.75	3.00	600 00	25
.....	earth	430	.....	.....	.....	1	wood	.....	3.00	500 00	26
.....	earth	600	.....	.....	.....	.....	.....	.....	6.00	500 00	27
125	.....	.....	.....	.....	.....	1	metal	.....	4.00	400 00	28
640	.....	3,936	13	.....	.....	180	.....	1.92	163.45	16,938.65	

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	EAST DIVISION.								
1	Addington road, Kaladar-Denbigh ...	.....	....	.....	....	.....	....	....	320
2	Admaston, Shamrock & Mt. St. Patrick	.....	....	.....	....	.....	....	....	.....
3	Admaston, Briscoe road	.....	....	.....	....	.....	....	....	.....
4	Admaston, Douglas-Mt. St. Patrick..	.....	....	.....	....	.....	....	....	.....
5	Admaston, Admaston-Station road ...	.....	....	.....	....	.....	....	....	.....
6	Admaston, Shamrock-Dacre road	.....	....	.....	....	.....	....	....	.....
7	Admaston, Douglas road	.....	....	.....	....	.....	....	....	.....
8	Admaston, lots 1-12, con. 2-12	.....	....	.....	....	.....	....	....	.....
9	Alice and Fraser, con. A, lots 15-16 ..	.....	....	.....	....	.....	....	....	.....
10	Alice and Fraser, B. line, lot 30	.....	....	.....	....	.....	....	....	.....
11	Alice and Fraser, con. 8, lot 14	.....	....	.....	....	.....	....	....	.....
12	Alice and Fraser, con. 12, lot 31	.....	....	.....	....	.....	....	....	.....
13	Alice and Fraser, con. 12, lot 23	.....	....	.....	....	.....	....	....	.....
14	Alice and Fraser, T.L., lot 1	.....	....	.....	....	.....	....	....	.....
15	Alice and Fraser, Eganville road ...	.....	....	.....	....	.....	....	....	.....
16	Airy Township roads	260	40	260	18	.....	....	....	.....
17	Anstruther Township road	.....	....	.....	....	.....	....	....	.....
18	Asphodel and Dummer road	.....	....	.....	....	.....	....	....	.....
19	Badgerow, con. 1, lots 8-9	.....	....	.....	....	.....	....	....	.....
20	Badgerow and Hugel, con. 3	.....	....	.....	....	.....	....	....	.....
21	Bagot and Blythfield, lot 30, con. 8 ..	.....	....	.....	....	.....	....	....	.....
22	Bagot and Blythfield, T. L. road	.....	....	.....	....	.....	....	....	.....
23	Bagot and Blythfield, Ashdad Station	.....	....	.....	....	.....	....		.....
24	Bagot and Blythfield, con. 9	.....	....	.....	....	.....	....	....	.....
25	Bagot and Blythfield, lot 25, con. 9..	.....	....	.....	....	.....	....	....	.....
26	Bagot and Blythfield, Fraser road ..	.....	....	.....	....	.....	....	....	.....
27	Bagot and Blythfield, Becker road ..	.....	....	.....	....	.....	....	....	.....
28	Bagot and Blythfield, lots 10-23	.....	....	.....	....	.....	....	....	.....
29	Bangor, Wicklow and McClure Tp. rds.	.....	....	.....	....	.....	....	....	.....
30	Barrie & Kennebec Tp. road	.....	....	.....	....	.....	....	....	.....
31	Barrie, Harlowe-Addington road	.....	....	.....	....	.....	....	....	.....
32	Beckwith, Scott's cor. road	.....	....	.....	....	.....	....	....	.....
33	Beckwith, Fourth line road	.....	....	.....	....	.....	....	....	.....
34	Beckwith, Eleventh line road	.....	....	.....	....	.....	....	....	.....
35	Belmont Tp. Factory road	.....	....	.....	....	.....	....	....	.....
36	Bexley Tp., Cameron road	.....	....	.....	....	stone	65	7	.....
37	Bexley, Victoria road	.....	....	.....	....	.....	....	....	.....
38	Bonfield Township roads	85	40	85	40	gravel	40	6	3
39	Boulter Township roads	480	40	210	16	gravel	40	6	.....
40	Bromley, Black Bay road	.....	....	.....	....	.....	....	....	.....
41	Bromley, Proving line, con. 9	.....	....	.....	....	.....	....	....	.....
42	Bromley, Douglas, 8th line	.....	....	.....	....	.....	....	....	.....
43	Bromley, Douglas-Caldwell road	.....	....	.....	....	.....	....	....	.....
44	Bromley and Westmeath T. L.	.....	....	.....	....	.....	....	....	.....
45	Brunell and Lyndock, con. 16	.....	....	.....	....	.....	....	....	.....
46	Brunell and Lyndock, Malone Swamp.	.....	....	.....	....	.....	....	....	.....
47	Brunell and Lyndock, Whalen's Swamp	.....	....	.....	....	.....	....	....	.....
48	Brunell and Lyndock, lot 33, con. 4..	.....	....	.....	....	.....	....	....	.....
49	Brunel and Lyndock, Malley Church..	.....	....	.....	....	.....	....	....	.....
50	Brunel and Lyndock, lots 33-35	.....	....	.....	....	.....	....	....	.....

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES,
9.—*Continued.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
..	..	.....	21	wood	earth	3,500	340	10	480	16	gravel	1,500	8	6.00	7,078 30	1
..	..	.....	...	.....	.....	.....	.....	..	120	30	gravel	120	10	.38	200 00	2
..	..	.....	...	.....	.....	.....	.....	..	160	30	gravel	160	10	.50	200 00	3
..	..	.....	2	tile	.....	.....	.....	..	80	24	gravel	80	10	.25	108 00	4
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	10	.38	150 00	5
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	207 28	6
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	80	6	.25	152 00	7
..	..	.....	...	.....	.....	.....	.....	..	160	40	gravel	160	10	.50	349 50	8
..	..	.....	1	cedar	.....	.....	.....	..	.....	..	gravel	80	10	.25	112 00	9
..	..	.....	...	.....	.....	.....	.....	..	120	30	gravel	120	10	.38	151 00	10
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	12	.25	150 00	11
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	150 00	12
..	..	.....	...	.....	.....	.....	.....	..	40	24	gravel	40	7	.25	104 00	13
..	..	.....	...	.....	.....	.....	.....	..	40	30	gravel	40	6	.12	104 00	14
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	10	.38	252 50	15
..	..	.....	16	wood	.....	.....	.....	..	775	16	gravel	310	6	3.00	1,018 00	16
..	..	.....	...	.....	.....	.....	.....	..	100	18	earth	132	5	.42	200 00	17
..	..	.....	...	.....	.....	.....	.....	..	35	20	gravel	42	5	.24	100 00	18
2	14	wood	...	.....	.....	.....	.....	..	.....	..	gravel	80	6	.50	300 00	19
..	..	.....	...	.....	earth	250	400	8	120	20	gravel	200	8	3.00	565 35	20
2	12	wood	...	.....	.....	.....	.....	..	40	25	gravel	40	10	.12	50 00	21
..	..	.....	1	cedar	.....	.....	.....	..	40	24	stone	40	10	.12	50 00	22
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	10	.50	200 00	23
..	..	.....	...	.....	.....	.....	.....	..	160	18	gravel	160	6	.50	101 63	24
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	6	.38	100 50	25
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	105 50	26
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	100 62	27
..	..	.....	6	cedar	.....	.....	.....	..	640	24	gravel	640	10	2.00	900 00	28
1	14	cedar	4	cedar	earth	300	80	20	560	14	gravel	240	6	2.25	1,007 15	29
..	..	.....	...	.....	.....	.....	.....	..	150	14	gravel	135	8	.75	300 00	30
..	..	.....	5	wood	stone	55	20	10	27	14	gravel	190	6	.50	300 00	31
..	..	.....	...	.....	.....	.....	.....	..	120	74	gravel	120	10	.38	200 00	32
..	..	.....	...	.....	.....	.....	.....	..	120	30	gravel	120	10	.38	203 80	33
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	200 62	34
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	75	5	.22	100 00	35
..	..	.....	3	wood	.....	.....	40	55	18	30	gravel	167	5	.65	515 35	36
..	..	.....	...	.....	.....	.....	.....	..	60	18	gravel	52	5	.25	100 00	37
..	..	.....	10	wood	stone	223	.....	..	1,125	16	gravel	650	5	5.25	1,656 57	38
..	..	.....	5	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.50	464 75	39
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	160	6	.50	150 00	40
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	6	.25	203 75	41
..	..	.....	...	.....	.....	.....	.....	..	40	24	gravel	40	6	.12	75 00	42
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	6	.50	223 48	43
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	6	.50	303 00	44
..	..	.....	...	.....	.....	.....	.....	..	160	24	loam	160	6	.50	204 55	45
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	40	6	.12	103 50	46
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	6	.50	150 00	47
..	..	.....	2	cedar	.....	.....	.....	..	80	24	gravel	80	6	.25	100 00	48
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	6	.50	250 50	49
..	..	.....	...	.....	.....	.....	.....	..	240	24	gravel	240	6	.75	200 00	50

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	EAST DIVISION.—*Continued.*								
51	Brunell and Lyndock, Roche road ..	.....	....	.....	....	.....	....	....	.....
52	Brougham, Bruce Hill and Dacre road	.....	....	.....	....	.....	....	....	.....
53	Brougham, Lanes Corner to Church.	.....	....	.....	....	.....	....	....	.....
54	Brougham, Kennelly Mountain road.	.....	....	.....	....	.....	....	....	.....
55	Brougham, Dacre & Mt. St. Patrick..	.....	....	.....	....	.....	....	....	.....
56	Burleigh road	.....	....	.....	....	.....	....	....	.....
57	Calabogie and Ashdad road	.....	....	.....	....	.....	....	....	.....
58	Calvin Township roads	.....	....	.....	....	.....	....	....	20
59	Cameron Township roads	280	40	75	16	gravel	30	6	.....
60	Carden Township roads	.....	....	.....	....	.....	....	....	.....
61	Carlow, Ryan road	.....	....	.....	....	.....	....	....	.....
62	Carlow, Douglas road	.....	....	.....	....	.....	....	....	.....
63	Cavendish, White Lake road	.....	....	.....	....	.....	....	....	.....
64	Cavendish, cons. 1-6	.....	....	.....	....	.....	....	....	.....
65	Chandos Township, Post road	.....	....	.....	....	.....	....	....	.....
66	Chandos, Tanner road	.....	....	.....	....	.....	....	....	.....
67	Chandos, Scott road	.....	....	.....	....	.....	....	....	.....
68	Chandos, Couch road	.....	....	.....	....	.....	....	....	.....
69	Chandos, Wellington road	.....	....	.....	....	.....	....	....	.....
70	Chisholm Township roads	675	40	525	16	gravel	30	6	.....
71	Clarendon and Plevna road	.....	....	.....	....	.....	....	....	950
72	Clarendon, Clarendon and Plevna road	.....	....	.....	....	.....	....	....	.....
73	Clarendon, Mountain road	.....	....	.....	....	.....	....	....	.....
74	Clarendon, Plevna and Lavant road ..	.....	....	.....	....	.....	....	....	.....
75	Dalton, Monck road	.....	....	.....	....	.....	....	....	.....
76	Dalton Township roads	.....	....	.....	....	.....	....	....	.....
77	Darling, con. 8, lot 15	.....	....	.....	....	.....	....	....	.....
78	Darling, con. 1, lots 16-17	.....	....	120	24	gravel	120	6	.....
79	Denbigh and Renfrew Boundary road	.....	....	.....	....	.....	....	....	.....
80	Denbigh, Rose Hill and Vennacher road	.....	....	.....	....	.....	....	....	.....
81	Douro Township road	.....	....	.....	....	.....	....	....	.....
82	Dummer, Factory road	.....	....	.....	....	.....	....	....	.....
83	Dummer, Church line road	.....	....	.....	....	.....	....	....	.....
84	Dummer, Stoney Lake road	.....	....	.....	....	.....	....	....	.....
85	Dungannon Township roads	.....	....	.....	....	.....	....	....	.....
86	Dysart, Haliburton-Eagle Lake road.	08.	66	.....	....	.....	....	....	.....
87	Elziver Township roads	.....	....	.....	....	.....	....	....	.....
88	Ennismore, Pigeon Creek road	.....	....	.....	....	.....	....	....	.....
89	Ennismore, Gannons Narrows road..	.....	....	.....	....	.....	....	....	.....
90	Faraday, Township roads	120	40	120	16	.....	....	....	.....
91	Faraday and Herschel Twp. roads ..	.....	....	.....	....	.....	....	....	.....
92	Ferris Township roads	360	40	170	16	gravel	20	6	.....
93	Field and Bastedo, Field road	120	40	.....	....	.....	....	....	.....
94	Galway, Bobcaygeon road	.....	....	.....	....	.....	....	....	.....
95	Feronia and Widdifield road	240	40	240	16	earth	240	6	.....
96	Glamorgan, Monck road	.....	....	.....	....	.....	....	....	.....
97	Glamorgan, Kinmount Sta., Minden rd.	.....	....	.....	....	.....	....	....	.....
98	Grattan, Caldwell Station road	.....	....	.....	....	.....	....	....	.....
99	Grattan, Fourth Chute road	.....	....	.....	....	.....	....	....	.....
100	Grattan, McGrath road	.....	....	.....	....	.....	....	....	.....

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES,
9.—*Continued.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD									
							Side Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Meterial	Length, rods	Width, feet	MILEAGE	EXPENDITURE	NUMBER
															$ c.	
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	120	6	.41	133 00	51
..	..	.....	...	.....	.....	.....	.....	..	24	16	gravel	80	6	.25	154 00	52
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	6	.50	152 50	53
..	..	.....	...	.....	.....	.....	.....	..	40	24	gravel	80	6	.50	101 50	54
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	6	.25	100 00	55
..	..	.....	2	cedar	.....	.....	.....	..	.....	..	stone	180	5	.56	699 07	56
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	6	.25	107 70	57
..	..	.....	6	wood	.....	.....	.....	..	525	16	gravel	925	6	3.00	1,183 35	58
..	..	.....	5	wood	.....	.....	.....	..	320	16	gravel	240	6	1.85	602 50	59
..	..	.....	3	tile	.....	.....	90	8	822	16	gravel	368	5	3.00	601 54	60
..	..	.....	...	.....	.....	.....	40	20	160	14	.....	.....	..	.50	217 25	61
..	..	.....	...	.....	.....	.....	.....	..	80	16	gravel	80	7	.25	100 50	62
..	..	.....	...	.....	.....	.....	.....	..	100	16	.....	.....	..	.31	100 00	63
..	..	.....	...	.....	.....	.....	.....	..	105	16	.....	.....	..	.32	100 00	64
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	118	5	.35	149 50	65
..	..	.....	1	wood	.....	.....	.....	..	100	16	.....	.....	..	.31	100 55	66
..	..	.....	...	.....	.....	.....	108	16	.....	..	stone	34	6	.10	147 00	67
..	..	.....	3	stone	.....	.....	.....	..	34	16	gravel	50	16	.15	99 89	68
..	..	.....	...	.....	.....	.....	.....	..	45	16	stone	45	5	.13	100 00	69
1	16	wood	17	wood	.....	.....	.....	..	230	16	gravel	380	6	5.00	1,500 00	70
..	..	.....	6	wood	stone	1,180	108	16	370	16	gravel	980	6	4.00	1,500 00	71
..	..	.....	...	.....	.....	.....	.....	..	63	16	gravel	208	8	2.00	401 80	72
..	..	.....	...	.....	stone	60	.....	..	100	40	gravel	40	6	4.00	100 00	73
..	..	.....	...	.....	earth	360	.....	..	97	16	.....	.....	..	.50	300 00	74
..	..	.....	...	.....	.....	.....	.....	..	640	16	gravel	81	5	2.00	100 00	75
..	..	.....	...	.....	.....	.....	45	10	2,390	18	gravel	279	6	7.00	400 00	76
..	..	.....	2	cedar	.....	.....	.....	..	80	24	gravel	80	6	.25	300 75	77
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.38	200 00	78
..	..	.....	...	.....	.....	.....	.....	..	960	18	gravel	160	5	4.50	199 80	79
..	..	.....	...	.....	.....	.....	.....	..	40	14	gravel	55	7	.25	103 89	80
..	..	.....	...	.....	.....	.....	.....	..	120	18	gravel	300	5	.94	200 50	81
..	..	.....	...	.....	.....	.....	.....	..	50	20	stone	40	5	.15	100 00	82
..	..	.....	...	.....	.....	.....	.....	..	70	18	gravel	70	5	.21	99 95	83
..	..	.....	...	.....	.....	.....	150	10	.....	..	stone	191	5	1.59	777 00	84
..	..	.....	3	tile	.....	.....	160	20	280	16	gravel	120	7	1.00	811 07	85
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	2.12	686 69	86
..	..	.....	...	.....	.....	.....	.....	..	160	16	gravel	160	7	.50	208 80	87
..	..	.....	...	.....	.....	.....	.....	..	85	20	gravel	85	5	.26	102 00	88
..	..	.....	...	.....	.....	.....	.....	..	80	22	gravel	62	5	.35	200 00	89
..	..	.....	4	cedar	.....	.....	.....	..	580	16	gravel	420	7	2.00	707 39	90
..	..	.....	2	cedar	.....	.....	160	20	320	14	gravel	160	7	1.00	303 50	91
..	..	.....	26	wood	.....	.....	.....	..	1,480	16	gravel	440	7	9.00	1,411 75	92
..	..	.....	...	.....	earth	400	.....	..	.....	..	.....	.....	..	.38	650 00	93
..	..	.....	...	.....	.....	.....	.....	..	150	18	gravel	65	5	.66	502 55	94
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	.....	..	.75	279 99	95
..	..	.....	...	.....	.....	.....	30	10	165	16	gravel	150	6	2.00	312 00	96
..	..	.....	5	wood	stone	220	85	18	80	18	gravel	105	8	.66	414 12	97
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	101 00	98
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	80	10	.25	200 00	99
..	..	.....	...	.....	.....	.....	.....	..	320	24	gravel	320	10	1.00	203 75	100

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	EAST DIVISION.—*Continued.*								
101	Grattan, O'Brien road	.....	....	.....	....	.....	....	....	.....
102	Grattan, Opeongo line road	.....	....	.....	....	.....	....	....	.....
103	Grattan, Gorman road	.....	....	.....	....	.....	....	....	.....
104	Grattan, Dacre and Caldwell road	.....	....	.....	....	.....	....	....	.....
105	Griffith and Matawatchan Tp. roads	.....	....	.....	....	.....	....	....	.....
106	Griffith and Dacre Township roads	.....	....	.....	....	.....	....	....	.....
107	Hagerty, Richards and Burns roads	80	40	40	24	gravel	40	10	.....
108	Harvey Township roads	.....	....	.....	....	.....	....	....	.....
109	Head, Clara and Maria Twp. roads	400	40	160	16	.....	....	....	.....
110	Herschel, Mud Creek bridge, fill	...	....	.....	....	.....	....	....	.....
111	Hinchinbrooke Township roads	.....	....	.....	....	.....	....	....	.....
112	Horton Township roads	.....	....	.....	....	.....	....	....	.....
113	Howe Island Ferry road	.....	....	.....	....	.....	....	....	.....
114	Hungerford Township roads	.....	....	.....	....	.....	....	....	.....
115	Huntingdon Township roads	.....	....	.....	....	.....	....	....	.....
116	Kennebec Tp., Arden and Horseshoe	.....	....	.....	....	.....	....	....	.....
117	Laxton, Digby and Longford roads	.....	....	.....	....	.....	....	....	.....
118	Limerick Township roads	.....	....	.....	....	.....	....	....	.....
119	Loughboro, Eel Lake road	.....	....	.....	....	.....	....	....	.....
120	Lutterworth Township roads	.....	....	.....	....	.....	....	....	.....
121	Lyell Township roads	280	40	280	16	.....	....	....	.....
122	Madawaska and Hastings Twp. roads	.....	....	.....	....	.....	....	....	.....
123	Madoc Township roads	.....	....	.....	....	.....	....	....	.....
124	Mattawan Township roads	.....	....	.....	....	.....	....	....	.....
125	Mayo Township roads	.....	....	.....	....	.....	....	....	.....
126	McNabb Township roads	.....	....	.....	....	.....	....	....	.....
127	Methune Township roads	.....	....	.....	....	.....	....	....	.....
128	Miller, Abinger and Miller road	.....	....	.....	....	.....	....	....	.....
129	Minden and Dorset Township roads	840	30	225	16	gravel	60	6	.....
130	Monmouth Township roads	.....	....	.....	....	.....	....	....	.....
131	Monteagle and Herschel Twp. roads	.....	....	.....	....	.....	....	....	10
132	Noelville-St. Charles roads	.....	....	.....	....	.....	....	....	.....
133	North Algona Township roads	.....	....	.....	....	.....	....	....	.....
134	North Crosby Township roads	.....	....	.....	....	.....	....	....	.....
135	Olden Township roads	.....	....	.....	....	.....	....	....	.....
136	Oso, Crow Lake road	.....	....	.....	....	.....	....	....	310
137	Oso, Armstrong road	42	40	42	20	gravel	42	6	.....
138	Oso and Bedford road	87	20	87	20	.....	....	....	.....
139	Pakenham Township roads	.....	....	.....	....	.....	....	....	.....
140	Palmerston Township roads	280	40	80	18	gravel	245	6	178
141	Papineau Township roads	.....	....	.....	....	.....	....	....	.....
142	Pembroke Township roads	.....	....	.....	....	.....	....	....	.....
143	Pettawawa Township roads	.....	....	.....	....	.....	....	....	.....
144	Phelps Township road	305	40	370	18	gravel	9	10	.....
145	Radcliffe Township roads	.....	....	.....	....	.....	....	....	.....
146	Raglan Township roads	.....	....	.....	....	.....	....	....	160
147	Rama Township roads	300	15	.....	....	.....	....	....	.....
148	Ramsay, 7th line road	.....	....	.....	....	.....	....	....	.....
149	Ratter, lot 2, con. 2	.....	....	.....	....	.....	....	....	.....
150	Ratter, Hagar-St. Charles	640	40	600	20	.....	....	....	.....

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES,
9.—*Concluded.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	99 00	101
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	10	.38	150 00	102
..	..	.....	...	.....	.....	.....	.....	..	120	24	gravel	120	10	.38	156 25	103
..	..	.....	...	.....	.....	.....	.....	..	80	24	gravel	80	10	.25	231 00	104
..	..	.....	6	cedar	.....	.....	.....	..	340	24	gravel	540	5	1.50	942 00	105
..	..	.....	2	cedar	.....	.....	.....	..	720	24	gravel	720	10	2.25	714 75	106
..	..	.....	2	wood	.....	.....	.....	..	1,640	24	gravel	2,160	10	7.12	2,201 68	107
..	..	.....	1	tile	.....	.....	.....	..	60	18	gravel	222	5	.69	420 75	108
..	..	.....	3	wood	.....	.....	.....	..	50	16	gravel	20	6	2.50	402 50	109
1	93	wood	...	.....	earth	850	.....	..	16	22	.....	.....	..	10.00	3,445 44	110
..	..	.....	5	tile	earth	110	.....	..	340	14	gravel	133	12	1.41	698 30	111
..	..	.....	...	.....	.....	.....	.....	..	160	24	gravel	160	10	.50	200 00	112
..	..	.....	...	.....	stone	157	.....	..	.....	..	gravel	20	5	.06	400 00	113
..	..	.....	...	.....	.....	.....	.....	..	100	16	gravel	200	7	1.00	384 44	114
..	..	.....	...	.....	.....	.....	.....	..	80	14	gravel	80	7	.25	100 50	115
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	175	8	.50	201 11	116
..	..	.....	6	stone	earth	45	8	16	426	18	gravel	243	7	6.25	601 42	117
..	..	.....	3	cedar	.....	.....	.....	..	160	14	gravel	320	7	1.00	200 97	118
..	..	.....	3	tile	.....	.....	.....	..	147	18	gravel	129	8	.50	201 15	119
..	..	.....	3	wood	.....	.....	507	16	97	18	gravel	142	6	2.50	316 70	120
..	..	.....	3	wood	.....	.....	.....	..	180	16	.....	.....	..	1.50	527 50	121
..	..	.....	5	wood	.....	.....	.....	..	470	16	gravel	20	6	1.50	520 00	122
..	..	.....	2	iron	stone	100	.....	..	40	16	gravel	40	7	.12	200 75	123
..	..	.....	7	wood	.....	.....	.....	..	350	16	gravel	140	6	1.75	607 00	124
..	..	.....	3	cedar	cord'y	110	.....	..	200	16	gravel	220	7	1.00	632 14	125
..	..	.....	...	.....	.....	.....	.....	..	440	30	gravel	440	10	1.50	1,208 00	126
..	..	.....	2	cedar	.....	.....	.....	..	134	16	gravel	280	5	.89	302 00	127
..	..	.....	...	.....	earth	40	.....	..	40	14	gravel	190	8	.50	200 00	128
13	16	wood	25	wood	stone	20	2,995	10	3,429	16	gravel	2,100	5	14.00	2,733 97	129
1	15	wood	10	wood	.....	.....	395	40	640	20	gravel	1.100	5	3.75	700 00	130
..	..	.....	3	cedar	.....	.....	80	20	564	20	gravel	360	5	2.25	913 64	131
1	16	wood	2	wood	earth	81	2,080	50	80	18	.....	.....	..	6.00	2,493 63	132
..	..	.....	...	.....	.....	.....	.....	..	80	30	gravel	200	10	.62	378 75	133
..	..	.....	1	tile	stone	177	.....	..	199	18	gravel	161	6	.75	457 65	134
..	..	.....	4	tile	.....	.....	5	20	320	18	gravel	410	6	2.25	401 75	135
..	..	.....	...	.....	.....	.....	.....	..	320	14	gravel	310	6	1.00	299 56	136
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.13	200 50	137
..	..	.....	...	.....	stone	165	.....	..	.....	..	.....	.....	..	.26	300 00	138
..	..	.....	...	.....	earth	30	.....	..	280	40	gravel	280	6	.88	700 90	139
..	..	.....	5	cedar	stone	485	.....	..	162	14	gravel	355	6	2.50	1,180 70	140
..	..	.....	14	wood	earth	30	.....	..	1,720	16	gravel	280	6	6.00	1,524 75	141
..	..	.....	...	.....	.....	.....	.....	..	640	24	gravel	640	10	2.00	881 00	142
..	..	.....	2	tile	earth	250	.....	..	440	40	gravel	440	6	1.75	599 50	143
..	..	.....	14	wood	.....	.....	.....	..	.....	..	.....	.....	..	.88	511 65	144
..	..	.....	7	cedar	.....	.....	.....	..	920	24	gravel	900	6	2.50	1,007 50	145
..	..	.....	6	cedar	.....	.....	.....	..	400	24	gravel	400	6	2.00	633 49	146
..	..	.....	...	.....	earth	30	400	20	275	7	gravel	275	7	2.75	1,204 02	147
..	..	.....	...	.....	.....	.....	.....	..	160	40	gravel	160	10	.50	299 00	148
..	..	.....	...	iron	earth	600	6	66	.....	..	.....	.....	..	.02	450 00	149
..	..	.....	13	wood	rock-e	527	.....	..	.....	..	.....	.....	..	3.00	1,500 00	150

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COI
ONTARIO,

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	EAST DIVISION.—*Continued.*								
151	Rear of Yonge Township roads	.....	....	.....	....	.....	....	....	.....
152	Rolph, Buchanan & Wylie Twp. roads	.....	....	.....	....	.....	....	....	.....
153	Ross Township roads	.....	....	.....	....	.....	....	....	.....
154	Sabine Township roads	320	40	320	18	.....	....	....	.....
155	Sebastopol Township roads	40	50	.....	....	gravel	40	10	160
156	Sheffield Township roads	.....	....	.....	....	.....	....	....	.....
157	Sherwood & Jones Township roads	.....	....	.....	....	.....	....	....	.....
158	Smith Township, Buckhorn road	.....	....	.....	....	.....	....	....	.....
159	Somerville, Bobcaygeon road	.....	....	.....	....	.....	....	....	.....
160	South Crosby Township roads	.....	....	.....	....	.....	....	....	.....
161	South Algona Township roads	.....	....	.....	....	.....	....	....	.....
162	South Algona (Dunnigan)	.....	....	.....	....	no work	done	....	.....
163	Stafford Township roads	.....	....	.....	....	.....	....	....	.....
164	Storrington Township roads	.....	....	.....	....	.....	....	....	200
165	Tudor and Cashel Township roads	.....	....	.....	....	.....	....	....	.....
166	Wollaston Township roads	.....	....	.....	....	.....	....	....	.....
167	Westmeath Township roads	.....	....	.....	....	.....	....	....	.....
168	Widdifield Township roads	60	40	60	18	.....	....	....	.....
169	Wilberforce Township roads	.....	....	.....	....	.....	....	....	.....
170	Yonge, Escott road	.....	....	.....	....	.....	....	....	.....
	Total	6,974	....	4,069	....	.....	1021	....	2,311

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, 1919.—*Concluded.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
..	..	.....	...	.....	rock	677	.....	..	45	18	.....	.....	..	.13	907 87	151
..	..	.....	3	cedar	.....	.....	.....	..	200	24	gravel	360	7	1.10	500 00	152
..	..	.....	...	.....	.....	.....	.....	..	560	24	gravel	580	6	1.75	837 00	153
..	..	.....	7	wood	.....	.....	.....	..	397	16	gravel	50	6	2.50	531 74	154
..	..	.....	3	cedar	.....	.....	.....	..	440	24	gravel	480	10	2.00	657 75	155
..	..	.....	4	wood	rock	473	20	10	223	14	gravel	410	6	1.75	901 22	156
..	..	.....	6	cedar	.....	.....	.....	..	760	20	gravel	820	6	3.00	1,203 55	157
..	..	.....	...	.....	.....	.....	.....	..	169	18	gravel	112	5	.53	301 10	158
..	..	.....	3	tile	stone	110	170	32	165	18	gravel	190	6	1.00	375 00	159
..	..	.....	...	.....	.....	.....	95	18	.....	..	gravel	301	8	1.12	397 98	160
..	..	.....	1	cedar	.....	.....	.....	..	600	24	gravel	422	6	2.00	854 75	161
..	..	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.....	500 00	162
..	..	.....	...	.....	.....	.....	.....	..	240	24	gravel	240	10	.75	325 00	163
..	..	.....	4	wood	.....	.....	.....	..	267	16	gravel	479	10	1.75	700 60	164
..	..	.....	9	cedar	.....	.....	210	20	800	14	gravel	.....	..	2.50	808 86	165
..	..	.....	1	tile	.....	.....	.....	..	80	16	gravel	80	7	.25	200 00	166
..	..	.....	...	.....	.....	.....	.....	..	480	30	gravel	480	5	1.75	726 53	167
2	18	wood	13	wood	.....	.....	.....	..	535	16	gravel	1,502	7	7.00	1,374 95	168
..	..	.....	2	wood	.....	.....	.....	..	1,280	24	gravel	1,280	6	4.00	1,659 47	169
..	..	.....	...	.....	.....	.....	.....	..	.....	..	gravel	107	8	.50	100 00	170
..	75	.....	380	.....	.....	11,615	8.827	..	51,665	..	.....	39,182	..	245.81	88,101 03	

SCHEDULE SHOWING THE AMOUNT OF ROAD CONSTRUCTION, CO

NUMBER	TOWNSHIP	Cleared and Stumped		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
	EAST DIVISION.							
1	Admaston By-law No. 231	.....	....	1,120	24	gravel	1,280	10
2	Bagot and Blythfield By-law No. 325	.....	....	520	30	gravel	520	10
3	Bedford By-law No. 37 B	.....	....	112	16	gravel	305	7
4	Belmont By-law No. 606	.....	....	120	18	stone	302	5
5	Bromley By-law No. 281	.....	....	960	30	gravel	960	10
6	Caldwell By-law No. 271	.....	....	2,265	20	gravel	740	5
7	Camden By-law No. 485	.....	....	.....	....	stone	1,628	6
8	Cardiff By-law No. 538	503	10	3,813	18	gravel	75	6
9	Carlow By-law No. 112	140	20	400	16	gravel	240	7
10	Casimer, etc., By-law No. 84	.....	....	990	20	gravel	58	7
11	Chisholm By-law No. 94	.....	....	40	18	.....	.....	....
12	Cosby and Mason By-law No. 41	.....	....	1,400	20	gravel	110	8
13	Dourc By-law No. 869	.....	....	325	18	gravel	185	5
14	Dummer By-law No. 864	.....	....	820	16	stone	229	6
15	Dungannon By-law No. 89	120	20	360	16	gravel	50	7
16	Dysart By-law No. 603	3,610	12	7,310	16	gravel	1,787	5
17	Eldon By-law No. 486	.....	....	294	18	stone	586	5
18	Elzevir By-law No. 38 A	.....	....	14	14	gravel	600	7
19	Front of Leeds By-law No. 739	.....	....	265	18	stone	1,756	6
20	Grattan By-law No. 271	.....	....	1,400	30	gravel	1,400	10
21	Hinchinbrooke By-law No. 4	.....	....	862	16	gravel	1,713	8
22	Hungerford By-law No. 224	.....	....	180	14	gravel	240	7
23	Hungerford By-law No. 228	.....	....	30	16	gravel	80	5
24	Huntingdon By-law No. 406	.....	....	400	16	gravel	480	7
25	Limerick By-law No. 4	80	20	320	14	gravel	480	7
26	Loughboro By-law No. 111 A	.....	....	60	18	stone	360	8
27	Madoc By-law No. 44	.....	....	480	14	gravel	500	7
28	Marmora and Lake By-law No. 538	.....	....	720	16	gravel	880	7
29	Martland By-law No. 133	.....	....	960	20	gravel	820	6
30	Mayo By-law No. 334	40	20	280	16	gravel	160	7
31	Monteagle and Herschel By-law No. 483.	.....	....	560	14	.....	.....	....
32	Minden By-law No. 318	1,530	8	1,737	12	gravel	668	5
33	Olden By-law No. 50 B	.....	....	1,023	16	gravel	1,115	8
34	Oso By-law No. 154	15	40	774	18	gravel	1,177	7
35	Pittsburg By-law No. 4	.....	....	.....	....	stone	585	8
36	Portland By-law No. 612	.....	....	.....	....	stone	160	8
37	Rama By-law No. 362	.....	....	.....	....	stone	814	6
38	Ratter and Dunnett By-law No. 22	920	12	2,640	18	gravel	1,040	6
39	Rawdon By-law No. 403	.....	....	320	14	gravel	400	7
40	Richmond By-law No. 657	.....	....	.....	....	stone	405	8
41	Ross By-law No. 363	.....	....	1,680	30	gravel	1,680	10
42	Sheffield By-law No. 634	.....	....	64	16	gravel	265	8
43	Sherwood and Jones By-law No. 20	.....	....	940	24	gravel	940	10
44	Snowden By-law No. 198	1,150	10	2,605	16	gravel	783	6
45	Somerville By-law No. 710	114	15	236	16	gravel	528	6
46	Springer By-law No. 305	.....	....	750	20	gravel	668	8
47	Stafford By-law No. 691	.....	....	680	30	gravel	760	10
48	Stanhope By-law No. 348	50	10	2,202	16	gravel	225	7
49	Storrington By-law No. 477	.....	....	.....	....	stone	565	8
50	Tudor and Cashel By-law No. 12	.....	....	1,280	14	gravel	1,200	7
51	Tyendinaga By-law No. 681	.....	....	400	16	gravel	640	7
52	Westmeath By-law No. 220	.....	....	1,360	24	gravel	1,360	10
53	Wollaston By-law No. 1	.....	....	160	14	stone	400	7
54	Wollaston By-law No. 7 (Purchase of stone crusher)	.....	....	.....	....	.....	.....	....
	Total	8,272	....	46,281	....	.....	34,892	....

LONIZATION ROADS BRANCH, UNDER MUNICIPAL BY-LAWS, 1919.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cubic yards	Number	Span, feet	Material	Number	Material				
										$ c.	
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	1,050 00	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.63	1,000 67	2
.....	.....	.....	.....	.....	.....	2	metal	.....	1.75	450 00	3
.....	.....	.....	.....	.....	.....	1	metal	.....	1.25	600 00	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	1,225 00	5
.....	rock	230	.....	.....	.....	2	metal	.....	15.00	1,271 01	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.10	1,000 00	7
125	.....	.....	.....	.....	.....	35	wood	.....	22.00	1,000 00	8
.....	.....	.....	.....	.....	.....	6	cedar	.....	1.25	450 00	9
375	.....	.....	.....	.....	.....	.....	.....	.....	5.00	550 00	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	524 82	11
.....	.....	.....	.....	.....	.....	22	wood	.....	8.00	349 09	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.10	150 00	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	300 00	14
.....	.....	.....	.....	.....	.....	10	cedar	.....	1.12	300 00	15
400	earth	200	.....	.....	.....	35	wood	.....	57.00	2,986 87	16
20	.....	.....	1	35	cem't	2	metal	.....	2.00	799 60	17
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	400 00	18
.....	.....	.....	.....	.....	.....	6	metal	.....	6.00	1,427 32	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.50	1,009 80	20
1,000	stone	200	.....	.....	.....	16	metal	.....	11.00	950 00	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	200 00	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.25	50 00	23
.....	.....	.....	.....	.....	.....	1	cedar	.....	1.50	299 98	24
.....	.....	.....	.....	.....	.....	3	cedar	.....	1.50	400 00	25
120	.....	.....	.....	.....	.....	.....	.....	.....	1.50	350 00	26
.....	.....	.....	.....	.....	.....	3	metal	.....	2.00	400 00	27
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	500 00	28
.....	.....	.....	.....	3	wood	5	wood	.....	6.00	674 42	29
.....	.....	.....	.....	.....	.....	9	cedar	.....	1.00	350 00	30
.....	.....	.....	.....	10	cedar	8	cedar	.....	2.00	400 00	31
.....	.....	.....	1	20	wood	11	wood	.....	8.00	700 00	32
.....	.....	.....	.....	.....	.....	11	metal	.....	4.00	750 00	33
.....	earth	420	.....	.....	.....	19	stone	.....	4.00	1,200 00	34
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.80	450 00	35
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.32	500 00	36
.....	earth	150	.....	.....	.....	.....	.....	.....	2.75	800 00	37
300	.....	.....	.....	.....	.....	10	wood	.....	10.00	675 00	38
.....	.....	.....	.....	.....	.....	3	cedar	.....	1.25	400 00	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.51	500 00	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.25	1,500 00	41
60	.....	.....	.....	.....	.....	4	metal	.....	1.50	298 25	42
.....	cement	225	.....	.....	.....	.....	.....	.....	3.00	1,200 00	43
.....	.....	.....	2	16	wood	14	wood	.....	10.00	699 97	44
16	stone	125	.....	.....	.....	2	metal	.....	3.00	500 00	45
.....	.....	.....	.....	.....	.....	3	wood	.....	3.00	996 22	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	596 58	47
150	rock	40	.....	.....	.....	15	wood	.....	8.00	350 00	48
.....	.....	.....	.....	.....	.....	1	tile	.....	2.00	450 00	49
.....	.....	.....	.....	.....	.....	3	cedar	.....	4.00	750 00	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.25	500 00	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.25	1,000 00	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.25	350 00	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500 00	54
2,566	.....	1,590	7	.....	.....	262	.....	.....	262.83	37,084 60	

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARI

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	TIMISKAMING.								
1	Armstrong, from the T.N.O. west	.....	....	.....	....	.....	....	....	.....
2	Armstrong, cons. 3-4, to Earlton	.....	....	.....	....	.....	....	....	.....
3	Armstrong, con. 1, lots 2-3	160	40	300	24	.....	....	....	160
4	Armstrong, cons. 2-3, lots 10-11	.....	....	.....	....	.....	....	....	.....
5	Armstrong, con. 6, lots 2-3	240	30	240	30	.....	....	....	.....
6	Armstrong, between lots 4-5	.....	....	.....	....	.....	....	....	.....
7	Barber, between lots 2-3, Leeville	262	24	107	16	.....	....	....	234
8	Barber and Cane, townline	.....	....	.....	....	.....	....	....	.....
9	Barber and Tudhope, lots 1-2	.....	....	.....	....	.....	....	....	.....
10	Brethour, cons. 4-5, lots 1-6	160	30	.....	....	gravel	12	5	320
11	Brethour, cons. 5-6, lots 4, 5, 6	240	30	240	24	.....	....	....	480
12	Brethour, cons. 5-6, lots 6-7	.....	....	.....	....	.....	....	....	655
13	Brethour, T.L., lots, 2, 3, 4	.....	....	.....	....	.....	....	....	60
14	Brethour and Casey, T.L., lot 4	.....	....	.....	....	.....	....	....	.....
15	Bucke, High Falls west, con. 4	.....	....	.....	....	.....	....	....	.....
16	Bucke, Wabi River road	.....	....	.....	....	.....	....	....	6
17	Bucke, Mill Creek road	.....	....	.....	....	.....	....	....	.....
18	Bucke, Lakeview to McDonalds	.....	....	.....	....	.....	....	....	.....
19	Bucke, Main road south	.....	....	.....	....	.....	....	....	50
20	Cane, lots 1-2, cons. 5-6	.....	....	.....	....	.....	....	....	70
21	Cane, lots 4, 5, con. 5	.....	....	.....	....	.....	....	....	160
22	Cane, lots 8-9, cons. 5-6	320	35	20	30	.....	....	....	25
23	Cane, lots 6-7, from Oso	.....	....	.....	....	.....	....	....	.....
24	Cane, cons. 5-6 ,lots 11-12	320	24	.....	....	.....	....	....	200
25	Cane, lots, 10-11, con. 4	160	30	.....	....	.....	....	....	36
26	Cane, lots 4-5, cons. 3-4	.....	....	.....	....	.....	....	....	.....
27	Cane, between lots 4-5, con. 2	91	30	91	22	.....	....	....	190
28	Casey, cons. 3-4, lots 1-2	.....	....	.....	....	.....	....	....	320
29	Casey, Cobalt road	.....	....	.....	....	.....	....	....	.....
30	Casey, Mine road	.....	....	118	24	.....	....	....	500
31	Casey, con. 6, lots 9-10	.....	....	160	16	.....	....	....	160
32	Casey, T.L. north between lots 4-5	240	30	80	26	.....	....	....	160
33	Casey, lots 6-7, cons. 3-4	.....	....	.....	....	.....	....	....	180
34	Casey, T.L., con. 3	.....	....	.....	....	.....	....	....	640
35	Dymond, lots 6-7, con. 6	.....	....	.....	....	.....	....	....	240
36	Dymond, North road, cons. 5-6	.....	....	.....	....	.....	....	....	.....
37	Dymond, North road, con. 6	.....	....	.....	....	.....	....	....	.....
38	Dymond, west road	.....	....	.....	....	.....	....	....	210
39	Firstbrook, Main road, lots 1-4	.....	....	.....	....	.....	....	....	340
40	Firstbrook, Drapo road, con. 2	324	40	320	20	.....	....	....	.....
41	Firstbrook, cons. 2-3	.....	....	.....	....	.....	....	....	.....
42	Henwood, lots 2-3, con. 4	.....	....	.....	....	.....	....	....	160
43	Henwood, lots 2-3, con. 6	260	40	200	24	.....	....	....	160
44	Henwood, cons. 2-3, lots 5-6	.....	....	.....	....	.....	....	....	460
45	Henwood, lots 11-12, con. 3	.....	....	.....	....	.....	....	....	.....
46	Henwood, lots 8-9, con. 6	100	33	100	24	.....	....	....	200
47	Henwood, cons. 4-5, lots 7-12	.....	....	.....	....	.....	....	....	.....
48	Henwood, cons. 5-6, lot 9	160	30	100	22	.....	....	....	.....
49	Henwood, between lots 6-7, cons. 3-4	.....	....	.....	....	.....	....	....	.....
50	Henwood, cons. 3-4, lots 6, 7, 8	.....	....	.....	....	.....	....	....	400

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, O, 1919.

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
..	..	.....	1	wood	.....	.....	.....	..	.....	..	gravel	80	8	.25	817 07	1
..	..	.....	..	.....	.....	.....	200	20	320	22	.....	.....	..	1.00	402 05	2
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	500 00	3
1r	..	wood	3	wood	earth	1,015	.....	..	.....	..	.....	.....	..	.50	296 70	4
2	64	wood	2	wood	earth	533	.....	..	.....	..	.....	.....	..	1.00	508 00	5
..	..	.....	..	.....	.....	.....	.....	..	300	24	gravel	194	7	1.00	408 75	6
1	16	wood	1	wood	earth	55	.....	..	.....	..	.....	.....	..	1.00	705 47	7
1	16	wood	4	wood	.....	.....	.....	..	640	24	.....	.....	..	2.00	396 14	8
..	..	.....	1	wood	earth	287	.....	..	.....	..	earth	40	8	1.00	300 50	9
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	501 25	10
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	500 00	11
..	..	.....	1	wood	.....	.....	.....	..	640	24	.....	.....	..	2.00	699 00	12
..	..	.....	1	wood	.....	.....	.....	..	.....	..	gravel	272	8	1.00	801 05	13
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	213	7	.70	493 07	14
..	..	.....	4	wood	earth	118	.....	..	400	24	gravel	116	7	2.00	500 00	15
..	..	.....	1	wood	earth stone	493 342	....	..	30	24	.....	.....	..	2.00	500 00	16
..	..	.....	..	.....	.....	.....	.....	..	.....	..	stone	186	7	.75	302 93	17
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	75	8	.25	199 67	18
..	..	.....	..	.....	stone	20	.....	..	30	24	stone	213	7	2.00	502 12	19
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	107	7	.50	362 85	20
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	397 75	21
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	499 87	22
..	..	.....	..	.....	.....	.....	.....	..	80	24	gravel	35	7	.25	199 00	23
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	602 60	24
..	..	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	394 00	25
..	..	.....	1	wood	.....	.....	.....	..	380	24	gravel	82	7	1.25	201 07	26
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	300 62	27
..	..	.....	..	.....	.....	.....	.....	..	..	..	earth	265	7	1.25	613 58	28
..	..	.....	..	.....	.....	.....	.....	..	.....	..	stone	100	..	.50	236 00	29
..	..	.....	7	wood	.....	.....	.....	..	387	24	stone	20	6	1.50	602 12	30
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	499 18	31
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.75	701 81	32
..	..	.....	1	wood	.....	.....	.....	..	120	24	gravel	160	7	1.00	900 00	33
..	..	.....	..	.....	.....	.....	320	10	.....	..	earth	140	6	1.00	400 00	34
1	33	wood	2	wood	earth	1,058	.....	..	320	22	earth	58	7	2.50	798 75	35
..	..	.....	..	.....	earth	40	.....	..	240	24	gravel	139	7	3.00	998 05	36
..	..	.....	..	.....	stone	55	.....	..	160	30	gravel	100	7	.50	747 12	37
..	..	.....	4	wood	.....	.....	.....	..	560	24	gravel	600	8	2.00	2,000 00	38
..	..	.....	9	wood	.....	.....	.....	..	480	24	gravel	173	7	2.00	1,007 40	39
2	36	wood	1	wood	earth	55	.....	..	.....	..	.....	.....	..	1.00	500 00	40
1	75	wood	2	wood	stone	55	160	15	160	24	gravel	30	7	1.50	500 00	41
..	..	.....	1	metal	.....	.....	.....	..	320	24	.....	.....	..	1.00	500 36	42
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	301 40	43
1	18	wood	2	wood	.....	.....	.....	..	240	22	.....	.....	..	.75	399 61	44
..	..	.....	1	wood	earth	177	.....	..	320	22	.....	.....	..	1.00	300 00	45
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	200 35	46
..	..	.....	5	wood	.....	.....	.....	..	800	24	gravel	14	7	3.00	519 50	47
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	299 14	48
..	..	.....	..	.....	earth	60	.....	..	360	24	.....	.....	..	2.00	400 00	49
..	..	.....	..	.....	.....	.....	.....	..	370	24	.....	.....	..	1.25	399 62	50

SCHEDULE SHOWING AMOUNT OF ROAD CONSTRUCTION UNDER THE COL
ONTARIO, 191

NUMBER	NAME AND LOCATION OF WORK	NEW ROAD							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
	TIMISKAMING.—*Continued.*								
51	Henwood, lots 10-11, cons. 5-6	.....	....	.....	....	.....	....	....	.....
52	Harris, lots 4-5, con. 6	.....	....	.....	....	.....	....	....	340
53	Harris, T.L., lots 2-3, north	.....	....	.....	....	.....	....	....	.....
54	Harris, lots 2-3, con. 6	.....	....	.....	....	.....	....	....	110
55	Harris, cons. 5-6, lots 1-4	.....	....	.....	....	.....	....	....	.....
56	Harris, Lake Shore road	.....	....	.....	....	.....	....	....	76
57	Harris, cons. 2-3, lot 1	.....	....	.....	....	.....	....	....	.....
58	Hudson, lots 2-3, cons. 2-3	.....	....	.....	....	.....	....	....	58
59	Hudson, lots 6-7, con. 5	.....	....	.....	....	.....	....	....	440
60	Hudson, cons. 3-4, lots 1-7	.....	....	.....	....	.....	....	....	.....
61	Hudson, T.L., lot 6	.....	....	.....	....	.....	....	....	.....
62	Hudson, lots 3-4	.....	....	.....	....	.....	....	....	.....
63	Hudson, T.L., Kerns, lots 2, 3, 4	.....	....	.....	....	.....	....	....	.....
64	Hudson, T.L., Kerns, lots 9-10	.....	....	200	24	gravel	115	7	350
65	Harley, cons. 5-6, lots 10-12	.....	....	.....	....	.....	....	....	400
66	Harley, cons. 4-5, lots 11-12	.....	....	.....	....	.....	....	....	.....
67	Harley, lots 819, con. 5	.....	....	.....	....	.....	....	....	.....
68	Harley, lots 4-5, con. 4	.....	....	.....	....	.....	....	....	.....
69	Harley, between lots 2-3, con. 4	240	10	.....	....	.....	....	....	204
70	Harley, cons. 5-6, lots 4, 5, 6	160	30	160	30	gravel	80	7	.....
71	Harley, T.L., Casey, con. 6	.....	....	.....	....	.....	....	....	420
72	Harley-Dymond, North road, west	.....	....	.....	....	.....	....	....	.....
73	Harley-Hilliard, T.L., lots 9-11	.....	....	.....	....	.....	....	....	.....
74	Hilliard, lots 3, 4, 5, con. 4	.....	....	.....	....	.....	....	....	.....
75	Hilliard, lots 8-9, cons. 1-2	.....	....	.....	....	.....	....	....	.....
76	Hilliard, lots 6-7, cons. 5-6	.....	....	.....	....	.....	....	....	130
77	Hilliard, lots 4-5, con. 3	100	10	180	24	.....	....	....	75
78	Hilliard, lots 6-7, con. 5-6	.....	....	.....	....	.....	....	....	665
79	Hilliard, lots 2-3, con. 6	.....	....	.....	....	.....	....	....	225
80	Hilliard, Gravel Pit road	258	25	.....	....	.....	....	....	.....
81	Hilliard, Armstrong T.L., cons. 1-4	.....	....	.....	....	.....	....	....	.....
82	Hilliard, Harley, T.L., lot 2-8	.....	....	.....	....	.....	....	....	15
83	Ingram T.L., lots 3-4	60	33	320	24	.....	....	....	640
84	Kerns, cons. 3-4, lots 1, 2, 3	.....	....	.....	....	.....	....	....	.....
85	Kerns, lots 6-7, con. 6	30	30	.....	....	.....	....	....	280
86	Kerns-Armstrong T.L., east	.....	....	.....	....	.....	....	....	.....
87	Kerns-Armstrong T.L., T.N.O.	.....	....	.....	....	.....	....	....	.....
88	Kerns-Harley, T.L., lots 4, 5, 6	.....	....	.....	....	.....	....	....	.....
89	Kerns-Henwood T.L., cons. 3-6	.....	....	.....	....	.....	....	....	.....
90	Tudhope, lots 4-5, con. 2	160	40	260	20	.....	....	....	70
91	Tudhope, lots 2-3, con. 1	.....	....	370	15	.....	....	....	370
	Total	4,045	....	3,566	....	.....	207	....	11,644

ONIZATION ROADS BRANCH, DEPARTMENT OF LANDS, FORESTS AND MINES, 9.—*Continued.*

BRIDGES			CULVERTS		CUT AND FILL		OLD ROAD							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
..	..	.....	..	.....	.....	.....	.....	..	160	24	gravel	160	7	.50	500 00	51
..	..	.....	2	wood	rock	10	.....	..	.....	..	.....	.....	..	1.00	535 02	52
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	240	..	.75	700 00	53
..	..	.....	2	wood	earth	800	.....	..	370	22	.....	.....	..	2.00	834 50	54
..	..	.....	..	.....	stone	221	.....	..	.....	..	gravel	6	..	.50	301 54	55
..	..	.....	4	wood	.....	.....	.....	..	660	16	gravel	172	6	2.00	352 00	56
..	..	.....	..	.....	earth	693	.....	..	.....	..	.....	.....	..	.50	350 00	57
..	..	.....	..	.....	.....	.....	.....	..	320	24	gravel	100	6	2.00	499 70	58
..	..	.....	..	.....	gravel	120	.....	..	80	24	gravel	80	8	1.50	500 00	59
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	357	7	1.50	1,000 52	60
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	240	7	.75	404 97	61
..	..	.....	..	.....	.....	.....	.....	..	640	24	gravel	160	7	2.00	600 00	62
..	..	.....	..	.....	.....	.....	.....	..	320	24	gravel	310	6	1.00	806 30	63
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.75	300 62	64
..	..	.....	..	.....	.....	.....	.....	..	160	24	.....	.....	..	1.00	302 50	65
..	..	.....	..	.....	.....	.....	.....	..	380	24	.....	.....	..	1.25	275 00	66
..	..	.....	..	.....	earth	743	.....	..	.....	..	gravel	30	7	.50	399 18	67
..	..	.....	..	.....	earth	1,031	.....	..	.....	..	.....	.....	..	.25	200 00	68
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.75	300 00	69
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	202 53	70
..	..	.....	..	.....	.....	.....	.....	..	320	26	.....	.....	..	1.00	400 07	71
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	240	7	.75	800 00	72
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	208	7	.75	500 95	73
..	..	.....	1	wood	.....	.....	.....	..	60	24	gravel	110	8	.50	401 76	74
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	340	7	1.50	600 00	75
..	..	.....	..	.....	gravel	148	.....	..	70	24	gravel	35	7	1.50	200 00	76
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	298 50	77
..	..	.....	1	wood	.....	.....	.....	..	160	24	earth	190	8	1.00	300 00	78
..	..	.....	1	wood	.....	.....	60	8	.....	..	earth	60	8	1.00	235 32	79
..	..	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.00	298 75	80
..	..	.....	1	wood	.....	.....	.....	..	.....	..	gravel	309	7	2.00	699 41	81
..	..	.....	1	wood	earth	222	.....	..	240	24	gravel	65	7	2.00	399 36	82
1	12	wood	1	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	462 57	83
..	..	.....	..	.....	.....	.....	.....	..	.....	..	earth	400	7	1.25	800 00	84
..	..	.....	..	.....	.....	.....	.....	..	.....	..	.....	.....	..	.75	401 32	85
..	..	.....	..	.....	gravel	80	.....	..	.....	..	gravel	210	8	2.00	810 85	86
..	..	.....	..	.....	.....	.....	.....	..	.....	..	gravel	160	8	.50	599 80	87
1	16	wood	..	.....	earth	711	.....	..	.....	..	.....	.....	..	1.00	715 08	88
..	..	.....	..	.....	.....	.....	.....	..	400	24	gravel	303	7	3.00	999 00	89
..	..	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.85	699 56	90
1	15	wood	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.25	700 00	91
13	..	.....	81	.....	.....	9,142	740	..	4,760	..	.....	7,897	..	104.05	46,802 70	

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIP	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
	TEMISKAMING.							
1	Brethour By-law No. 12	960	20	2,500	24	gravel	1,236	8
2	Bucke By-law No. 223	320	10	2,540	24	stone	540	8
3	Casey By-law No. 55	310	15	660	24	stone	231	8
4	Chamberlain By-law No. 60	400	20	3,226	24	gravel	305	7
5	Dymond By-law No. 185	.....	....	9,180	20	gravel	402	7
6	Harris By-law No. 63	44	20	925	24	gravel	207	7
7	Hilliard By-law No. 108	145	10	3,780	24	gravel	506	7
8	Hudson By-law No. 76	.....	....	770	24	gravel	30	8
9	Kerns By-law No. 166	260	10	7,900	20	gravel	853	8
	Total	2,439	....	31,481	....	.....	4,310	....

COLONIZATION ROADS BRANCH, UNDER MUNICIPAL BY-LAWS, 1919

DITCHED	CUT* OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cubic yards	Number	Span, feet	Material	Number	Material				
										$ c.	
706	earth	1,355	.....	.....	.....	9	wood	1.50	17.00	2,715 00	1
1,410	earth	106	1	22	wood	3	wood	.....	8.50	1,275 00	2
855	earth	20	2	16	wood	6	wood	1.00	7.00	1,039 00	3
31	clay	100	.....	.....	wood	19	wood	.50	13.00	799 97	4
1,260	earth	1,404	5	24	wood	14	wood	.....	32.00	2,018 63	5
241	rock	456	8	16	wood	.....	.....	.15	3.00	623 96	6
1,858	earth	911	3	20	wood	5	wood	.....	12.50	1,701 20	7
.....	earth	888	.....	.....	.....	3	wood	.50	3.50	600 00	8
328	earth	515	1	24	wood	17	wood	.....	28.00	1,684 27	9
6,689	.....	5,755	20	.....	.....	76	.....	3.65	124.50	12,457 03	

MISCELLANEOUS.

North Division.

Item.	Expenditure.	
1. Van Horne Township, balance	22 00	
2. Ware Township, balance	101 00	
3. Phillips & Benner, survey	205 97	
4. Jas. Fraser, culverts	29 50	
5. Storage of tools	75 00	
6. Luke Waker, compensation for injuries, Dryden road	150 50	
7. Inspection, 1919	5,204 57	
		$5,788 54

West Division.

8. Juddhaven road, balance, 1918	$50 00	
9. Carling Township roads, balance, 1918	91 08	
10. C. H. Meader, survey and location expenses, Bracebridge-Baysville and Chisholm Township road	36 00	
11. Bury road, balance, 1918	29 40	
12. Lawrence Masters, compensation for injuries, Bethune Township road	29 70	
13. Jno. W. Sanders, Compensation for injuries on the Bracebridge-Baysville road	20 62	
14. Inspection, 1919	2,271 80	
		$2,528 60

East Division.

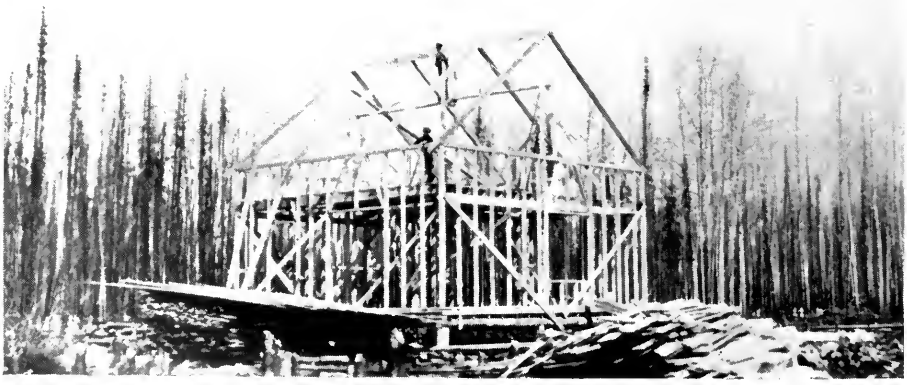
15. W. W. Pringle, Addington road, balance, 1918	$50 10	
16. August Blenkie, Addington and Palmer Rapids road, balance, 1918	25 65	
17. J. Beatty, Kaladar and Tweed, balance, 1918	21 50	
18. Wm. Hughes, storage of tools, Addington road, balance, 1918	11 85	
19. Grant to Storrington Township, 1918	300 00	
20. L'Amable Station road, gravel	100 00	
21. Long Lake Cemetery hill, cedar	294 00	
22. Jas. Douglas, compensation for injuries, Carlow road	42 96	
23. P. Rochefort, railway fares, balance, 1918	53 80	
24. H. N. Moss, board account	14 00	
25. A. J. Southern, inspection	114 30	
26. P. Rochefort, Chisholm road inspection	26 00	
27. One McLaughlin motor car	1,414 85	
28. Feronia road, balance	33 00	
29. Charleston Lake road, R. E. Cornell	25 00	
30. Inspection, 1919	7,498 15	
		$10,025 16

Temiskaming.

31. Harley road, balance, Allan Ludlow	50 00	
32. W. E. Kerr, storage of tools	72 00	
33. E. Frisby, Diamond Township, balance, 1917	274 62	
34. Frank Leslie, balance, Temiskaming road	15 63	
35. Inspection, 1919	1,040 05	
		$1,452 30
		$19,794 60

No.	RECAPITULATION	Cleared and stumped	Graded and shaped	Surfaced	Ditched	Cut and fill	Bridges	Culverts	New Road	Old Road	EXPENDITURE	No.
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles		
											$ c.	
1	North Division, Direct Grants..	23,997	41,713	27,388	15,779	20,113	51	409	40.00	176.95	78,300 85	1
2	North Division, By-laws.....	11,308	49,784	39,635	21,575	8,057	23	344	19.06	253.13	50,397 02	2
3	West Division, Direct Grants..	8,870	20,632	17,923	1,611	11,654	9	192	12.65	75.00	40,745 06	3
4	West Division, By-laws.....	9,267	30,371	18,498	640	3,936	13	180	1.92	163.45	16,938 65	4
5	East Division, Direct Grants ..	15,801	55,734	40,203	2,311	11,615	75	380	21.81	224.00	88,101 03	5
6	East Division, By-laws.....	8,272	46,281	34,892	2,566	1,590	7	262	.....	262.83	37,084 60	6
7	Temiskaming, Direct Grants..	4,785	8,326	8,104	11,644	9,142	13	81	12.65	91.40	46,802 70	7
8	Temiskaming, By-laws	2,439	31,481	4,310	6,689	5,755	20	76	3.65	124.50	12,457 03	8
9	Miscellaneous (4 Divisions)....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19,794 60	9
	Total.....	84,739	284,322	190,953	62,815	71,862	211	1,924	111.74	1,371.26	390,621 54	

Steel bridge at Kapuskasing; erected 1919.



Building a home in the North.

Appendix No. 43.

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

SIR,—I have the honour to submit to you the report of the work of the Northern Development Branch, done under my supervision during the season ending October 31st, 1919, in Temiskaming District and that part of Algoma District in the vicinity of the Town of Hearst, being otherwise described as: (1) the area tributary to the Temiskaming and Northern Ontario Railway and its branches from Latchford to its Northern terminus at Cochrane, a distance of almost one hundred and sixty miles, and (2) the area tributary to the Canadian National Railways from the Quebec boundary westward, for a distance of about two hundred miles.

On account of the scattered settlements in Northern Ontario, the problem of providing good roads for all is very difficult and costly, particularly so when

Scene at Swastika, Ont.

wages are high and labor is scarce. In many cases it is a question of having a bad road or of having no road at all, so that we have, in order to serve the different isolated settlements, many miles of road varying in quality from very good to very bad, much of it often impassable at certain seasons of the year. With more compact settlements the same expenditure would have constructed better and more satisfactory roads on account of less mileage required.

No new roads were cut out in advance of settlement during the past season. This class of work was only done in order to let settlers out and give their children access to school. The principal work done was towards the completing of roads that had been commenced, and the repairing and improving of existing roads. Considerable gravelling was done during the winter in the neighborhood of Matheson, Monteith and Cochrane. It was found to be more cheaply done in winter and provided work for settlers during a slack time.

The details of most of the work done are shown in the accompanying schedule in tabulated form. In addition to what is shown on this schedule, a steel bridge

was erected over the Kapuskasing River in O'Brien Township, and the sub-structure for another over the Mattagami River, near Timmins, has been almost completed. Erection of the steel will probably be completed during the month of January.

Besides constructing roads and bridges for settlers, considerable attention was paid to the wants of the mining population. A railroad from Swastika to Kirkland Lake Mining Camp had been projected, but on the representation of the people interested and to avoid the heavy expenditure entailed, it was decided to undertake the construction of a water bound macadam road.

Road in Temiskaming.

The construction of a similar road from Elk Lake to Gowganda was undertaken in lieu of the railroad that had been urgently requested. It was estimated that it would cost three-fourths less to construct, and that it would answer all requirements.

Considerable progress was made on both of these roads under most trying labor and weather conditions. Several months' work, with more favorable conditions, will probably see the completion of the former road, but it will require

several seasons to complete the road to Gowganda without considerable expenditure upon additional plant and equipment.

In conclusion, I have to say that all our road work could be carried on more efficiently if our organization included more technically trained and experienced road makers. Modern road building is an occupation by itself and too much responsibility should not be allowed to rest on the shoulders of the local handy man who has not had the training and experience necessary to do the best work.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,
Director, Northern Development Branch,
Temiskaming District.

Toronto, October 31st, A.D. 1919.

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

SIR,—Under the provisions of the Act of 1912, and subsequent amendments, for the development of Northern and North-Western Ontario, I recommend for the construction, maintenance and repairs of roads and bridges the following expenditures, for the season ending October 31st, 1920.

(A) In the territory served by the Temiskaming and Northern Railway from Latchford to Cochrane.	
(1) From Latchford to Swastika, including the Elk Lake and Charlton branches of the railway and mining camps of Boston Creek, Kirkland Lake and Larder Lake	$100,000
(2) From Swastika to Monteith	75,000
(3) From Monteith to Cochrane, including the Iroquois Falls Branch and Porcupine branch of the Railway as far as Porcupine River.	75,000
(4) The Porcupine Mining District, including Mountjoy Township	50,000
(B) In the territory served by the Canadian National Railways, from the Quebec boundary to Grant, and southerly along the Algoma Central Railway to Oba.	
(1) From the Quebec boundary, west to Fauquier, including roads for Soldiers' and Sailors' Colony in Shackleton Township	75,000
(2) From Fauquier to Grant, including roads for Soldiers' and Sailors' Settlement in O'Brien and Owens Townships	75,000
Unforeseen expenditures	50,000
All of which is respectfully submitted.	$525,000

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,
Director, Northern Development Branch,
Temiskaming District.

Toronto, October 31st, 1919.

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN DEVELOP

COCHRANE

Number	Township	Location (On line between..... from.....to .....)	Cutting L.&W. Ch. Ft.	Burning L.& W. Ch. Ft.	Stumping L. &. W. Ch. Ft.	Grubbing L. & W. Ch. Ft.	Grading L & W. Ch. Ft.
1	Brower	Bet. III & IV across 1 & 2.	14x10	14x10	14x10	14x10	.....
			80x66	.....	.....	.....	80x24
2	do	Bet. 2 & 3 across II to VI, inclusive.....	120x66	.....	.....	.....	114x24
3	do	Bet. IV & V across 1, 2 & 3.	40x66	.....	.....	.....	60x24
4	do	Bet. II & III " 1, 2 & 3	5x66	.....	5x24	5x24	33x24
5	do	Bet. III & IV " 11 & 12 ..	.....	.....	.....	.....	.....
6	do	Bet. 10 & 11 " V & VI ..	.....	.....	.....	.....	4x30
7	Calder.....	Bet. VIII & IX " 19 to 28 in- inclusive.....	.....	.....	101x30	101x30	.....
8	do	Bet. X & XI across 13 to 16 inclusive.....	.....	.....	87¾x30	87¾x30	.....
9	do	Bet. VIII & IX across 1, 2&3	.....	.....	50½x30	50½x30	.....
			.....	.....	25¼x24	25¼x24	.....
10	do	Bet. VIII & IX " 4 & 5.	.....	.....	25¼x30	25¼x30	.....
			.....	.....	25¼x24	25¼x24	.....
11	do	Bet. II & III " 1, 2 & 3	.....	.....	50½x24	50½x24	.....
12	Calvert.....	Trunk road Porquis Jct. to Iroquois Falls	80x20	.....	.....	.....	.....
			51x16				
13	do	Trunk road Porquis Jct. to Nellie Lake.....	.....	.....	.....	.....	.....
14	do	Bet. IV and V across 1, 2 & 3	.....	.....	.....	.....	58x30
15	do	Bet. I & II across 9.....	.....	.....	40x33	40x33	.....
16	do	Bet. IV and V across 1 & 2 (part)	.....	.....	.....	10x30	5x30
17	Clergue.....	Trunk road Porquis Jct. to Monteith.....	.....	.....	.....	.....	330x24
18	do	Bet. 6 & 7 across II to V in- clusive	80x66	.....	.....	80x24	100x24
19	do	Bet. III & IV across 5, 6 & 7	.....	.....	.....	.....	.....
20	do	Bet. II & III across 6.....	40x66	.....	4½x33	4½x33	.....
21	do	Bet. II & III across 2, 3 & 4	.....	.....	79x33	79x33	.....
22	do	Bet. IV & V across 1, 2 & 6	120x66	.....	.....	.....	.....
23	do	Bet. IV & V across 1 to 6 in- clusive	.....	.....	80x30	80x30	.....
					80x24	80x24	126x24
24	do	Bet. V & VI across 11 & 12	.....	.....	33x24	33x24	.....
25	Clute	Bet. VI & VII across 28....	.....	.....	.....	.....	7x30
26	do	Bet. IV & V across 26,27&28	.....	.....	.....	38¼x33	.....
27	do	Bet. X & XI across parts 27 & 28	.....	.....	.....	.....	.....
28	do	Bet. VIII & IX across 26, 27 & 28.....	.....	.....	.....	.....	.....
29	do	Bet. X & XI across 28 and along boundary bet. Clute and Calder across Con. X	.....	.....	.....	18x30	.....
						11x15	
30	do	Bet. 18 & 19 across V.....	.....	.....	.....	60¼x33	.....
31	Fox	Bet. II & III across 7 to 12 inclusive.....	15x66	.....	27½x24	27½x24	.....
32	German	Between 11 & 12 across V & VI	92x66	.....	68x24	.....	.....
			1x66	92x66	6x24	6x24	

MENT BRANCH—ANNUAL RFPORT OF WORK DONE. YEAR 1919

DISTRICT

Gravelling L. & W. Ch. Ft.	Side-Ditching Ft. Linl.	Off-take Ditching L.&W.&D Ft. Ft. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L.&W. Ch. Ft.	Repairs Distance Ch.	Number
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1
.....	2,244	198x2x2	22	wood	3x3	1	wood	150	.....	175 *	2
						1	wood	50	.....	.....	
						1	wood	100	.....	.....	
.....	2,244	462x3x2	3	wood	3x2	.....	.....	.....	.....	42 †	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
.....	1,900	.....	.....	.....	.....	.....	.....	.....	.....	14	5
.....	132	.....	6	wood	3x2	.....	.....	.....	.....	.....	6
.....	.....	3,320x3x2	.....	.....	.....	.....	.....	.....	.....	.....	7
.....	19,982	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
.....	12,754	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	1,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
.....	1,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	2,772	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
310x8	3,366	.....	7	wood	4x3	.....	.....	.....	.....	400	12
23x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	792	.....	8	wood	3x2	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	.....	1	wood	3x2	.....	.....	.....	.....	.....	16
.....	2,640	.....	27	wood	3x2	2	wood	Reprd.	.....	230	17
						1	wood	40			
.....	.....	1980x3x2	6	wood	3x3	.....	.....	.....	.....	240	18
.....	5,280	.....	3	"	3x2	.....	.....	.....	.....	60	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	750	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
.....	2,476	.....	2	wood	3x2	.....	.....	.....	.....	.....	25
.....	4,450	715x3x2	.....	.....	.....	.....	.....	.....	.....	.....	26
.....	987	30x2x2	4	wood	4x3	.....	.....	.....	.....	.....	27
.....	5,726	822x3x2	.....	.....	.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29
	3,504	192x3x2									
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
.....	1,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	31
.....	.....	.....	3	wood	3x2	.....	.....	.....	.....	.....	32

* 290 ch. x 24 ft. re-graded. † 20 ch. x 24 ft. re-graded.

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

COCHRANE

Number	Township	Location (On line between ..... from..... to.....)	Cutting L. & W. Ch. Ft.	Burning L. & W. Ch. Ft.	Stumping L. & W. Ch. Ft.	Grubbing L. & W. Ch. Ft.	Grading L. & W. Ch. Ft.
33	Glackmeyer.....	Bet. VI & VII across 12	.....	.....	.....	.....	.....
34	do	Bet. IV & V across 15	.....	.....	.....	.....	.....
35	do	Bet. 18 & 19 across II to IX	.....	.....	.....	.....	.....
36	do	Bet. 12 & 13 across I & II..	.....	.....	.....	.....	.....
37	do	Bet. 24 & 25 across VII&VIII	127x66	.....	.....	.....	.....
38	Lamarche	Bet. 6 & 7 across V.....	.....	.....	.....	.....	.....
39	do	Bet. 8 & 9 across V & VI...	.....	.....	.....	.....	.....
40	do	Bet. V & VI across 7 & 8...	.....	.....	.....	.....	.....
41	Leitch.....	Bet. IV & V across 1, 2 & 3.	.....	.....	.....	.....	.....
42	do	Bet. IV & V across 2	.....	25¼x33	.....	.....	.....
43	McCart	Bet. I & II across 1 to 5 inclusive	58x66	58x66	58x33	58x33	.....
44	do	Bet. II & III across 1 & 2..	.....	.....	30x30	30x30	.....
					20x15	20x15	.....
					10x7½	10x7½	.....
45	do	Bet. I & II across 1 to 4 inclusive	81x66	40x66	62x33	62x33	.....
46	Shackleton.....	From Post Office to Fauquier Station	.....	.....	.....	.....	.....
47	do	Trunk road aloug C.N. Ry..	Scow installed at crossing Groundhog River				
		Boundary Lines.					
48	Blount & Glackmeyer.....	In lots 19 & 23.....	.....	.....	.....	.....	.....
49	Brower & Fox....	Across Cons. I & II.....	.....	.....	.....	.....	14x30
50	Brower & Kennedy	" Lots 25, 26 & 27....	Ferry over Abitibi River repaired				
51	Calvert & Clergue.	" Lots 1 & 2.....	.....	.....	.....	.....	.....
52	Calder & Ottoway	" Lots 1 & 2.....	.....	.....	20x30	20x30	20x30
53	Clute & Calder....	" Cons.I to XI inclusive	.....	.....	.....	.....	149x30
54	Clute & Fournier..	" part of lots 14 & 17.	.....	.....	.....	.....	.....
55	do ..	" Lots 9, 10 & 11.....	.....	.....	.....	.....	.....
56	Clute&Glackmeyer	" Cons. X, XI & XII..	.....	.....	.....	.....	160x30
57	Lamarche & Glackmeyer.....	Across Lot 28	.....	.....	.....	.....	.....
58	Lamarche & Fournier.....	Across Con. VI	.....	.....	.....	.....	110x30
59	Lamarche & Glackmeyer.....	Across Lots 1 to 5 inclusive	.....	.....	.....	.....	10x30
60	McCart & Calvert and Newmarket.	Aross Con. VI and along T. & N.O. Ry. 231.5 to 233..	49x66	49x66	49x33	49x33	.....
		Town of Cochrane, 12th Ave.	.....	.....	.....	.....	.....

ENGLEHART

1	Armstrong	Bet. 4 & 5, across V	80x66	.....	.....	.....	.....
2	Barr	Portage at mouth of Mattawapika River.....	25x15	25x15	25x15	25x15	25x15
3	Chamberlain.....	Between 10 & 11 across V.	.....	.....	40x24	.....	160x20
4	do	Bet. 10 & 11 across 5 to 10. inclusive.....	80x66	.....	120x24	120x24	160x24
5	do	Bet. 8 & 9 across IV.....	40x66	40x66	.....	.....	.....

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE,

Continued.

DISTRICT—Concluded

Gravelling L. & W. Ch. Ft.	Side-Ditching Ft. Linl.	Offtake Ditching L & W & D. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs Distance Ch.	Number
.....	.....	.....	1	wood	.....	1	wood	85	.....	.....	33
.....	.....	.....	.....	.....	.....	1	wood	40	.....	.....	34
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	35
.....	.....	.....	1	wood	3x3	1	wood	Reprd	.....	.....	36
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
10x8	.....	.....	2	.....	.....	2	wood	Reprd	.....	.....	38
59x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	83	39
23x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	950	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	9,840	656x3x2	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	594	.....	.....	.....	.....	.....	.....	.....	.....	9	46
											47
.....	.....	.....	.....	.....	.....	1	wood	Reprd	.....	.....	48
						1	wood	16			
.....	.....	.....	2	wood	3x2	1	wood	16	.....	20	49
.....	3,366	.....	4	wood	3x2	.....	.....	.....	.....	50	50
73x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	11,550	.....	44	wood	3x3	1	wood	100	.....	.....	53
.....	840	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	5,544	3300x4x3	4	wood	3x3	.....	.....	.....	.....	240	55
.....	2,112	.....	9	wood	3x2	1	wood	40	.....	60	56
54x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
157x8	3,630	.....	1	wood	4x3	1	wood	Repd	.....	.....	58
						1	wood	40			
.....	198	132x6x8	3	wood	3x3	1	wood	40	.....	.....	59
.....	11,738	196x4x2	.....	.....	.....	.....	.....	.....	.....	.....	60
9x8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

DISTRICT

.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
25x15	Ties laid and 12 lb. rails and at each end of tramway a dock was built of hewn timber										2
.....	.....	600x3x2	5	wood	3x2	1	piles	20	.....	.....	3
						1	only	24			
100x10	.....	600x3x2	1	wood	5x5	.....	.....	.....	.....	.....	4
			1	wood	3x3						
			8	wood	3x2						
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

ENGLEHART

Number	Township	Location (On line between..... from.....to .....)	Cutting L.&W. Ch. Ft.	Burning L. & W. Ch. Ft.	Stumping L. & W. Ch. Ft.	Grubbing L. & W. Ch. Ft.	Grading L.& W. Ch. Ft.
6	Chamberlain....	Bet. 6 & 7 " IV.....	40x66	40x66	.....	.....	.....
7	do	Bet. III & IV " 8 & 9	.....	.....	.....	.....	.....
8	Dack	Bet. V & VI " 1 & 2	.....	.....	.....	.....	80x20
9	do	Bet. 8 & 9 " II.....	.....	.....	.....	.....	.....
10	do	Across Lot 4, Con. IV.....	.....	.....	.....	.....	.....
11	do	Bet. 7 & 8 across IV.....	.....	.....	.....	.....	.....
12	do	Bet. V & VI " V & VI....	.....	.....	.....	.....	.....
13	do	Bet. 6 & 7 " VI.....	40x66	40x66	80x30	80x24	30x20
14	do	On Lot 1, Cons. III & IV....	(High Falls Hill)		.....	.....	.....
15	do	Bet. 8 & 9 across IV.....	40x66	40x66	40x24	40x24	40x20
16	do	Bet. 4 & 5 " III and					
17	do	Bet. III & IV " 5 & 6.....	.....	.....	120x24	120x24	40x20
18	do	Across Lot 3, Con. VI.....	.....	.....	40x30	40x24	40x20
19	Evanturel	Bet. V & VI on Lot 10	.....	.....	.....	.....	.....
20	do	Bet. 2 & 3 across VI	.....	.....	40x24	40x20	40x20
21	do	Bet. II & III " 7 & 8....	.....	.....	.....	.....	80x20
22	do	Bet. 8 & 9 " V.....	.....	.....	.....	.....	80x24
23	do	Bet. IV & V " 8 & 9....	.....	.....	.....	.....	80x24
24	do	Across 1,2,3 & 4 on Con. III	.....	.....	.....	.....	.....
25	do	Bet. II & III across Lot 2..	40x66	40x66	40x24	40x24	40x20
26	Ingram	Across Lot 12 Con. III....	.....	.....	.....	.....	.....
27	do	Bet. 6 & 7 across II.....	.....	.....	.....	.....	.....
28	Lorrain.....	North Cobalt to Bigelow P.O.	.....	.....	.....	.....	240x20
29	do	On Con. II across 12 to 15 inclusive	160x66	.....	.....	.....	.....
30	do	Bet. 4 & 5 across XI	56½x66	56½x66	.....	.....	.....
31	Marter	Bet. III & IV " 6 to 12 inclusive	200x66	.....	200x24	200x24	320x20
32	do	.....	.....	.....	.....	.....	.....
33	do	.....	.....	.....	.....	.....	.....
34	do	.....	.....	.....	.....	.....	.....
35	do	.....	.....	.....	.....	.....	.....
36	do	.....	.....	.....	.....	.....	.....
37	do	On Lot 5 Con. I	.....	.....	.....	.....	.....
38	do	Bet I & II across 10	40x66	40x66	40x24	.....	40x20
39	Marquis	On Con. V across 1 to 7 inclusive		Road unfinished			
40	do	Bet. IV & V across 4 & 5..	100x66	.....	.....	.....	.....
41	do	Bet. V & VI " 8,9 & 10	135x66	.....	.....	.....	.....
42	Otto.....	On North side Lot 3, Con. V	.....	.....	23x24	.....	.....
43	do	Bet. 2 & 3 across V.....	.....	.....	23x24	.....	.....
44	do	Bet. IV & V across 2.....	40x66	.....	.....	.....	.....
45	Pacaud.....	Bet. I & II across 5 & 6....	.....	.....	40x30	40x30	40x20
46	do	Bet. II & III " 3 & Bet. 2 & 3 across III	80x66	80x66	.....	.....	.....
47	do	Bet. 10 & 11 across VI	50x66	.....	.....	.....	.....
48	Robillard.....	Bet. 8 & 9 across V.....	40x66	.....	40x24	.....	.....
49	do	Bet, 8 & 9 " IV.....	80x66	80x66	.....	.....	.....
50	Sharp	Bet. I & II " 1.....	40x66	40x66	.....	.....	.....
51	do	Bet. IV & V " 1, 2 & 3 & Bet. 2 & 3 " V.....	60x66	160x66	160x24	160x24	160x20
52	Lee&VanOstrand	White Reserve Road	.....	.....	.....	.....	.....

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE,

Continued.

DISTRICT—Continued

Gravelling L. & W. Ch. Ft.	Side-Ditching Ft. Linl.	Off-take Ditching L.&W& D Ft. Ft. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs Distance Ch.	Number
											6
			2	wood	3x2						7
		3480x3x2							5x10		8
										80	9
		1520x3x2									10
			1	wood	6x8						11
			2	wood	3x2						12
		330x3x2	6	wood	3x2						13
										40	14
			3	wood	3x2						15
											16
		165x3x2	3	wood	3x2						17
			2	wood	3x4						
			1	wood	4x3						18
						1	Reprd				19
2½x10		225x3x2	4	wood	3x2				2½x10		20
											21
											22
											23
		10510x3x2									24
			2	wood	3x2						25
		1520x3x2									26
		3300x3x2									27
		2100x3x2	17	wood	3x2					10 miles	28
											29
											30
9x10		1845x3x2	11	wood	3x2	1	wood	214'			31
			3	wood	3x3	2	wood	16'			32
			1	wood	8x9	1	wood	20			33
			1	wood	6x8						34
			1	wood	6x10						35
			1	wood	3x5						36
			1	wood	5x9	(rebuilt)					37
		200x3x2	3	wood	2x3						38
			2	wood	3x4						
											39
											40
											41
		2410x3x2	7	wood	3x2						42
	46 chains (cleaned)	600x3x2	5	wood	3x2						43
						1	re-cov.				44
		250x3x2	3	wood	3x2						45
											46
											47
											48
											49
											50
		1300x3x2	5	wood	3x2						51
										2 miles	52

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

ENGLEHART

Number	Township	Location (On line between..... from..... to .....)	Cutting L.&W. Ch.Ft.	Burning L.&W. Ch.Ft.	Stumping L.&W. Ch. Ft.	Grubbing L.&W. Ch. Ft.	Grading L.&W. Ch. Ft.
53	Boston, Ganthier & McElroy....	Larder Lake and Huronia Roads	.....	.....	.....	.....	240x24
		BOUNDARY LINES					
54	Armstrong and.. Beauchamp ...	Boundary across IV & V...	.....	.....	.....	.....	160x24
55	Armstrong and Beauchamp ...	Boundary across V.....	40x66	40x66	40x24	40x24	40x20
56	Chamberlain and Marter.....	Boundary across 1 & 2.....	.....	.....	.....	.....	.....
57	do	" " 11	.....	.....	.....	.....	.....
58	do	" on Con. II.....	.....	.....	.....	.....	.....
59	Chamberland and Pacaud	Boundary across 7,8,9,10&11	.....	.....	.....	.....	.....
60	Dack & Be'champ	Boundary " 1 & 2.....	80x66	80x66	80x24	80x24	80x20
61	Dack & Evanturel	Boundary " VI.....	.....	.....	.....	.....	80x20

HEARST

1	Casgrain	Bet. 24 & 25 across pts. II&III	.....	.....	.....	.....	.....
2	do	Bet. II & III " " 15, 16 & 17	.....	.....	.....	.....	60x22
3	do	Bet. 18 & 19 across I,II&III	.....	.....	.....	.....	11x22
4	do	Bet. 24 & 25 " IV,V & VI	.....	160x24	.....	160x24	.....
5	Hanlan	Trunk Road across pts 23 to 28 inclusive.....	.....	.....	.....	.....	140x24
6	do	Bet. II & III across 16, 17 & 18	74x66	.....	.....	74x24	.....
7	Kendall.....	Trunk Road East of Hearst	.....	.....	.....	.....	.....
8	do	Bet. 18 & 19 across pt. XII.	.....	.....	.....	.....	.....
9	do	Bet. 24 & 25 " X	.....	.....	.....	.....	120x22
10	do	Bet. 24 & 25 " pt. IX..	.....	.....	.....	.....	.....
11	do	Bet. VI & VII " 27,28&29	80x66	.....	.....	80x24	.....
12	do	Bet. V & VI across 27,28&29	76x66	.....	.....	.....	.....
13	do	Bet. 12 & 13 " VIII	.....	.....	.....	.....	.....
14	do	Bet. 18&19 " IX & pt. X	.....	94x24	.....	94x33	.....
15	do	Bet. VIII & IX across 29...	.....	.....	.....	.....	.....
16	O'Brien.....	Trunk Road along C.N. Ry.	400' rock approaches to bridges average 4ft				40x22
17	do	Bet. 22 & 23 across XI&XII	.....	.....	.....	.....	40x20
18	do	Bet. 10 & 11	.....	.....	.....	.....	27x20
19	do	Bet. 24 & 25 across 9 & 10.	.....	.....	.....	.....	20x20
20	do	Bet. VIII & IX across 25&26	.....	.....	.....	35x33	27x22
21	do	Bet. XIV & XV " 19 & 20.	.....	.....	.....	.....	.....
22	do	Bet. X & XI " pt. 25 to 29 inclusive.....	95x66	96x66	.....	95x24	.....

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE.

Continued.

DISTRICT—Concluded

Gravelling L.&W. Ch Ft.	Side Ditching Ft. Linl.	Off-take Ditching L.&W&D. Ft. Ft. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs (Distance) Ch.	Number
.....	600	1000x3x2	4	wood	3x3	.....	.....	.....	.....	.....	53
			4	wood	3x2	1	recons	tructed	45x10	9 miles	
			30	wood repaired	3x2				.. ..		
.....	Old trestle	s removed	9	wood	3x2	.....	.....	.....	.....	.....	54
			1	wood	3x2						
			2	wood	5x3½						
			1	wood	5x4						
			1	wood	5x4						
			2	wood	2x1½						
			1	wood	5x3						
.....	.....	.....	.....	.....	.....	.....	.....	.....	... ...	.....	55
66x6	.....	615x3x3	.....	.....	.....	.....	.....	.....	.....	.....	56
	Old trestle	removed	1	wood	6x8	.....	.....	.....	.....	.....	57
64x66	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
.....	.....	.....	.....	.....	.....	... ..	.....	.....	.....	2½ miles	59
.....	.....	130x3x2	1	wood	5x3	.....	.....	.....	.....	.....	60
			3	wood	3x2						
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	61

DISTRICT

60x10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	.....	200x10x4	3	Temp.	.....	.....	.....	.....	.....	.....	2
.....	18400	1600x4x4	3	Temp.	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
.....	9900	900x4x4	6	Temp.	.....	.....	.....	.....	.....	.....	5
		50x4x3									
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
.....	.....	.....	.....	.. ..	.....	.....	.....	.....	.....	1½ miles	7
.....	1400	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
.....	.....	200x4x3	3	Temp.	.....	5	wood	16	.....	.....	9
.....	3600	100x4x4	.....	.....	.....	.....	.....	.....	.....	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
.....	3400	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	12400	200x4x4	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	2080	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	10460	7½x4x3	3	wood	4x4	2	steel	120			
								80	.....	4½ miles	16
						1	wood	33			
.....	5280	6x4x3	5	Temp.	.....	.....	.....	.....	.....	.....	17
.....	1550	9x4x3	6	wood	4x4	.....	.....	.....	.....	.....	18
.....	9400	18x4x4	4	Temp.	.....	.....	.....	.....	.....	.....	19
			2	wood	10x16						
.....	3200	1x4x3	3	Temp.	.....	.....	.....	.....	.....	.....	20
			2	wood	12x16						
.....	1800	3x4x3	3	Temp.	.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

HEARST

Number	Township	Location (On line between..... from..... to.....)	Cutting L. & W. Ch. Ft.	Burning L. & W. Ch. Ft.	Stumping L. & W. Ch. Ft.	Grubbing L. & W. Ch. Ft.	Grading L. & W. Ch. Ft.
23	O'Brien	Bet. X & XI across pt. 25 to 29 inclusive, and line bet' O'Brien and Owens.....	.....	.....	.....	.....	.....
24	do	Bet. VII & IX across 19 to 24 inc. and bet. 18 & 19 across IX	.....	.....	.....	.....	.....
25	do	Bet. 18 & 19 across IX & pt. X	.....	.....	.....	45½x24	.....
26	do	Bet. 7 & 8 across pt. X	26x66	26x66	.....	26x33	.....
27	Owens.....	Trunk Road across 1,2,3 & 4	.....	.....	.....	40x22	.....
28	do	Bet. 24 & 25 across XV to XVIII inclusive	.....	.....	.....	.....	80x22
29	do	Bet. XVI & XVII across pt. 24	15x66	15x66	.....	15x24	15x22
30	do	Bet. XIV & XV across 24 & 25	.....	.....	.....	.....	.....
31	Shackleton	Trunk road across Townsite	45x66	59x66	.....	59x30	73x24
32	do	Trunk " pts. 21, 22 & 23	.....	.....	.....	.....	45x24
33	do	Bet. 24 & 25 across pts. XI & XII.....	61x66	61x66	.....	61x24	23x24
34	Way.....	Trunk road across 13 to 17 inclusive.....	.....	25x30	.....	123x30	.....
35	do	Trunk Road across 20 at milage 45 C.N. Ry	.....	.....	.....	25x30	.....
36	do	Bet. X & XI across 5 to 8 inclusive.....	.....	.....	.....	.....	60x22
37	do	Bet. VIII & IX across 1, 2, 3, 4, 5 & pt. 6.....	129x66	.....	.....	129x24	.....
38	do and Hanlan	Trunk Road across 1 to 16 inclusive.....	.....	.....	.....	.....	.....
39	do	Bet. II & III across 3, 4 & 5	74x66	.....	.....	.....	.....
40	do	Bet. II & III " I & 2..	49x66	.....	.....	.....	.....
41	do	Bet. X & XI " pt. 8 ..	.....	.....	.....	.....	.....
42	do	Bet X & XI " pts. 7&8	.....	.....	.....	.....	.....
43	Williamson.....	Bet. 24 & 25 " I.....	.....	.....	.....	.....	60x22
		BOUNDARY LINES					
44	Hanlan & Way..	Diversion at Lake Lot 1 & pt. 2	.....	.....	.....	.....	80x22
45	do ..	Across pt. lot 5.....	.....	.....	.....	.....	.....
46	do ..	" 6 & 7	.....	.....	.....	35x24	.....
47	Kendall & Way .	" V & VI	120x66	.....	.....	.....	.....
48	Lowther & Way.	" 9, 10 & 11	73x66	.....	.....	.....	.....
49	O'Brien & Owens	" XII, XIII & XIV...	.....	.....	.....	.....	40x22
50	do do	" XI	40x66	40x66	.....	40x24	.....
51	Owens & Williams	on " 25 & 26.....	.....	.....	.....	.....	26x22

MATHESON

1	Beatty.....	Bet. II & III across pt. 5. 6 & pt. 7	.....	87x66	87x33	87x33	.....
2	do	Bet. 11 & 12 across II.....	80x66	80x66	80x33	80x33	.....
3	do	Bet. " " I.....	.....	80x33	80x33	80x33	.....
4	do	Bet. 9 & 10 " II.....	80x66	80x66	80x33	80x33	.....
5	do	Bet. 9 & 10 " III.....	80x66	80x66	80x33	80x33	.....
6	Benoit	Bet. I & II " 4 to 8 inclusive	.....	.....	.....	.....	.....

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE,

Continued.

DISTRICT—Concluded

Gravelling L. & W. Ch. Ft.	Side-Ditching Ft. Linl.	Off-take Ditching L&W&D. Ft. Ft. Ft.	Culverts No.	Culverts Wood Conerete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs Distance Ch.	Number
.....	17820	15x4x3	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	23760	30x4x3	.....	.....	.....	.....	.....	.....	.....	.....	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
.....	7650	309x4x3	6	Temp.	.....	.....	.....	.....	.....	.....	27
.....	10560	1200x4x3	6	Temp.	.....	.....	.....	.....	.....	.....	28
.....	2000	.....	3	Temp.	.....	.....	.....	.....	800	.....	29
.....	6600	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
.....	200	300x4x3	4	Temp.	.....	.....	.....	.....	.....	.....	31
.....	.....	400x4x3	4	Temp.	.....	.....	.....	.....	.....	.....	32
.....	.....	200x4x3	3	Temp.	.....	.....	.....	.....	.....	.....	33
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..... *	35
.....	.....	3000x4x4	3	Temp.	.....	1	wood	12	.....	½ mile	36
.....	2000	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
.....	900	1100x4x4	.....	.....	.....	4	wood	16	.....	4½miles	38
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	1400	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	3000	.....	3	Temp.	.....	.....	.....	.....	.....	.....	43
.....	.....	100x4x3	3	Temp.	.....	.....	.....	.....	.....	.....	44
.....	.....	2000x4x4	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	10460	150x4x3	4	Temp.	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	3300	1600x4x3	3	Temp. 1 wood	..... 6x6	.....	.....	.....	.....	.....	51

DISTRICT

.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
.....	9110	831x2x2	.....	.....	.....	.....	.....	.....	.....	.....	6

* 50 ft. Ry. Siding.

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

MATHESON

Number	Township	Location (On line between..... from..... to.....)	Cutting L. & W. Ch. Ft.	Burning L.&W. Ch. Ft.	Stumping L.&W. Ch. Ft.	Grubbing L.&W. Ch. Ft.	Grading L. & W. Ch. Ft.
7	Bowman.....	Bet. 6 & 7 across 6 (N. ½)..	.....	.....	.....	.....	.....
8	do	Bet. 4 & 5 S. of Ry. crossing	.....	.....	.....	.....	.....
9	do	Bet. 6 & 7 across V & VI...	.....	.....	.....	.....	.....
10	do	Bet. 4 & 5 " VI.....	.....	.....	.....	.....	.....
11	do	On N½ Lot 5 Con VI.....	.....	.....	.....	.....	.....
12	do	Bet. III & IV across 3 & 4..	.....	.....	.....	.....	80x24
13	do	Bet. 2 & 3 across IV (S. ½).	.....	.....	.....	.....	4x24
14	do	Bet. IV & V " 9, 10 & pt.8	100x66	80x66	100x33	100x33	.....
15	do	Bet 10 & 11 " VI.....	80x66	80x66	80x33	80x33	.....
16	Bond	Bet. 2 & 3 across V.....	.....	.....	.....	.....	.....
17	do	Bet. II & III across 3.....	18x66	18x66	.....	.....	.....
18	do	Bet. 2 & 3 across III,.....	50x66	50x66	... .	.....	.....
19	do	Bet. 2 & 3 across IV	80x66	80x66	.....	.....	.....
20	do	Bet. 2 & 3 across V.....	50x66	50x66	.....	.....	.....
21	Carr.....	Trunk Road, R.R. crossing to Wahtaybeg River.....	.....	.....	.....	.....	.....
22	do	Bet. II & III across 1 & 2 ..	.....	.....	.....	.....	.....
23	do	Bet. 2 & 3 " II.....	.....	.....	.....	.....	.....
24	do	Bet. 4 & 5 " I & II..	.....	.....	.....	.....	.....
25	do	Bet. 4 & 5 " V & VI	.....	.....	.....	.....	160x24
26	do	Bet. V & VI " 5 to 9 inclusive	.....	.....	.....	.....	164x24
27	do	Bet. V & VI across 10 & 11.	80x66	.....	80x33	80x33	80x20
28	do	Bet. 3 & 4 across I, II & III	.....	.....	.....	.....	.....
29	do	Bet. IV & V " 5.....	.....	.....	.....	.....	.....
30	do	Bet. 4 & 5 " Con. VI pt.	.....	20x33	20x33	20x33	.....
31	do	Bet. 10 & 11 " II, III & pt. IV	130x66	130x66	130x33	130x33	.....
32	Gorrie.....	Bet. 2 & 3 across VI	60x66	60x66	60x33	60x33	.....
33	Hislop.....	Bet III & IV " 8.....	.....	.....	.....	.....	.....
34	do	Bet. III & IV " 6 to 10 inclusive	200x66	200x66	200x33	200x33	200x24
35	do	On Con. I across 6 (Trunk rd)	.....	.....	.....	.....	.....
36	do	Bet. V & VI " 10 & 11...	.....	.....	.....	.....	.....
37	do	Bet. II & III " 12 & 13...	.....	.....	.....	.....	80x24
38	do	Bet. 9 & 10 " II & pt. III	.....	120x33	120x33	120x33	.....
39	do	Bet. 11 & 12 " IV.....	.....	.....	.....	.....	41x24
40	Playfair.....	Bet. 2 & 3 " V(S. ½) ...	.....	20x66	20x33	20x33	.....
41	do	Bet. 7 & 8 " VI.....	.....	.....	.....	.....	.....
42	do	Bet. V & VI " 9, 10 & 11.	120x66	120x66	120x33	120x33	.....
43	do	Bet. V & VI " 7 & 8.....	.....	.....	.....	.....	83x24
44	do	Bet. 8 & 9 " VI	.....	.....	.....	.....	80x24
45	do	Bet. 2 & 3 " VI	80x66	80x66	80x33	80x33	.....
46	do	Bet. 5 & 6 " V	.....	.....	.....	.....	80x24
47	do	Bet. 3 & 4 " II.....	40x66	.....	.....	.....	.....
48	do	Bet. 3 & 4 " III.....	80x66	.....	80x33	80x33	.....
49	do	Bet. IV & V " 6 pt. 7....	.....	.....	.....	.....	22x24
50	Stock	Bet. I & II " 6.....	40x66	40x66	.....	.....	.....
51	do	Bet. I & II " 5.....	40x66	40x66	.....	.....	.....
52	do	Bet. 4 & 5 across V.....	80x66	80x66	80x33	80x33	.....
53	Taylor	Trunk Road across III & IV	.....	.....	.....	.....	.....
54	do	Bet. 8 & 9 across IV (S. ½).	.....	.....	.....	.....	.....

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE,

Continued.

DISTRICT—Continued

Gravelling L. & W. Ch. Ft.	Side-Ditching Ft. Linl.	Off-take Ditching L. & W. Ft. Ft. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs Distance Ch.	Number
50x8											7
40x8											8
										2 miles	9
										½ mile	10
										*	11
			2	wood	4x6						12
			3	wood	3x4						
											13
											14
											15
						1	wood	74	(4 acres	cleared)	16
											17
											18
											19
											20
160x8			4	wood	4x4					2 miles	21
80x8											22
80x8											23
120x8										2 miles	24
			10	wood	3x4						25
			2	wood	6x6						
											26
											27
										3 miles	28
			5	wood	6x10	1	wood	22			29
											30
											31
											32
						1	wood	144			33
			1	wood	10x10						34
			16	wood	14x3	1	wood	20			
										12 miles	35
			1	wood	8x8					1 mile	36
											37
											38
											39
											40
					1	wood	58				41
											42
			7	wood	3x4						43
			8	wood	3x4						44
											45
											46
											47
											48
			2	wood	4x4						49
											50
											51
	1518										52
			1	wood	3x4					2 miles	53
			6	wood	4x4	1	wood	25		½ mile	54

* Old camps removed.

DEPARTMENT OF LANDS, FORESTS AND MINES—NORTHERN

YEAR 1919.

MATHESON

Number	Township	Location (On line between..... from.....to.....)	Cutting L. & W. Ch. Ft.	Burning L. & W. Ch. Ft.	Stumping L.& W. Ch. Ft.	Grubbing L. & W. Ch. Ft.	Grading L. & W. Ch.Ft.
55	Taylor.....	Bet. IV & V across 12.....	.....	.....	.....	.....	.....
56	do	Bet. 2 & 3 " I & II	160x66	120x66	120x33	120x33	.....
57	do	Bet III & IV " 1,2,3&pt.4	.....	140x33	140x33	140x33	.....
58	do	On N. ½ Lot 9 Con. V.....	.....	.....	.....	.....	.....
59	Walker.....	Trunk Rd. across lots 9&10	82x66	82x66	82x33	82x33	82x20
60	do	On N. ½ Con. II Lot 12.....	.....	.....	.....	.....	.....
61	do	Bet. IV & V across 9,10&11	120x66	120x66	120x33	120x33	.....
62	do	Bet. IV & V across 12	.....	.....	.....	.....	40x24
		BOUNDARY LINES.					
63	Beatty & Hislop	Across 4 to 13 inclusive....	.....	.....	.....	.....	.....
64	do	" pt. 8 & 9 & pt. 11....	.....	.....	.....	.....	.....
65	Beatty & Carr..	" N. ½ Con. IV.....	.....	.....	.....	.....	.....
66	Benoit & Cook ..	" 5, 6, 7, 8 & pt. 9.....	20x66	.....	20x33	20x33	.....
67	Bond & Stock...	" 1 & 6.....	.....	.....	.....	.....	.....
68	do ..	" 1 to 6 inclusive.....	.....	.....	.....	.....	.....
69	Bond & Currie ..	" IV	.....	.....	.....	.....	.....
70	do ..	" III.....	15x66	15x66	.....	.....	.....
71	do ..	" III & pt. IV.....	.....	130x66	130x33	130x33	.....
72	do ..	" V & pt. IV	.....	50x66	50x33	50x33	.....
73	Bowman & Carr	" 5 to 12 inclusive	.....	.....	.....	.....	.....
74	Bowman & Currie	On Con. V	.....	.....	.....	.....	.....
75	Carr & Taylor..	Across I to IV inclusive...	.....	.....	.....	.....	.....
76	Clergue&Walker.	" I & S. ½ II	.....	.....	.....	.....	.....
77	Currie & Taylor	" 1 to 12 inclusive....	.....	.....	.....	.....	.....
78	Stock & Taylor.	" Con. VI	.....	.....	.....	.....	.....
79	do .	" " II to VI inclusive	.....	.....	.....	.....	.....
80	do .	" " I	.....	.....	.....	.....	.....
81	do .	" N. ½ II & S. ½ III....	.....	.....	.....	.....	.....
82	do .	" N. ½ IV.....	.....	.....	.....	.....	.....

PORCUPINE

1	Mountjoy	Trunk Road Timmins to Mattagami.....	.....	.....	.....	.....	.....
2	do	Bet 4 & 5 across pt. II & III.	90x66	.....	170x33	170x33	.....
3	do	Bet. 2 & 3 across IV, V & VI	.....	40x30	20x30	.....	40x24
4	do	Along river " pts. V & VI	75x66	75x66	75x24	75x24	.....
5	do	Bet. 4 & 5 " " III....	29x66	.....	29x24	29x24	.....
6	Tisdale	S. Porcupine to Davidson Mine	.....	.....	.....	.....	.....
7	do	S. Porcupine to Timmins..	.....	.....	.....	.....	.....
8	Mountjoy & Tisd'le	Boundary across III & IV..	.....	.....	.....	.....	.....
9	do do	do do V & VI...	120x66	80x66	80x30	80x30	.....

MACADAM

1		Road from Elk Lake to Gowganda	120x66	120x66	120x33	120x33	207x20
2		Road from Swastika to Kirkland Lake.....	65x66	6x66	6x33	6x33	151x24

DEVELOPMENT BRANCH—ANNUAL REPORT OF WORK DONE,

Concluded.

DISTRICT—Concluded

Gravelling L. & W. Ch. Ft.	Side Ditching Ft. Linl.	Off-take Ditching L.W.& D. Ft. Ft. Ft.	Culverts No.	Culverts Wood Concrete Iron	Culverts Size Ft.	Bridges No.	Bridges Wood Conc. Iron	Bridges Len'th Ft.	Corduroy L. & W. Ch. Ft.	Repairs Distance Ch.	Number
40x8											55
											56
											57
		1333x2x2									58
			5	wood	4x4						59
										½ mile	60
											61
			2	wood	3x4						62
										5 miles	63
80x8											64
20x6		500x3x2½	3	wood	3x4					8 miles	65
											66
						2	Repaired				67
		1056x3½x2	1	wood	3x4					3 miles	68
9073		594x3½x2	2	wood	4x4	1	wood	76x14			69
											70
											71
	8100										72
						1	Repaired			4 miles	73
			3	wood	3x4						74
		1695x3½x3	5	wood	3x4					4 miles	75
120x8			1	Reprd.						1½ miles	76
										6 miles	77
80x8											78
										5 miles	79
										1 mile	80
80x8											81
60x8											82

DISTRICT

36x8											1
									1000x16		2
	9600	1320x3x5	5	wood	3x3	1	wood	40	4446x16	1 mile	3
											4
											5
60x80											6
20x12										*	7
80x8											8
											9

ROADS

4500	23500	1.5 miles	10 15	iron Recon'd						11750x10 †	1
1572	27984x	1.62 "	4 6 1 1 3	Con. 18" " 24 " 30 twin 30 reconstd					1750	3800x14‡	2

* 20 ch. x 12 ft. Rock Sheeting. † 7 miles repaired. ‡ 4 miles repaired.

Report on the Construction and Maintenance of Highways and Bridges Under the Provisions of the Northern and North Western Ontario Development Act 1912 and Amendments.

(During the Season of 1919.)

To the Honourable the Minister of Lands and Forests:

Sir,—I have the honour to submit the following report of work done on the construction and maintenance of roads and bridges under the provisions of the above Acts during the season of 1919:—

Operations were carried on in the Districts of Rainy River, Kenora, Port Arthur and Fort William, Sault Ste. Marie, St. Joseph Island, Algoma, Sudbury, Nipissing, Parry Sound, Muskoka and the Counties of Renfrew and Simcoe.

During the season considerable work was done in the Rainy River Valley; 22 miles of new road were cut out and constructed; during the winter of 1918-19 considerable gravel was hauled for re-surfacing of trunk roads. Several of the trunk roads running north and south into the newly settled townships were extended, and tap drains dug to assist in draining off the swamp lands as well as the roads. On the 1st and 2nd of July last, over 6 inches of rain fell in the two days, causing great damage to the culverts and small bridges and in some instances washing out the roads. This damage had to be repaired and the main trunk roads were constantly dragged throughout the summer when required, and re-surfaced with gravel where they became rutted. There was considerable immigration into this district, and many of the new settlers in the back townships are handicapped for want of roads. The main trunk roads are now in fairly good condition but large expenditures will still be required in this district, to meet the requirements of the incoming settlers.

In the District of Kenora the trunk road between Wabigoon, Dryden, Oxdrift and Vermilion Bay was worked over, re-constructed in places, and surfaced with gravel. In this district there is a pressing want for more roads in the agricultural country between Wabigoon and Dryden on the Canadian Pacific Railway and the Grand Trunk Pacific Railway in the vicinity of Quibell Station. This country is becoming settled up and it will be necessary, in order to retain settlement, to spend considerable money in the construction of new roads.

In the Port Arthur and Fort William Districts large expenditures were made in re-surfacing with gravel the main trunk roads; and also in constructing new roads. The International or Scott highway to Duluth was put into good condition. The construction of a new road running east from Port Arthur towards Loon Lake, Dorion and Nipigon was begun; about 15 miles of this road was partly constructed along the Hydro-Electric transmission line between Port Arthur and the Nipigon River.

On the trunk road between Sault Ste. Marie and Sudbury, considerable work was done. The gap between Algoma Mills and Cutler has been partially completed, and repair work was done between Cutler and Sudbury; and between Algoma Mills and Sault Ste. Marie.

On St. Joseph Island, the work commenced three years ago was continued; and the trunk roads are now in good condition.

In the Sudbury District, new roads were constructed, and roads previously constructed were kept in repair. Considerable expenditure was made in the

mining district around West Shining Tree, to meet the requirements of mine owners, who are now beginning to develop the gold mines in that district. Several miles of new road were also constructed to accommodate the settlers in the outlying townships. The trunk road between Sudbury and North Bay was kept in fairly good condition; large quantities of gravel and crushed rock were used in re-surfacing this road in the worst places; the road was frequently dragged. A new road was constructed between Warren on the Canadian Pacific Railway, south to the Village of St. Charles. The old road between Rutter Station on the Toronto Branch of the Canadian Pacific Railway, running east about 20 miles to Lake Nipissing, was partly re-constructed and graded.

The trunk road between North Bay and Mattawa was re-graded and re-surfaced in places, and continued east of Mattawa towards Chalk River. Between Pembroke and Petawawa, the road was kept in repair; and between Chalk River and Mattawa, about 25 miles of the old Pembroke and Mattawa Road was widened and re-graded. On the trunk road from North Bay, south to Bracebridge, a large expenditure was made in reconstruction, and in diverting the old road where it was found necessary in order to improve the grades. The worst parts of this road have been completed as far south as Washago. On the old road running west from Trout Creek Station on the Grand Trunk Railway, towards Commanda, construction was commenced, and about 12 miles partly completed. The road running west from Powassan to Nipissing Village was continued.

The following is a more detailed statement of the different roads constructed and repaired in the various districts during the season; and appended to this report is a statement of the expenditures and an approximate estimate of the amounts which will be required to construct and maintain roads during the season of 1920.

I have the honour to be, Sir,

Your obedient servant,

J. F. Whitson,
Commissioner.

DISTRICTS OF PARRY SOUND AND MUSKOKA.

Trunk Road from Callander, South:

Work was continued on this road throughout the winter of 1918-19. Several of the worst parts of the road, where gravel could not be procured conveniently during the summer season, were surfaced with gravel; more particularly in the vicinity of Barriedale, Burk's Falls, Katrine, and Huntsville. The work was also continued throughout the summer season up to the end of October. Over 40,000 cubic yards of gravel were used in re-surfacing this road. From Callander to Powassan the road was dragged at different times throughout the season when required. Between Novar Station, on the Grand Trunk Railway, and Huntsville, a diversion of 5 miles was made along the right-of-way of the Grand Trunk Railway, southerly from Novar Station, to avoid very heavy grades on the old road running west and south from Novar. The new road as now constructed and gravelled is a great improvement; there are very few grades on it, and the length

of the road has also been cut down considerably. The road is now in fairly good condition for automobile traffic over this section, which was considered one of the worst sections on the road between North Bay and Bracebridge. From Utterson the road was diverted westerly to strike the Parry Sound road north of Beatrice; and from the diversion, the road extended southerly, passing through Falkenburg. In this section, the old road was widened, ditched, graded and gravelled in places. From Novar north to Burk's Falls, the road was gravelled in places, graded and ditched; more particularly in the section near Katrine, where there was a bad section, extending over 7 miles. North and south of Burk's Falls, the road was re-constructed in places and graveled. At Sundridge a large stone culvert was constructed, and north of South River Station a bridge was built across the South River, with a span of 47 ft., with stone abutments; and a second bridge, over Black Creek, a tributary of the South River, was constructed with stone abutments, with a span of 23 ft. A stone bridge was also built over a small creek with a deep valley, at the new diversion north of Melissa Station. Immediately north of Huntsville, several small diversions and rock cuts were made, and considerable surfacing with gravel done. The road between Bracebridge and North Bay is now in fairly passable condition for automobile traffic, although there still requires considerable surfacing to be done with gravel. North of the diversion of the trunk road with the Parry Sound road, north of Beatrice, a rock cut was made near the Skeleton Hill, along the shore of a small lake. This has greatly improved the grade on the road from Rosseau to Bracebridge. It will take a considerable expenditure during the season of 1920 on this road, more particularly between Novar and Bracebridge, to put the road into good condition.

Between Bracebridge and Gravenhurst, no work was done on the trunk road during this season. It was found, however, that south of Gravenhurst near the Severn River and Washago, the old road, which had been built many years ago, had become badly rutted for want of attention. In this section, extending a distance of over 6 miles, operations were started in September from Severn Bridge, southerly through the village of Washago. The road was regraded, widened in places and brushed out; about 1½ miles of the road was re-surfaced with crushed rock and gravel. Owing to the wet season, this road was not completed, and the work has since been continued, re-surfacing with crushed rock.

DISTRICT OF PARRY SOUND.

Nipissing Road:

Between Powassan Station on the Grand Trunk Railway north-westerly to Nipissing Village, a distance of about 10 miles, which was graded two years ago and gravelled in places, was resurfaced in the worst places, 2,000 cubic yards of gravel being used. This work was performed during the winter season. Throughout the summer the road was dragged and kept in fairly good condition. This road is part of the Powassan and Restoule Road it extends westerly for a distance of over 40 miles. it is one of the oldest roads in the district. West of Nipissing the road was in bad condition; it passes through a country which has been settled for over 25 years. The country is broken and rocky, but in places there is a very fine agricultural land with fairly prosperous settlers. These settlers have no other access to the railway but by this particular road. An exploration was made of

the road and it was found that immediately west of Nipissing village there was a very bad grade, rocky and almost impossible to go up or down with heavy loads. A diversion was made to the north to avoid the heavy grade. The road has been cut out and it is hoped that next season the Department will be in a position to finish the road and continue the work as far west as Restoule. Three small bridges with stone abutments have been constructed near Nipissing village, across a branch of the South River.

Trout Creek and Loring Road:

This road follows the old colonization or timber road constructed in the early days of settlement in the district. It is the only road from the village of Loring, Golden Valley settlement and the village of Commanda, by which the

Entering the town of Mattawa, on the Trunk Road, District of Nipissing.

settlers can reach the railway. The road passes through a typical Parry Sound country, broken and rocky in places, with sections of good land in the valleys. In some sections, more particularly that immediately west of Trout Creek Station, the soil is a light sandy loam or sand. This class of country extends westerly for about 5 miles. The old road constructed many years ago and mostly repaired by settlers, was in bad condition: very little attention had been paid to drainage or grading. The road has been widened, ditched and graded for a distance of about 8 miles, where it ended in a rough, rocky, hilly section and where a diversion had to be made for a distance of 5 miles to the north, along the valley of a small stream. On this new road a fairly good grade was found: the road has been cut out and grubbed and is now ready for grading as far as the village of Commanda. This diversion leaves the old road about 8 miles west of Trout Creek Station and touches the old road again at the village of Commanda, beyond which

no new work has been done upon the old road. West of Commanda to Loring the road passes through Golden Valley, in which there is a good settlement of fairly prosperous farmers, the land in many places being first class. In other sections the road passes through a rocky sparsely settled country where the road will have to be diverted in some instances, in order to better the grades. This country has been settled in places for the last 40 years and the only access to the railway, for these settlers, is along this road. At the present time it is a difficult matter for the settlers to reach a market except during the winter season. The first 8 miles of the road, commencing at Trout Creek Station, has been well graded and gravelled in places; 21 iron culverts and 6 wooden culverts were placed. Several of the hills were cut down to improve the grade. The hills on both sides of the South River bridge were cut down and the grade very much improved. Owing to the wet season unfortunately we were unable to complete the gravelling of some sections of the road and this will require to be done later on.

Distress Road:

On the main road from Sundridge to Magnetawan village a diversion was made around what is locally known as "Distress Hill"; 1 mile of new road was cut out and gravelled, in order to improve the grade. The old road passes over a rocky hill which it was found impossible to cut down. Over 1,000 yards of gravel were used in surfacing this road.

Townships of Conger and Freeman:

The road from Parry Sound, running south to Lake Joseph and Lake Muskoka was extended from Gordon Bay, along the Canadian Pacific and Canadian Northern Railways to Foote Bay, a distance of about 5 miles, through the townships of Conger and Freeman. This road connected with a fairly good automobile road from Foote Bay to Bala, a summer resort on Muskoka Lake. The road followed had been cut out several years ago, but was grown up and unused, except during the winter season. The road was cut out, widened and stumped ready for grading. It passes through a comparatively level country, with no bad grades and, when completed, will give the citizens of the town of Parry Sound and villages along the railway access to the summer resorts in the Muskoka Lake country. It will also assist the settlers in getting to a market for their produce. The road requires to be graded and ditched.

The total amount expended on the trunk road, and other roads in the Districts of Parry Sound and Muskoka during the season was $144,043.33.

DISTRICT OF NIPISSING.

Mattawa-Klock Road:

The old travelled road known as the Mattawa and Pembroke road commencing about 3 miles east of the Town of Mattawa and extending east for a distance of over 12 miles, was widened, ditched and graded to a point about 2 miles east of Klock Station on the C.P.R. On this road 5 corrugated iron culverts, 10 wooden culverts and 6 stone culverts were placed. The road was well ditched and graded, 1 bridge was repaired, 1,433 cu. yds. of gravel were used in resurfacing the worst parts of the road. Between the eastern terminus of this work and the western end of the work performed west of Chalk River there is a long section of road which will require considerable repairing and grading. It is part of the old timber

road and although it is passable for cars during the dry season it is unsuitable for traffic during the early spring or late in the fall of the year; it will require brushing out, grading and surfacing with gravel in places.

Callander-Mattawa Road:

This road was constructed by this Branch in 1913 and 1914. During the interval some repair work was done in places by this Branch, but little or nothing by the settlers along the road. There is considerable traffic over the road and it

View on the Pembroke and Petawawa Trunk Road.

became badly rutted in places. The distance between Callander and Mattawa is about 40 miles. The road was re-graded throughout its entire length this season; some of the worst grades cut down; the road widened in places and re-surfaced with gravel where required; the ditches were deepened and cleaned out and several new culverts placed. The road is now in fairly good condition, although there are still some parts of the road which will require re-surfacing with gravel later on.

North Bay-Trout Lake Road:

Between North Bay and Trout Lake Mills about 2 miles of this road were re-graded and ditched in places and 1 mile re-surfaced with gravel, but owing to wet weather in October the road was not finished.

A view of the Trunk Road between the town of Pembroke and Petawawa Military Camp, showing a stone road re-surfaced with coarse gravel.

Township of Ferris Road:

The road from North Bay to Trout Lake, south side was repaired and part re-surfaced with gravel.

Trunk Road from North Bay to Callander:

This road was re-surfaced with gravel, 2,200 cu. yds. gravel being used.

North Bay to Sudbury Trunk Road:

This road was dragged and repaired throughout its entire length, 80 miles between the Towns of Sudbury and North Bay; in places it was re-surfaced with gravel. East and west of Meadowside 3,070 cubic yards of gravel were hauled by train from a point on the Canadian Pacific Railway west of Sudbury from the Canadian Pacific Railway pit at Phelan. North of the Village of Markstay, 1,055 cubic yards of gravel were used in re-surfacing 1½ miles of the road leading into the village.

In the Townships of Kilpatrick and Caldwell, east of the Village of Verner, about 3½ miles of the road were re-surfaced, 2,205 yards of gravel being used. In sections west of Sturgeon Falls the road was also re-surfaced where it had become rough, 900 cubic yards of gravel and 1,203 cubic yards of stone being used. Several culverts and small bridges were repaired. Between the Town of Sudbury and the Village of Coniston a stone road was constructed about four years ago. The road was re-surfaced with crushed rock in places for a distance of six miles, and with coarse gravel for two miles; 1,435 cubic yards of crushed rock and 600 yards of gravel were used; five corrugated iron culverts were placed and the road was well rolled with 12 ton roller and is now in first class condition. The bridge across the Veuve River, about three miles west of Warren Station on the Canadian Pacific Railway, which was commenced last season, was completed. The bridge has a clear span of 60 feet with stone abutments; 500 cubic yards of rock were used in filling in these abutments.

In the vicinity of Meadowside, where the country is very flat, ditches had to be deepened and five iron culverts were used to assist in the drainage. The road between Sudbury and North Bay is now in fairly good condition, although there are still places which will require gravelling; more particularly in that portion between Sturgeon Falls and Meadowside.

The amount expended on the above work during the season was $69,484.31.

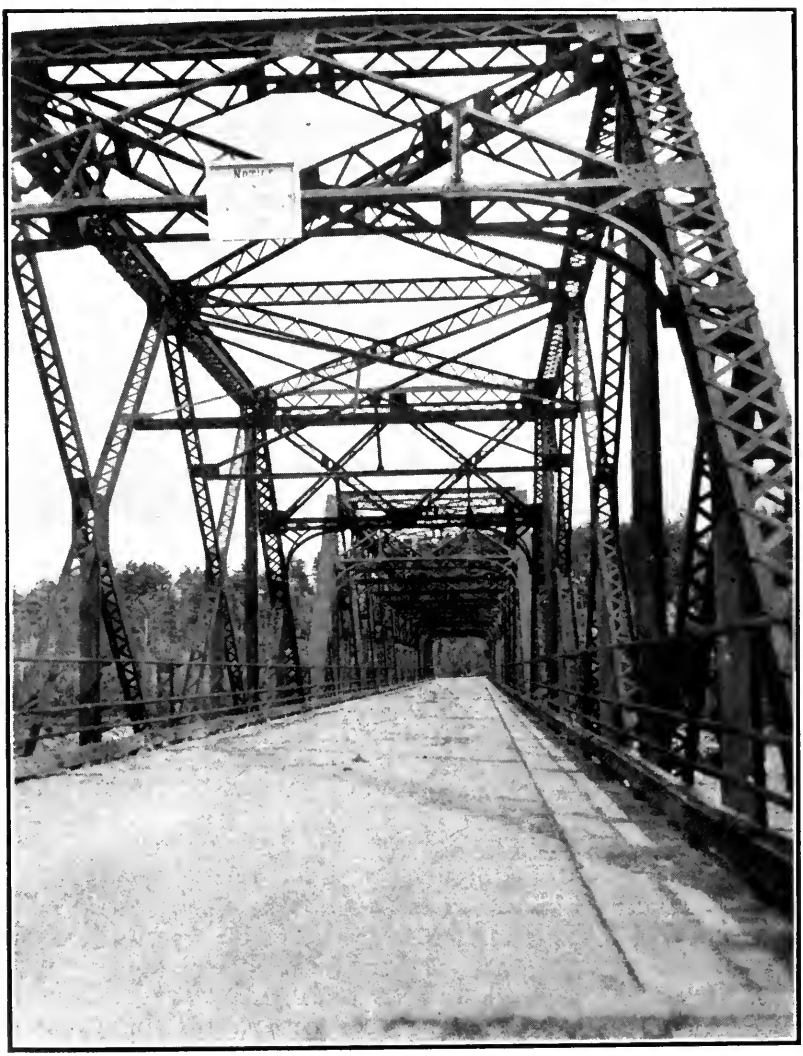
COUNTY OF RENFREW.

Trunk Road, Mattawa to Pembroke:

Between Pembroke and Petawawa and Chalk River to Bissett's Creek.—The trunk road between the Town of Pembroke and the Petawawa Military Reserve, in length about 12 miles, which was constructed a few years ago, was placed under a foreman, with a small gang of from 3 to 5 men and from 1 to 2 teams; who were engaged throughout the season commencing about the 1st June in improving and maintaining this road. The road was continually dragged when required, and new gravel was spread on the road wherever it became rutted. In places, the road was widened where necessary, and the ditches deepened. Over this road there is a very heavy traffic. This system of constantly keeping the roads in repair was found very satisfactory on this particular road; and throughout the entire season the road was in splendid condition.

Twenty miles of this road were brushed out and ditched, and 15 miles graded; 44 corrugated iron culverts, 8 stone culverts and several wooden culverts were placed; 1 cedar bridge with 14 ft. opening and stone abutments was built, with 300 yds. of rock filling; 1 stone culvert bridge 44 ft. wide and 7 ft. high was constructed across Barr's Creek, with walls on each side 120 ft. long, 20 ft. wide

and 3½ ft. high; also 1 culvert 6½ miles west of Chalk River with rock fill 100 ft. long, 12 ft. wide and 3½ ft. high. This road was well ditched and surfaced with gravel in the worst places. It passes through a country that has been sparsely settled for over 50 years. The road as now constructed, was originally built and known as the Pembroke and Mattawa Road; and was used by the lumbermen for transporting supplies from Pembroke west to Mattawa during the



The Interprovincial Bridge crossing the Ottawa River at the Joachim Rapids, near the Trunk Road from Pembroke to Mattawa.

early sixties. The land along this road is a light sandy loam, stoney and rocky in places; and while there are sections with fairly good agricultural land, taking the country as a whole, it is not very well suited for agricultural purposes. There is, however, considerable traffic on this road during the winter season in taking supplies from Pembroke west to Deux Joachim, where there is an interprovincial iron bridge spanning the Ottawa River; and from this bridge northward through

Quebec Province there is a timber road extending for 100 miles or more through the pine and spruce forests. The work as performed this season extended as far west as the branch road leading to the interprovincial bridge, which is distant only a few miles from our trunk road. From about the same point, the road branches southerly a few miles to Moore Lake Station on the Canadian Pacific Railway. This branch road to the station was brushed out, grubbed in places, and the worst grades cut down. This station is where the settlers along the trunk road within a reasonable distance market their supplies. The road from Chalk River west, passes in places over sandy plains, grown up with a thick second growth of pine and other timber, which even now have a commercial value. The road passes in sight of the Ottawa River throughout a good portion of its length, and the scenery is very fine. At present there is considerable automobile traffic

On the banks of the Ottawa River, near the Interprovincial Bridge, between Ontario and Quebec, across the Joachim Rapids; one of the most noted transporting points in the early days of lumbering in the Ottawa Valley.

between Mattawa and Pembroke, although the road west of where our work terminated and Klock Station, is almost impassable in places. This road was repaired in places in the vicinity of Bisset Station, where it was cut out and widened for a distance of 6 miles and in the vicinity of Adelard Station, 5 miles of the road were brushed out, and 3 miles stumped and stoned, ready for grading.

The expenditure on this work during the season amounted to $24,421.55.

DISTRICT OF SUDBURY.

Garson to Coniston Road:

This road was cut out and graded 3 years ago. There was considerable heavy traffic over the road between the Mond Nickel Company's smelters at Coniston and the Company's mines at the village of Garson, the distance being a little over

5 miles. This road was all well surfaced with crushed rock, over 5,000 cubic yards of rock being placed thereon, and well rolled with a 12-ton roller and surfaced in places with gravel, of which 1,067 yards were used. Several corrugated iron culverts were placed and the road is now in good condition.

Sudbury to Garson Village:

This road was constructed 7 years ago. A diversion, however, was made on the road a few years ago, but never surfaced. This diversion reduced the distance and grades considerably; 3,729 cubic yards of crushed rock were used on this road and 1,200 yards of gravel, the road being well rolled and corrugated iron culverts placed where required, and a bridge, with an 18-ft. span, built on lot 12, con. 6, township of Neelon. This bridge was constructed with stone abutments. The road between Sudbury and Garson is now in good condition.

Sudbury to Hanmer:

The road between Sudbury and Hanmer, which was constructed 7 years ago, became badly rutted, as the municipalities along the road have taken little or no interest in maintaining it. The road was re-graded and ditched in places and surfaced with gravel and slag from the mines, 2,044 cubic yards of slag and 219 yards of gravel being used. The repairs along this road extended for a distance of 8 miles.

Hanmer to Capreol Road:

A few steep hills were cut down and the road was repaired and re-ditched and parts surfaced with gravel, 414 cubic yards of gravel being used. This road was constructed about 7 years ago and became badly rutted in places, owing to the fact that little or no repair work has been done by the settlers along the road.

Sudbury to Azilda Road:

This road was repaired and dragged for a distance of 6 miles, 400 cubic yards of gravel being used.

Coppercliff to Creighton Road:

This road was dragged for 6 miles and repaired for 3 miles. Upwards of 500 cubic yards of gravel were used in repairs. It is now in first class condition.

Warren to St. Charles Road:

Between Warren Station on the Canadian Pacific Railway and the village of St. Charles, the distance is about 9½ miles, and between these two villages the old road was, in many places, almost impassable for traffic during the spring and fall seasons. Along this road there is a good settlement, more particularly in the vicinity of the village of St. Charles, and a great deal of farm produce passed over the road. The road required grading, ditching and widening and the grades had to be cut down; 9½ miles of the road were graded and about 5 miles were surfaced with gravel. Corrugated iron culverts were placed, where necessary, and 6 large wooden culverts repaired or re-built. A small wooden bridge was re-constructed and the road is now in very fair condition.

MacFarlane Lake Road:

Part of this road between con. 6 and 7, Township of Dill was reconstructed, graded and gravelled for ¾ mile, and in the Township of Broder the road was repaired for 3 miles, graded for 3¼ miles and gravelled for 2½ miles; 2 small bridges were repaired and 22 iron culverts placed.

A view of the International or Scott Highway between Fort William and Pigeon River, showing road surfaced with shale and gravel.

Richard Lake Road (A branch of the Sudbury and MacFarlane Lake Road):-

This road was brushed out, graded and repaired for 2½ miles; 6 culverts were repaired and 5 new culverts placed; also 1 wooden bridge repaired; the road was gravelled in places where required.

Townships of Balfour and Dowling:

The road along the town line between these townships was cut, brushed, cleared and stumped for 1 mile: and ditched for 2 miles and culverts repaired.

Wahnapitae Road:

Between Garson and Wahnapitae Lake, for a distance of 6 miles, the road was repaired and surfaced with gravel in some places.

A view looking south on the International or Scott Highway, showing the mountain ranges overlooking Lake Superior.

Rutter-Noelville Road:

This road commenced at a point on the Sudbury and Toronto Branch Canadian Pacific Railway at Rutter Station and extends easterly for 20 miles to the west arm of Lake Nipissing. The old road has been in use for nearly 20 years; it passes through, in places, first-class agricultural land, it being one of the best

farming sections in that district. The country is fairly level, the soil is of clay and clay loam, broken in places with rocky ridges; but on the whole, the country is well adapted for agricultural purposes and there is a prosperous settlement along the road. The road in many places has never been graded. Work was commenced early in September on the worst part of the road, which is within 1½ miles of Canadian Pacific Railway, where the country is very rocky, more particularly at the crossing of the Murdock Creek. This portion of the road was improved, and on each side of the bridge for a considerable distance was well graded and the rock cut down; the crossing is now in first-class condition. About 4½ miles of the road was graded and 2 miles re-surfaced with gravel; 17 new culverts were put in and over 1,200 cubic yards gravel used. The road requires considerable expenditure yet. The only outlet the settlers have in this district is by Rutter Station in the summer and winter seasons, or by boat across Lake Nipissing in the summer season. There is a large section of fine agricultural land tributary to this road and I would advise further expenditure in the way of grading and gravelling.

Larchwood to Levack:

This road was graded and repaired for a distance of 2 miles.

Shining Tree Road:

This road leaves the Canadian National Railway at Westree Station, 73 miles north of Sudbury, and runs in easterly and north-easterly direction to West Shining Tree Lake and Wasapika Lake. The distance to West Shining Tree Lake is about 23 miles and Wasapika Lake 28 miles. The road as far as West Shining Lake was cut out 6 years ago and the first 16 miles graded and corduroyed in places. No repairs were done during the interval, and the road was badly broken up. During the last 2 seasons there has been considerable heavy traffic over the road by the miners taking in mining machinery and supplies. The road passes through a country that is heavily timbered with Jack Pine, Spruce, Poplar and other timber; the road is comparatively level with very few bad grades; the soil is either light sandy loam, sand, or gravel, until within a few miles of West Shining Tree Lake where the country becomes rocky. There are a few good gravel pits along the road but road making material in some places is difficult to procure. The road has been regraded and ditched in places; new culverts have been constructed and about 8 miles re-surfaced with good gravel; the road to West Shining Tree is now in fairly good condition; beyond that point to Wasapika Lake it requires stumping and grading and in places widening. From all appearances, judging from the amount of work that has been carried on in this mining district during the past season, there are good prospects of the district making a mining camp. Several Mining Companies have done considerable work on their properties this season, and a few of them have put in small plants, and the indications are that there will be considerable activity in this gold mining district in the near future. All of their machinery and supplies will pass over this road.

St. Charles to Hagar Road:

A winter road was cut out between the townships of Dunnet and Appleby, south of the Canadian Pacific Railway to connect the village of St. Charles with the Canadian Pacific Railway at Hagar Station. A few hills were cut down, and

grades improved. This road will require to be improved in order to make it fit for summer traffic.

The total amount expended on the above work during the season was $122,763.94.

Sault Ste. Marie-Sudbury Trunk Road, and Work in the District of Algoma, in the Vicinity of Sault Ste. Marie.

Sault Ste. Marie-Sudbury Trunk Road, Algoma to Cutler:

Work was commenced in June on the gap, 19 miles in length, between Algoma and Cutler. This portion lies in difficult country from a construction standpoint, being rough and rocky with numerous swamps.

Three camps were installed, one working east from Algoma, one west from Cutler and a double camp working in both directions from Spragge.

At the end of the season 11 miles had been completed, of which 6 were gravelled. Of the remainder, 5 miles were partially completed so as to be passable, but still requiring a considerable amount of work, including one rock cut of 400 yds. and 3 smaller ones, drainage and the installation of some permanent culverts. Three miles lying along the Serpent River remain to be built.

The section was in general built to a width of 24 ft., reduced to 20 ft. on cuts and fills. Grades have been with three exceptions, kept below 8 per cent., these three being 10 per cent. Sharp turns have been avoided and a good view obtained.

Seventy corrugated metal culverts were installed during the season, the majority of these being bedded in concrete to prevent heaving. One 6 ft. x 6 ft. concrete culvert, 32 ft. long was built at Foz Creek, and one 8 ft. concrete arch 65 ft. long at Shephard's Creek. Four stone culverts were also built. There remain on the ground to be installed, 20 corrugated metal culverts.

During the season a stone crushing plant was authorized, but delivery was not obtained until late in the season. A re-built tractor sent with the outfit was not sufficiently powerful and was replaced with a new machine. This plant has been installed at Shephard's Creek where there is a rock slide of over one hundred thousand tons of naturally broken trap unweathered and of the right size for the crusher. Quarry costs are thus almost eliminated. The same conditions obtain at a number of other points between Sault Ste. Marie and Sudbury. Owing to the lateness of the season only a test run was made with the plant. But six weeks running in the spring will supply the material for that part of the newly constructed road, for which no gravel is available. After that the plant can be moved to different points as required.

In addition to the three miles uncompleted and the five miles partially completed there remains to be built during the coming season, three small reinforced concrete bridges of 18 ft. span.

With a sufficiently early start this section can be opened for traffic early in July of next year.

Sault Ste. Marie to Algoma Mills:

This portion of the road, 102 miles in length, is under charge of a maintenance overseer and has been continually patrolled and kept in repair. In addition to maintenance betterments are being made. During the season, in addition

to steady dragging, 4,000 yds. of gravel were spread on a total distance of 28 miles. Two thousand tons of trap rock from Bruce Mines Quarry were used for repair purposes. Twenty culverts were installed and 8 miles of the road were brushed out. Ditches were cleaned out where necessary, and new outlets built.

Sudbury to Cutler:

This part of the road, 82 miles in length, required considerable work. During the season, 27 miles, between Copper Cliff and Nairn, were repaired and gravelled in places.

Between Webbwood and Espanola, a section, which has always given considerable trouble, 3 large washouts were filled and other repairs made.

A view showing the Hearst Range of mountains, rising over 1,000 feet along the International or Scott Highway, overlooking Lake Superior.

Between Webbwood and Massey one mile of gravel was laid and repairs made. Between Walford and Massey, 3½ miles were re-graded and gravelled, together with one mile of outlet ditching and some miscellaneous repairs.

Ten culverts in all were installed.

St. Joseph Island:

Operations were carried on during the winter months in hauling gravel on to roads, which had been graded the previous season, and as soon as the spring opened up the roads previously constructed were gone over with the road drag, and operations carried on throughout the season. Operations were chiefly confined to the A line, across lots 19 to 25; on the line between lots 5 and 6, across Concessions P, Q, R and S; between lots 10 and 11, across Concessions N, O and P;

on the U line, across lots 10 to 15 and lots 21 to 23; on the D line, across lot 5 and across lots 17 to 21; on side roads 20 and 21, across Concessions 13 and 14. Besides re-ditching and re-grading parts of these roads, necessary culverts were placed. The roads now constructed connect the two main shipping points or villages on the island, Richard's Landing and Hilton; and give access from the main settlements on the island to these villages. The roads on the island are now in good condition. They will, of course, require to be maintained and extended as settlement progresses. During the season over 15,000 cu. yds. of gravel were used in re-surfacing these roads. The roads were all well dragged during the summer season, as necessity required and are now in good condition.

Between the villages of Hilton and Richard's Landing, both of which are situated on the north shore of the island, the road runs north across Campement D'Ours Island to a point opposite Kensington Point on the main land. The passage is made by means of a scow ferry. From Kensington, there is a road connecting with the Sault Ste. Marie-Sudbury Trunk Road at Desbarats Station on the Canadian Pacific Railway. This is a road, however, on which a considerable amount of repair work is necessary. The work outlined has been practically completed, with the exception of a few short roads on the island, and a cut at the north end of the Campement D'Ours Road, work on which has been suspended, owing to the weather conditions this fall. On St. Joseph Island and approaches $22,248.67 has been expended during the season of 1919.

Goulais Bay Road:

The Goulais Bay Road runs northerly from Sault Ste. Marie to the settlement of Goulais Bay and thence to Bellevue on the Algoma Central Railway. One and a half miles were graded and one mile gravelled. Also on an alternative location to the biggest hill on the road with a grade of 20 per cent., which had been cleared in 1917, work was started. This involved a cut of about 4,000 yds., with a corresponding fill, giving a final grade of 8 per cent. This work, when about half done, had to be suspended on account of unfavourable weather conditions.

Rydal Bank Road:

On this road, running northerly from the Town of Bruce Mines, through the Village of Rydal Bank, and thence to Ophir and McFee's Valley, a considerable amount of work was done during this season.

Between Bruce Mines and Rydal Bank ¾ of a mile of road was re-graded and 1¼ miles of gravel spread. Three culverts were repaired.

Between Rydal Bank and Ophir ½ mile of new road was graded and 1¾ miles of gravel laid.

On the McFee's Valley portion ¾ of a mile of gravel was laid.

Wharencliffe Road:

This road runs northerly from the Village of Little Rapids to the Wharencliffe Settlement, near Mississaugi River. The northerly portion, in particular, is extremely rough and at certain seasons almost impassable. It was intended to cut down and improve some of the worst hills and re-grade and drain some of the worst of the other portions. Owing to difficulty in obtaining sufficient labour, this being restricted to the settlers themselves, the programme for the season was

not carried out. Three-quarters of a mile was re-graded and gravelled. Three bridges and some culverts were repaired and re-covered, the cutting down of one of the worst hills partially done.

Bellevue-Searchmont Survey:

On instructions from the Department, during November, a survey and preliminary location of a road near the Algoma Central Railway, from Bellevue to Searchmont was made.

The greater portion of this Sault Ste. Marie work was carried on in charge of Mr. John L. Lang, Civil Engineer; the total cost, including the St. Joseph Island operations above referred to, amounted during the year to $162,937.68.

DISTRICT OF THUNDER BAY.

In the Vicinity of Port Arthur and Fort William.

International or Scott Highway:

Work was commenced on this highway early in April. Several landslides had occurred along the steep mountains adjacent to the road, more particularly at a point known as the Horn Hill; in many instances the old ditches along the foot of the mountain were filled up, and had to be cleaned out and the road widened. In some places it was found necessary to re-surface the road with gravel or shale; 13,700 cu. yds. of gravel or shale rock were used for this purpose, from the international boundary at Pigeon River, north for 25 miles to the Slate River Valley. This road was also dragged several times, or after every rainfall, and kept in first-class condition; 15 new culverts were built where it was found necessary, and all the ditches were opened up or cleaned out; the road was left in first-class condition last fall.

Over this road there is now a large tourist traffic; no less than 17,000 people are reported to have crossed to and from Minnesota, Duluth and Minneapolis during the season. It has become one of the most popular tourist roads between Ontario and the United States in the western parts of the Province. The cities of Port Arthur and Fort William are now deriving a great benefit from this road, besides the settlers along the route. It is a road, however, that will require two small working gangs of 4 or 5 men each and a few teams, dragging and gravelling the road during the summer season; as there are no organized municipalities along the southern 30 miles of this road to maintain it, and very few settlers. There is considerable fine agricultural land along the road, which in a few years may be settled upon; the soil is a heavy clay, admirably adapted to the growth of clover and alsike seed.

Townships of O'Connor and Marks:

Graded road between Concessions 2 and 3, across lots 1 and 2, Township of Marks; and across lots 12, 11, 10, 9, 8 and 7, and through lots 6, 5 and 4 and location Y, Concessions 1 and 2, Township of O'Connor, to the Silver Mountain Road; 6 miles more or less. This road was repaired, hills cut down, ditched and graded.

Township of Conmee:

Brushed out, grubbed, ditched and graded the road between lots A and 1, across Concessions 1 and 2 and south part of 3, 2½ miles; and westerly along the line between Concessions 2 and 3, across lots E, D, C, B, A, 1, 2, 3, and 4, 4½ miles to Hume Station. On this road, hills were cut down, culverts repaired, and the worst places gravelled; two small bridges and 5 culverts were built.

On the International or Scott Highway, showing the remains of the original Pine Forests West of Lake Superior.

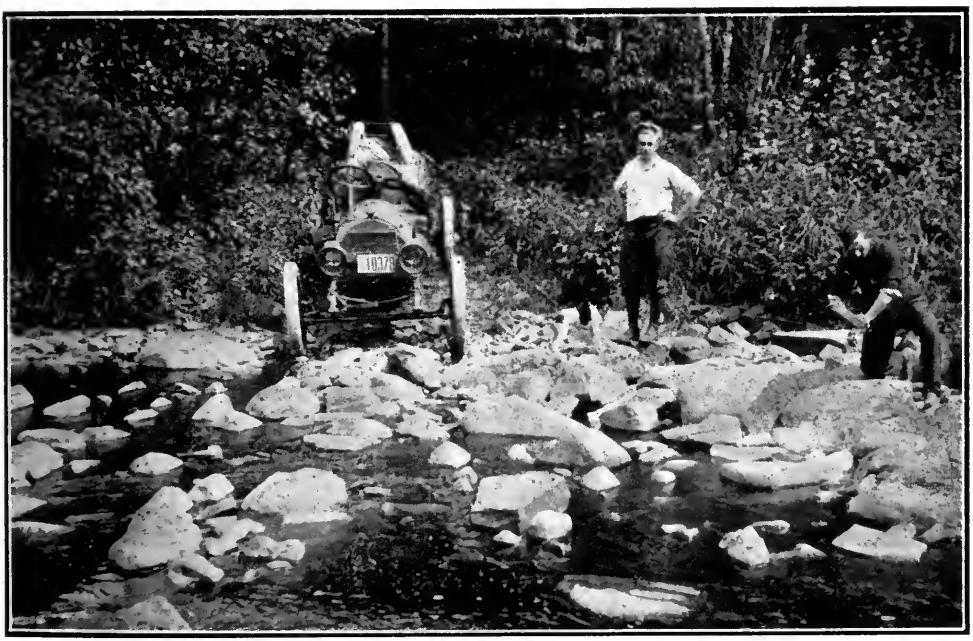
Township of McIntyre, Oliver Road:

This road was dragged and re-graded from the Grand Trunk Pacific Railway crossing in the Township of McIntyre west to Murillo Station on the Canadian Pacific Railway, a distance of 6 miles; 4,322 cu. yds. of gravel were used in the re-surfacing of this road. The road is now in first-class condition between Port

Arthur and Kakabeka Falls, a distance of about 20 miles, the road drag having been used upon it whenever required during the summer season.

Township of Gorham:

The road between lots 14 and 15 across Concessions 1, 2 and 3, and between lots 16 and 17 across Concession 4, 4 miles were re-graded, gravelled and repaired; 17 culverts were placed and 2 bridges repaired, 900 cu. yds. of gravel being used in re-surfacing. The road between lots 6 and 7, across Concessions 1, 2 and 3 was repaired; and across Concessions 4 and 5 was graded 1¾ miles. The road between Concessions 2 and 3 across lots 1, 2, 3 and 4, 2 miles, was widened, graded and repaired. Between lots 10 and 11 across Concession 4 and the south quarter of Concession 5, the road was grubbed, graded and repaired 1¼ miles.



The first automobile to pass over the International or Scott Highway, crossing the Pigeon River at low water.

Gorham and McGregor Townline:

On the townline between the Townships of Gorham and McGregor, across part of Concession 1 and Concessions 2 and 3, the road was repaired and re-graded 2½ miles.

Gorham and McIntyre Townline:

On the townline between the Townships of Gorham and McIntyre, the road across Sections 8, 7, 6 and 5 was cut out for a winter road, 4 miles.

Township of Ware:

Across the north part of lot 19, Concession 2; across lot 19, Concessions 3 and 4; across lot 20, Concessions 4, 5 and the south half of 6; the road was

cut out, graded and repaired; 4 culverts were built, and 4 small bridges repaired. Between Concessions 3 and 4, across lots 4 to 7, the road was cross-layed for 1,300 ft., and cut out 1½ miles for a winter road.

Township of Gillies:

Silver Mountain Road.—This road from Hymers to South Gillies was re-graded for 2 miles between lots 6 and 7 across parts of Concessions, 4, 5 and 6; a new diversion road was constructed around the hill on Concession 3, a distance of 1 mile; 1,300 cu. yds. of gravel were used in re-surfacing this road. The road from Stanley to Hymers was gravelled for a distance of 4½ miles, 3,209 cu. yds. of gravel being used. This road connects Hymers and Gillies with the Twin Cities.

The inspector visiting a typical log school-house on the International or Scott Highway.

Township of Neebing:

Industrial or Prison Farm Diversion.—This road was cut out, grubbed and graded 3½ miles, and gravelled ¾ mile; a bridge was built over the mouth of a creek flowing into Kaministiquia River, with steel girders 45 ft. span, and stone and concrete abutments; 3 culverts were placed.

Township of Paipoonge:

Grubbed and graded diversion road west of Stanley Junction, connecting with Arthur Street Road to Fort William and Kakabeka Falls, between lots 34 and 35, Concession 1, and across the south half of lot 13, and across lots 14 and 15, Concession 1, to Stanley Junction, a distance of 1 mile.

Township of Pearson:

Road between lots 6 and 7, Concession 5 was repaired, old crosslay removed, and the road covered with clay, for a distance of ¼ mile.

Arthur Street Road:

This road was repaired from a point ½ mile west of the Canadian Pacific Railway crossing, west to Kelly Hill, 5 miles; the road was re-graded and gravelled in places.

Schreiber:

Repaired bridge with new stringers, flooring and railing.

On the Oliver Trunk Road west of Port Arthur; road surfaced with shale.

White River:

Made rock fill across narrows in small lake about 1½ miles north of White River Station along the Canadian Pacific Railway water line; filled 125 ft. long, with 15 ft. opening; also constructed diversion around hill at south end of fill.

Port Arthur and Loon Lake Road:

This road commences at the eastern limit of the City of Port Arthur near the Pumping Station, close to the line of the Canadian Northern Railway, and extends easterly along the old Black Bay Road, which was cut out and partly graded many years ago. It follows the Black Bay Road for about 9 miles. This road almost parallels the Canadian Northern right-of-way on the north side; it also follows along the Hydro-Electric pole line between Port Arthur and the water power on the Nipigon River. The road now being constructed extends

in an easterly direction from the end of the old travelled road, crossing the Mackenzie River about ¼ mile north of the Canadian Northern Railway, and continues easterly to a point a few miles south-west of Sibley Station on the said railway. Operations ceased about the end of October at this point. The western part, or old travelled portion of the road, was widened in places and surfaced with gravel; from the end of the old travelled road, a new road was cut out, grubbed and graded; preparations were made for the erection of a bridge across the Mackenzie River. The road after it passes Mackenzie River, extends through fairly good agricultural country, although the soil is light and sandy. The country is an old brule, grown up with second growth poplar, birch, spruce, etc.; this area has been burnt over several times. From Sibley Station, the projected road extends along the edge of the Hydro-Electric pole line to Loon Lake Station on

A view on the Trunk Road from Kakabeka to Hymers, south-west of Fort William.

the Canadian Pacific Railway. At this point there is a large summer resort; thence the road follows in an easterly direction almost parallel to the Canadian Pacific Railway, until it reaches the agricultural section east and west of Dorion. Fourteen miles of this road were operated upon last season; about 4,000 cu. yds. of gravel were used in re-surfacing the road; several culverts were constructed. This road when completed will give access to all the fine summer resorts along the shores of Thunder Bay, Black Bay, Nipigon Bay, Nipigon River and Loon Lake; and will open up a large section of agricultural land in the Townships of Dorion, Stirling and Nipigon; and give access to the splendid water powers of Nipigon River. For some time to come, however, the benefits to be derived are more in the opening up of the agricultural section east and west of Dorion Station in the above named townships.

The total amount expended in this district during the season was $107,877.55.

KENORA DISTRICT.

Number of miles of	new roads brushed out, grubbed and graded	17
" "	new roads partly graded	4
" "	old roads burned	10
" "	old roads repaired	15
" "	old roads gravelled	21
"	corrugated iron culverts built	58
"	wooden culverts built	35
"	new bridges constructed	14
"	old bridges repaired	1

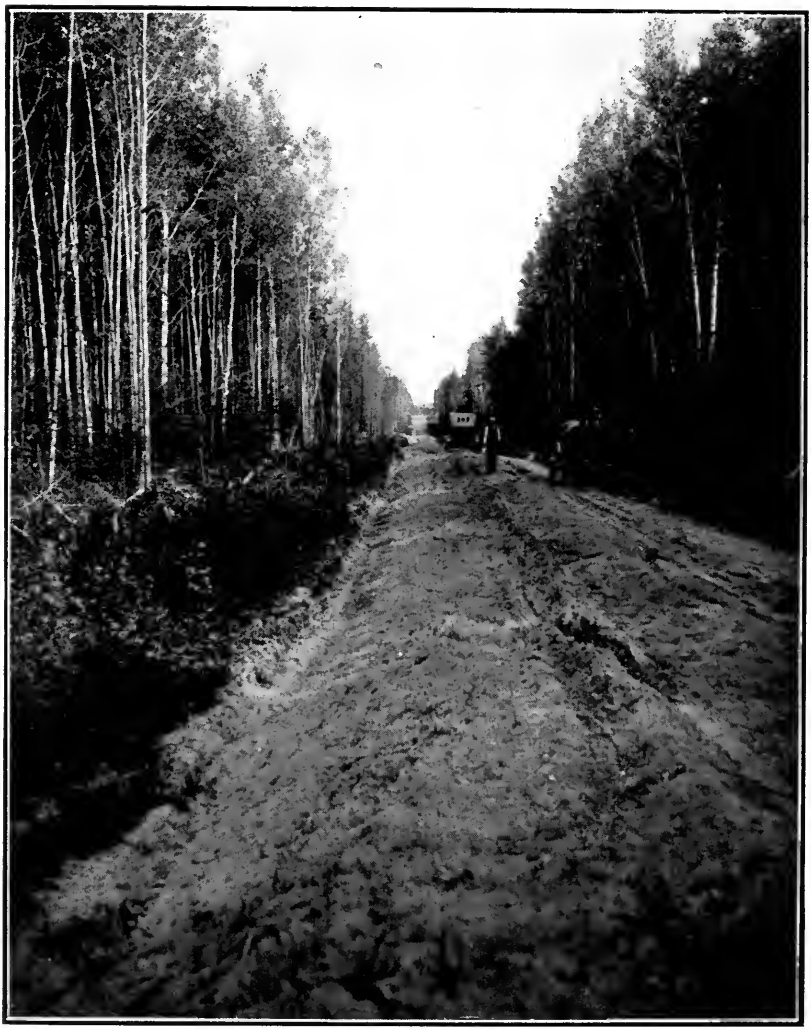
During the season of 1918 the trunk road between the Town of Dryden (Canadian Pacific Railway) and Oxdrift Station, a distance of 7 miles, was ditched and graded, but not gravelled. During the months of February and March,

A view along the Trunk Road through the Slate River Valley, south-west of Fort William.

1919, the greater portion of this road was re-surfaced with gravel, 3,800 cu. yds. being used, operations ceasing on the breaking up of sleighing. This work ceased near Oxdrift Station. Early in May, operations were again started, and the gravel was spread to proper grade, and the work of grading, ditching and relocating continued westerly along the trunk road as far as Eagle River Station. The work consisted of cutting out and widening the road, cutting down hills to proper grade, building culverts, grading and diverting the road where it was found necessary, in order to avoid steep hills. The road is now well ditched and graded, but will require considerable gravel in places, before it will meet the requirements of heavy traffic during the wet seasons. In this section of the road, 32 corrugated iron culverts were placed; 15 wooden culverts and 3 small bridges constructed. Two swamps in Eton Township, 1½ miles in width, were corduroyed

and ditched on both sides, besides two offtake ditches dug, one nearly a mile in length and the other 800 ft. The distance from Oxdrift Station to Eagle River Station is 10 miles, through a splendid farming country.

While operations were being carried out to the west of Dryden, a camp was operating east of Dryden, about 1½ miles west of Wabigoon Station. The work consisted of burning off the brush on the road which was cut out the previous



A typical view of a road cut out and newly graded through the virgin forest; near Wabigoon, District of Kenora.

season, stumping, grubbing, ditching, grading and gravelling. The road is now completed through to Wabigoon, well graded, ditched and surfaced with gravel. Twenty-six corrugated iron culverts, 17 wooden culverts and 4 stone culverts were placed; and the following 6 bridges were constructed: No. 1 bridge, 75 ft. long, 8 ft. high; No. 2, 300 ft. long, 30 ft. high; No. 3, 65 ft. long, 12 ft. high; No. 4, 45 ft. long, 10 ft. high; No. 5, 36 ft. long, 8 ft. high; No. 6, 36 ft. long,

8 ft. high. These bridges are all constructed of red pine, and painted. There is now a first class gravel road between Dryden and Wabigoon, a distance of 13 miles.

Between Wabigoon and Eagle River the road passes through, in most instances, a first class farming country. The soil is chiefly clay or clay loam. The farmers are making good progress in this vicinity, judging from the large clearings and

Gravelling a new road between Dryden and Wabigoon, in the District of Kenora.

good buildings. The country appears to be best adapted for the growth of clover and alsike seed, and hundreds of acres are to be seen along the road. All classes of farm produce are grown in this District very successfully. There are still, however, thousands of acres of fine land in this Section open for settlement, or, at least, uncultivated and apparently not settled on.

Trunk Road, Vermilion Bay (Canadian Pacific Railway) North to Quibell Station (Grand Trunk Pacific Railway).

This road was constructed a few years ago, and had become badly cut up in places, owing to the heavy traffic, and required considerable repairs. The old ditches were cleaned out and deepened, 10 new culverts were placed, and one small bridge constructed. Four miles of the road were re-surfaced with gravel and 4 miles partly repaired, commencing at Vermilion Bay, going north. Owing to the wet weather, however, it was impossible to finish the work; and there remain 2 miles of the road south of Quibell badly in need of gravelling. At this point there is little or no gravel to be found, and it would be advisable to have this work completed during the winter months when the gravel could be drawn much more cheaply. The distance between Canadian Pacific Railway and Grand Trunk Pacific Railway is 10 miles.

Settler's home, Kenora District.

In the vicinity of Quibell, in the Townships of Wabigoon and Redvers, there is a section of fine agricultural land, with settlements of well-to-do farmers. The settlers, however, are badly handicapped for want of roads. Owing to the difficulty of procuring labour this summer, we did not succeed in constructing the miles of roads in this section of the country that were laid out for the season's work. During the early part of the season the farmers were all busily engaged on their farm work, and during the latter part of the season wet weather retarded the road work. This section of country, between Wabigoon and Eagle River is well adapted for the growth of timothy, clover and alsike. Large quantities of seed are grown here every year.

Aubrey Township:

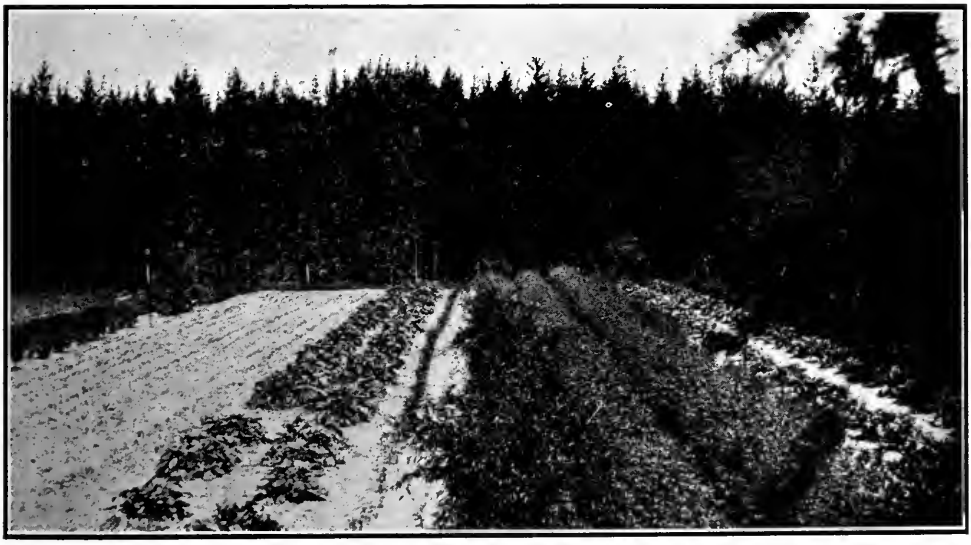
One and a half miles of road were grubbed between lots 10 and 11, Concession 6, near Minitaki Station; and a wooden bridge 96 ft. long constructed across Beaver Creek.

Pellatt Township:

Keewatin and Pellatt Trunk Road. This road, constructed a few years ago, became badly rutted in places, and was repaired where required, re-graded in places, 4 new culverts placed, ditches cleaned out and 540 yds. of gravel used in re-surfacing the worst parts.

Kenora and Keewatin Trunk Road:

This road was repaired, several dangerous places along the road were widened out and 444 loads of crushed rock were used in re-surfacing the worst parts of the road. The road is now in good condition.



A typical view of a settler's garden near Oxdrift, in the Wabigoon section, District of Kenora.

Winnipeg River Bridge:

Owing to the heavy rains during the first week in July, the waters of the Lake of the Woods rose extremely high, and caused a considerable washout at the east abutment of the steel bridge crossing the west branch of the Winnipeg River. The bridge was constructed about 18 years ago. The approach to the eastern abutment was a dry stone wall about 33 ft. high and 80 ft. long. The wall was built with very little batter, and was held together by rods of iron passing through the roadbed and bolted to timbers. The timbers rotted, and owing to the extremely high water, the entire wall slid out into the river, thus stopping communication between the two towns. A new wall was constructed 100 ft. long, well pointed with cement, and is now in first class condition.

Kenora to Redditt Station Survey:

An exploration survey was made with a view to locating a trunk road between Kenora and Redditt Station on the Grand Trunk Pacific Railway. First, a route

was explored on the East Melick trunk road to Redditt. This passed through a broken, rocky country, unsuitable for agricultural purposes in most instances, and difficult and expensive to build. The second route explored followed the West Melick trunk road, which is graded as far as lot 12, Concession 4, Township of Melick. This route was found somewhat more satisfactory than the East Melick trunk road, although it passes through a country with a comparatively small percentage of land suitable for agricultural purposes. In some instances, the country is very rocky, and a road very difficult to construct. It was found, however, that a road could be constructed connecting Redditt Station with Kenora by this route, opening up a fair percentage of agricultural land, which road might, in the future, be extended westward along the Grand Trunk Pacific Railway to connect with Minaki on the Winnipeg River.

$52,092.48 was expended on the roads in this district during the season of 1919.

A view on the Trunk Road in the Rainy River Valley.

DISTRICT OF RAINY RIVER.

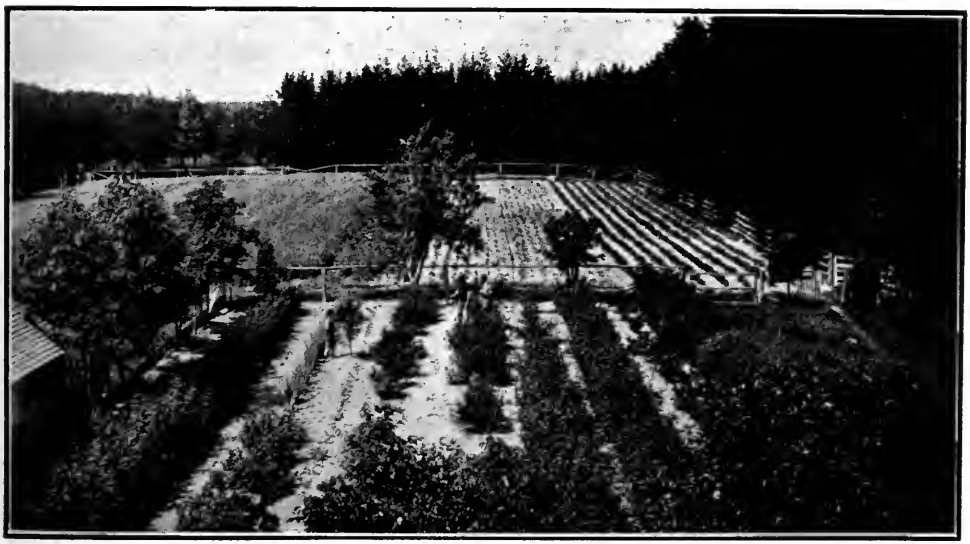
Number of miles of new roads cleared	22.5
" " old roads brushed	19.
" " roads grubbed	27.
" " new roads graded	16.
" " old roads re-graded	42.
" " roads gravelled	45.
" culverts built	76
" culverts repaired	30
" bridges built	9
" bridges repaired	5
" iron pipes laid	2
" miles of tap drains dug	4.5
" " road ditches dug	19.
" " corduroy laid	2.
Amount expended	$137,102 26

Township of McIrvine:

The road north of Section 31 was graded for 1 mile and the brush cut on the sides and tap drains cleaned out.

Township of Crozier:

The Trunk Road was gravelled north of Sections 13, 14 and 15 for a distance of 2½ miles. The Trunk Road east of Section 21 was gravelled for ¾ mile. On road between Sections 18 and 19, one mile of road was grubbed, and ½ mile ditched and graded, new. Between Sections 17 and 18, ¾ mile of road was cleared and stumped. On road north of Sections 34, 35 and 26, 2 miles of road was partly re-graded.



All kinds of garden produce flourish in the District of Kenora near Dryden.

Township of Woodyatt:

On River Road across river lots 13 to 43, 2 miles of road were gravelled by contract, 1,570 yards of gravel being used. Two and a half miles of this road were re-graded. A pile bridge, span 40 ft., was built on River Road between lots 15 and 16, and approaches filled 100 ft. Two washouts repaired on road between lots 32 and 33. Two hundred feet of filling put in at bridge between Sections 8 and 9, and 1 washout repaired on Little Fork, LaVallee Road. Two pile culverts, span 10 ft., were built on river road and 2 culverts on road between river lots 32 and 33.

Township of Devlin:

North of Sections 17 and 18, one mile of road was gravelled, and north of Section 18, 80 rods of ditch dug on one side of road; also, 2 culverts built north of Section 18 and 1 north of Section 17. North of Sections 3, 4, 5 and 6, 2 miles of road were re-graded, and north of Sections 4, 5, and 6, 2½ miles of road were gravelled by contract, 1,422 yds. of gravel being used. Two culverts built north of Section 30, and 1 north of Section 29, and 1 mile of Trunk Road

gravelled east of Section 29. On road east of Sections 27, and 34, 1½ miles of road were re-graded and 1¼ miles of the above road were gravelled by contract, 1,037 yds. of gravel being used. One-quarter mile of Trunk Road was gravelled north of Sections 29 and 30. Six hundred feet of road were gravelled north of Section 21. On road between Sections 19 and 30, ½ mile of road was cleared.

Township of Burriss:

On road east of lot 5, across Con. 3, 4, and 5, 1½ miles of road were re-graded. Two pile bridges with a span of 12 ft. were built between lots 10 and 11, Concession 1, and approaches filled in, a distance of 450 ft. at each bridge. Road across lots 5, 6, 7 and 8, between Concessions 5 and 6, 2 miles of road re-graded. One-quarter mile re-graded between lots 6 and 7, Concession 6. One and a half miles of road re-graded across lots 10, 11, and 12, Concessions 2 and 3. On road between lots 4 and 5, Concession 1, ¾ mile of road was gravelled and re-graded

Clover everywhere in the neighbourhood of Wabigoon and Dryden.

by contract, 600 yds. of gravel being used. Between lots 4 and 5, across Concessions 3, 4 and 5, 3 miles of road were gravelled by contract, 1,704 yds. of gravel being used. On road across lots 11 and 12 between Concessions 2 and 3, ¾ mile of road was gravelled by contract, 331 yds. of gravel being used.

Township of Lash:

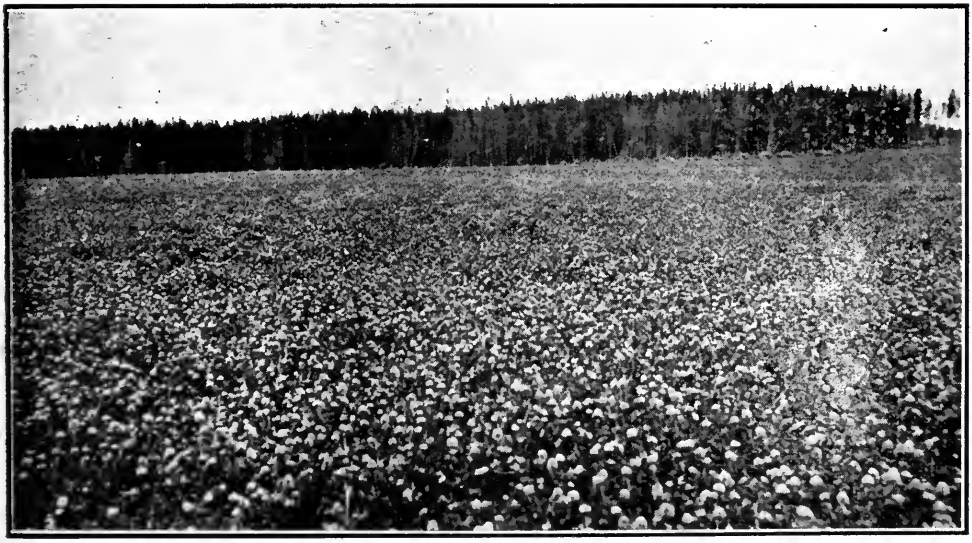
Two culverts built north of Section 26, and 2 tap drains 100 ft. in length built. On road running east and west on the north side of Emo Village, ¼ mile of road was re-graded. On river lot 38, bridge and trunk road were repaired. On road between Sections 24 and 25, ½ mile of road was cleared, and twenty rods ditched. North of Sections 25, 26, 27 and 28, 2 miles of trunk road were re-gravelled. On road between Sections 32 and 33, a culvert was built and 600 ft. tap drain dug, and on trunk road south of Section 32, 700 ft. of ditch were deepened. On road between Sections 34 and 35, ½ mile of road was gravelled.

Township of Aylsworth:

On road between river lots 32 and 33, 38 rods re-graded and ¾ mile gravelled. On river road across river lots 31, 32 and 37, 48 rods of road gravelled. On river road across river lots 30 and 31, 20 rods of road gravelled.

Township of Barwick:

One culvert built on trunk road between river lots 8 and 9. A bridge was built on road east of river lot 1, span 16 ft. On trunk road, river lot 35, a bridge was repaired. A culvert was built on trunk road on river lot 37.



Hundreds of acres of red clover and alsike are grown between Wabigoon and Eagle River, District of Kenora.

Township of Nelles:

On the road between Sections 4 and 5, and between Sections 5 and 8, 1 2/3 miles of road were gravelled. On road allowance between Sections 4 and 5, ½ mile road grubbed. On road between Sections 16 and 17, ½ mile of road graded. On road allowance between Sections 4 and 9, 70 chains ditches, and 10 chains of tap ditch dug, and ¾ mile of road cleared. On road between Sections 16 and 17, and between Sections 8 and 9, 1/3 mile of road gravelled. On road between Sections 2 and 3, 10 and 11, 14 and 15, and 22 and 23, 2¾ miles of road ditched, on one side, ½ mile double ditched, and 3½ miles re-graded. One mile of said road was grubbed on the sides and 2 culverts built; and on road between Sections 22 and 23, 10 chains of washout repaired. On road between Sections 26 and 27, and between 34 and 35, 2 miles of road re-graded..

Township of Shenston:

Cleared 147 rods road allowance around rock ridge, north of Section 35, Shenston Township. On road north of Sections 35 and 36, 280 rods of road grubbed, and 257 rods ditched and graded, and 112 rods corduroyed, 30 rods of

tap drain dug on Sections 34 and 35. On road between Sections 21 and 28, 32 rods of ditch dug. On road between Sections 26 and 27, 85 rods of road ditched, and 85 rods graded. One culvert built between lots 33 and 28. On road east of Sections 3, 10 and 15, 2½ miles of road cleared but not burned.

Township of Dilke:

Two culverts were built between Sections 32 and 33. North of Sections 35 and 36, the road was gravelled for a distance of 1¾ miles. Two culverts repaired on trunk road on river lots 32 and 41, and on trunk road across river lots 23 to 26, ½ mile of road gravelled.

A typical view of a splendid field of red clover near Wabigoon.

Township of Dobie:

On road east of lot 1, Concession 6, 1 mile of road re-graded, and brush burnt. Four culverts built, east of lot 1, on Concessions 1, 3, 4 and 6. On trunk road commencing at the S.E. corner of lot 12, Concession 1, thence easterly, 3 miles of road gravelled, 1,720 cu. yds. of gravel being used.

Township of Kingsford:

Four culverts built west of lot 12, Concession 1, and 2 on Concession 2. Four miles of road graded west of lot 12, Concessions 1, 3, 4, 5 and 6. On west town line across Concessions 3, 4, 5 and 6, 3½ miles of road brushed. On Concession 6, 202 rods of road brushed, and on Concession 4, 163 rods gravelled, and on Concession 2, 25 rods gravelled.

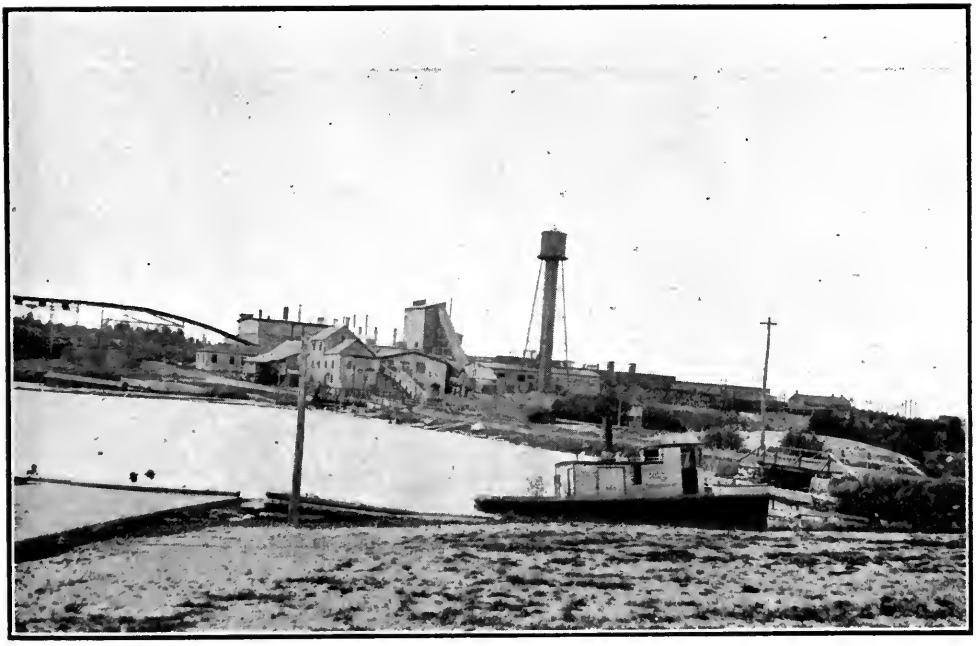
Townships of Potts:

Two and a half miles of road were grubbed and part brushed between lots 2 and 3, across Concessions 3, 4 and 5. Twenty-five rods corduroy were laid between lots 2 and 3, Concession 2, and bridge was built on lot 1. On road

between lots 8 and 9, Concessions 1 and 2, 174 rods of road gravelled, 456 rods ditched, 109 rods grubbed, 422 rods graded, 2 bridges and 7 culverts built, 195 rods of corduroy laid and 135 rods tap drain dug. Cut and cleared road allowance between lots 8 and 9, Concession 3, south half, and between Concessions 2 and 3, across lots 7 and 8, 1½ miles.

Township of Carpenter:

On road between lots 2 and 3, Concession 2, 35 rods corduroy were laid and bridge repaired. On road east of lot 1, Concession 3, 1 culvert was built and washouts filled in. On road east of lot 7, Concession 5, 200 rods of old road were re-graded and brushed, and 400 rods gravelled, and 6 rods tap drain dug. Bridge was repaired on road across lots 2 and 3, Concession 2. On road between lots



A view in the town of Dryden, District of Kenora, showing the pulp and paper mill.

6 and 7, 233 rods of road were ditched on Concession 4, and ½ mile gravelled and ¼ mile of road grubbed and graded on Concession 6 and 2 culverts built.

Township of Mather:

On road between lots 6 and 7, Concessions 5 and 6, 1 mile of road was re-graded, and 80 rods grubbed and cleared, on the sides. On road between lots 8 and 9, Concessions 5 and 6, 27 rods of road were ditched, and on Concession 3, 33 rods.

Township of Richardson:

On road between lots 2 and 3, Concession 1, 1 mile was brushed, 20 rods of tap drain dug, 60 rods of road graded, 20 rods of road grubbed, and 3 culverts

built. On road between Concessions 1 and 2, across lots 11 and 12, 148 rods were cleared. On road across lots 8, 9 and 10, between Concessions 1 and 2, 1½ miles of road were brushed. On road across lots 7 to 12, 2½ miles of road were grubbed. On road across lots 5 to 12, 3 miles of road were graded, and 95 rods of tap drain dug. On road across lots 5 and 6, between Concessions 1 and 2, 2,764 ft. of corduroy were laid and ¼ of a mile gravelled. A bridge having a span of 11 ft. was built on lot 5, between Concessions 1 and 2, and 4 culverts were put in. Between lots 4 and 5, Concessions 1 and 2, 2 culverts were repaired.

Long Sault Reserve:

On trunk road 5 miles were re-graded, 2 miles gravelled, 1,000 yds. of gravel being used, and 2 culverts repaired. On road between lots 44 and 45, the clearing, burning and grubbing was completed for 1 mile.

A garden and clover field near Dryden.

Township of Pattullo:

On road east of Sections 21, 28 and 33, 3 miles of road were re-graded, 110 rods of corduroy laid and 1 mile ditched.

Dobie-Shenston and Mather-Tait Town Line Road:

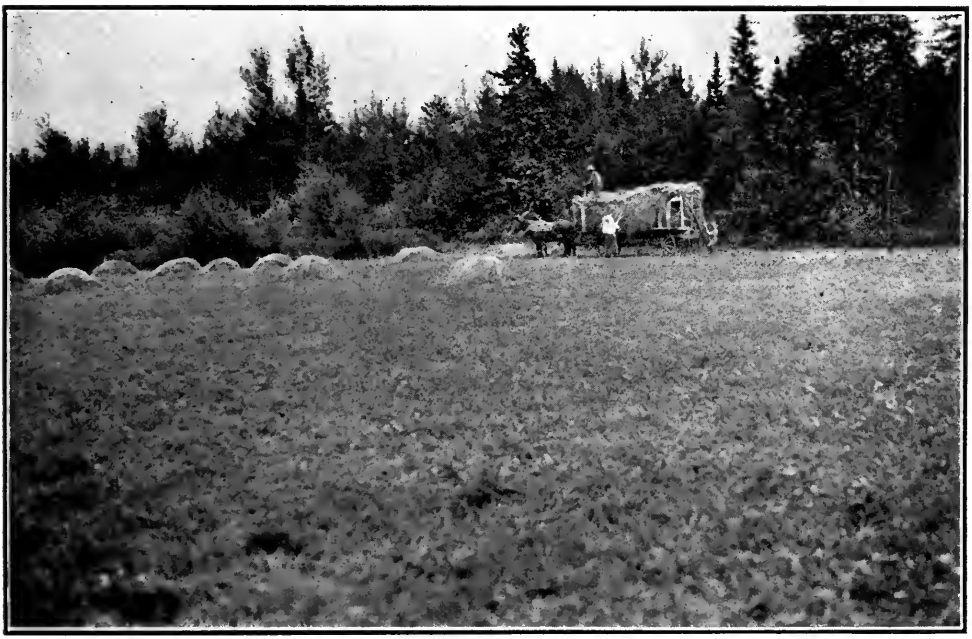
One and two-third miles of town line road were re-gravelled where washouts had damaged same, and 69 rods ditched, 2 culverts repaired, 3 new culverts built, and 25 rods re-graded. Cut and cleared road allowance east of Sections 3, 10 and 15, 1½ miles.

Township of Tait:

The approaches to bridges between Sections 22 and 23 were filled to a distance of 135 yds. On road between Sections 15 and 16, 103 yds. of road were graded. On road between Sections 15 and 16, a culvert was built. On road south of Section 4, 100 rods of ditch were dug. Two culverts were repaired on road between Sections 9 and 16, and 1 culvert between Sections 8 and 17 and 1 between lots 23 and 26. On road between Sections 9 and 10, 49 rods were graded, and between Sections 23 and 26, 23 rods.

Township of Atwood:

A culvert was built on trunk road on lot 2, and 400 ft. of trunk road gravelled across river lots 20 to 23. Two corrugated iron pipes were put in on the trunk



A "new beginner"; a settler in the Wabigoon section taking off a crop of clover.

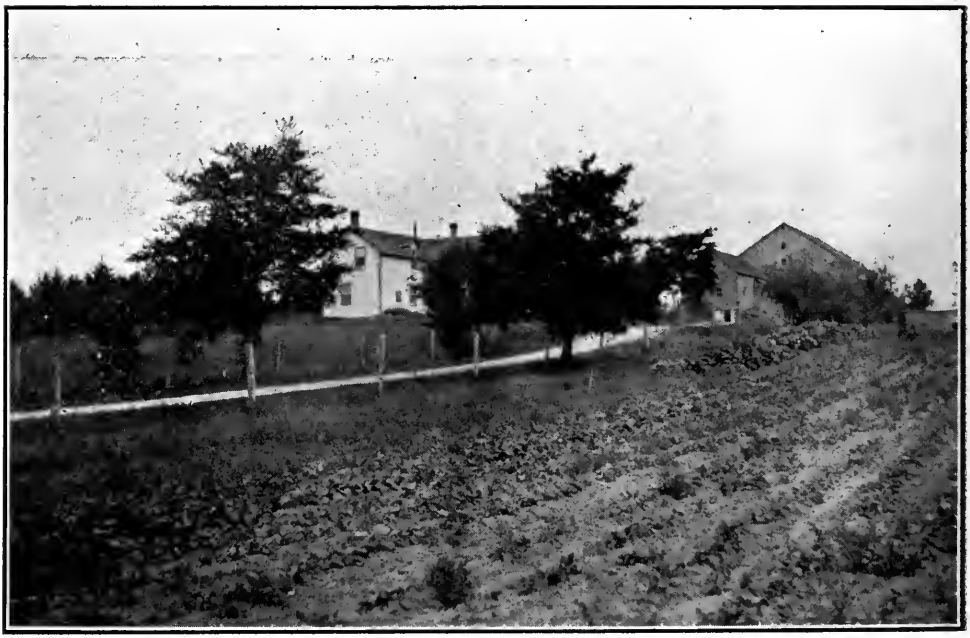
road at the Atwood and Worthington town line. On trunk road across river lots 17 and 18, ¼ mile of road was gravelled. On east side of Atwood and Worthington town line, commencing at trunk road and from there south, 1,420 ft., a ditch was dug to carry surplus water from the ditches to the north of the railway.

Township of Curran:

A culvert was built on road east of river lot 24, and ¼ mile of road gravelled; also, a culvert built on road east of Section 9.

Wild Lands Reserve:

Two new culverts were built on Spohn Trunk road east of Section 21, and 2 washouts repaired east of Sections 29, 21, 13 and 5, and 4 miles of road gravelled by contract, 4,298 yds. of gravel being used. Three and a half miles of this road were brushed and burned on sides. On road north of Section 53, ¼ mile of road was cleared, and ¼ mile grubbed. On road north of Sections 4 and 5, 2 miles of road were cleared and grubbed. On road commencing at the S.E. corner of Section 44, thence south of Sections 44, 43, 42 and 41, to road allowance on the shore of the Rainy River, thence north-westerly along said road allowance to the west boundary of Section 41, thence north on road allowance west of Sections 41, 33, 25 and 17, to the north-west corner of Section 17, 8 miles; this road allowance was cleared and grubbed by contract. On road allowance between Sections 41 and 42 and between Sections 33 and 41, 2 miles of road were cleared.



One of the many splendid farms in the Dryden section of the District of Kenora, viewed from the Trunk Road.

Manitou Reserve:

On trunk road, 3 miles were re-graded, 1½ miles gravelled, 949 yds. of gravel being used, and 3 culverts repaired.

Township of Spohn:

On road between lots 4 and 5, Concession 5, 1½ miles of road were ditched, and across Concessions 3 to 9 inclusive, 7 miles re-graded, and across Concessions 4, 5 and 6, 2 miles re-gravelled. On road between Concessions 7 and 8, across lots 7 and 8, 1 mile of road was cleared and the centre 12 ft. grubbed. Across the centre of lots 11 to 14, Concession 3, for a distance of 2¼ miles, a clearance was made, 33 ft. wide and a tap drain dug. On road allowance between Concessions 8 and 9, 2 miles of road were cleared.

Township of Morley:

On road north of Section 20 and 21, 2 miles of road were gravelled by contract, 1,547 yds. of gravel being used.

Township of Pratt:

On road between lots 4 and 5, across Concessions 5 and 6, and north of Concession 6, across lots 3 and 4, 3 miles of road were gravelled by contract, 5,741 cu. yds. of gravel being used.

The Fort Frances and Rainy River Trunk Road, east of Barwick, showing part of a flock of 700 sheep.

Township of McCrosson:

On road between lots 2 and 3, across Concessions 1, 2 and 3, 2½ miles were gravelled. On road between lots 2 and 3, Concession 3, and across lots 1 and 2, between Concessions 3 and 4, and east of lot 1 on town line Concessions 4 and 5, 3½ miles of road were brushed, logged and grubbed and 7,300 ft. tap drain dug, 9 culverts built and ½ mile double ditched, and 1,100 ft. single ditched, and 2¾ miles graded. On road between Concessions 2 and 3, across lots 1 and 2, 1 mile of road brushed, ½ mile grubbed, double ditched, 1 mile graded and 3 culverts built.

Township of Tovell:

On road between Concessions 2 and 3, across lots 8, 9, 10, 11 and 12, 2½ miles of road were brushed out and grubbed, and 2 miles partly graded, 1 mile double ditched and 1¼ miles single ditched, 4 new culverts built.

Township of Blue:

On road between Sections 8 and 17, 170 rods were graded, and a ditch dug on each side of road, 2 culverts built and 4 repaired; 60 rods of road repaired between Sections 20 and 11.

Township of Worthington:

On road between river lots 40 and 41 a bridge was repaired, and between Section 34 and lot 16, 6 culverts were repaired, and on the trunk road, on river lot 11, a culvert was built.

The trunk road was kept dragged from Rainy River to Fort Frances, a distance of 60 miles. The Rainy River-Spohn road was dragged 15 miles; the Sleeman-Bergland road was dragged 18 miles; the Barwick-Black Hawk road 12 miles and the Emo-Off Lake road 7 miles.

At Tracey Rapids on the Seine River about 4½ miles west of Atikokan Station, Canadian Northern Railway, a bridge was constructed in March and April. The bridge is 145 ft. long, with one rock filled pier 12 x 16, one 18 x 18, with a 50 ft. opening; one 16 x 18, with a 27 ft. opening; with an abutment, filled with rock, on the south side 7 ft. high, 20 ft. wide and 25 ft. long. Between this bridge and the Canadian Northern Railway, a road ½ mile in length was cut, grubbed and graded.

J. F. WHITSON,
Commissioner.

To the Honourable the Minister of Lands and Forests:—

SIR,—I beg to submit for your consideration and recommendation that the following amounts be expended during the season of 1920 on the construction of new roads and bridges, the maintenance of previously constructed trunk roads, the re-grading and re-surfacing with stone or gravel of old roads, the drainage of swamps, and the construction of tap drains in the Districts of Rainy River, Kenora, Port Arthur, Fort William, Algoma, Sudbury, Nipissing, Parry Sound, Muskoka, Manitoulin Island, and County of Renfrew.

District of Rainy River:

In this District there are approximately 150 miles of trunk roads constructed or re-constructed during the last seven years which require to be maintained. In places they require constant dragging, ditches and culverts require to be kept open, and occasionally parts of the road require re-gravelling. In several of the townships from 10 to 20 miles north of the C. N. Railway, settlement has taken place during the last five or six years and many of these settlers have little or no access to a market, except by winter roads, and in consequence the settlers have been badly handicapped, therefore, it is necessary that new roads be constructed through these townships, connecting them with the trunk roads already built. In some instances trunk roads have been constructed north leading into these townships, which will require to be extended and the worst parts of the roads surfaced with gravel. For this purpose I would recommend the expenditure of $70,000

District of Kenora:

For repairing and maintaining old roads north and west of the Towns of Kenora and Keewatin, for the gravelling of the trunk road already constructed between Oxdrift and Eagle River Station along the C. P. Railway, for the construction of new roads in the townships adjacent to Quibell Station on the G. T. Railway, for the gravelling of sections on the trunk road between Vermilion Bay on the C. P. Railway and Quibell Station on the G. T. Railway, for repairing the road between Dryden Station on the C. P. Railway and Richan Station on the G. T. Railway; also to defray the expense of survey and exploration of new roads in the districts north and west of Kenora 75,000

Districts of Port Arthur and Fort William:

For the maintenance of 175 miles of trunk roads in the district north, east, west and south of the Towns of Port Arthur and Fort William, extending southerly to Pigeon River, westerly to the Kaministiquia River, and northerly and westerly through the settled portions of the district; to continue the trunk road commenced last season between Port Arthur and Loon Lake along the railway and east towards Nipigon 75,000

Sudbury and Algoma Districts:

The maintenance of trunk roads in the vicinity of Sudbury and throughout the mining district surrounding Sudbury, including the West Shining Tree Gold District; for the extension of a new road between Capreol Station on the C. N. Railway north of Sudbury to Sellwood Junction on the same railway, for the maintenance of the trunk road between Sudbury and North Bay, to complete the trunk road from Rutter Station on the Toronto Branch of the C. P. Railway east about 20 miles to the village of Noelville and east to Lake Nipissing, which was partly constructed last season. For the gravelling in places of the trunk road constructed in 1919 between Warren Station on the C. P. Railway, south to the Village of St. Charles 80,000

Nipissing District:

For the reconstruction and repairing of a new road between Verner on the C. P. Railway, southerly to connect with the trunk road at Noelville; for repairing the road from Sturgeon Falls on C. P. Railway, north to Field; for the completion of a road north of North Bay in the Township of Widdifield; for gravelling in places and maintenance of trunk road between North Bay and Mattawa, also the extension of the trunk road east from Powassan Station on G. T. Railway, through the Township of Chisholm 75,000

Parry Sound and Muskoka Districts:

For the completion of the North Bay and Bracebridge trunk road through the Districts of Parry Sound and Muskoka from Novar Station on the G. T. Railway, to a point south of Severn Bridge; to continue the construction of a trunk road commenced last season, running west from

Trout Creek Station on the G. T. Railway through the Village of Commanda to Loring; to continue the construction of a trunk road from Nipissing village west to Restoule; to reconstruct and gravel, in places, the road between Gordon and Foots Bay on the road from the Village of Parry Sound to Bala; to construct and repair in places the trunk road between Callander and Huntsville 132,000

County of Renfrew:

To continue the extension of the Pembroke and Mattawa trunk road from Klock on the C. P. Railway east to near Chalk River 25,000

Algoma District, Vicinity of Sault Ste. Marie:

To complete the gap between Algoma Mills and Cutler Station on the C. P. Railway; for maintenance and repairs of trunk road between Sault Ste. Marie and Sudbury; for the maintenance of trunk roads on St. Joseph Island and Campement D'Ours Island; for the completion of Goulais Bay Road and for the construction of two small bridges near Desbarats and Thessalon on the Sault Ste. Marie trunk road 83,000

Manitoulin Island:

For the completion of the trunk roads commenced three years ago between Little Current and Gore Bay and between Little Current and Manitowaning; also the extension of the trunk roads south and west of Gore Bay 25,000

Unforeseen Work:

The construction of short roads in the new settlement; building and repairing small bridges; the construction of culverts, etc. 30,000

Engineering, office expenses, surveys, exploration, machinery and equipment 30,000

$700,000

J. F. Whitson,
Commissioner.

NEW LISKEARD FARM.

The successful operation of the Farm has been very much hindered on account of lack of farm buildings. It is more imperative that the New Liskeard Demonstration Farm should have suitable buildings and farm stock if it is to fulfill the purpose for which it was established; viz., to demonstrate the most successful lines of farm work in Temiskaming District in particular, and the north country as a whole. To do this, live stock is absolutely essential, particularly in a country primarily adapted to live stock farming. I cannot too strongly recommend that steps be taken at once to prepare for the erection of buildings next summer. Operations should be commenced early in the spring in order that the buildings be ready for the first crop harvested.

One of the most important lines of work carried on during the past season has been in the clearing of additional land. In the early fall of 1918 a contract was let for clearing thirty acres. On account of the wet weather it could not be completed. During the past summer weather conditions were most favourable for land clearing and there were about seventy acres made ready for the plow; sixty on the "West" place and ten on the property in town. This was all fall plowed except ten acres on the "West" property. There are from seventy-five to eighty acres ready for crop next year.

Field Crops.

On May 31st, eight acres were seeded to O.A.C. No. 72 oats at the rate of three bushels per acre. The field had been in pasture for some years and was spring plowed. At first it was intended that the grain from this field should be used for ensilage. However, as no buildings were erected, it was allowed to ripen and was cut on September 3rd. The quality of grain was very good and the yield sixty bushels per acre. Harvest conditions prevented stacking operations and the grain was quite badly coloured. On the whole, we consider the crop a good average, especially for this year.

On June 5th, seven acres were seeded with O.A.C. No. 3, three bushels per acre. They were cut on the 15th day of August and gave a yield of fifty-five bushels per acre. The quality of these oats is better than that of the No. 72. They were cut two weeks earlier and were put in stack before the wet weather came on. The No. 3 has proven to be a splendid oat for this section.

There was a small field of new land seeded late in June. This grain did not mature and was cut and made into hay.

A small area of potatoes was planted on June 10th. The Irish Cobbler and Green Mountain were the varieties used. Results were fairly satisfactory but hardly up to the standard. The entire crop was shipped to Kapuskasing.

There was also a small acreage of turnips planted. These did much better than was expected owing to the fact that weather conditions after planting were most favourable for roots. After rain came the turnips picked up and developed into one of the best crops on the Farm. They were sold to a farmer for feed on account of lack of storage and also because we had no stock to which to feed them.

The seven acres of No. 3 oats were seeded down to hay and the catch was extra good. The nine acres where the No. 72 were grown were fall plowed for crop next year.

No other kinds of grain were grown for the reason that all hay and grain had to be stacked. Therefore we did not consider it would be good business to try out small areas of wheat, barley and other grains.

The hay crop was a really good average, yielding from one and a half to two tons per acre. It was a first crop and mostly clover.

The second growth or aftermath, was extra heavy. It matured so well that we decided to try an experiment in cutting some of it for seed. Cutting was done on November 15th. Weather conditions were very favourable at that time and we expected to get it all stacked in good shape. However, rain came on the night before we were ready to stack, consequently we had to leave it in coil for weeks before it was threshed. There was quite a percentage of seed frosted but sufficient good seed to pay all expenses in connection with the experiment.

Short Course in Agriculture and Seed Fair.

The Second Annual Short Course and Seed Fair was held for five days, March 10th to 15th.

The instructors were: W. J. Bell, B.S.A., Kemptville; Frank Marcellus, B.S.A. ,Guelph; F. C. Hart, B.S.A., Markets Branch, Toronto; A. H. McLennan, Vegetable Specialist, Toronto; W. B. Angle, New Liskeard; L. H. Hanlan, J. M. MacIntosh, A. MacLachlan, and the writer, of New Liskeard and Monteith.

The Course was arranged and conducted in a practical manner throughout. The farmers of the district took a very keen interest in the Course, also in the Fair. There was a large attendance at all lectures, especially those held in the afternoon. It seemed to be difficult for the farmers to attend both morning and afternoon lectures.

The entries in the different grain, seed and root classes were not as numerous as in 1918. This is explained by the fact that the harvest season of 1918 was less favourable than that of 1917.

Entries.

Oats	16
Wheat	23
Barley	10
Peas	12
Grasses	4
Flax	3
Potatoes	14
Total	82

Donations.

Hogg & Lytle	$25 00
Massey-Harris Co., J. T. Goldthorpe, Agent	25 00
International Harvester Co., O'Grady Bros., Agents	25 00
W. M. Gray-Sons, Campbell, Ltd., O'Grady Bros., Agents	10 00
Canadian Potato Machinery Co., O'Grady Bros., Agents	5 00
Chas. A. Julien, O'Grady Bros., Agents	15 00
Imperial Bank, silver cup.	
Union Bank, silver cup.	
J. Fleury & Sons, O'Grady Bros., Agents	17 00
Cockshutt Plow Co., Edwards Agency	15 00
Agricultural Society, New Liskeard	50 00

PRIZE WINNERS.

Class 1, O.A.C. No. 3 Oats—
1st. Chas. Thomas, Uno Park, Ont.
2nd. Jno. Molitor, Earlton, Ont.
3rd. G. J. Bray, R. R. No. 1, New Liskeard, Ont.

Section 2, O.A.C. No. 72 Oats—
1st. D. D. Taylor, Hanbury, Ont.
2nd. Bruce Kerr, New Liskeard, Ont.

Section 3, Abundance—
1st. W. R. Peters, Uno Park, Ont.
2nd. G. L. Broughton, Uno Park, Ont.

Section 4, Any Variety (White)—
1st. Geo. Stephenson, Box 412, Englehart, Ont.
2nd. A. A. Wilson, New Liskeard, Ont.
3rd. Mr. Mall, New Liskeard, Ont.

Class 2. Wheat, Marquis Spring—
1st. Geo. C. Foster, Uno Park, Ont.
2nd. Cyril Beatty, Earlton, Ont.
3rd. Mr. Mall, New Liskeard, Ont.
4th. Jno. Sharp, R. R. No. 2, New Liskeard, Ont.
5th. J. M. Gray, New Liskeard, Ont.

Section 2. Fall Wheat—
1st. A. Doupe, Hanbury, Ont.

Class 3. Barley (Any Six-rowed Variety)—
1st. Geo. C. Foster, Uno Park, Ont.
2nd. Mr. Foley, R. R. No. 1, New Liskeard, Ont.
3rd. G. Stein, New Liskeard, Ont.

Class 4, Peas, Large Field Pea—
1st. W. R. Peters, Uno Park, Ont.
2nd. P. Gouvremont, New Liskeard, Ont.
3rd. A Lusk, New Liskeard, Ont.

Section 2. Small Field Pea—
1st. A. Doupe, Hanbury, Ont.
2nd. G. Stein, New Liskeard, Ont.
3rd. Allen Merchant, Uno Park, Ont.

Class 5, Grasses, Red Clover Seed—

Section 2, Alsike Seed—
1st. B. Keetch, New Liskeard, Ont.

Section 3, Timothy Seed—
1st. A. Doupe, Hanbury, Ont.
2nd. T. H. Nickle, Hanbury, Ont.
3rd. W. R. Peters, Uno Park, Ont.

Class 6, Flax—
1st. Geo. C. Foster, Uno Park, Ont.
2nd. A Doupe, Hanbury, Ont.
3rd. J. M. Gray, New Liskeard, Ont.

Class 7, Potatoes, Irish Cobbler—
1st. W. R. Peters, Uno Park, Ont.
2nd. G. J. Bray, R. R. No. 1, New Liskeard, Ont.
3rd. Chas. Thomas, Uno Park, Ont.
4th. E. David, New Liskeard, Ont.
5th. G. A. Bassett, New Liskeard, Ont.

Section 2, Green Mountain—
1st. Geo. Stephenson, Box 412, Englehart, Ont.
2nd. J. M. Gray, New Liskeard, Ont.
3rd. E. Healey, Hanbury, Ont.

Sweepstakes—
Oats—Banner, Geo. Stephenson, Box 412, Englehart, Ont.
Wheat—Marquis, G. C. Foster, Uno Park, Ont.
Peas—Small Field Pea, A. Doupe, Hanbury, Ont.
Grasses—Timothy, A. Doupe, Hanbury, Ont.
Potatoes—Irish Cobbler, W. R. Peters, Uno Park, Ont.

The Seed Fair was carried on under the same arrangement and organization as the previous year. We are planning to hold our Third Annual Fair next year and hope for more entries than we had this year.

In conclusion, I beg to state that practically all work in connection with the Farm was done under the supervision of Mr. J. M. MacIntosh, now Agricultural Representative at Sault Ste. Marie. I succeeded Mr. MacIntosh here on September 1st, this year.

There is no doubt in my mind that a properly conducted Farm in this locality (New Liskeard) can be made to fill an important place in the Agricultural Development of Temiskaming District.

All of which is respectfully submitted.

(Sgd.) W. G. Nixon,

Superintendent.

MATHESON FARM.

There are one hundred and sixty acres in the Farm and approximately sixty cleared. The balance has been burned over and is covered with logs and stumps that can be very easily cleared.

Thus far, the Farm has been used in growing hay, grain and potatoes. The grain has been sold to settlers at moderate prices for seed purposes, when it was suitable for that.

This year a small post barn was erected in which to store hay and grain and where threshing and pressing can be done. The barn offers a very good demonstration to settlers, in that it is cheap and yet efficient. There is very little framing to it so that any handy man can build one like it. The frame is all made up of posts, braced with post girts and plank braces. It is sheeted with rough lumber and has a galvanized iron roof.

This year the Farm was cropped as follows:

Fall Wheat—
Dawson's Golden Chaff ..... 5 acres.
Spring Wheat—
Marquis Variety ..... 1 acre.
Oats—
O.A.C. No. 72 ..... 2 bushels.
O.A.C. No. 3 ..... Balance of farm.

The main crop (as stated) consisted of No. 3 oats. They were seeded on May 16th and harvested on August 11th, eighty-seven days from date of seeding.

The O.A.C. No. 72 oats were seeded on May 29th and harvested one hundred and two days later, on September 8th.

The fall and spring wheat did not give very good results. Twenty bushels of spring wheat were threshed from one acre. While this may be considered a

fair yield it is hardly up to the standard. On account of severe winter killing the fall wheat did not give a very heavy yield twenty-five bags were threshed from five acres.

The No. 3 oats are of very good quality, there are 1,098 bushels as they came from the mill.

(Sgd.) W. G. Nixon,

Farm Director.

STATEMENT OF EXPENDITURE UNDER NORTHERN AND NORTH-WESTERN ONTARIO DEVELOPMENT ACTS, 1912, 1915, AND AMENDMENTS.

(For the Year Ended 31st October, 1919.)

District.	Expenditure.
1. District of Nipissing, Parry Sound and Muskoka. North Bay to Callander; Callander to Washago on G. T. Ry.; Mattawa to Pembroke; Mattawa to Markstay on Canadian Pacific Railway	$199,824 47
2. District of Temiskaming. Haileybury to Cochrane; Cochrane to Kapuskasing; Porcupine and Elk Lake	507,260 56
3. District of Sudbury. Vicinity of the town of Sudbury and Mining District surrounding, including the West Shining Tree District; Sudbury-North Bay Trunk Road; and portion of Sault Ste. Marie-Sudbury Trunk Road	191,499 24
4. District of Algoma (North), Vicinity of Hearst, along Transcontinental and Algoma Central Railways	20,089 29
5. District of Algoma (South). On Sudbury and Sault Ste. Marie Trunk Road; Sault Ste. Marie to Algoma Mills, and Goulais Bay Road	134,705 33
6. District of Thunder Bay. Tributary to Port Arthur and Fort William	107,877 55
7. District of Kenora. Vicinity of Kenora and Keewatin and between Wabigoon and Dryden and Oxdrift on Canadian Pacific Railway	52,092 48
8. District of Rainy River. In Rainy River Valley	137,102 26
9. Algonquin Provincial Park	102 38
10. St. Joseph Island	22,248 67
11. General Administration Expenses	18,457 81
12. Experimental Farms	12,992 49
13. Creamery, New Liskeard	7,733 07
14. Grain Elevators	182 25
15. Seed Grain	7,322 04
16. Cattle Purchase Account	18,720 61
17. Soldiers' Settlement Account	366,085 13
18. Settlers' Loan Account	44,456 01
	$1,848,751 64

STATEMENT OF EXPENDITURE, YEAR ENDING 31ST OCTOBER, 1919.

Making of Roads:			
Grigg, A., Deputy Minister, salary	$400 00		
Whitson, J. F., Commissioner, salary	4,500 00		
Bruce, A. E. D., Secretary and Accountant, salary	3,073 25		
Beardall, F. G., Clerk, salary	1,625 06		
Lawer, W. L., Bookkeeper, salary	1,536 62		
Dower, A. R., Clerk, salary	1,164 20		
Reid, A., Draughtsman, salary	842 54		
Laidlaw, Miss B., Stenographer, salary (3 months)	291 82		
		$13,433 49	
Wages	$797,674 86		
Contracts	125,214 87		
Supplies and equipment	454,936 82		
		1,377,826 55	
			$1,391,260 04
Advancement of Settlement and Colonization:			
Wages	8,042 26		
Contracts	913 75		
Supplies, stock and equipment	4,036 48		
		12,992 49	
Creamery, New Liskeard:			
Wages	$3,223 14		
Supplies, equipment, freight and expenses	4,509 93		
		7,733 07	

Grain Elevators, New Liskeard District:			
Preparing statistics and disbursments		$182 25	
Seed Grain:			
Wages	$93 45		
Seed, freight and expenses	7,228 59		
		7,322 04	
Cattle Purchase Account:			
Cost of cattle, feed, freight and expenses		18,720 61	
Returned Soldiers' and Sailors' Land Settlement Act:			
Wages	$155,413 91		
Contracts	26,608 03		
Material, equipment, supplies, stock, railway siding and expenses	184,063 19		
		366,085 13	
			$1,804,295 63
Settlers' Loan Department:			
Dane, F., Commissioner, salary	$5,000 00		
Kennedy, W. K. P., Accountant, salary	2,500 00		
Crawford, G., Stenographer, salary	777 50		
		8,277 50	
Net amount of loans issued	$35,470 00		
Expenses	708 51		
		36,178 51	
			44,456 01
			$1,848,751 64

ARTHUR E. D. BRUCE,
Secretary and Accountant.

SPECIAL WARRANT ACCOUNTS.

ADMINISTERED BY THE NORTHERN DEVELOPMENT BRANCH.

EXPENDITURE TO 31ST OCTOBER, 1919.

Order-in-Council dated 30th September, 1916—	
Expenses Log Houses at Toronto and Ottawa Exhibitions and at Stock Judging Pavilion, New Liskeard	$1,591 27
Order-in-Council dated 20th February, 1917—	
Expenditure	17 15
Order-in-Council dated 18th May, 1917—	
Freight	3 04
Order-in-Council dated 18th May, 1917—	
Returned Soldiers' Recreation Account—Expenditure, 1919	224 29
	$1,835 75

ARTHUR E. D. BRUCE.
Secretary and Accountant.

REVENUE ACCOUNT, 1919.

The Making of Roads:		
Refunds on the sale of supplies, etc.	$553 65	
Advancement of Settlement and Colonization:		
Sale of hay, produce, equipment, etc., and rent	395 50	
Creamery at New Liskeard:		
Butter revenue, sale of buttermilk, cans, etc.	6,922 41	
Seed Grain:		
Notes retired	13,107 78	
Purchase of Cattle Account:		
Proceeds of cattle sold	2,880 00	
Returned Soldiers' and Sailors' Land Settlement Act:		
Sale of provisions, etc.	78,668 26	
Special Warrant Accounts:		
Sales and refunds	719 95	
		$103,247 55
Settlers' Loan Account:		
Payments on principal, interest and refunds		61,772 82
Total revenue under all heads, 1919 account		$165,020 37

RECORD OF CORRESPONDENCE.

For year ended 31st October, 1919.

Letters received		8,367
Letters mailed	6,715	
Circulars mailed	1,509	
		8,224

ARTHUR E. D. BRUCE,
Secretary and Accountant.

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1920

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by CLARKSON W. JAMES, Printer to the King's Most Excellent Majesty
1921

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Minister of Lands and Forests and his farm, Manitoulin Island.

Printed by
THE RYERSON PRESS.

CONTENTS

Report of the Minister of Lands and Forests of the Province of Ontario

For the Year Ending 31st October, 1920

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

For the information of Your Honour and the Legislative Assembly, I have the honour to submit a report for the fiscal year ending the 31st of October, 1920, covering the Department of Lands and Forests.

Prior to the year 1906 the management and control of the natural resources of the Province as applicable to Lands, Forests and Mines, rested in the "Department of Crown Lands" but in that year by Legislative Amendment the "Department of Lands, Forests and Mines" was substituted therefor. This designation obtained up to the 1920 Session of the Legislative Assembly, when under an Act, known as "The Department of Mines Act," assented to June 4th, 1920, a separate Department of Mines was established, the hitherto parent Department thus becoming "The Department of Lands and Forests." Consequently, the data furnished herein is excluded to the Lands and Forests, while that bearing on the Mining Industry may be found in the Report of the Department of Mines.

COLONIZATION AND IMMIGRATION.

The Colonization and Immigration Branch of the Province, which had been under the jurisdiction of the Department of Lands, Forests and Mines since the 6th of January, 1916, was by Order-in-Council dated the 12th March, 1920, transferred to the Department of Agriculture, to which it had formerly been attached so that statistics bearing upon this service may be obtained from the reports of the Minister of Agriculture.

CLERGY LANDS.

Clergy Lands to the extent of 82 acres were sold for $57.40 and the collection on account of same and former sales of such lands was $862.21. (See Appendix No. 3, page 23.)

COMMON SCHOOL LANDS.

The area of these lands sold during the year was 146.25 acres for $200.77, while the collection on account of these and former sales was $5,527.74. (See Appendix No. 3, page 23.)

GRAMMAR SCHOOL LANDS.

An area of 151 acres was sold for $231.00. The collection on account of former sales was $756.16. (See Appendix No. 3, page 23.)

University Lands.

The area of these lands sold during the year was 720.87 acres for $360.44. The amount collected on account of these and former sales was $1,806.18. (See Appendix No. 3, page 23.)

Crown Lands.

There was sold during the year for agricultural and town site purposes 72,591.08 acres for $69,956.87. The collection on account of these and former sales was $81,480.12.

Crown Lands to the extent of 10,688.81 acres were leased for $2,155.06. Collections on these and former leases amounted to $59,583.18.

The total area of Crown Lands disposed of by sale and lease throughout the year was 84,379.81 acres for the sum of $72,961.54. The total collections on account of sales, leases, etc., were $150,015.59. (See Appendix No. 3, page 23.)

Bush lot in 1917, 120 acres cleared in 1920. Farm of R. R. Long and Son, in Bowman Township.

Settlers in Sale Townships.

The tendency towards purchasing lands in Northern Ontario for pioneer settlement slightly improved over the previous year. Temiskaming District with its agencies at New Liskeard, Englehart, Matheson, and Cochrane, all falling within the great clay belt, is more largely in the eye of prospective land settlers than any other particular section, presumably because it offers, by means of the Provincial Government Railway and the Transcontinental Line, a ready means of acquiring the best of clay loam soil and a reasonable supply of pulpwood. There a settler is able to secure regular employment in the bush or lumber camps during the winter months to earn sufficient means to assist him in clearing and improving his homestead and, with the advantages accruing from his rights under a fairly generous land regulation whereby, subject to certain conditions, he may cut and sell his pulpwood, the settler, if possessed of ambition and energy, should make good.

Numerous inquiries are received from time to time relative to the securing of land in all parts of the Province and with a view to facilitating the granting

of applications inspections are made of sold lots to check up the improvements of holders of unpatented claims. When delinquents are found cancellation is effected and though over 400 individuals acquired by purchase farm lots in surveyed areas the Crown cancelled 208 sales for failure of the purchasers to meet the prescribed conditions of settlement.

Permission was granted to 375 settlers to assign their interests for divers reasons, the assignee in each case being required to pay the purchase price in full, rather than by instalments.

Settlers to the number of 425 satisfied the requirements and obtained their patents in sale townships.

Special provision is made in the case of soldiers who held unpatented land and served in the Canadian Expeditionary Forces overseas, whereby arrears of payments due the Crown are remitted and patents issued on completion of settlement duties. A free grant of 160 acres may be made to a returned soldier conditional that he perform the homestead duties. A considerable number have availed themselves of these privileges.

Several of the isolated remaining Clergy, Grammar and Common School Land Sales were paid in full and the rightful claimants secured patents. (For tabulated statement see Appendix No. 8, page 34.)

Free Grants.

Since the Great War there has been a gradual growth of actual settlers taking free homesteads and the number has again increased over last year, there being 654 during the year. The price of farm products has been fairly steady and the crops quite bountiful and these factors while tending towards settlement in the older portions of the Province apparently influence those land seekers who are desirous of obtaining free farms for homesteading. The average individual farm location increased from 125 acres of a year ago to 166 acres this year when the total area thus located comprised 88,813 acres. Patents for Free Grant lands issued to 458 persons covering an area of 53,295 acres, while over 7,500 acres were purchased in small parcels within Free Grant territory for fuel, pasture, pleasure and summer resort purposes.

A number of settlers have come from Michigan and Minnesota States and some are returning to Rainy River and Thunder Bay Districts from the dry belts of Saskatchewan and Alberta, and in addition to the new locations, where after inspection by a Crown official it is found the locatee is not making good, is a speculator or a spurious holder, his location is cancelled and the land resumed. In this way over 70,000 acres reverted to the Crown during the past year.

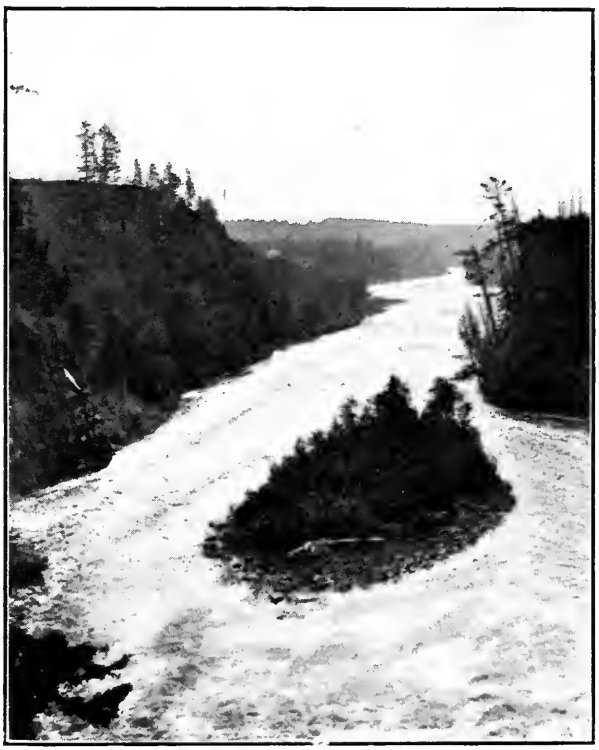
The Free Grant areas of the province are widely scattered, both Old and New Ontario having their respective territories. Certain sections south of the French River and Georgian Bay, opened many years ago, have been very largely alienated in respect of the choice arable land as it goes in the rocky formations. Isolated lots arise regularly where at least fifty per cent. of the land is fit for farming, the minimum percentage presented by the regulations, but in most instances these are sections comprised in timber berths, and frequently serious objections are registered by the timber licensees against disposing of the land. Where, however, the Crown is convinced that the applicant has bona-fide intentions of becoming a farmer in the general acceptation of the term every reasonable opportunity is afforded him, irrespective of the timber licensees' protestations, which nevertheless

are always investigated. Retardation of real settlement is not encouraged by sustaining every objection of timber dealers. Neither is the holding of land ostensibly for settlement though in reality for timber manipulation, condoned.

Military Grants.

The Act 1, Edward VII, Cap. 6, which governs these grants, came into force on the 15th of April, 1901.

This Act is applicable to all persons who had served in the Canadian Militia and were called out for active service in the Province of Ontario and to persons



River scene, Northern Ontario.

who enlisted in Ontario for service and went to South Africa during the "Boer War" with the regular military forces of this Province.

A person claiming land under this Act was required to furnish evidence satisfactory to the Minister of Lands that he was a member of one of these classes, and all claims were required to be filed with the Minister of Lands before the 30th day of September, A.D., 1908.

On receipt of this evidence a certificate was issued to the veteran, giving him authority to select 160 acres of land in certain townships, designated for this purpose by Order-in-Council.

This certificate was also accepted by the Department of Lands for the sum of $80 in payment for lands purchased from the said Department, or could be surrendered to the Government and an allowance of $50 in cash given therefor.

An amendment to the Veterans' Land Grant Act was passed by the Legislature of the Province of Ontario in the Session of 1920, to come into force and take effect on the 1st of June, 1920, providing "That lands located and granted under this Act, have passed out of the ownership of such persons and are being held out of production, and an inspection of these lands shows that the owner lives outside of the District in which the lands are situate, notice may be sent to the owner that such owner must within one year from the date of notice become a bona-fide user or occupant of said lands and comply with the regulations made under this Act and that in default of his so doing all his right, title and interest in the said lands shall revert to the Crown, but the owner of such lands shall be entitled to be paid by the Treasurer of Ontario an amount equal to the purchase money received by the Province on the sale of the lands under this Act." But few applications and inquiries in pursuance of this amendment were filed during the past year.

Under the Act 1, Edward VII. Cap. 6, and amendments thereto, there have been issued 13,998 certificates and although the time for receiving applications for these grants expired on the 30th of September, 1908, there are still letters being received from men or their next of kin, who were entitled to this grant, who claim that they have only now become aware of the fact. These applications, therefore, could not now be accepted and no forms of applications have been sent out.

During the past year there have been located 35 of these certificates covering 5,640 acres in the townships open for veterans, making in all a total of 8,364 certificates thus located.

In seven cases the certificates have been surrendered and applied in payment of lands purchased from the Crown, covering in all 703 acres, making a total of 798 that have thus been applied.

There was one certificate surrendered to the Crown for the $50 commutation money, making a total of 3,264 certificates surrendered in this manner.

During the year there have been issued 69 patents for lands located by veterans, and in all 7,440 have thus been disposed of.

The total number of certificates that have, therefore, been disposed of is 12,426, leaving 1,572 that are still outstanding.

During the year 13 veteran locations, covering 2,118 acres, were cancelled for the non-performance of the settlement duties to which they became subject on account of being assigned before patent was issued.

Under the Act 1, Edward VII, Cap. 6, and amendments thereto covering these grants it is necessary for all locatees of the lands located to apply for their patents before ten years have expired from the date of location. If this application for patent is not made within ten years, then the land comes under the settlement regulations, and unless the settlement duties are proceeded with the locations are liable to cancellation. Previous to the expiration of the ten years after location, the Department sends a notice to each veteran directing him to the provision respecting patent and in this manner has saved many of the locatees from losing their lands by forfeiture. (See Appendix No. 11.)

Collections.

The total revenue of the Department from all sources was $2,911,047.13. Of this, $81,480.12 came from Agricultural Lands and Townsites; $59,583.18 Crown Leases. From Woods and Forests the revenue was $2,656,630.51 made up of the

following items, Bonus, $1,143,725.18; Timber Dues, $1,171,692.14; Ground Rent, $105,398.88; Transfer Fees, $7,640.00; Fire Protection Charge, $228,174.31. From Provincial Parks, $70,900.84. (See Appendix No. 4, page 24.

Disbursements.

The total expenditure of the Department for ordinary service was $1,624,-805.51. Some of the principal items were: Crown Land Agents' Salaries and Disbursements, $20,120.72; Homestead Inspectors, $21,725.39; Crown Timber Agents, $33,709.64; Ottawa Agency, $3,466.03; Fire Ranging, $504,518.42; Forest Ranging and Measurement of Timber, $207,675.13; Forest Reserves, $4,456.36; Reforestation, $47,454.72; Algonquin Provincial Park, $34,739.55; Quetico Provincial Park, $10,260.90; Rondeau Provincial Park, $9,736.57; Purchase and Maintenance of Automobiles, $2,084.49; Surveys, $150,700.97; Colonization Roads, $451,808.59; Grant, Canadian Forestry Association, $1,000.00; Commissions *re* Sundry Investigations, $50,000.00; Contingencies, Lands and Forests, $36,667.32; Travelling Expenses, Lands and Forests, $2,721.42; Contingencies, Forestry Branch, $2,093.49; Contingencies, Colonization Roads Branch, $3.223.02; Travelling Expenses, Colonization Roads, $936.56.

Woods and Forests.

The accrued revenue from Woods and Forests for the year ending October 31st, 1920, amounted to $3,120,808.41, an increase of $842,249.75 over the preceding year.

The revenue collected also shows a substantial increase over previous year's collections, being $2,656,630.51 as against $1,805,081.36, an increase of $853,549.15.

In season 1919-20 the returns show a slight falling off in quantity of pulpwood and cordwood taken out. In all other classes of timber the production shows a gratifying increase.

The quantity of sawlog, boom and square pine timber cut during past season totalled 312,924,391 feet B.M., an increase of 121,000,000 feet B.M. The production of other timber amounted to 52,729,965 feet B.M., or over 15,000,000 more than that for the previous season.

The quantity of pulpwood taken off Crown Lands last season was 306,696 cords or 13,499 cords less than in 1918-19.

For several years previous to 1918-19 little railway construction was attempted but in that season the demand for ties increased the production from 2,094,099 taken out in 1917-18 to over 5,000,000 for season 1918-19. The number of ties taken out during the season of 1919-20 was 6,102,287 or 961,633 greater than in 1918-19.

Lands Under License.

The area under license at the close of the fiscal year was 14,895¼ square miles, a reduction of 1,335¾ square miles from the previous year.

Summary of Revenue From Woods and Forests.

Bonus	$1,143,725 18
Timber Dues	1,171,692 14
Ground Rent	105,398 88
Transfer Fees	7,640 00
Fire Protection	228,174 31
	$2,656,630 51

A list of the timber berths sold during the year with the names of the successful purchasers and the prices paid is being prepared for the next year's report.

The Kapuskasing Pulp Limit on the Kapuskasing River, in the Districts of Timiskaming and Algoma, comprising 1,740 square miles, was offered for sale in September, 1917, and was purchased by Messrs. S. A. Mundy and E. Stewart. The price or flat rate to be paid was 75c. per cord for all classes of pulpwood, and $15.00 per thousand feet board measure for red and white pine. In pursuance of the sale an agreement was entered into between the Crown and the purchasers under date of 9th of February, 1918, for the effectual carrying out of the conditions of sale. The purchasers, on the 2nd of March, 1918, transferred their interests to Spruce Falls Pulp and Paper, Limited, who for divers reasons were granted extensions of time during 1919, in respect of their obligations as to the erection of pulp mill, etc. Operations not having been proceeded with, negotiations in 1920 resulted in an extending agreement dated April 23rd, 1920, followed by a substitutional agreement of the 11th of June, 1920, and by an Order-in-Council of the 15th of June, 1920, which increased the dues payable from 75c. per cord to $1.15 per cord upon spruce pulpwood and to 95c. per cord upon balsam and other classes of pulpwood.

On the 6th of July, 1920, Spruce Falls Pulp and Paper Company assigned their rights to Spruce Falls Company, Limited. Then by agreement, dated the 4th of August, 1920, the Crown conveyed 446 acres, including the hitherto Kapuskasing Colony farm, to the Company at a price of $100.00 an acre for the cleared land and $2.00 an acre for the unstumped portion, while a portion of O'Brien Township, approximating forty square miles, was added to the pulp limit, but the rate for the spruce pulpwood on the additional area was fixed at $1.60 per cord and on the other classes of pulpwood at $1.30 per cord, the Crown having the right nevertheless over the whole limit to increase the rates in proportion to any general increase in the rates of dues payable throughout the Province, which may hereafter be made by amendment to the Crown Timber Regulations.

The Spruce Falls Company have, in accordance with the agreement, undertaken operations on a large scale and construction is in full swing. By the 1st of July, 1922, a sawmill of a minimum capacity of 70,000 feet daily, in two shifts, is to be in operation and by the 1st of January, 1922, a pulp mill with a daily output of not less than 100 tons of pulp.

From the progress made at the writing of this report it is fully expected that these mills shall be completed and in running operation by the middle of next summer.

The Company are required to erect a paper mill on or before the 1st of January, 1928, with a minimum capacity of fifty tons of paper per day.

The chain of agreements with the necessary Orders-in-Council and other data shall be printed in pamphlet form under another cover.

Cullers' Examination.

Two examinations were held during the year, one at Callander and one at Kenora. Twelve candidates succeeded in passing the examination and were duly granted certificates authorizing them to act as Cullers. For names of Cullers who passed at these examinations see page 36, Appendix 10. For complete list of Cullers see Minister's Report for 1917, 1918 and 1919.

Crown Surveys.

Instructions were issued to twenty Land Surveyors during the year to perform surveys on Crown lands in different parts of Northern Ontario.

The work consisted of surveying base and meridian lines, outlining six and nine mile townships, traversing larger lakes, rivers and islands, principally on the head waters of the rivers flowing to James Bay, the running of timber berth lines and the laying out of town sites.

No instructions were given for the subdivision of townships into farm lots, the area already subdivided being considerably in advance of settlement.

Minesing Road, Algonquin Park.

Municipal Surveys.

Petitions for the resurvey and establishing of original road allowances were received from the Corporations of the Municipalities of the Township of Beverly, Township of Gloucester, Township of North Easthope.

Upon the necessary Orders-in-Council being passed instructions were issued accordingly for such surveys and the same, when completed, were duly confirmed or amended as provided for under the Survey Act. The Municipal Surveys, which were being performed under instructions prior to the present year and which were

confirmed, are as follows, petitions of the Municipalities of: County of Bruce, Township of Cartwright, Township of Wainfleet.

Detailed summary and description of the several surveys aforesaid will be found in Appendices 15 to 40 inclusive.

Parks.

Prior to the establishment of the Department of Mines, the provincial parks were under the supervision of the Deputy Minister of Mines, but these were retained by the Department of Lands and Forests and are subject to its jurisdiction.

Rondeau Provincial Park, which had been subject to the direction of the Department of Public Works and Highways was transferred to the Department of Lands and Forests by Order-in-Council, May 4th, 1920, so that the three outstanding parks, namely, Quetico, Algonquin and Rondeau, are now under the direction of the Minister of Lands and Forests. (For the reports on these parks by the Superintendents, see Appendices 41, 42 and 49.)

Colonization Roads.

At the last Session of the Legislative Assembly an Act was passed confirming the transfer of this Branch from the Department of Public Works, which took place on March 1st, 1919. Power was also given under this Act to make grants to municipalities in the Colonization Roads area towards the purchase of road-making machinery and materials and towards the salaries of township foremen on road construction.

An Annual Report as to the work of the Colonization Roads Branch will be found in Appendix No. 43, page 120.

Northern Development Branch.

The regrettable death on June 12th, last, of Mr. J. F. Whitson, Commissioner of the Branch since its inception, was one of the outstanding incidents of the year. At his death the office of Commissioner was abolished and the operations of the Branch placed in charge of Mr. C. H. Fullerton, Superintendent of the Colonization Roads Branch.

The main feature of the season was the opening for traffic of the road from North Bay to Sault Ste. Marie, a gap of seventeen miles between Cutler and Algoma Mills, having hitherto existed.

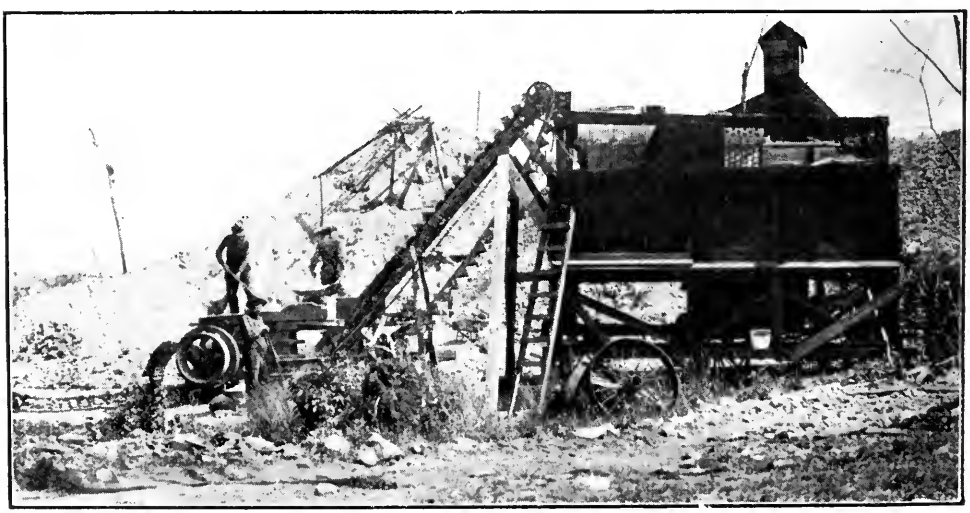
The report of the Northern Development Branch is found in Appendix No. 44, page 144.

Kapuskasing Colony.

Under date the 21st of February, 1920, a Commission of Enquiry by Order-in-Council was appointed to enquire into and report upon the administration, management, conduct, discipline, etc., of this colony, and any other matters or questions bearing on same, to take evidence and collect information and to make such report or recommendations as deemed advisable.

The Commission consisted of Messrs. W. F. Nickle, chairman; John I. McLaren and John Sharp and the report dated the 16th of March, 1920, was printed in pamphlet form by order of Legislative Assembly of Ontario. This report may be secured from the King's Printer.

Stumping with gasoline power. Bruce Peninsula—Colonization Roads.



Crushing rock for roads.

To give effect to the recommendations contained in the report of the Commission of Enquiry, a Board of Adjustment was appointed by Orders-in-Council dated the 17th and 27th of April, 1920, consisting of General John Gunn, Alexander Stewart Morgan and Archibald Leitch, to which Board Dr. A. H. Abbott was later named as secretary. By an Act passed on the 21st of April, 1920, which was an amendment to the Returned Soldiers' and Sailors' Land Settlement Act, provisions were made for the hearing and determining of complaints, etc., and for the adjustment of other grievances and the awarding of grants in settlement thereof.

The full report of the Board of Adjustment is contained in Appendix No. 46.

The Provincial Colony Farm was sold to the Spruce Falls Company, Limited, under agreement of the 4th of August, 1920, and their pulp and other mills are being erected upon this land. The price paid was $100.00 an acre for the cleared and $2.00 an acre for the unstumped land.

The Government proposes to establish by special legislation at the next session a municipality to be known as Kapuskasing, the intention being to develop an ideal northern town.

Settlers' Loan.

To the end of the 31st of October, 1920, 2,227 applications for loans, representing $8,747.60 or an average of $384.61 per application were received, but only such applications were entertained where it was clearly shown that the money could be used to good advantage for the improvement of the settlement duties. Altogether 1,558 loans, which included one of $12,000.00 to the Sudbury Co-operative Creamery Company, Limited, and one of $8,000.00 to the Dairy Co-operative Association, have been made to settlers, these loans amounting to $490,836.00.

It is gratifying to observe that over 90 per cent. of the interest payments are up to date and payments of principal of over 97 per cent. of the amount due. Appreciation has been expressed by those receiving loans of the advantages that have accrued to them in the work of carrying on land clearances, etc.

For a detailed statement by the Loan Commissioner, see Appendix No. 47.

FORESTRY BRANCH.

Fire Protection.

The forest fire protection work was continued this season under the jurisdiction of the Forestry Branch. The season opened with a very dry period and we were without rain for about two months. Practically 60 per cent. of the season's fires were recorded during this early period.

The origin of fires as shown in the report of the Forestry Branch has considerable interest. We find that during this last season 23.9 per cent. of the total fires were of railway origin. From the report it will be seen that forest fires of railway origin are greatly decreasing, as the following figures will show:

Fires of railway origin 1917—49.5 per cent.
Fires of railway origin 1918—46.5 per cent.
Fires of railway origin 1919—37.0 per cent.
Fires of railway origin 1920—23.9 per cent.

The above improvement is due to increased protective methods applied along railway lines, but evidently from the report it is greatly owing to the increased efficiency of locomotive inspection work. This work, which is carried out by provincial officers under the jurisdiction of the Board of Railway Commissioners of Canada, is assisting to a large extent in the elimination of railway fires.

One interesting feature of the report is the fact that 65.5 per cent. of the season's fires originated in cut-over areas in which the logging slash created a serious fire hazard. This again emphasizes the necessity for further measures in connection with the solving of the slash disposal problem.

During the past season 6,154 permits were issued for the burning of slash. The slash on 22,767 acres was burned under the issuing of these permits.

Forest Investigation.

The Forestry Branch has carried on during the past season a new line of work in connection with forest survey and land classification. This work is being done in the southern part of the Huron and Ottawa region, covering the southern portion of the Fire District. The survey is being done to differentiate forest land from agricultural land and to record the various features of the region from the standpoint of future forest management. One million seven hundred and twenty thousand acres were covered during the past season, and it is predicted that all of the region south of Lake Nipissing will be finished during the coming season. This is the first work done in connection with the plan of a definite forest reconnaissance of the Province.

Reforestation.

The work connected with reforestation has been enlarged along the following lines. The equipment and nursery organization at the Provincial Forest Station at Norfolk has been enlarged in order to meet the growing demands for forest planting stock. During the past season the Forestry Branch were able to secure a very fine lot of native forest tree seeds, which will be used in the further production of nursery stock to facilitate this work. The distribution of trees was again carried on, over some 130,000 trees having been shipped out to various applicants. It is interesting to note that these forest plantations, which are made by way of demonstration, and for educational purposes, are having a splendid effect in influencing local opinion along these lines.

Tree Diseases.

During last summer Dr. J. H. Faull continued his investigations of diseases of trees in Northern Ontario, his chief work being connected with studies of commercial trees in Temagami Forest Reserve region. Details of this work are given in the Forestry Branch Report, and evidently the problem of forest tree diseases will require considerable investigation as it appears that it will influence future cutting methods and policy as to future sales. See Appendix No. 48, page 206.

Beniah Bowman,
Minister.

Department of Lands and Forests,
Toronto, October 31ts, 1920.

APPENDICES

Appendix No. 1.

Return of Officers and Clerks of the Department of Lands and Forests for the year ending October 31st, 1920.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
	Hon. G. H. Ferguson	Minister	1914, Dec. 22	$6,000 00	
	Hon. Beniah Bowman	do	1919, Nov. 14	6,000 00	
	Albert Grigg	Deputy Minister	1915, Oct. 18	5,100 00	
	C. C. Hele	Minister's Secretary and Secretary to Department	1911, Oct. 19	2,700 00	Resigned December 31, 1919.
	F. J. Niven	Minister's Secretary and Secretary to Department	1897, Dec. 15	3,000 00	Transferred from Woods and Forests Branch, December 31, 1919.
	H. M. Robbins	Assistant to Deputy Minister.	1917, Feb. 19	2,400 00	Resigned August 31, 1920.
	W. C. Cain	do do	1903, Mar. 1	3,300 00	Transferred from Lands Branch July 9, 1920.
	F. E. Titus	Law Clerk	1920, Mar. 2	3,500 00	
	W. A. Fleming	Clerk	1914, Apr. 30	1,100 00	
	R. P. Ferguson	Stenographer	1918, Apr. 2	1,100 00	
	B. Beley	do	1920, Jan. 5	1,050 00	
Lands Branch	J. J. Murphy	Advisory Chief Clerk	1872, May 1	2,300 00	
	H. E. Johnston	Clerk of Military Grants	1905, Mar. 25	1,900 00	
	W. R. Ledger	Clerk of Sales	1894, Feb. 15	1,900 00	
	S. Draper	Clerk of Free Grants	1900, May 1	1,900 00	
	S. A. Platt	Clerk	1905, June 12	1,500 00	
	F. A. Lucas	do	1906, Dec. 18	1,500 00	
	J. E. Drinkwater	do	1915, Oct. 19	1,500 00	
	C. S. Jones	Clerk of Patients	1890, May 22	2,150 00	
	W. S. Sutherland	Engrossing Clerk	1900, Mar. 18	1,600 00	
	C. E. Burns	Reference Clerk	1897, July 29	1,900 00	
	W. Carrell	Engrossing Clerk	1899, Dec. 18	1,600 00	
	A. E. Robillard	do do	1894, May 4	1,400 00	
	A. E. Roe	Clerk of Registers	1906, Oct. 16	1,700 00	
	S. Ross	Stenographer	1917, July 9	1,100 00	
	M. Bengough	do	1896, Oct. 23	1,200 00	
	E. F. O'Neil	do	1902, July 7	1,100 00	
	E. G. Halliday	do	1907, Feb. 21	1,100 00	
	B. M. Benson	do	1909, May 25	1,100 00	
	E. Hills	do	1912, July 2	1,100 00	
	E. Singleton	do	1917, Apr. 16	975 00	

Surveys	L. V. Rorke	Director	1909, May 1	4,200 00	
	J. Hutcheon	Surveyor and Draughtsman	1913, Apr. 1	3,150 00	
	W. F. Lewis	Clerk	1872, Mar. 1	1,400 00	
	D. G. Boyd	Draughtsman	1896, Oct. 16	2,200 00	
	E. M. Jarvis	Clerk	1897, Apr. 25	1,650 00	
	J. B. Proctor	do	1897, Jan. 15	1,500 00	
	B. Rushford	Draughtsman	1910, Jan. 24	1,700 00	
	F. E. Blanchet	do	1906, May 15	1,700 00	
	A. Leaman	do	1907, Sept. 12	1,700 00	
	H. Treeby	do	1896, Jan. 25	1,800 00	
	J. Work	do	1909, May 18	1,900 00	
	M. H. Kirkland	Stenographer	1902, July 21	1,100 00	
	C. O'Connor	do	1907, Oct. 16	900 00	
	E. C. Armer	do	1909, Aug. 6	1,050 00	
Woods and Forests	J. A. G. Crozier	Advisory Chief Clerk	1867, Dec. 1	2,300 00	
	J. Houser	Chief Clerk	1905, July 17	2,400 00	
	J. B. Cook	Clerk	1894, Aug. 7	1,950 00	
	H. Gillard	do	1897, Dec. 6	1,900 00	
	W. F. Trivett	do	1900, June 25	2,000 00	
	R. H. Hodgson	do	1903, Oct. 15	1,450 00	
	A. H. O'Neil	do	1906, July 19	1,600 00	
	S. D. Meeking	do	1910, Feb. 8	1,400 00	
	E. H. Squire	do	1916, Jan. 4	1,300 00	
	E. H. Telfer	do	1915, Sept. 27	1,400 00	
	M. E. Bliss	Stenographer and Filing Clerk to Deputy Minister	1909, Aug. 16	1,200 00	
	C. Rowland	Stenographer	1912, May 1	1,100 00	
	H. Canton	do	1915, May 11	875 00	Resigned November 30, 1919.
	S. O. Dennis	do	1910, Mar. 2	1,000 00	Transferred from Department of Agriculture August 1, 1920.
	J. Ferguson	do	1919, Aug. 4	850 00	
	J. McCort	do	1918, Feb. 28	975 00	
Accounts	D. G. Ross	Accountant	1861, Apr. 15	3,000 00	
	H. M. Lount	Clerk	1903, Oct. 1	2,100 00	
	C. J. Clarke	do	1905, Aug. 9	1,600 00	
	R. Gordon	do	1912, July 30	1,400 00	
	W. A. Burritt	do	1907, Sept. 24	1,600 00	
	C. Bowland	Clerk and Stenographer	1908, July 9	1,100 00	

Appendix No. 1.—Concluded.

Return of Officers and Clerks of the Department of Lands and Forests for the year ending October 31st, 1920.

Branch.	Name.	Designation.	When appointed.	Salary per annum.	Remarks.
Forestry	E. J. Zavitz	Provincial Forester	1912, Nov. 7	$4,500 00	
	F. S. Newman	Forester	1913, Sept. 22	2,300 00	
	G. W. Harris	Clerk	1906, Sept. 1	1,500 00	
	N. L. Rogers	do	1911, Aug. 1	1,700 00	
	J. Bald	Stenographer	1913, June 12	1,100 00	
Records	S. K. Burdin	Chief Clerk	1916, Apr. 6	2,500 00	
	C. Dies	Clerk	1905, Oct. 2	1,500 00	
	A. P. Saunders	do	1912, May 13	1,300 00	Resigned November 30, 1919.
	C. W. St. John	do	1906, July 9	1,250 00	
	A. Ferguson	do	1915, Dec. 15	1,600 00	
	W. B. Baines	do	1912, Apr. 9	1,400 00	
	F. Samuels	do	1903, Dec. 5	1,500 00	
	N. Mathewson	do	1915, May 7	1,300 00	
	H. Brophy	Mailing Clerk, etc.	1898, Oct. 1	1,150 00	
Colonization Roads	C. H. Fullerton	Superintendent	1915, Oct. 15	4,400 00	
	M. P. Doherty	Accountant and Chief Clerk	1898, May 1	2,100 00	
	C. H. Meader	Surveyor and Draughtsman	1912, June 14	2,400 00	
	J. H. Bradshaw	Clerk	1884, June 10	1,400 00	
	A. Gamey	do	1914, July 19	1,200 00	
	P. Godkin	Stenographer	1917, Aug. 27	1,050 00	

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1920.

Name.	Post office address	District or County.	Date of appointment.	Salary per annum.	Remarks.
		Land Agents.			
Anderson, T. V.	Hearst	Part District of Algoma	1913, May 9	$800 00	
Arthurs, E.	Espanola Mills	do do do	1915, May 7	500 00	
Baker, R. H.	Minden	Part Victoria	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard	Lake Temiskaming, District of Nipissing	1913, July 17	1,200 00	
Both, C.	Denbigh	Part of Frontenac and Addington	1905, Oct. 20	200 00	
Brown, John	Markstay	do District of Nipissing and Sudbury.	1916, June 27	600 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28		For salary see Homestead Inspector.
Burrows, W. A.	Port Arthur	Part District of Thunder Bay	1912, Jan. 30	1,000 00	Died May 27, 1920.
Cameron, W.	Stratton Station	do do Rainy River	1911, Apr. 27	500 00	
Campbell, I. M.	Parry Sound	do do Parry Sound	1914, Nov. 12	500 00	
Dempsay, S. J.	Cochrane	do do Nipissing	1911, Feb. 9	1,100 00	
Dodds, T.	Thessalon	do do Algoma	1915, May 4	500 00	
Douglas, W. J.	Maynooth	do Hastings	1912, June 12	500 00	
Ellis, H. J.	Powassan	do District of Parry Sound	1909, May 21	500 00	
Freeborn, Dr. J. S.	Magnetawan	do do do	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden	do District of Rainy River	1914, Nov. 20	1,000 00	
Ginn, F. E.	Matheson	Part District of Nipissing	1912, Mar. 20	1,200 00	
Hales, W.	Aspley	do County of Peterborough	1911, July 20	250 00	
Hollands, C. J.	Fort Frances	do Townplot of Alberta and District of Rainy River	1892, Oct. 12	300 00	
McFayden, A.	Emo	do District of Rainy River	1905, Sept. 8	600 00	
MacLennan, J. K.	Sudbury	do do Sudbury	1905, July 3	700 00	
Noble, E.	Sault Ste. Marie	do do Algoma	1913, Feb. 1	300 00	Died October 25, 1920.
O'Flaherty, T. F.	Kenora	do do Rainy River	1920, May 10	600 00	Also Mining Recorder.
Parsons, W. J.	North Bay	do do Nipissing	1908, Apr. 8	1,000 00	
Philion, J. A.	Sturgeon Falls	do do do	1907, Sept. 13	500 00	
Prince, A.	Wilno	do of Renfrew	1905, July 12	500 00	Resigned April 30, 1920.
Small, R.	Mattawa	do District of Nipissing	1910, June 30	500 00	
Spry, W. L.	Kenora	do do Rainy River	1909, Sept. 21	600 00	Also Mining Recorder. Died April 3, 1920.
Teasdale, R. A.	Massey	do do Sudbury	1917, July 1	600 00	
Thaw, D.	Emsdale	do do Parry Sound	1919, July 2	500 00	
Watt, F.	Pembroke	do of Renfrew	1913, May 28	300 00	
Whybourne, W. E.	Marksville	do of St. Joseph Island	1905, Apr. 7	300 00	

Appendix No. 2.—Concluded.

List of Agents for the year ending October 31st, 1920.

Name.	Post office address	District or County.	Date of appointment.	Salary per annum.	Remarks.
Wilson, A. N.....	Kinmount.....	Part District of Peterborough	1915, June 1	175 00	
Woollings, J.	Englehart.....	do of District of Nipissing	1908, June 30	800 00	
		Homestead Inspectors.			
Barr, J.	Fort Frances.....	District of Rainy River	1906, Nov. 23	1,400 00	
Bastien, J. A.	Chelmsford.....	W. part of Sudbury District	1913, May 2	1,200 00	
Brown, J. B.	Bracebridge.....	Muskoka District	1905, July 28	1,100 00	Also Crown Lands Agent.
Burnes, C. W.....	South River.....	Parry Sound District	1905, Nov. 15	1,000 00	Resigned April 30, 1920.
Cragg, W. V.....	New Liskeard....	S. part of Temiskaming District.....	1913, Mar. 27	1,400 00	
Dean, T.	Sault Ste. Marie..	Algoma District	1908, July 29	900 00	
Hughes, T.	Murillo.....	Thunder Bay District	1908, July 20	1,300 00	
Jervis, H. F. J. W..	Callander.....	District of Parry Sound	1920, June 10	1,500 00	
Owens, H. B.	Cache Bay.....	E. part Sudbury and W. part Algoma Districts.....	1918, June 25	1,000 00	
Smith, D.	Cochrane.....	N. part of Temiskaming District	1912, Apr. 16	1,700 00	
Van Horn, L. E. ...	Monteith.....	Part Temiskaming and Algoma Districts...	1920, Jan. 27	1,500 00	
Watson, T. P.....	Englehart.....	Centre part of Temiskaming District	1905, May 10	1,400 00	
Wigle, R. G.	Dryden.....	Kenora District	1914, May 27	1,400 00	
		Timber Agents.			
Bremner, G.	Cochrane.....	Part Temiskaming and Algoma Districts..	1913, May 20	1,800 00	Resigned July 31, 1920.
Christie, W. P.	Parry Sound.....	Part Parry Sound and Muskoka Districts..	1903, Dec. 4	1,700 00	
Darby, E. J.	Ottawa.....	Part Ottawa District	1889, July 26	1,500 00	
Hawkins, S. J...	Webbwood.....	Part Algoma and Sudbury Districts.....	1905, Aug. 16	1,900 00	
Henderson, C.	Sudbury.....	do do	1902, Jan. 1	2,100 00	
Huckson, A. H.....	Sault Ste. Marie..	Part District of Algoma	1914, Apr. 1	2,100 00	
Jones, W. M.	Fort Frances.....	Rainy River District	1918, Nov. 15	1,700 00	
MacDonald, S. C. ..	New Liskeard....	Part Temiskaming District	1907, Jan. 1	2,000 00	
Margach, W.	Kenora.....	Kenora District	1889, May 16	1,600 00	
McDonald, H.	Thessalon.....	Part District of Algoma	1905, Apr. 20	1,500 00	
McDougall, J. T.....	North Bay.....	Nipissing and part Sudbury Districts.....	1908, July 8	2,100 00	
Oliver, J. A.	Port Arthur.....	Thunder Bay District	1905, Sept. 30	1,850 00	
Stevenson, A.	Peterborough....	Belleville	1905, Oct. 4	1,800 00	
Wood, W. G. A.....	South Porcupine..	Porcupine District	1917, Feb. 28	1,600 00	

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1920.

Service.	Acres sold and leased.	Amount of sales and leases.	Collection on sales and leases.
		$ c.	$ c.
Lands Sold:			
Agricultural and Townsites	72,591 08	69,956 87	81,480 12
Clergy Lands	82 00	57 40	862 21
Common School Lands	146 25	200 77	5,527 74
Grammar School Lands	151 00	231 00	756 16
University Lands	720 87	360 44	1,806 18
Lands Leased:			
Crown	10,661 18	1,845 06	58,444 18
Temagami	27 43	310 00	1,139 00
	84,379 81	72,961 54	150,015 59

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 4.

Statement of Revenue of the Department of Lands and Forests for the year ending October 31st, 1920.

Service.	$ c.	$ c.	$ c.
Land Collections.			
Crown Lands:			
Agricultural	72,831 80		
Townsites	8,648 32		
		81,480 12	
Clergy Lands	862 21		
Common School Lands	5,527 74		
Grammar School Lands	756 16		
University Lands	1,806 18		
		8,952 29	
			90,432 41
Rent:			
Crown Leases		57,195 33	
Algonquin Provincial Park		1,248 85	
Temagami Leases		1,139 00	
			59,583 18
Woods and Forests.			
Bonus		1,143,725 18	
Timber Dues		1,171,692 14	
Ground Rent		105,398 88	
Transfer Fees		7,640 00	
Fire Protection		228,174 31	
			2,656,630 51
Parks:			
Algonquin Provincial Park		69,524 07	
Rondeau Provincial Park		657 77	
Quetico Provincial Park		719 00	
			70,900 84
Casual Fees		2,112 61	
Cullers' Fees		188 00	
Forest Reserves Guides' Fees		378 00	
			2,678 61
Refunds.			
Fire Ranging		14,972 60	
Forest Ranging		13,241 05	
Agents' Salaries		100 00	
Insurance		3 08	
Surveys		50 00	
Emigration Work, Great Britain		2,402 45	
Printing and Advertising		2 40	
Contingencies, Lands		50 00	
			30,821 58
			2,911,047 13

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1920, which are considered as Special Funds.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	450 70	
Interest	411 51	
		862 21
Common School Lands.		
Principal	3,228 30	
Interest	2,299 44	
		5,527 74
Grammar School Lands.		
Principal	385 90	
Interest	370 26	
		756 16
University Lands.		
Principal	1,164 52	
Interest	641 66	
		1,806 18
		8,952 29

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands and Forests for the year ending October 31st, 1920.

Service.	$ c.	$ c.	$ c.
AGENTS' SALARIES AND DISBURSEMENTS.			
Land, $20,120.72.			
Anderson, T. V.	800 00		
Disbursements	153 75		
		953 75	
Arthurs, E.		254 41	
Baker, R. H.	350 00		
Disbursements	5 77		
		355 77	
Bolger, J. W.	1,200 00		
Disbursements	217 97		
		1,417 97	
Both, C.		200 00	
Brown, John	600 00		
Disbursements	21 99		
		621 99	
Burrows, W. A.	583 00		
Disbursements	358 48		
		941 48	
Cameron, W.	500 00		
Disbursements	26 00		
		526 00	
Campbell, Miss I. M.	500 00		
Disbursements	18 00		
		518 00	
Dempsay, S. J.	1,100 00		
Disbursements	57 00		
		1,157 00	
Dodds, T.	500 00		
Disbursements	10 00		
		510 00	
Douglas, W. J.	500 00		
Disbursements	21 00		
		521 00	
Ellis, H. J.		500 00	
Freeborn, J. S.	500 00		
Disbursements	19 00		
		519 00	
Gibson, J. E.	1,000 00		
Disbursements	182 00		
		1,182 00	
Ginn, F. E.	1,200 00		
Disbursements	97 95		
		1,297 95	
Hales, W.	250 00		
Disbursements	19 50		
		269 50	
Hollands, C. J.	300 00		
Disbursements	90 00		
		390 00	
McFayden, A.	600 00		
Disbursements	38 47		
		638 47	
MacLennan, J. K.		700 00	
Carried forward		13,474 29	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	13,474 29	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Land—Concluded.			
Noble, E.	300 00		
Disbursements	12 30		
		312 30	
Parsons, W. J.	1,000 00		
Disbursements	169 00		
		1,169 00	
Philion, J. A.	500 00		
Disbursements	29 02		
		529 02	
Prince, A.	333 32		
Disbursements	40 00		
		373 32	
Small, R.	500 00		
Disbursements	23 25		
		523 25	
Spry, W. L.	300 00		
Disbursements	193 50		
		493 50	
O'Flaherty T. F.	276 30		
Disbursements	96 75		
		373 05	
Teasdale, R. A.	600 00		
Disbursements	4 77		
		604 77	
Thaw, D.	500 00		
Disbursements	6 27		
		506 27	
Watt, F.	.....	300 00	
Whybourne, W. E.	300 00		
Disbursements	8 45		
		308 45	
Woollings, J.	800 00		
Disbursements	165 00		
		965 00	
Wilson, A. N.	175 00		
Disbursements	13 50		
		188 50	
Homestead Inspectors. $21,725.39.			
Barr, J.	1,400 00		
Disbursements	681 12		
		2,081 12	
Bastien, J. A.	1,200 00		
Disbursements	516 15		
		1,716 15	
Brown, J. B.	1,100 00		
Disbursements	443 85		
		1,543 85	
Burns, C. W.	500 00		
Disbursements	206 15		
		706 15	
Cragg, W. V.	1,400 00		
Disbursements	440 72		
		1,840 72	
Dean, T.	900 00		
Disbursements	306 65		
		1,206 65	
Carried forward	.....	29,215 36	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	29,215 36	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Homestead Inspectors—Concluded.			
Hughes, T.	1,300 00		
Disbursements	524 60		
		1,824 60	
Jervis, H. F. J. W.	586 30		
Disbursements	204 25		
		790 55	
Owens, H. B.	1,000 00		
Disbursements	893 45		
		1,893 45	
Smith, D.	1,700 00		
Van Horn, L. E., Assistant	1,144 31		
Disbursements	1,119 44		
		3,963 75	
Watson, T. P.	1,400 00		
Disbursements	657 45		
		2,057 45	
Wigle, R. G.	1,400 00		
Disbursements	682 27		
		2,082 27	
Timber, $33,709.64.			
Bremner, G.	1,350 00		
Disbursements	465 64		
		1,815 64	
Christie, W. P.	1,700 00		
Disbursements	345 71		
		2,045 71	
Hawkins, S. J.	1,900 00		
Disbursements	275 35		
		2,175 35	
Henderson, C.	2,100 00		
Disbursements	303 82		
		2,403 82	
Huckson, A. H.	2,100 00		
Disbursements	346 50		
		2,446 50	
Jones, W. M.	1,700 00		
McDonald, A.	1,500 00		
Disbursements	370 45		
		3,570 45	
MacDonald, S. C.	2,000 00		
Disbursements	195 15		
		2,195 15	
Margach, W.	1,600 00		
Legris, J., Assistant	1,900 00		
Cunningham, Mrs. E. A., Stenographer	382 75		
Doan, Mrs. M., Stenographer	98 00		
Robinson, Miss E. do	14 00		
Rose, Miss M. do	21 00		
Disbursements	670 68		
		4,686 43	
McDonald, H.	1,600 00		
Disbursements	157 77		
		1,757 77	
McDougall, J. T.	2,100 00		
Disbursements	389 62		
		2,489 62	
Carried forward	.....	67,413 87	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		67,413 87	
AGENTS' SALARIES AND DISBURSEMENTS—*Concluded.*			
Timber—Concluded.			
Oliver, J. A.	1,850 00		
Godfrey, Miss S., Stenographer	722 31		
Keefer, Miss O., Stenographer	36 93		
Disbursements	554 77		
		3,164 01	
Stevenson, A.	1,800 00		
Disbursements	377 26		
		2,177 26	
Whelan, P. J., disbursements		642 31	
Wood, W. G. A.	1,600 00		
Disbursements	558 30		
		2,158 30	
Miscellaneous, $1,607.70.			
Edmond, John, inspecting certain lands in the Townships of Gorham and Ware		28 75	
Green, H. P., Caretaker, Islands in Charlston Lake		50 00	
Jamieson, W. H., Caretaker, Islands in Dog and Laboria Lakes		50 00	
McArthur, T. A., Inspector of Agencies	900 00		
Disbursements	578 95		
		1,478 95	
			77,163 45
OTTAWA AGENCY.			
Darby, E. J., Agent		1,500 00	
Larose, S. C., Clerk		1,200 00	
Rent	700 00		
Disbursements	66 03		
		766 03	
			3,466 03
CULLERS' ACT.			
Margach, W. ....Services		8 00	
McDougall, J. T. ....Disbursements		14 25	
			22 25
FIRE RANGING			504,518 42
FOREST RANGING			207,675 13
FOREST RESERVES			4,456 36
REFORESTATION			47,454 72
ALGONQUIN PROVINCIAL PARK			34,739 55
QUETICO PROVINCIAL PARK			10,260 90
Carried forward			889,756 81

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			889,756 81
Rondeau Provincial Park			9,736 57
Purchase and Maintenance of Automobiles			2,084 49
Surveys			150,700 97
Colonization Roads			451,808 59
Board of Surveyors			200 00
Grant to Canadian Forestry Association			1,000 00
Annual Membership Fees			39 97
Insurance			417 72
Commissions re Sundry Investigations			50,000 00
Workmen's Compensation			394 64
Unforeseen and Unprovided			60 75
Special Warrants.			
Hurdman, G. G.		5,680 00	
Brown, Mrs. Ella		210 00	
			5,890 00
Miscellaneous.			
Maughan, Mrs. H. L., gratuity			875 00
Refunds (Miscellaneous)			15,757 74
Contingencies, Plans, Maps, Etc.			
Departmental.			
Printing and binding	4,771 63		
Stationery	8,068 22		
		12,839 85	
Express	346 44		
Postage	2,213 43		
		2,559 87	
Telegraphing	908 18		
Car Fare	50 00		
		958 18	
Subscriptions	254 71		
Advertising	2,509 25		
		2,763 96	
Typewriter repairs and inspections		205 90	
Hutcheon, J., disbursements	7 80		
Work, J., services	61 60		
		69 40	
Extra Clerks	11,023 98		
Maps	5,874 38		
Sundries	371 80		
		17,270 16	
			36,667 32
Carried forward			1,615,390 57

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			1,615,390 57
Travelling Expenses.			
Bowman, Hon. Beniah		1,110 52	
Cain, W. C.		71 40	
Grigg, A.		98 50	
Hutcheon, J.		454 27	
Niven, F. J.		160 45	
Robbins, H. M.		150 00	
Rorke, L. V.		374 93	
Work, J.		299 35	
Sundries		2 00	
			2,721 42
TYPEWRITERS, OFFICE EQUIPMENT, ETC.			
United Typewriter Company			422 00
Forestry Contingencies.			
Printing and Binding	140 30		
Stationery	880 73		
		1,021 03	
Postage	205 00		
Telegraphing	58 76		
Express and Cartage	59 58		
Typewriter, inspections and repairs	22 00		
		345 34	
Extra Clerks	327 50		
Supplies	385 49		
Sundries	14 13		
		727 12	
			2,093 49
Travelling Expenses.			
Newman, F. S.			18 45
COLONIZATION ROAD CONTINGENCIES.			
Printing and binding	327 54		
Stationery	736 66		
		1,064 20	
Postage	160 42		
Express	4 70		
		165 12	
Telegraphing	105 45		
Subscriptions	12 14		
Typewriter, inspections and repairs	35 50		
		153 09	
Extra Clerks	1,786 96		
Sundries	53 65		
		1,840 61	
Travelling Expenses.			3,223 02
Fullerton, C. H.		200 52	
Meader, C. H.		736 04	
			936 56
			1,624,805 51

D. GEO. ROSS,
Accountant.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix

WOODS AND

Statement of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				Boom and	
		Pine.		Other.		Pine.	
	Square miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.	Feet.
Western Timber District	9,578	8,009,862	277,823,470	1,044,322	33,120,876	23,225	3,459,426
Belleville Timber District	696¾	47,615	1,105,051	132,874	4,238,767	86,892	1,387,121
Ottawa Timber District	4,620½	540,095	24,221,618	478,831	13,428,889	3,344	464,689
	14,895¼	8,597,572	303,150,139	1,656,027	50,788,532	113,461	5,311,236

General Statement

Agencies.	Tan Bark.	Railway Ties.	Shingle Bolts.	Cedar Posts.	Telegraph Poles.	Pulpwood.		
	Cords.	Pieces.	Cords.	Pieces.	Pieces.	Cords.	Transfer Fees.	Interest.
							$ c.	$ c.
Western Timber District	2,193½	6,070,883	3	27,457	10,977	288,955	7,270 00	18,500 44
Belleville Timber District	235	5,403	.....	6,156	16	387	365 00	4 93
Ottawa Timber District.....	1,011	26,001	.....	16,104	7,061	17,354	5 00	632 43
	3,439½	6,102,287	3	49,717	18,054	306,696	7,640 00	19,137 80

JOHN HOUSER,
Chief Clerk in charge.

No. 7.

FORESTS.

Rent and Bonus during the year ending 31st October, 1920.

DESCRIPTION OF TIMBER.

Dimension.		Square Timber.		Pine.	Piling.			Cedar.	Cordwood.	
Other.									Hard.	Soft.
Pieces.	Feet B.M.	Pieces.	Cubic Feet.	Lineal Feet.	Lineal feet.	Pieces	Feet B.M.	Lineal Feet.	Cords.	Cords.
104,62	1,115,432	7,176	365,086	27,368	176,059	4,852	468,296	13,609	13,065	23,214
810	174,923	.....	.....	.....	.....	.....	.....	.....	144	9
4,507	614,611	.....	.....	.....	.....	.....	.....	.....	18	1,937
15,779	1,904,966	7,176	365,086	27,368	176,059	4,852	468,296	13,609	13,227	25,160

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber dues.	Bonus.	Deposit timber sales.	Ground rent.	Fire protection.	Total.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
53,767 89	1,204,984 11	1,219,548 78	211,848 00	74,691 75	188,411 21	2,979,022 18
3,263 02	8,295 16	389 38	.....	4,175 00	5,241 60	21,734 09
567 17	57,906 04	.....	.....	26,420 00	34,521 50	120,052 14
57,598 08	1,271,185 31	1,219,938 16	211,848 00	105,286 75	228,174 31	3,120,808 41

ALBERT GRIGG,
Deputy Minister.

Appendix No. 8.

PATENTS OFFICE (Lands Branch).

Statement of Patents, etc., issued from 1st November, 1919, to 31st October, 1920.

Public Lands (late Crown)	561
" " (late School)	31
" " (late Clergy Reserves)	6
" " (University)	5
Free Grant Lands (Act of 1913)	354
" " " (Act of 1901) Veterans	79
Mining Lands (Patents)	409
Mining Leases	116
Crown Leases	21
Licenses of Occupation	54
Temagami Island Leases	15
Sand and Gravel Licenses	19
Pine Patents	5
Quarry Claims	1
Orders-in-Council	4
Total	1,680

C. S. JONES,
Clerk of Patents.

W. C. CAIN,
Chief Clerk in Charge.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 9.

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending October 31st, 1920.

Amount of Western Collections at Department	$2,531,137 18
" Belleville Collections at Department	16,625 32
" Ottawa Collections at Department	108,868 01
	$2,656,630 51

WOODS AND FORESTS.

Bonus	$1,143,725 18
Timber dues	1,171,692 14
Ground rent	105,398 88
Transfer fees	7,640 00
Fire protection	228,174 31
	$2,656,630 51

WOODS AND FORESTS BRANCH REVENUE.

October 31st, 1920.

WESTERN DISTRICT—		
Timber dues	$1,098,718 60	
Bonus	931,697 18	
Ground rent	74,691 75	
Interest on dues	18,460 24	
Interest on ground rent	40 20	
Transfer fees	7,270 00	
Timber sale deposit	211,848 00	
Fire protection	188,411 21	
		$2,531,137 18
OTTAWA DISTRICT—		
Timber dues	$47,289 08	
Ground rent	26,420 00	
Interest on dues	560 50	
Interest on ground rent	71 93	
Transfer fees	5 00	
Fire protection	34,521 50	
		$108,868 01
BELLEVILLE DISTRICT—		
Timber dues	$6,658 79	
Bonus	180 00	
Ground rent	4,175 00	
Interest on timber dues	4 93	
Transfer fees	365 00	
Fire protection	5,241 60	
		$16,625 32
		$2,656,630 51

JOHN HOUSER,
Chief Clerk in Charge.

ALBERT GRIGG,
Deputy Minister.

Appendix 10.

Memorandum of parties who passed the Cullers' Examination in 1920.

Allanson, J. G., Osaquan, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Campbell, G. K., Poplar Dale, Ont., examined at Callander on the 27th day of August, 1920, licensed October 1st, 1920.

Duval, Alex., Sturgeon Falls, Ont., examined at Callander, on the 27th day of August, 1920, licensed October 1st, 1920.

Fry, John T. G., Trout Creek, Ont., examined at Callander on the 27th day of August, 1920, licensed October 1st, 1920.

Leach, Charles, Osaquan, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Morrison, Bert, Field P.O., Ont., examined at Callander on the 27th day of August, 1920, licensed October 1st, 1920.

McDougall, C., McIntosh P.O., Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Pritchard, Fred, Norman, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Ross, Alexander, Foleyette, Ont., examined at Callander on the 27th day of August, 1920, licensed October 1st, 1920.

Rudd, W. J., 133 North Marks Street, Fort William, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Spofford, R. L., 322 Van Norman Street, Port Arthur, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

Spofford, H. S., 322 Van Norman Street, Port Arthur, Ont., examined at Kenora on the 27th day of August, 1920, licensed October 1st, 1920.

JOHN HOUSER,
Chief Clerk.

ALBERT GRIGG,
Deputy Minister.

Appendix 11.

Statement of the work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1920.

Reference for Veterans' Patents issued	69
Locations under military certificates	35
Certificates applied in payment of lands	7
Certificates surrendered for commutation money	1
Letters received	1,410
Letters written	1,640
Special letters to agents	240
Special letters to mining recorders	180
Maps and reports supplied to veterans	90
Printed forms sent out	100
Copies of Veteran Act supplied	40

H. E. JOHNSTON,
Military Clerk.

ALBERT GRIGG,
Deputy Minister.

W. C. CAIN,
Chief Clerk in Charge.

Appendix No. 12.

RECORDS BRANCH, 1919-1920.

Communications received:	
From Crown Lands Agents	8,497
" Crown Timber Agents	5,076
" Mining Recorders	2,947
" Homestead Inspectors	2,178
" Crown Land Inspector of Agencies	36
" Superintendent Algonquin Park	198
" Superintendent Quetico Park	77
" Superintendent Rondeau Park	76
Orders-in-Council	210
Telegrams	203
Soldiers' and Sailors' Letters	230
Nickel Commission (figures supplied by them—Nov. and Dec.)	50
Northern Development Branch (figures supplied by them)	7,745
Loan Commissioner (figures supplied by them)	3,219
Forestry Branch (figures supplied by them)	20,872
Mining Commissioner (figures supplied by them—Nov. and Dec.)	627
Mine Assessor, (figures supplied by them—Nov. and Dec.)	875
Provincial Geologist (figures supplied by them—Nov. and Dec.)	102
Mine Inspector (figures supplied by them—Nov. and Dec.)	211
Colonization Roads (figures supplied by them)	6,000
Colonization Branch (figures supplied by them—Nov. 1/19, Mar. 12/20)	7,147
All other sources	29,047
Total incoming (Minister's office not included)	95,623
Communications sent out:	
To Crown Agents, Inspectors and Park Superintendents	22,000
" General Public	21,075
Circular Letters (timber sales)	3,537
Maps and Blue Prints	4,254
Mining Reports to Foreign Countries (Nov. and Dec.)	20
" " U. S. and other points (Nov. and Dec.)	10
" Acts (Nov. and Dec.)	100
Nickel Commission, Letters (figures supplied by them—Nov. and Dec.)	50
" " Reports (figures supplied by them—Nov. and Dec.)	45
Northern Development Branch (figures supplied by them), Letters	7,248
" " Branch, Seed Grain (figures supplied by them)	1,578
Colonization Br. (figures supplied by them—Nov. 1/19 to Mar. 12/20)	4,846
" " Northern Ontario Literature (figures supplied by them—Nov. 1/9 to Mar. 12/20	13,189
" " Ontario Maps (figures supplied by them—Nov. 1/19, to Mar. 12/20)	3,182
Loan Commissioner, Letters (figures supplied by them)	6,202
Mining Commissioner, Letters (figures supplied by them—Nov. and Dec.)	1,235
" " Orders (figures supplied by them—Nov. and Dec.)	102
Forestry Branch, Letters (figures supplied by them)	4,903
" " Parcels by Post (figures supplied by them)	451
Mine Assessor, Letters (figures supplied by them—Nov. and Dec.)	875
Mine Inspector, Letters (figures supplied by them—Nov. and Dec.)	151
Provincial Geologist, Letters (figures supplied by them—Nov. and Dec.)	90
Colonization Roads, Letters (figures supplied by them)	5,355
Total outgoing (Minister's office not included)	100,498

Postage:	
Postage for the year .....Records Branch	$2,141 42
" " Nov. and Dec. Mines "	185 58
" " the year.....Colonization Branch (Nov. 1, 1920, to Mar. 12, 1920)	246 91
" " " .....Loan Commissioner	210 00
" " " .....Forestry Branch	205 00
" " " .....Colonization Roads	200 00
Files:	
New Files issued..General	4,864
" " " ..Accounts chargeable	569
" " " ..Accounts free	114

S. K. BURDIN,
Chief Clerk, Records Branch.

ALBERT GRIGG,
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 in Free Grant Townships during the year ending 31st October, 1920.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Baxter	Muskoka.	J. B. Brown, Bracebridge	1	96	2	8	....	.....	5	258½
Brunel	"	" "	....	... ...	...	.....	....	.....	1	100
Cardwell	"	" "	1	82	...	.....	1	82	....	.....
Chaffey	"	" "	2	199	...	.....	2	199	1	100
Draper	"	" "	....	.....	...	.....	....	.....	....	.....
Franklin	"	" "	....	.....	2	43½	...	.....	3	311
Freeman	"	" "	1	196	...	.....	1	196	....	.....
Macaulay	"	" "	....	.....	...	.....	....	.....	1	100
Medora	"	" "	....	.. ....	...	.....	....	.....	....	.....
Monck	"	" "	....	.....	...	.....	....	.....	....	.....
Morrison	"	" "	2	256	...	.....	1	95	1	191
Muskoka	"	" "	....	.....	1	5	1	53	1	5
McLean	"	" "	4	500	...	.....	4	380	4	572
Oakley	"	" "	7	910½	...	.....	7	852½	....	.....
Ridout	"	" "	....	.....	...	.....	....	.....	1	200
Ryde	"	" "	6	803	...	.....	6	702	....	.....
Sherborne	Haliburton	" "	....	.....	...	.....	....	.....	1	159
Sinclair	Muskoka	" "	4	714	...	.....	6	890	3	550
Stephenson	"	" "	1	121	...	.....	1	121	....	.....
Stisted	"	" "	....	.....	...	.....	....	.....	3	396
Watt	"	" "	....	.....	...	.....	....	.....	....	.....
Wood	"	" "	1	115	4	6	2	232	6	378
Blair	Parry Sound.	Miss I. M. Campbell, Parry Sound	....	.....	6	66½	....	.....	4	39
Burpee	"	" "	2	291	...	.....	....	.....	....	.....
Carling	"	" "	10	1,458	5	153¾	13	1,548	4	720
Christie	"	" "	4	390	...	.....	3	398	2	247
Conger	"	" "	....	.....	...	.....	....	.....	4	525
Cowper	"	" "	....	.....	...	.....	1	9	5	30
Foley	"	" "	1	100	...	.....	1	100	1	20
Ferguson	"	" "	4	700	...	.....	....	.....	....	.....
Hagerman	"	" "	....	.....	...	.....	....	.....	....	.....
Harrison	"	" "	....	.....	...	.....	1	200	9	58
Henvey	"	" "	4	595	...	.....	2	400	....	.....
Humphrey	"	" "	1	190	...	.....	....	.....	1	140
McConkey	"	" "	1	459	1	2	2	300	4	451
McDougall	"	" "	2	292	2	5½	1	101	3	185½
McKellar	"	" "	....	.....	...	.....	....	.....	2	197
McKenzie	"	" "	1	200	1	2	....	.....	1	2
Monteith	"	" "	9	1,348	4	108	2	307	2	396
Shawanaga	"	" "	....	.....	...	.....	....	.....	3	214
Wilson	"	" "	2	333	4	66½	1	137	2	7
Chapman	Parry Sound	Dr. J. S. Freeborn, Magnetawan	2	275	...	.....	1	99	3	356
Croft	"	" "	3	404	...	.....	1	200	1	209
Ferrie	"	" "	....	.....	...	.....	1	99	1	96
Gurd	"	" "	3	373	1	1	3	400	1	1
Lount	"	" "	3	449	...	.....	3	399	3	600
Machar	"	" "	3	398	...	.....	5	596	1	176
Mills	"	" "	2	400	2	14½	2	400	3	114
Pringle	"	" "	1	100	...	.....	....	.....	1	100

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 persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Ryerson.....	Parry Sound..	Dr. J. S. Freeborn, Magnetawan	3	300	...	.....	2	200	....	.....
Spence	"	" "	3	600	1	50½	3	500	....	.....
Strong	"	" "	1	100	1	42	3	212	....	.....
Armour.....	Parry Sound..	David Thaw, Emsdale	3	303	3	216	5	574	3	303
Bethune	"	" "	....	.....	...	.....	6	762	....	.....
Joly	"	" "	5	902	2	123	4	701	4	532
McMurrich ...	"	" "	3	500	1	88	4	500	4	384
Perry	"	" "	....	.....	...	.....	....	.....	....	.....
Proudfoot....	"	" "	1	100	...	.....	2	291	2	200
Hardy	Parry Sound..	H. J. Ellis, Powassan.	1	100	1	11	1	200	1	11
Himsworth ..	"	" "	5	901	1	100	3	412	3	500
Laurier.....	"	" "	1	200	2	69	2	303	3	470
Nipissing....	"	" "	1	100	...	.....	1	184	2	300
Patterson....	"	" "	2	396	...	.....	1	194	4	660
Bonfield.... .	Nipissing	W. J. Parsons, North	13	1,395	2	29	7	640	11	1,190
Boulter	"	" " Bay	7	1,005	...	.....	1	100	....	.....
Chisholm	"	" "	3	508	1	6	1	105	5	737
Ferris	"	" "	1	100	...	.....	1	100	8	1,093
Anson	Haliburton ...	R. H. Baker, Minden..	....	.....	...	.....	....	.....	....	.....
Glamorgan ..	"	" "	2	225	...	.....	3	398	2	364
Hindon	"	" "	....	.....	...	.....	....	.....	....	.....
Lutterworth..	"	" "	1	35	...	.....	2	122	4	400
Minden	"	" "	....	.....	...	.....	....	.....	1	100
Snowdon	"	" "	....	.....	...	.....	....	.....	1	100
Stanhope.....	"	" "	2	341½	...	.....	1	201	....	.....
Anstruther ...	Peterborough .	William Hales, Apsley	3	578	1	24	3	578	1	98
Burleigh, N.D.	"	" "	4	391	...	.....	2	198	....	.....
" S.D.	"	" "	1	175½	...	.....	....	.....	....	.....
Chandos	"	" "	4	401	...	.....	....	.....	4	617
Methuen	"	" "	....	.....	...	.....	....	.....	....	.....
Cardiff.....	Haliburton ...	A. N. Wilson, Kinmount	8	1,216	...	.....	5	800	2	250
Cavendish....	Peterborough .	" "	....	.....	2	28	....	.....	5	483
Galway	" ..	" "	2	200	1	5	4	426	3	306
Monmouth ...	Haliburton ...	" "	6	682	1	85	4	446	4	425
Bangor	Hastings	W. J. Douglas, May-	4	357	4	99	6	643	....	.....
Carlow.....	"	" "nooth	....	.....	1	4	....	.....	1	85
Cashel	"	" "	....	.....	...	.....	....	.....	....	.....
Dungannon ..	"	" "	5	637	1	11½	2	304	3	291
Faraday	"	" "	8	1,152	...	.....	4	419½	4	550
Herschel.....	"	" "	8	1,048	1	1	5	815	8	1,008½
Limerick.....	"	" "	2	187	1	⅓	2	187	....	.....
Mayo	"	" "	1	91	...	.....	....	.....	1	194
Monteagle ...	"	" "	3	225½	4	165	1	50½	8	1,286
McClure	"	" "	1	101	...	.....	....	.....	2	201
Wicklow	"	" "	1	101	...	.....	1	101	1	50
Wollaston....	"	" "	2	202	...	.....	2	295	....	.....
Algona, S. ...	Renfrew.....	Frank Blank, Wilno...	....	.....	...	.....	....	.....	2	218
Brougham....	"	" "	3	220	3	140	1	100	8	966
Brudenell....	"	" "	4	441	1	200	1	200	2	228
Burns..	"	" "	1	100	...	.....	3	400	....	.....

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 persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Grattan.....	Renfrew	Frank Blank, Wilno ..	3	288	...	.....	1	49	3	304
Griffith	"	" "	....	.....	...	.....	....	.....	1	50
Hagarty	"	" "	1	200	1	101	4	460¼	2	402
Jones	"	" "	2	319½	...	.....	....	.....	2	232
Lyell	"	" "	4	730	...	.....	4	365	4	510
Lyndoch	"	" "	5	447½	...	.....	3	290	1	125
Matawatchan.	"	" "	2	194	...	.....	....	.....	5	955
Radcliffe	"	" "	10	1,148	4	122	4	521	4	371
Raglan	"	" "	5	476	1	13	4	499	2	240
Richards	"	" "	2	277	1	1¾	....	.....	....	.....
Sebastopol ..	"	" "	....	.....	...	.....	....	.....	....	.....
Sherwood	"	" "	1	100	...	.....	1	200	3	506
Algona, N....	Renfrew	Finlay Watt, Pembroke	....	.....	1	9½	1	100	....	.....
Alice	"	" "	1	5	...	.....	....	.....	3	150
Buchanan	"	" "	3	356	3	140	2	167	....	.....
Clara	"	" "	....	.....	...	.....	....	.....	....	.....
Fraser	"	" "	1	183½	...	.....	....	.....	....	.....
Head	"	" "	....	.....	...	.....	1	85	....	.....
Maria	"	" "	....	.....	...	.....	....	.....	....	.....
McKay.....	"	" "	....	.....	...	.....	....	.....	....	.....
Petawawa ...	"	" "	2	200	...	.....	....	.....	....	.....
Rolph	"	" "	2	289	1	50	1	100	1	42½
Wilberforce ..	"	" "	....	.....	...	.....	....	.....	1	100
Wylie (pt.) ...	"	" "	1	82	...	.....	1	82	2	282
Calvin	Nipissing	Robt. Small, Mattawa	1	100	...	.....	1	100	2	200
Cameron (pt.).	"	" "	9	902	...	.....	3	300	1	153
Lauder	"	" "	....	.....	...	.....	....	.....	....	.....
Mattawan....	"	" "	1	100	...	.....	....	.....	....	.....
Papineau	"	" "	4	400	...	.....	3	300	3	500
Korah	Algoma	.....	....	.....	...	.....	1	80	....	.....
Parke.....	"	.....	....	.....	...	.....	....	.....	1	640
Prince	"	.....	....	.....	...	.....	4	423	1	160
Aberdeen	Algoma	Thos. Dodds, Thessalon	1	114½	...	.....	2	204½	8	785½
" ad.	"	" "	....	.....	...	.....	....	.....	....	.....
Galbraith	"	" "	1	162	...	.....	....	.....	1	153½
Lefroy	"	" "	....	.....	...	.....	....	.....	....	.....
Plummer	"	" "	....	.....	...	.....	....	.....	4	356
" ad.	"	" "	....	.....	...	.....	....	.....	....	.....
St. Joseph Is'd	Algoma	W. E. Whybourne, Marksville	7	775	...	.....	8	858	3	300
Baldwin.....	Algoma	Edward Arthurs,	12	1,760	1	½	1	160	2	317½
Merritt.....	"	" Espanola	6	864	...	.....	2	256½	6	917½
Blake.... ..	Thunder Bay.	J. A. Oliver, Port	4	640	...	.....	20	3,200	2	320
Conmee	"	" Arthur	3	486½	1	7	3	471	5	800½
Crooks	"	" "	6	754½	...	.....	11	1,717½	1	160
Dawson Road.	"	" "	3	316	26	118	6	661½	10	948
Dorion	"	" "	2	309½	...	.....	2	304	2	163
Gillies	"	" "	....	.....	...	.....	....	.....	2	306
Gorham.....	"	" "	1	127	2	140	2	345½	3	458
Lybster	"	" "	....	.....	1	99½	....	.....	1	151
Marks.....	"	" "	5	745	1	½	3	499	2	321½
McGregor	"	" "	2	120	...	.....	7	933	1	351
McIntyre	"	" "	....	.....	...	.....	....	.....	....	.....

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 persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
O'Connor	Thunder Bay.	J. A. Oliver, Port	....	.....	...	.....	1	162	3	476
Oliver	"	" Arthur	1	163	1	1	2	323	3	483½
Paipoonge, N R	"	"	....	.....	...	.....	....	.....	1	100
" S R	"	" "	....	.....	...	.....	....	.....	1	193
Pardee	"	"	1	120	...	.....	3	467	....	.....
Pearson	"	"	3	480	...	.....	4	639	3	502
Scoble	"	"	5	652	2	97½	7	1,050¾	1	159½
Stirling	"	" "	34	4,866¼	18	1,214	26	4,090	1	158½
Strange	"	" "	2	314	1	138	2	314	4	629
Ware	"	" "	4	640½	3	211¼	9	1,484	14	1,389
Atwood	Rainy River..	William Cameron,	....	.....	...	.....	....	.....	....	.....
Blue	"	" Stratton	2	319	...	.....	4	643	3	394
Curran	"	" "	1	162	1	2	1	162	....	.....
Dewart	"	" "	11	1,519	1	1½	7	1,118	....	.....
Dilke	"	" "	1	162	1	1½	1	162	1	82
Morley	"	" "	2	242	...	.....	2	242	1	79½
Morson	"	" "	6	773¾	3	113	8	1,177	2	334½
McCrosson	"	" "	1	111	1	80	3	447	2	315
Nelles	"	" "	9	1,164½	...	.....	5	562	3	241
Pattullo	"	" "	2	201	3	7	1	162	2	163
Pratt	"	" "	3	360½	1	80¼	3	459	....	.....
Rosebery	"	" "	....	.....	...	.....	....	.....	....	.....
Shenston	"	" "	....	.....	2	6	....	.....	4	448
Sifton	"	" "	5	717¾	2	114½	7	814¾	3	418½
Spohn	"	" "	8	1,166¼	2	99	6	989½	3	572
Sutherland	"	" "	5	834½	1	160	8	1,308½	3	400½
Tait	"	" "	2	244	...	.....	5	628	5	644
Tovell	"	" "	6	923½	1	2	6	1,016	2	234½
Worthington	"	" "	....	.....	...	.....	....	.....	1	158
Aylsworth	Rainy River..	Alex. McFayden, Emo.	1	160	...	.....	....	.....	2	204½
Barwick	"	" "	....	.....	...	.....	....	.....	....	.....
Burriss	"	" "	....	.....	...	.....	....	.....	1	160
Carpenter	"	" "	2	223	...	.....	2	223	2	237½
Crozier	"	" "	1	40½	...	.....	....	.....	....	.....
Dance	"	" "	2	317½	...	.....	3	478	1	160
Devlin	"	" "	....	.....	1	4	....	.....	2	113½
Dobie	"	" "	1	80¼	...	.....	1	80¼	2	249½
Fleming	"	" "	....	.....	...	.....	....	.....	....	.....
Kingsford	"	" "	4	635½	...	.....	4	635½	....	.....
Lash	"	" "	....	.....	...	.....	....	.....	....	.....
Mather	"	" "	2	333	1	15½	3	490½	1	175½
Miscampbell	"	" "	2	319½	...	.....	3	479	1	160½
Potts	"	" "	2	319	...	.....	3	670½	....	.....
Richardson	"	" "	3	564½	...	.....	....	.....	....	.....
Roddick	"	" "	....	.....	...	.....	....	.....	....	.....
Woodyatt	"	" "	....	.....	...	.....	....	.....	1	147
Aubrey	Kenora	J. E. Gibson, Dryden	8	1,109½	1	83	5	586¼	2	333
Britton	"	"	3	481	1	2½	1	162½	2	322
Eton	"	" "	8	1,260	1	79⅞	7	1,100½	3	400
Langton	"	" "	3	477	2	91	3	461	....	.....
Melgund	"	" "	4	552	...	.....	1	144	....	.....
Mutrie	"	" "	3	445½	...	.....	2	239½	....	.....
Redvers	"	" "	3	437	...	.....	....	322½	....	.....
Rowell	"	" "	....	.....	1	79	....	.....	....	.....
Rugby	"	" "	1	160	...	.....	1	160	....	.....
Sanford	"	" "	7	853¾	2	115	5	361	4	435
Southworth	"	" "	4	509½	1	20	4	333	....	.....

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 persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Temple.....	Kenora	J. E. Gibson, Dryden..	4	715	...	.....	5	847	1	80
Van Horne ...	"	" "	2	315½	...	.....	1	155½	1	160
Wabigoon	"	" "	6	944½	...	.....	4	591½	4	520
Wainwright ..	"	" "	11	1,571½	2	107	6	946¼	4	353
Zealand	"	" "	17	2,300	11	661	11	1,660	7	115
Melick	Kenora	T. F. O'Flaherty,	9	1,436	1	161	4	617	2	160
Pellatt.....	"	" Kenora	3	251	1	110	4	699½	3	387
Balfour	Sudbury.....	J. K. MacLennan, Sud-	1	160	...	.....	1	160	....	.....
Blezard	"	" " bury	2	155	...	.....	....	.....	2	199¼
Broder.....	"	" "	1	160	2	26	....	.....	4	632
Capreol	"	" "	2	315½	8	4	2	315½	....	.....
Chapleau.....	"	" "	....	.....	1	67	....	.....	1	67
Dill.....	"	" "	2	239¾	...	.....	3	479½	2	200
Garson.....	"	" "	....	.....	...	.....	1	163	....	.....
Hanmer.....	"	" "	3	423½	...	.....	5	758	....	.....
Lumsden.....	"	" "	1	80¾	...	.....	1	161½	....	.....
Morgan.....	"	" "	1	157	...	.....	1	157	....	.....
Neelon.....	"	" "	....	.....	1	15	....	.....	2	175
Rayside.....	"	" "	....	.....	...	.....	....	.....	....	.....
Appelby.....	Sudbury	John Brown, Markstay	8	1,275	1	1	1	161	1	161
Casimir	"	" "	5	701	...	.....	1	143½	1	160
Dunnet.....	"	" "	....	.....	...	.....	.....	.....	1	159
Hagar	"	" "	13	2,064½	3	259½	6	1,003	....	.....
Jennings	"	" "	1	101½	2	3	....	.....	....	.....
Kirkpatrick ..	"	" "	1	160	3	239½	....	.....	2	322
Ratter.....	"	" "	7	1,104½	2	9	2	320	1	164
Caldwell	Nipissing	J. A. Philion, Sturgeon	2	320	2	103½	....	.....	3	258
Cosby.....	"	" Falls	2	314½	...	.....	....	.....	....	.....
Grant..... .	"	" "	1	160½	...	.....	....	.....	1	101
Macpherson ..	"	" "	2	304½	...	.....	....	.....	3	440
Martland.....	"	" "	6	679¼	...	.....	1	161	2	230
Springer	"	" "	3	586	...	.....	....	.....	2	66
Abinger.....	Lennox and Addington	Charles Both, Denbigh	2	207	...	.....	1	107	....	.....
Canonto, S....	Frontenac....	" "	1	97	...	.....	....	.....	....	.....
" N...	"	" "	....	.....	...	.....	....	.....	....	.....
Clarendon....	"	" "	1	87	...	.....	1	50	....	.....
Denbigh.. .	Lennox and Addington	" "	4	388	...	.....	3	298	2	257
Miller (pt.)...	Frontenac....	" "	....	.....	...	.....	....	.....	1	200
Palmerston	"	" "	....	.....	...	.....	....	.....	....	.....
McClintock ...	Haliburton....	Unattached	....	.....	...	.....	....	.....	....	.....
Airy.....	Nipissing.....	"	5	490	1	107½	2	199	1	205
Finlayson....	"	"	....	.....	7	129½	....	.....	7	129
Murchison ...	"	"	2	300	1	63	....	.....	1	86
Sabine	"	"	6	779	...	.....	....	.....	1	99
O'Brien	Temi kaming.	"	7	547½	1	1⅕	1	1⅕	1	1⅕
Owens	"	"	1	101	...	.....	....	.....	....	.....
Williamson...	"	"	1	70	...	.....	....	.....	....	.....
			654	88,813¾	196	7,530⅕	516	71382 7/10	458	53295 9/20

No. of lots assigned ..... 272 No. of acres assigned 34,890

By Special Regulations under Order-in-Council, dated 7th February, 1919, Returned Soldiers were permitted to acquire free grant locations or have their arrears due the Crown in respect of land for settlement purposes remitted, and the following list comprises the extent of such transactions:—

IN SALE TERRITORY.

District.	Agency.	Number Locations	No arrears remitted.	Total
Algoma	Thessalon	3	..	
"	Sault Ste Marie	1	..	
"	Hearst	31	3	
Nipissing	North Bay	4	1	
"	Markstoy	1	..	
Sudbury	Espanola	2	..	
"	Massey	2	..	
Timiskaming	Haileybury	..	..	
"	New Liskeard	3	4	
"	Elk Lake	1	..	
"	Englehart	9	6	
"	Matheson	13	12	
"	Cochrane	62	13	
"	Unattached	1	..	
		133	39	172

IN FREE GRANT TERRITORY.

Parry Sound	Magnetawan	1	..	
"	Parry Sound	1	..	
Rainy River	Stratton	2	..	
Algoma	Espanola	1	..	
Sudbury	Markstoy	1	..	
Muskoka	Bracebridge	1	..	
		7	..	

Appendix No. 13.—Concluded.

ISLANDS SOLD

Township	District or County	Agent	No. of Acres sold
Georgian Bay:			
Parcel 9, Island 30a	Parry Sound	Miss I. M. Campbell	12
Parcel D 26	"	"	68/100
" 2B, Island 30	"	"	4½
" B 278	"	"	4.3/10
Island 358a	"	"	3/10
" 75a	"	"	12/100
" B503	"	"	1.1/10
" B477	"	"	41½
			64½

SELBY DRAPER, Free Grants Clerk.
W. C. CAIN, Chief Clerk.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 14.

Statement showing the number of purchasers and of acres sold; of lots resumed for non-performance of the settlement duties; and of patents issued in Townships other than Free Grant during the year ending 31st October, 1920.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Blount	Temiskaming.	S. J. Dempsay, Cochrane	158½	2	7	906½	....	.....
Brower	"	" "	642½	4	5	776	2	324½
Calder	"	" "	150	1	....	.....	3	424
Clute	"	" "	1,161	8	5	680	7	1,072
Colquhoun	"	" "	147	1	....	.....	....	.....
Fauquier	"	" "	2,009	14	3	482	2	406
Fournier	"	" "	192½	2	1	156	3	464½
Fox	"	" "	2,558½	16	5	799½	....	.....
Glackmeyer	"	" "	765	6	4	443	6	853½
Kennedy	"	" "	150	1	3	450	....	.....
Lamarche	"	" "	321½	3	1	160	2	324½
Leitch	"	" "	901	6	5	748	....	.....
Newmarket	"	" "	1,577½	11	3	485½	....	.....
Pyne	"	" "	1,445½	9	....	.....	....	.....
Shackleton	"	" "	150	1	....	.....	3	389
Bayley	Temiskaming.	Jos. Woollings, Englehart	158½	1	....	.....	1	80
Catharine	"	" "	160	1	....	.....	8	618
Chamberlain	"	" "	156½	1	....	.....	6	897
Dack	"	" "	161½	1	....	.....	4	560
Davidson	"	" "	320	1	....	.....	....	.....
Eby	"	" "	.....	....	....	.....	1	37
Evanturel	"	" "	321½	2	....	.....	6	953
Gross	"	" "	.....	....	....	.....	....	.....
Ingram	"	" "	.....	....	2	319	4	631
Marter	"	" "	480	3	2	310½	2	320
Marquis	"	" "	788½	5	1	161½	....	.....
Otto	"	" "	161½	1	....	.....	....	.....
Pacaud	"	" "	.....	....	4	638¾	6	240
Pense	"	" "	334	3	2	332	....	.....
Robillard	"	" "	161½	1	2	314½	4	610
Savard	"	" "	322	2	....	.....	2	320
Sharpe	"	" "	.....	....	....	.....	2	266
Truax	"	" "	159½	1	1	153½	....	.....
Armstrong	Temiskaming.	J. W. Bolger, New Liskeard	160½	2	....	.....	7	1,069
Auld	"	" "	160	1	....	.....	....	.....
Beauchamp	"	" "	1,121	7	5	803½	6	965½
Brethour	"	" "	160	1	1	158½	5	840
Bryce	"	" "	319	2	3	478	1	160
Bucke	"	" "	.....	....	....	.....	6	715
Cane	"	" "	582	4	4	643	4	483
Casey	"	" "	73	2	....	.....	6	749
Dymond	"	" "	.....	....	....	.....	4	484
Firstbrook	"	" "	333	3	....	.....	7	554
Harley	"	" "	160	1	....	.....	9	930
Harris	"	" "	.....	....	....	.....	5	625½
Henwood	"	" "	641½	4	4	642	4	591½
Hilliard	"	" "	157	1	....	.....	6	957
Hudson	"	" "	400½	3	3	450	4	560¼
Kerns	"	" "	.....	....	....	.....	9	1,380½
Lundy	"	" "	.....	....	....	.....	....	.....
Tudhope	"	" "	158½	1	2	318½	6	577½
Smyth	Temiskaming.	Mark Morgan, Elk Lake	441½	3	....	.....	1	39¾

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Lorrain	Temiskaming	Neil J. McAulay, Haileybury	319	2	....	.....	4	430
Beatty	Temiskaming.	F. E. Ginn, Matheson	130	1	....	.....	4	650
Benoit	"	" "	1,109½	7	4	649½	6	355
Bond	"	" "	314	2	....	.....	....	.....
Bowman	"	" "	312	2	....	.....	3	495
Calvert	"	" "	161	1	4	636	....	.....
Carr	"	" "	430	3	....	.....	6	790
Clergue	"	" "	320	2	....	.....	....	.....
Currie	"	" "	321½	2	4	645	....	.....
Dundonald	"	" "	719½	5	4	623	....	.....
Evelyn	"	" "	159	1	1	159	....	.....
German	"	" "	2,189½	15	9	1,370	....	.....
Hislop	"	" "	161	1	....	.....	....	.....
Matheson	"	" "	321	2	2	313½	1	151
Mountjoy	"	" "	597	4	4	641½	....	.....
McCart	"	" "	1,087½	7	3	481	1	158½
Playfair	"	" "	389	3	....	.....	3	539
Stock	"	" "	331	2	2	328½	....	.....
Taylor	"	" "	302	2	1	151	4	641½
Walker	"	" "	160	1	....	.....	....	.....
Casgrain	Algoma	T. V. Anderson, Hearst.	3,238	22	15	2,240	3	414
Eilber	"	" "	600	4	....	.....	....	.....
Hanlan	"	" "	2,691	20	4	574	....	.....
Kendall	"	" "	2,721½	21	5	750	9	1,155
Lowther	"	" "	1,454	10	....	.....	....	.....
Forbes	Thunder Bay.	J. A. Oliver, Port Arthur	598	4	5	682	1	7
Lyon	"	" "	266½	2	....	.....	2	267
Nepigon	"	" "	320	2	1	137½	6	919
Aweres	Algoma	T. Dean, Sault Ste. Marie	171	1	1	173	....	.....
Tarentorus	"	" "	.....	....	....	.....	....	.....
Vankoughnet	"	" "	310	2	....	.....	....	.....
Watten	Rainy River	C. J. Hollands, Fort Frances	.....	....	....	.....	1	79½
Bright	Algoma	Thos. Dodds, Thessalon.	.....	....	2	320	2	303
Bright Ad	"	" "	.....	....	3	644	....	.....
Day	"	" "	.....	....	....	.....	....	.....
Gladstone	"	" "	.....	....	....	.....	....	.....
Gould	"	" "	476	3	....	.....	2	184½
Haughton	"	" "	.....	....	....	.....	....	.....
Johnson	"	" "	240	2	....	.....	5	720
Kirkwood	"	" "	.....	....	....	.....	....	.....
Parkinson	"	" "	.....	....	....	.....	....	.....
Patton	"	" "	.....	....	....	.....	....	.....
Rose	"	" "	.....	....	....	.....	1	154
Striker	"	" "	.....	....	....	.....	....	.....
Thompson	"	" "	.....	....	10	1,504	2	298
Wells	"	" "	152	1	....	.....	....	.....
Drayton	Kenora	T. F. O'Flaherty, Kenora	186½	3	....	.....	2	41½
Hallam	Sudbury	R. W. Teasdale, Massey	447	3	....	.....	....	.....
Harrow	"	" "	164½	2	....	.....	2	300½
May	"	" "	288	2	....	.....	1	135
Salter	"	" "	156	1	....	.....	....	.....

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Shedden	Sudbury	R. W. Teasdale, Massey	30	1	....	.....	....	.....
Victoria	"	" "	145	1	....	.....	1	160
Dowling	Sudbury	J. K. MacLennan, Sudbury	160	1	....	.....	1	460½
Scollard	Nipissing	J. A. Philion, Sturgeon	333¾	3	....	.....	....	.....
Mason	"	" " Falls	313½	2	....	.....	3	480
Hugel	Nipissing	John Brown, Markstay.	764¾	5	....	.....	2	320
Widdifield	Nipissing	W.J. Parsons, North Bay	1,052	9	2	319½	9	1,276
Nairn	Sudbury	Edward Arthurs, Espanola	.....	....	....	.....	....	.....
Admaston	Renfrew	Unattached	100	1	....	.....	5	600
Bagot	"	"	285	3	1	100	2	200
Blithfield	"	"	163	2	....	.....	1	2
Bromley	"	"	100	1	....	.....	1	160
Horton	"	"	100	1	....	.....	....	.....
McNabb	"	"	.....	....	....	.....	1	80
Westmeath	"	"	233	2	....	.....	1	153
Elizabethtown	Leeds	Unattached	.....	....	....	.....	1	49¾
Effingham	Lennox	Unattached	.....	....	....	.....	....	.....
Kaladar	"	"	.....	....	....	.....	....	.....
Sheffield	"	"	200	2	....	.....	....	.....
Artemesia	Grey	Unattached	.....	....	....	.....	1	50
Bentinck	"	"	.....	....	....	.....	2	200
Derby	"	"	.....	....	....	.....	1	50
Egremont	"	"	.....	....	....	.....	3	351
Glenelg	"	"	.....	....	....	.....	1	100
Holland	"	"	.....	....	....	.....	3	317½
Normanby	"	"	50	1	....	.....	2	150
Osprey	"	"	.....	....	....	.....	....	.....
Proton	"	"	.....	....	....	.....	1	149½
Sullivan	"	"	.....	....	....	.....	3	250
Arran	Bruce	Unattached	.....	....	....	.....	1	99
Brant	"	"	.....	....	....	.....	....	.....
Bruce	"	"	.....	....	....	.....	1	955
Elderslie	"	"	.....	....	....	.....	1	49½
Huron	"	"	.....	....	....	.....	1	50
Kincardine	"	"	.....	....	....	.....	1	72
Ameliasburgh	PrinceEdward	Unattached	100	1	....	.....	1	99
Barrie	Frontenac	Unattached	.....	....	....	.....	1	154
Olden	"	"	.....	....	....	.....	....	.....
Hinchinbrooke	"	"	200	1	....	.....	....	.....
Kennebec	"	"	.....	....	....	.....	3	600
Oso	"	"	199	1	....	.....	5	936
Beckwith	Lanark	Unattached	.....	....	....	.....	....	.....
Dalhousie	"	"	100	1	....	.....	1	100
Darling	"	"	.....	....	....	.....	....	.....
Pakenham	"	"	.....	....	....	.....	2	400
Lanark	"	"	.....	....	....	.....	1	100
Sherbrooke, N.	"	"	290	1	....	.....	2	498

Appendix No. 14.—Continued.

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Melancthon ...	Dufferin	Unattached	.....	....	....	.....	1	100
Gosfield, S. ...	Essex	Unattached	86	1	....	.....	1	86
Sandwich, E. .	"	"	.....	....	....	.....	....	.....
Haughton.....	Norfolk.....	Unattached	.....	....	....	.....	....	.....
Percy	Northumberland	Unattached	.....	....	....	.....	1	49½
Rama	Ontario.....	Unattached	100	1	....	.....	1	100
Carden	Victoria	Unattached	.....	....	....	.....	1	164
Dalton.....	"	"	.....	....	....	.....	3	251
Laxton	"	"	.....	....	....	.....	....	.....
Somerville....	"	"	332	3	....	.....	2	209
Edwardsburgh	Grenville	Unattached	.....	....	....	.....	....	.....
Belmont	Peterborough.	Unattached	.....	....	....	.....	1	100
Dummer.....	"	"	200	2	....	.....	2	200
Harvey	"	"	268	2	....	.....	2	185
Smith.....	"	"	.....	....	....	.....	....	.....
Nassagaweya .	Halton	Unattached	.....	....	....	.....	1	100
Elzevir...	Hastings.....	Unattached	.....	....	....	.....	....	.....
Grimsthorpe ..	"	"	.....	....	....	.....	....	.....
Hungerford ...	"	"	100	1	....	.....	1	100
Tudor	"	"	358	3	....	.....	4	408
Thurlow.....	"	"	100	1	....	.....	1	100
Ashby.....	Lennox and Addington	Unattached	100	1	....	.....	1	100
Denbigh	"	"	.....	....	....	.....	1	257
Sheffield	"	"	100	1	....	.....	....	.....
Cornwall	Stormont....	Unattached	.....	....	....	.....	....	.....
Roxborough...	"	"	336	4	....	.....	3	291
Gwillimbury, W.	Simcoe	Unattached	200	1	....	.....	....	.....
Matchedash...	"	"	35	3	....	.....	5	45
Tiny	"	"	11	1	....	.....	....	.....
Arthur	Wellington...	Unattached	.....	....	....	.....	....	.....
Luther West ..	"	"	.....	....	....	.....	1	100½
Barton	Wentworth ..	Unattached	.....	....	....	.....	....	.....
Saltfleet.....	"	"	¾	2	....	.....	....	.....
Cody	Temiskaming.	"	160	1	....	.....	....	.....
Maisonville ...	"	"	.....	....	....	.....	20	661
Bigwood.....	Sudbury.....	Unattached	.....	....	....	.....	....	.....
Burwash	"	"	160½	1	....	.....	....	.....
Creighton.....	"	"	.....	....	....	.....	10	600
Dennison	"	"	.....	....	....	.....	2	117¼
Drury	"	"	319	2	....	.....	1	160
Dryden.....	"	"	319	2	....	.....	2	320
Falconbridge .	"	"	.....	....	....	.....	....	.....
Foleyet.....	"	"	406½	1	....	.....	....	.....

Appendix No. 14.—Continued.

Township.	District or County	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Lorne	Sudbury	Unattached	4	1	....	.....	....	.....
Louise	"	"	245	2	....	.....	6	1,341
McKinnon	"	"	.....	....	....	.....	....	.....
MacLennan	"	"	.....	....	....	.....	....	.....
Shakespeare	"	"	161	1	....	.....	1	159½
Snider	"	"	.....	....	....	.....	....	.....
Waters	"	"	347	2	....	.....	1	177
Badgerow	Nipissing	Unattached	258	1	3	462	3	473
Crerar	"	"	866	6	....	.....	....	.....
Delamere	"	"	.....	....	....	.....	....	.....
Falconer	"	"	9	1	....	.....	....	.....
Field	"	"	414	3	....	.....	1	468½
Gibbons	"	"	.....	....	....	.....	....	.....
Jaffray	Kenora	Unattached	.....	....	....	.....	1	40
Malachi	"	"	.....	....	....	.....	2	27
Umbach	"	"	.....	....	....	.....	....	.....
McTavish	Thunder Bay.	Unattached	.....	....	....	.....	....	.....
Loughrin	Sudbury	Unattached	311½	2	....	.....	....	.....
McKim	"	"	178½	1	....	.....	....	.....
Long	Algoma	Unattached	160	1	....	.....	1	160
O'Brien	"	"	1 1/5	1	....	.....	....	.....
Townsites—								
Armstrong	Thunder Bay.	Unattached	.....	....	....	.....	....	.....
Grant	"	"	2/10	2	....	.....	....	.....
MacFarlane	Kenora	"	1½	5	....	.....	....	.....
Dryden	"	"	.....	....	....	.....	1	1½
Sioux Lookout	"	"	.....	....	....	.....	....	.....
Waldhof	"	"	32/100	2	....	.....	....	.....
Winnipeg River Crossing	"	"	¼	1	....	.....	1	1½
Hearst	Algoma	T. V. Anderson, Hearst.	9¼	23	....	.....	....	.....
Hilton	"	W. E. Whybourne, Marksville	5	6	....	.....	6	3½
Capreol	Sudbury	Unattached	3½	12	....	.....	....	.....
Frederickhouse	"	Unattached	1/5	2	....	.....	....	.....
Iroquois Falls	"	"	.....	....	....	.....	....	.....
Kirkland Lake	"	"	3/4	3	....	.....	....	.....
Larder Lake	"	"	1/4	1	....	.....	....	.....
Smyth	"	"	1/4	1	....	.....	....	¼
Gowganda	"	"	.....	....	40	12	....	.....
Petewawa	Renfrew	Unattached	.....	....	....	.....	1	½
Penetanguishene	Simcoe	Unattached	.....	....	....	.....	1	11
Alma	Wellington	Unattached	.....	....	....	.....	2	3½

Appendix No. 14.—Concluded.

Cities and Towns.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
WATER LOT								
Ford City.....	Essex	Unattached.....	¼	1	....	.....	1	¼
Fort William..	Thunder Bay.	"	1/50	1	....	.....	1	1/50
Port Arthur...	" "	"	12	1	....	.....	....	.....
Missanabie ...	Algoma.....	"	⅘	1	....	.....	....	.....
City of Toronto	York.....	"	6½	2	....	.....	2	6½
Ashbridge's Bay	"	"						
ISLANDS.								
A 49	Algoma.....	Unattached.....	2	1	....	.....	....	.....
27.....	St. Joseph Channel ...	"	1	1	....	.....	1	1
Parcel Islands J. D. 54.....	St. Joseph Channel ...	"	9¾	1	....	.....	....	.....
Island 17, Bedford Island..	St. Joseph Channel ...	"	10	1	....	.....	....	.....
Part Cedar Island	St. Joseph Channel ...	"	25	1	....	.....	....	.....
N. E. pt. J. D. Island.....	St. Joseph Channel ...	"	11	1	....	.....	....	.....
C. R. 1 Island.	St. Joseph Channel ...	"	145	1	....	.....	....	.....
Louden— Crow Lake Island....	Nipissing	"	2 2/10	1	....	.....	1	2 2/10
Abitibi Lake Island....	"	"	5.2	1	...	.....	1	5.2
Burgess N— Arrow Is'd..	Lanark	"	2 1/10	1	....	.....	1	2 1/10
Bedford— Pt. Whitefish Island....	Frontenac....	"	21/100	1	....	.....	1	21/100
Bedford— Pt. Whitefish Island....	"	"	¼	1	....	.....	1	¼
Crosby N. Is'd	Leeds	"	5½	1	....	.....	1	5½
Covey's Island	rear of Leeds and Lansdowne	"	4½	1	....	.....	....	4½
Union Island..	Lansdowne...	"	5⅕	1	....	.....	1	5⅕
Ashby— Weslemkoon Lake Is'd.	.....	"	¾	2	....	.....	2	¾
		Total	57,032 3/20	491	208	25,725½	425	47,977 11/200

Number of lots assigned.....375 Number of acres assigned..... 53,609

W. R. LEDGER, Sales Clerk.
W. C. CAIN, Chief Clerk.

ALBERT GRIGG,
Deputy Minister of Lands and Forests.

Appendix No. 15.

REPORT ON CROWN LAND SURVEYS.

SIR,—Acting under instructions given during the past year twenty Ontario Land Surveyors with accompanying parties were engaged on field-work throughout the northern part of the Province. The extent and nature of these surveys may be briefly described as follows:

EXPLORATORY WORK.

A meridian line extending north from the westerly end of Lac Seul for one hundred miles into the District of Patricia and a base line forty miles west therefrom were surveyed by K. G. Ross, O.L.S. Similar work to the same extent north of Lake St. Joseph was performed by J. S. Dobie, O.L.S., last year. The reports and returns of this work may be considered to give in a general way the character of the country in the District of Patricia south of latitude fifty-two degrees north.

The western limit of the Nipigon Forest Reserve in the District of Thunder Bay was established on the ground by Phillips & Benner, O.L.S., and this meridian was extended north to White Water Lake on the Ogoki River waters. Latitude fifty degress forty-five minutes north, longitude eighty-nine degrees ten minutes west. This vast forest reserve comprising seven thousand square miles surrounding Lake Nipigon has now been defined on the ground with the exception of the north limit and this will enable the Department to deal with timber and mining lands in that district and the lines will form a base from which other exploratory work can be carried on.

TOWNSHIP BOUNDARIES, NINE MILE SYSTEM.

Outlines of twelve, nine mile townships in the Districts of Timiskaming and Algoma on the Ground Hog and Kapuskasing River watersheds were surveyed by Sutcliffe & Neelands, O.L.S., and N. B. MacRostie, O.L.S. This work completes the blocking of the territory lying between the two lines of the Canadian National Railway in the District of Timiskaming. The reports on this work indicate a large area of good clay land but requiring extensive drainage to make suitable for agriculture. The territory covered is well timbered with spruce, poplar, birch and balsam.

TOWNSHIP BOUNDARIES, SIX MILE SYSTEM.

A large unexplored area in the District of Sudbury lying north of the Canadian Pacific Railway between Ramsay and Dalton Stations was blocked out in six mile townships, this work being assigned to Ontario Land Surveyors H. J. Beatty, J. W. Fitzgerald, C. V. Gallagher, McAuslan & Anderson, Speight & Van Nostrand, and A. C. Young. This area is not suitable for agriculture and may be described as a boulder country with sand clay and muskeg, rough and hilly, timbered with second growth spruce, banksian pine, birch, balsam and poplar.

Another area comprising six townships in the vicinity of White Lake and Shabotik River north of the Canadian Pacific Railway and immediately west of the district line between Thunder Bay and Algoma, was blocked out by M. E. Crouch, O.L.S. This area is well timbered with banksian pine and is unsuitable for agriculture.

Lake and River Traverse Surveys.

The work was continued this year by C. R. Kenny, O.L.S., on the Missinaibi Lake and River; T. G. Code, O.L.S., on the Ground Hog River and headwater lakes; Bingham & Kirkup, O.L.S., on the Nagagami Lake and River and Pagwachuan River in the District of Algoma; T. J. Patten, O.L.S., on Lake Penage and Whitefish River; J. S. Dobie, O.L.S., on Lake St. Joseph, Island Lake and Kashaweogama Lake.

The report of the geologist with Ontario Land Surveyor Dobie's party last year indicated the possibility of iron ore deposits in territory adjacent to Kashaweogama Lake and Lake St. Joseph and it seemed advisable that a more detailed survey should be made in this area.

The beautiful expanse of Lake Penage and islands therein, its accessibility to steamboat and railroad traffic, though sufficiently removed for quiet, makes this district very attractive as a summer resort proposition.

The larger rivers flowing north to James Bay are being accurately mapped and the water power and timber prospects reported on and filed for future reference.

Miscellaneous Surveys.

Timber lines as required were surveyed by Lincoln Mooney, O.L.S. These consisted of work in the Township of Noble, in the District of Sudbury, Township D in the District of Algoma and Timber Berth E in the District of Nipissing. Wherever practicable these lines were marked permanently and will be used in further subdivisions of the townships when required.

Townsite.

The survey of a small townsite at Gogama in the Township of Noble, District of Sudbury, was assigned to Lincoln Mooney, O.L.S. This subdivision adjoining the Canadian National Railway line was required to take care of the locating and housing of the population in that lumber manufacturing area.

Instructions were issued to G. F. Summers, O.L.S., to survey a townsite at Kapuskasing on the Canadian National Railway, Township of O'Brien, District of Timiskaming. Owing to the location of the Spruce Falls Pulp Company's plant the townsite survey has been delayed but a definite location for the town has now been decided upon and work is progressing upon the subdivision.

W. H. Fairchild, O.L.S., was directed to mark certain boundaries of Crown lands and lay out park lots on the Lake Erie front at Long Point, Township of Walsingham. The method of dealing with this area and manner in which it should be controlled may now be intelligently considered.

E. T. Ireson, O.L.S., was instructed to proceed with the Canadian Aero Film Company's seaplane to James Bay and to cruise the territory south and west thereof and report as fully as possible from observation the character of the country covered. The conditions under which these instructions were carried out and the difficulties met with are fully described in his report herewith. (See Appendix 40.)

The stone monument planted to mark the interprovincial boundary at Port Fortune on the bank of the Ottawa River was found to be out of place and arrangements were made with the Department of Lands and Forests, Quebec, to

have this monument replaced. In accordance therewith J. Hutcheon, O.L.S., Inspector of Surveys for Ontario, and D. W. Mills, O.L.S., Inspector of Surveys for Quebec, proceeded to that point and had the monument repaired and replaced in its original position and otherwise referenced to preserve this point on the boundary permanently. The joint report on this matter is not yet completed but will appear next year.

C. E. Fitton, O.L.S., was engaged as Inspector of the field work of the several outline parties and as far as possible examined a part of the work in charge of each surveyor. His reports show that in most cases the work was satisfactorily performed and well up to the standard set in the instructions.

The plans, field notes and accounts when forwarded to the Department were duly examined and checked by the Inspector of Surveys.

A standard iron post similar to that used on Dominion land survey work has been adopted and was used at three mile points on all base and meridian and outline surveys made this year. The post consists of one inch iron pipe thirty inches long filled with cement with foot plate of pressed steel three and one-half inches in diameter and cap of bronze three inches in diameter. A hole is dug and the post is sunk so that the cap is flush with the surface. The ground is properly tamped around the post to make the position firm. The cap bears the inscription in the form of a circle "Ontario Crown Land Surveys," also "Seven years imprisonment for removal." In the centre of the circle is marked the mileage from township corners or from the initial point of starting in case of meridian and base lines. The posts are referenced to mounds, pits and bearing trees. This method of marking boundaries will tend to create a permanency not heretofore acquired. The same post is also being used to mark boundaries established by Municipal Surveys under the authority as set out in sections 15, 16, and 17 of the Survey Act. The inscription on the cap of the post being "Ontario Municipal Surveys."

The detailed reports of the several surveys performed which have been filed during the year will be found in Appendices 15 to 40, inclusive.

L. V. Rorke,
Director of Surveys.

Toronto, October 31st, 1920.

Appendix 15-a.

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1920.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under R. S. O. 1914, Chapter 166, Secs. 10-15, inclusive.
1	C. A. Jones .	709	Nov. 2, 1916.	To survey the boundary line between the Townships of Greenock and Culross, in the County of Bruce, and to plant stone or other durable monuments to mark the said boundary	July 24, 1920.
2	Oliver Smith	712	July 24, 1917.	To survey the concession line between concessions 9 and 10, opposite lot 17, Township of Cartwright	Mar. 23, 1918.
3	Roger M. Lee	719	Oct. 22, 1918.	To survey the original road allowance between lots 13 and 14, in the first concession of the said Township of Wainfleet, in the County of Welland, and that stone or other monuments be planted to mark the position of said road allowance at the intersection with the road allowance between the 1st and 2nd concessions, and at different points to the lake shore..	Jan. 12, 1920.

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 16.

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1920.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	Jas. J. McKay.	723	April 9, 1920.	To survey the original road allowance between the 2nd and 3rd concessions of the Township of Beverly, extending from the westerly side of lot No. 31 to the easterly side of lot No. 36, and to plant stone or other durable monuments to mark the said road allowance.
2	Edward J. Rainboth ..	724	Aug. 17, 1920.	To survey the concession road allowance between the 4th and 5th concessions, Ottawa front, lying between the westerly side of the side road between lots 5 and 6 and the easterly side of the side road between lots 15 and 16 on said concession road allowance, in the Township of Gloucester, and that stone or other durable monuments be placed to mark the boundary of the said road allowance.
3	Alexander Baird	725	Aug. 17, 1920.	To survey the side road known as the twentieth side line and also of the side road allowance between lots 25 and 26, from concessions 6 to 8, in the Township of North Easthope.

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 17.

Statement of Surveys in progress during the twelve months ending October 31st, 1920.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount Paid
1	June 30, 1919.	A. L. Russell...	To traverse the shores of Upper Shebandowan and Green Water Lakes, District of Thunder Bay.	$ c. 600 00
2	May 12, 1920.	H. J. Beatty....	To survey certain township outlines, District of Sudbury	5,650 00
3	May 5, 1920.	Bingham & Kirkup	To traverse certain lakes and rivers, District of Algoma	4,000 00
4	May 4, 1920.	T. G. Code	To continue traverse certain lakes and rivers, Districts of Sudbury and Timiskaming.....	4,125 00
5	May 12, 1920.	M. E. Crouch ..	To survey certain township outlines north of C. P. Railway, District of Thunder Bay	5,150 00
6	Feb. 28, 1920.	J. S. Dobie.....	To survey Kashaweogama Lake and Island Lake, District of Thunder Bay	3,100 00
7	May 15, 1920.	J. S. Dobie	To traverse the shores of Lake St. Joseph and run certain base and meridian lines in the District of Patricia	7,190 00
8	Jan. 14, 1920.	W. H. Fairchild.	To survey Sand Beach into park lots between Long Point and Walsingham	200 00
9	May 21, 1920.	J. W. Fitzgerald.	To survey certain township outlines north of C. P. Railway, District of Sudbury	5,700 00
10	May 11, 1920.	C. V. Gallagher.	To survey certain township outlines north of C. P. Railway, District of Sudbury	1,500 00
11	May 4, 1920.	C. R. Kenny....	To continue traverse of Missinaibi Lake and River, Districts of Algoma and Sudbury	4,000 00
12	May 17, 1920.	K. G. Ross.....	To survey a meridian and base lines in the District of Patricia..	12,600 00
13	May 12, 1920.	N. B. MacRostie.	To survey certain township outlines, District of Timiskaming..	4,500 00
14	May 11, 1920.	McAuslan & Anderson ...	To survey certain Township outlines north of C. P. Railway, District of Sudbury	3,900 00
15	May 18, 1920.	Phillips & Benner	To survey meridian line forming the west boundary of the Nipigon Forest Reserve, District of Thunder Bay	6,800 00
16	May 4, 1920.	T. J. Patten ...	To traverse Lake Penage Islands and other lakes and outlets in the District of Sudbury	1,700 00

Appendix No. 17.

Statement of Surveys in progress during the twelve months ending October 31st, 1920.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount Paid.
				$ c.
17	May 21, 1920.	Speight & Van Nostrand	To survey certain township outlines north of C. P. Railway, District of Sudbury	5,900 00
18	Aug. 24, 1920.	Sutcliffe & Neelands	To traverse part of the Montreal River, District of Timiskaming..	400 00
19	May 27, 1920.	G. F. Summers.	To survey a town plot and other lands in the vicinity of Kapuskasing, Township of O'Brien, District of Timiskaming	500 00
20	May 12, 1920.	A. C. Young ...	To survey certain township outlines north of C. P. Railway, District of Sudbury	5,550 00
21	May 14, 1920.	C. E. Fitton....	Inspection of surveys for 1920....	2,600 00
				85,765 00

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 18.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1920.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount Paid
				$ c.
1	May 16, 1919. July 8, 1919.	E. R. Bingham.	Subdivision of part of the Township of Devon and Hartington, and survey of base and meridian lines, District of Thunder Bay..	3,719 35
2	April 30, 1919.	David Beatty ..	Traverse certain lakes in the Timigami Forest Reserve, Districts of Nipissing and Sudbury	2,865 60
3	April 15, 1919.	H. J. Beatty...	Survey certain township outlines north of Lake Abitibi, District of Timiskaming	2,491 91
4	April 15, 1919.	A. S. Code.....	Survey certain township outlines in the District of Algoma	1,883 34
5	May 2, 1919.	T. G. Code.....	Traverse certain lakes and rivers in the Districts of Sudbury and Algoma	2,650 00
6	May 8, 1919.	S. B. Code.....	Traverse the shores and islands of Charleston Lake and Red Horse Lake, Townships of Lansdowne and Escott, County of Leeds....	2,245 00
7	April 22, 1919.	Davana & Watson	Survey certain township outlines, District of Sudbury	1,388 19
8	April 15, 1919.	J. S. Dobie ...	Survey a meridian line between the Districts of Thunder Bay and Kenora, and in the District of Patricia	5,286 00
9	April 15, 1919.	J. W. Fitzgerald.	Survey a meridian line in the vicinity of the Ground Hog River and subdivision of the residue of the Township of Nansen, District of Timiskaming	2,127 71
10	April 25, 1919.	C. E. Fitton...	To inspect Crown Surveys	816 72
11	May 9, 1919.	D. J. Gillon....	Survey a part of the boundary line between the Districts of Rainy River and Kenora, and certain meridian lines in Rainy River ..	2,121 85
12	May 8, 1919.	C. R. Kenny...	Traverse Missinaibi Lake and River and tributary waters, Districts of Algoma and Sudbury ..	2,320 48
13	May 1, 1919.	Lang & Ross...	Survey certain township outlines, District of Algoma	2,561 68
14	Aug. 6, 1919.	J. L. Morris ...	To re-establish part of the boundary of the Algonquin Provincial Park, District of Nipissing	3,994 94
15	April 15, 1919.	McAuslan & Anderson ...	Survey certain township lines, District of Algoma	2,378 47
16	May 1, 1919.	N. B. MacRostie.	Survey certain township outlines on the Kapuskasing River, District of Algoma	1,603 71

Appendix No. 18.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1920.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
				$ c.
17	Sept. 30, 1919.	Phillips & Benner	Survey a meridian line and traverse that portion of Dog Lake lying north of the Township of Fowler, District of Thunder Bay.	3,259 76
18	April 15, 1919.	Phillips & Benner	To subdivide the Township of Fowler, District of Thunder Bay.	3,220 18
19	July 22, 1919.	G. L. Ramsey..	Traverse Long Lake, District of Thunder Bay	1,889 95
20	April 15, 1919.	W. A. Sibbett..	Subdivide the residue of the Townships of Casgrain and Hanlan, District of Algoma	1,934 30
21	Aug. 18 and Sept. 9, 1920.	L. Mooney.....	Survey of Gogama town site, District of Sudbury	626 30
22	Jan. 27, 1920.	L. Mooney ...	Survey of location L. M. 12, Township of Noble, District of Sudbury	74 30
23	June 9, 1920.	L. Mooney	Survey of timber line in Township 2 D, Mississaga Forest Reserve, District of Algoma	816 39
24	Mar. 22, 1920.	L. Mooney	Survey of Timber Berth E, District of Nipissing	213 30
25	May 12, 1920.	Sutcliffe & Neelands	Survey of certain outlines on Ground Hog River, District of Timiskaming	8,136 54
26	Aug. 10, 1920.	J. J. Newman..	Assisting Inspector of Surveys in survey of Point Pelee sand and gravel areas	66 75
27	July 24, 1917.	Oliver Smith ..	Survey of the concession line between concessions 9 and 10 opposite lot 17, in Township of Cartwright	24 00
28	Sept. 15, 1919.	M. E. Crouch ..	Expenses on the survey of the outlines of the Pic River pulp and timber limit	150 45
			Architectural Bronze & Iron Works, Toronto, of Canadian Allis-Chalmers, Ltd.:	
			C. L. Iron Posts.....	2,692 80
			do Iron Posts.....	816 00
			Municipal Iron Posts.....	560 00
29	July 16, 1920.	E. T. Ireson...	To accompany Canadian Aero Film Company on an aerial expedition to James' Bay	.....
				64,935 97

L. V. RORKE,
Director of Surveys.

ALBERT GRIGG,
Deputy Minister Lands and Forests.

Appendix No. 19.

SURVEY OF PARTS OF THE TOWNSHIPS OF DEVON AND HARTINGTON, DISTRICT OF THUNDER BAY.

FORT WILLIAM, February 25th, 1920.

SIR,—I have the honour to submit the following report on the survey of Devon Township in the District of Thunder Bay, carried out under instructions dated the 16th day of May, 1919.

On receipt of your instructions I engaged Mr. R. S. Kirkup, O.L.S., who served his time with me before going overseas, to assist in the work. After receiving notification of the preparation of the instructions, I received locally a representation favouring the employment of returned soldiers. My party as originally made up contained considerably more than half soldiers; unfortunately, many were not able to stand the bush life since their return from overseas; however, while I was not able to maintain as high an average of returned men on this party, some were always employed and as vacancies occurred the official in charge of that section of the employment bureau dealing with returned men always received the first requests for men.

Having completed the organization of the party I moved supplies and outfit by means of lorries to within three miles of the International Boundary. From this point outfits and canoes were packed in over the South Fowl Lake trail to Hospital Bridge on the Arrow River from which points the river was used as far as low water and rapids would permit.

Commencing at the intersection of the interior lines of the township, run last year, I ran east, following out the instructions, and struck good country all the way to the west boundary of Pardee Township. The depth of concessions three and four north of the blind line, I cut down to fifty chains depth east of the eighteenth sideline on account of the rocky nature of the country to the north, as shown in last year's report. I also found it advisable to limit the depth of concession one to sixty chains from the twelfth sideline east. The remaining concessions of the township are all eighty chains in depth with the exception of that part of concession four which fronts the west boundary, which is sixty chains in depth.

Following the completion of the survey of Devon Township, the survey of the part of Hartington Township covered by the same instructions was carried out. The fronts of lots one to twenty-four and the south-west and north-west corners respectively of lots one and twenty-four were properly posted, and referred to bearing trees, and the sixth, twelfth and eighteenth sidelines were duly established.

Separate plan and field notes of this part of the township have been prepared in accordance with my instructions.

In accordance with your instructions I laid out in the south-east portion of the Township of Devon a road diverging from a point in the twelfth sideline and running thence easterly until the sixth sideline was struck, as shown on the accompanying plan. On the sixth sideline access can be had to the east boundary of the township by way of the road allowance between concessions three and four.

The road allowance along the east boundary suggested in the instructions was not very practicable owing to the broken nature of the country, including one

very rough hill three hundred feet high, which crosses the boundary just north of the blind line between concessions two and three.

The chainmen were well posted in their work before starting out, and remained with me throughout the survey.

The lines will be found to be well opened up and blazed, with substantial well-marked posts planted, and bearing trees well chosen and marked where they were available. A number of the lines ran through brulé and on these we were only able to blaze old dry stumps and fallen trees. However, we planted pickets at frequent intervals, firmly in the ground, so there should be no difficulty in picking up the line.

All points required by the instructions were marked with iron posts. The traverse work was left to the end of the work and a set back was experienced in that both transits were damaged in the rapids, and it was necessary to secure another transit from the city.

Observations for Azimuth and Time were taken from time to time during the survey, as weather conditions permitted.

Soil.

The township as laid out gives to each lot a share in the good arable land which lies throughout the valley of the Arrow River. The timber in a good many cases has been burnt off and in some the fire has been through a number of times, making the clearing of considerable areas comparatively easy. The land in the south-east corner of the township is broken by a large rocky range of hills, the land on either side, however, being of an agricultural nature.

The agricultural land referred to consists mostly of clay, white to light brown in colour, and clay loam, with some sandy loam scattered throughout the township mostly towards the east end. Along the Tote Road to South Fowl Lake the brush is cleared out and hay is growing freely. In concession three, lot twelve, the Pigeon River Lumber Company have a cultivated clearing of about thirty-five acres, on which they grow crops of some nature each year, and I believe the results are gratifying.

Minerals.

The rock throughout the greater part of the township is granite, while there is considerable showing of low grade iron, along the Arrow River towards the west end of the township and in the range in the south-east end of the township.

Timber.

The whole township has been lumbered over at a comparatively recent date and if there was any good timber left it has long since been ravaged by the bush fires which have raged through that country from time to time. There is an area of small spruce on lots six to nine inclusive, just south of the Arrow River, and on lots thirty-three to thirty-six in the vicinity of the blind line, which would make good pulpwood in a few years.

The country is covered principally with small birch, poplar and banksian pine.

GAME.

Beaver are the principal occupants of the region, in fact, there was hardly a line south of the Arrow River that did not cross a dam at some point or other. There are beaver houses in many places along the Arrow River. Moose and bear were plentiful. Some red deer were seen.

There are two main trails through the township, the South Fowl Lake trail, crossing the Arrow River on what is known as the Hospital Bridge in lot six, concession three, and the Silver Mountain trail, which in a general way follows the Arrow River on the north side to the north-west corner of the township, and thence to Silver Mountain; this trail is blocked considerably, west of the logging dam, by windfalls. There are many old lumber trails leading into these main arteries which would help the settler to open up his farm.

There is a well constructed logging dam across the Arrow River on lot sixteen, concession three, which holds the water back for several miles.

The Arrow River drops about forty feet at Mary Falls in lot four, concession two, but at the time of the survey the dam was holding back the water so that at the falls the water was only twelve feet wide by a foot and a half deep.

I beg to forward herewith field notes of survey, plans of townships, plan showing field notes of traverses of Arrow River and of the road laid out across lots seven to twelve, Devon Township.

I trust that everything will be found satisfactory.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) E. R. BINGHAM,

Ontario Land Surveyor.

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

Appendix No. 20.

SURVEY OF TOWNSHIP BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

FORT WILLIAM, February 28th, 1920.

SIR,—I have the honour to submit the following report on the survey of Base and Meridian Lines in the District of Thunder Bay, carried out under your instructions dated 8th of July, 1919, being an extension of my instructions for the survey of parts of the Townships of Devon and Hartington, dated 16th of May, 1919.

My instructions called for the employment of two men as land cruisers and I was fortunate eventually in securing Kenneth Spence who prior to his service

overseas had had years of experience on railway preliminary and location surveys, and similar work, as instrument man, etc.; and Lionel Merritt who has been raised on a farm in this district and knew what was involved in the development of a bush farm. Together they were a splendid team.

They were instructed in examining land to have in mind the point of view of a possible future settler, and to consider at all times the possibility of future development of the land with the prospect of success for the settler.

Mr. R. S. Kirkup, O.L.S., assisted throughout the work, and the subsequent preparation of the returns.

Our party and supplies were taken in by way of Nolalu on the P. D. & W. branch of the Canadian National Railway, thence by team as far as road and trail held good, thence by packing to the north-west corner of Marks Township. After diligent search the stump of the old post was found where a logging road crossed the line marking the north boundary, the top of the post being found at the side of the road. This point of post was renewed according to instructions.

An observation was then taken and the lines started west and north.

While running the first base line westward, two men searched for three days to find a trail through the westerly part of Aldina. They then returned and advised that owing to the roughness of the country to be travelled the moving of part of the outfit be made back to Nolalu and that the north-west corner of Strange Township be reached from Mile 47 on the P. D. & W. branch.

Accordingly, the whole party and part of the outfit was moved round this way to the north-west corner of Strange Township.

At this point I intersected the north and west limits of Strange Township as marked by blazed lines; at the point of intersection a post was found marked T.B.W. 2, T.B.W. 3, and W. 4. I planted our corner posts at this intersection.

The survey was then proceeded with according to instructions, the first and second meridians being carried north from the north-west corners of Marks and Strange Townships respectively, the first base line being run west from the said corner of Marks as a chord of a parallel of latitude, and the second base line being run east and west as chords of a parallel of latitude from a point six miles north of the north-west corner of Marks Township; double chainage was used to establish the starting point of the second base line as also in other parts of the work.

On the west limit of Conmee Township connection was made with a post of location R 710 on the south side of Thunder lake. The first meridian was run north to intersect the Dawson Road and connection made with one of the posts between lots seventy-eight and seventy-nine. The second meridian was run north to cut the main line of the Canadian National Railway and connection made with the B.C. of 3 deg. curve immediately west of the west end of Annex Siding, the noted chainage of same being obtained from the railway engineers.

All the lines will be found to be well opened up and well blazed throughout; large well-marked posts were planted at each mile with iron posts at every third mile as indicated in the instructions. Bearing trees were carefully chosen and marked, where such were available.

Throughout the work careful search was made for the lines of the old locations shown on the plan accompanying instructions and ties made wherever such could be found.

Observations for Azimuth were taken at least once on each line, time being carefully checked by meridian transits of the sun.

Soil.

There was considerable loam and clay land met with, but much of it was so broken by rocky hills, and contained so many boulders as to be unfit for agricultural purposes. The only area that seemed really desirable agriculturally was the north four miles of Sackville Township, and the south two miles of Laurie Township. In the south-west corner of Horne Township an area two miles by two miles is also good. The southerly two miles of Sackville Township consists of loam, but as the south boundary is approached it is very broken and there are a lot of boulders. The agricultural area extends west of the second meridian for approximately a mile from the third mile of the west boundary of Sackville to the second mile of Laurie.

There are numerous trails throughout the district opened up in lumbering operations. These are now blocked considerably by windfalls, but could readily be opened up for the first needs of settlers.

Timber.

Practically the whole area covered by the survey has been cut over for lumber at a comparatively recent date.

There is, however, some good white pine in the south-easterly part of Adair Township, one particularly good area lying from one-half a mile to a mile north of the north boundary of Marks, opposite lots seven and eight of that township. There is good white pine scattered throughout the east three miles of the south two miles of Adair Township.

Minerals.

The rock throughout this area is mostly greenstone and granite.

There was very little surface showing of minerals except iron, of which there is some indication throughout the whole region, particularly on the southerly part of the west boundary of Sackville Township.

Game.

Bears and beaver are very plentiful in this area; moose and red deer were also seen, but were not very plentiful.

I am forwarding herewith plan and field notes of survey, timber plan, affidavits, accounts, etc., and trust that everything will be found satisfactory.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) E. R. Bingham,

Ontario Land Surveyor.

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

Appendix No. 21.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF ALGOMA.

ALVINSTON, December 31st, 1919.

SIR,—I beg to report that in accordance with instructions issued April 15th, 1919, for the survey of township outlines in the District of Algoma, along the Opazatika and Kapuskasing Rivers, and south of the Transcontinental Railway, I proceeded to Opazatika Station on July 2nd, after the usual preparation and after engaging a survey party, paddled up Opazatika River to the south boundary of McCrea Township and after packing equipment to the south-west angle of McCrea Township, the outline work was commenced.

The work was completed and the plan and field notes submitted herewith show the character of country in detail, the waters intersected by the lines, and the plan and timber map show, generally, the division, as nearly as could be ascertained, of the classes of country through which the lines passed.

Owing to low water at the season the work was necessarily commenced, the travel to the survey was rendered quite difficult as the Opazatika is very shallow and landings could not be made at the usual portages, and owing to the dry season in the summer it was quite difficult to obtain water for drinking purposes, and in one case water was carried 1¾ miles to the camp for general use.

Forest fires in other sections of the country causing a general smoky atmosphere rendered it most difficult to secure astronomical observations in the summer and in the fall the weather was so wet and cloudy it was equally difficult to secure observations at the times such were needed. However, nine observations were obtained and these are given on pages 73 to 81 of the field notes. The calculations were made from "Astronomical Field Tables" as issued from the office of the Surveyor General, Ottawa.

The variation of compass varies from 6° to 9° west—generally from 6° to 7¼° west of Cargill Township and 7° to 9° through Cargill.

The lines were well opened out and properly blazed, in fact, these are wider than usual.

Posts of the best material obtainable were planted at the end of each mile or as shown in the field notes submitted herewith, but in some cases it was impossible to mark bearing trees as some posts were planted in open country (so far as trees are concerned) or in brulé having a growth of poplar from 1 in. to 2 in. diameter. The posts were well made, in general, and properly marked with a timber scribe.

The twenty iron posts sent from your Department were planted as well, after being properly marked as shown in the field notes.

The astronomical observation taken at the north-west angle of Parnell Township was used to run south astronomically along the boundary of Shearer and Parnell to VIII miles plus 22.83 chains on the same line.

The observation taken at this point and shown on page 74 governed the line south to 111 miles plus 10 chains on the boundary of Ecclestone and Fergus, and the observation at that point the line to the south end of the line between Fergus and Ecclestone Townships. This observation is given on page 75.

The boundary of Shearer and Fergus was run by angle from the line between Parnell and Shearer Townships for a chord of a parallel of latitude, as was also the boundary between Parnell and Ecclestone to VI miles plus 2.64 chains, where

the observation given on page 81 again governed the line to the north-east angle of Ecclestone, and after turning along the meridian, the boundary of Ecclestone and Cargill to 0 miles plus 66 chains, and from this point the observation given on page 76 governed the course of the boundary of Ecclestone and Cargill to the south end of the line, no further observation being obtainable.

Commencing at the mile post XVI plus 32.41 chains on the south boundary of Ecclestone no observation was obtainable until 11 mile plus 6.80 chains was reached on this production and the line was corrected as shown in the observation given on page 77. This course was the governing course after turning the proper angle for a 9 mile chord at the south-east angle of Ecclestone Township, to V miles plus 6.04 chains on the south boundary of Cargill, when the line was again corrected as shown in the observation on page 78, and this course governed to the south-east angle of Cargill.

As will be noted the lines east and west were run on chords for the lengths of the townships with the Orientation meridian through the centre of the township, and the lines north and south are run on the astronomical meridian.

On the line between Cargill and Sulman Townships which was run from the north end, no observation was obtainable at this point and the line between Cumming and Owens was produced to 1 mile plus 45.47 chains on the boundary of Cargill and Sulman when it was found after observation was obtained that the line had a bearing as shown on page 79 and it was then decided to run south 0° 2′ east to the south-east angle of Cargill to balance the error in the north 1 mile plus 45.47 chains, and this bearing was checked by the observation given on page 80 and the line found correct, and continued to the south-east angle of Cargill.

Topography.

Generally, with the exception of the southern end of the line between Ecclestone and Fergus and immediately east of the Opazatika River on the south boundary of Ecclestone where the country is undulating, the country is level or rather slightly undulating and as a rule inclined to be swampy. A few small creeks, most of which are without flow in a dry year, are met with, and there are no lakes of any importance.

Soil.

The soil is composed of a subsoil of clay which has an admixture of sand which should make it easily workable and the topsoil is a loam and in the lower levels, a muck.

Generally, moss covers the soil west of the Opazatika River, where timber was not burned in the last fire. East of this river, fire destroyed what timber grew, and as well burned the muck but there has since formed a slight coating of loam on the upper levels, and in the lower levels moss again covers the soil.

The soil is adapted to raising general roots and grains and is very much of the nature of the soil at the Dominion Government Experimental Farm at Kapuskasing, where some fine roots and grains are grown.

The heavier clays will later require tile drainage to make the soil fully productive.

Drainage of the lower levels will not be difficult as good fall is obtainable.

A few outcrops of ordinary country rock are to be found.

Timber.

The only timber of considerable size is to be found west of the Opazatika River, ranging from 3 in. to 10 in., and in some places to 12 in. or 14 in. This timber is spruce, generally from 4 in. to 8 in. diameter, poplar 4 in. to 14 in., balsam, 2 in. to 8 in., W. birch, 3 in. to 10 in., dead tamarack, 4 in. to 8 in., with some small green tamarack (a new growth), balm of gilead in places 4 in. to 12 in. Few cedar of value are to be found off the river.

This portion is also covered with a growth of underbrush, chiefly alders, hazel and moose-maple.

Generally, the timber classification changes rapidly and there does not seem to be any body of timber large enough to make profitable operations on a large scale.

East of the Opazatika River, the country has been burned over and is now covered with a growth of poplar from 1 in. to 4 in. diameter and white birch about the same size, with a few patches of original timber of the class found on the west side of the river and generally covered with a thick growth of alders and hazel and in places with a thick growth of small spruce. In places the original spruce and tamarack have fallen in "windfalls" which make travel across such areas very difficult.

The timber east of the Opazatika River cannot be said at present to be of great value as the poplar and birch are only from 1 in. to 4 in. diameter, but in time may be very fine cutting.

Roads.

Probably the best way of reaching the area covered by the survey will be later determined; possibly a road from Lowther on the Transcontinental Railway would give the best result. No deposits of gravel were observed on the lines run.

Minerals.

No minerals of any kind were found and the few outcrops of rock are grey country rock of the kind usual to this section of the country.

Game and Fish.

Beaver are quite plentiful in this section of the country and have been very industrious in damming up the small creeks, and as many as three families are to be found above one dam in places. The work of these animals considerably hindered the progress of the survey.

Moose are plentiful along the Opazatika River and many signs of bear are to be found east of the river. There does not appear to be many deer in this section of country.

Small game does not seem to be so plentiful as usual and only a few partridge and ducks are to be found. Signs of mink and muskrat were observed.

The fish to be found in the waters consist generally of pike and pickerel, and a species of "wall-eyed pike." The fish are not large but are quite plentiful.

Water Powers.

No survey of water powers was made, as I understand this work was completed by the surveyors making the traverse of the Opazatika and Kapuskasing

Rivers. The courses of the rivers are shown on the accompanying plan as given on the plans for the traverse survey.

With this report is respectfully submitted:

1. A general plan.
2. A timber map.
3. Field notes of the survey, including astronomical observations.
4. The account in triplicate.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) A. S. Code,

Ontario Land Surveyor.

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

Appendix No. 22.

Survey of a Meridian and Base Line in the Districts of Kenora, Thunder Bay and Patricia.

Thessalon, February 5th, 1920.

Sir,—In accordance with your instructions dated April 15th, 1919, I have completed the survey of a meridian and base line in the Districts of Kenora, Thunder Bay and Patricia, and beg to submit the following report.

The meridian line was the northerly extension of the boundary between the Districts of Kenora and Thunder Bay, and was commenced at the northerly extremity of the portion of the said boundary which was run as far as the 120th mile in 1900, by the late A. Niven, O.L.S. The meridian line crossed the narrows of Lake St. Joseph, entering the district of Patricia, near the 62nd mile, and was continued into the district of Patricia as far as the 120th mile. From this point a base line was run due west, on six mile chords of a parallel of latitude, for a distance of 40 miles, the 40th mile coming in a fairly large river which enters Cat Lake from the north. The starting point of the meridian line is located about eight miles north of Sturgeon Lake. Sturgeon River was crossed just north of the 2nd mile post, and the Canadian Government Railway was crossed at 12 miles 9.39 chains, at a point 19.35 chains east of Fowler Station.

The meridian line was run north astronomically, and was well cut out and blazed. A substantial wooden post of the best timber available was planted at the end of every mile, excepting where the end of a mile came in a lake or stream. Wherever this occurred, a post was planted on the nearest shore and the number of the nearest mile together with the distance from that mile was marked on the post with a scribing iron. Every regular post had the number of the mile marked thereon with a scribing iron. At the end of every third mile on the meridian line, an iron post was planted beside the wooden one, and the number of the mile marked thereon with a cold chisel. In case the end of a mile requiring an iron

post came in water, the iron post was planted beside the wooden post on the nearest shore, and was similarly marked. The iron post in every case was a piece of 1¼ in. iron pipe, 3 feet long, pointed at one end and forged at the other, and painted red. Wherever possible, two bearing trees were marked with the letters B.T. and the distance and bearing of each tree recorded in the field notes. Substantial stone mounds were erected around the posts wherever stones could be secured.

The base line, as previously stated was run west astronomically on six mile chords of a parallel of latitude, and the same system of planting and marking the posts was followed as in the meridian line, excepting that as the base line was 40 miles long, and as I was only supplied with 10 iron posts for this line, it was obviously impossible for an iron post to be planted every three miles. It was decided to plant an iron post at the end of every six mile chord, and the rest at three mile intervals, where convenient. Iron posts were therefore planted at the following miles: 6, 12, 15, 18, 21, 24, 27, 30, 36 and 40.

On account of the length of the line, and the fact that no check was possible, the line was cut out wide enough to permit of the longest possible sights. The instrumental work was almost all done by Mr. W. B. Beatty, O.L.S., and he was most careful and accurate in his work. Only twice was it necessary to make a correction of more than two minutes in the bearing of either the meridian or the base line. Transit stations in swampy ground were avoided as much as possible, but wherever they were absolutely necessary, stakes were driven deep into the ground for the tripod to rest upon, and a platform built where necessary for the transitman to stand upon. A Waltham sidereal watch was used, and observations for both azimuth and watch correction were taken at every opportunity. These observations were all taken in daylight, and the azimuth calculated by means of the tables supplied by the Surveyor-General at Ottawa, for such purposes. A table showing the results of the observations and the corrections applied is included in the field notes.

The chaining was all done by two experienced chainmen, and every precaution taken to ensure accuracy. A five chain tape was always available, and all water stretches under five chains were measured with it, thus avoiding numerous small triangulations. This long tape was of very great assistance in chaining base lines for triangulating across the larger lakes, satisfactory base lines being obtained by this means with much less difficulty than would have been possible with a shorter tape.

The actual cutting of the line was commenced on May 27th, and completed on September 23rd.

Attached to the party were Professor Parsons of the Department of Mineralogy, Toronto University, and two assistants, representing the Bureau of Mines, and Mr. Henry Bell, of Pembroke, with an assistant. These gentlemen were instructed to report on the geological and on the timber and agricultural possibilities respectively, of the country adjacent to the line. They performed their duties in a most faithful and painstaking manner, and as my time was almost entirely devoted to the carrying on of the operations incidental to the survey, it was impossible for me to see as much of the country as they did. They will present their own reports, and will deal with their respective subjects in a detailed manner, that is impossible for me, for obvious reasons. A few general remarks on the economic possibilities and physical features of the country, however, may not be out of place.

The line runs through an entirely unsettled section of Northern Ontario, the only inhabitants being a few Indians who trap in the winter, but who do not appear to travel away from a few main canoe routes during the summer. Some of the local Indians were employed at times on the survey, and their local knowledge of canoe routes and of the country generally was found to be of very great assistance. These Indians were industrious, reliable and above the standard of intelligence that one would naturally expect.

The agricultural possibilities of the country are practically nil. The land is for the most part rocky and stony, with considerable areas of swamp consisting of a layer of muskeg more or less deep, underlain with sand and boulders resting on the rock beneath. Some fairly prominent ridges of sand and boulders occur, but not so frequently along the southerly portion of the meridian line as further north. The whole region south of Lake St. Joseph has been swept by fire, apparently about the time of the construction of the National Transcontinental Railway, and the Thunder Bay Branch of the Grand Trunk Pacific Railway. This portion of the country is very rough and rocky with numerous lakes of various sizes occupying the depressions between the ridges. About sixty per cent. of the territory seen from the line, south of Lake St. Joseph, has been burnt within ten or twelve years, and the timber destroyed. The economic loss in this respect has been very great, as a large amount of good spruce and jack pine timber has been destroyed. These burnt areas are now growing up with the usual second growth of jack pine, spruce, poplar and white birch characteristic of the country. In places the country is almost impassable on account of the tangled masses of fallen timber, and the work of cutting the line through these sections was exceedingly laborious. The green timber is largely confined to the swamp areas, and in some cases the spruce is of fair quality, but the average is rather small. The best timber seen on the line south of Lake St. Joseph is close to the Sturgeon River, and again north of the large bay extending to the east of Lower Green Grass Lake, near mile 41; there being in both cases a fine growth of large jack-pine and spruce. A few small groves of red pine were seen, the largest one being east of the narrows between Green Grass and Lower Green Grass Lakes.

North of Lake St. Joseph the country is not so rough, there being very few of the rock ridges which are so common farther to the south. The country here is more gently undulating, with low lying morain like ridges of sand and stones, with larger areas of muskeg between. Between miles 65 and 68 there is a prominent ridge of sand which has been burnt over, of which large portions are now absolutely bare. Some parts of this appear to consist of a sandy loam that might be productive, but the area is small. A prominent ridge occurs at mile 115. This is one of the highest ridges in the country north of Lake St. Joseph. Another prominent ridge of sand and gravel occurs north of mile 26 on the base line and extends to the line at mile 27. This ridge is surrounded by a muskeg as far as could be seen, but is fairly heavily timbered with spruce, birch and jack pine.

North of Lake St. Joseph there is a much larger area of green timber, than south of the lake, although the average growth is smaller and scrubbier, particularly in the more northerly portions of the country. There is one fairly large burnt area extending from mile 101 to mile 111, and for a considerable distance on either side of the line. This area has been burnt within a year or two. The whole country north of Lake St. Joseph, while largely green, has been burnt over at intervals, and in very few places was timber seen that is over 75 years old.

The second growth which comprises much of the timber is of all ages up to 75 years. These fires appear to have started from along the main canoe routes used by the Indians, and are probably largely due to the carelessness of travellers in the use of fire. The timber growth in this section is coming along very nicely, and although the annual growth is slow, a new forest will undoubtedly grow up that will be of great value provided the fires can be prevented.

The country south of Lake St. Joseph is intersected by an exceedingly intricate system of lakes and streams, which afford means of communication by canoe in any direction. Many of the lakes are of fairly large size, almost invariably with deeply indented shores, and are dotted with numerous islands. The natural beauty of many of these lakes, the shores of which have not been rendered desolate by fires, can hardly be surpassed.

The divide between the waters flowing to the Winnipeg River and to the Albany River, occurs near the 24th mile on the meridian line, although the exact location could not be determined with any degree of certainty. South of this divide the country is drained by the Sturgeon River and its northern tributary, the Dog River, of which Island Lake is an expansion. North of this divide an exceedingly intricate system of lakes with short river stretches between flows towards the Albany River by way of Lake St. Joseph, which it enters about three miles east of mile 65 on the meridian line.

The greater part of the territory adjacent to the line north of Lake St. Joseph is drained by tributaries of the Attawapiskat River which finally enters James Bay about sixty miles north of the Albany River. The divide between Albany and Attawapiskat waters occurs quite close to Lake St. Joseph, although here again it is impossible to designate the exact location with any degree of certainty. The largest streams crossed north of Lake St. Joseph are the Gitchie Seebe at mile 111, and the Otoskwin River at mile 113. These streams meet about three or four miles east of the line, forming the Otoskwin branch of the Attawapiskat River. These are both fairly large streams, with sluggish current broken with occasional rapids, at most of which the fall is low, and which are mostly caused by boulder bars obstructing the streams, and which make canoe navigation rather difficult in places. The eastern portion of the base line is drained by a tributary of the Otoskwin River, while the western portion is drained towards the Albany River by way of streams entering Cat Lake.

There are no water powers of any great importance, chiefly owing to the fact that very few of the rapids or falls are of any great height. A number of small water powers could be developed, however, as the facilities for water storage are excellent on account of the many lakes. There are some falls on the Albany River a few miles east of the outlet of Lake St. Joseph which may be of great importance in the future, on account of the large drainage area tributary to Lake St. Joseph, and the splendid opportunity this lake would afford for reservoir purposes. These powers are from forty to sixty miles east of the line, but it is thought well to give them passing mention as they will undoubtedly play a most important part in any economic development that may occur in this part of the country. Similarly on the Cat River, which enters Lake St. Joseph at the west end, a number of falls occur. None of these falls are of great height, but water powers of considerable importance could be developed, as the drainage area is fairly large and the facilities for water storage cannot be excelled. These water powers on the Cat River are, of course, much smaller than the ones on the Albany River east of Lake St. Joseph.

Lake St. Joseph is, of course, the most important geographical feature of this section of the country. It is a narrow, straggling sheet of water about sixty miles long, from Root Portage at the western extremity to where the Albany River flows out at the eastern end. It has an exceedingly intricate shore line in places with many deep bays extending far back from the main body of the lake. There are innumerable islands of all sizes, from small bare rocks to some which are of several miles in length. The lake for the greater part of its extent is rather narrow, but in some places widens out to a width of from six to eight miles. The numerous islands make it difficult in many places to get a good idea of its dimensions, but the average width is probably not much over two miles. Much of the country around Lake St. Joseph has been burnt over at different times in the past, and the timber along the shore is largely second growth of different ages. The timber on many of the islands appears to be older than that on the main shore, probably due to the fact that the islands escaped the fires. The shores of Lake St. Joseph are for the greater part low lying, although some rather prominent hills occur around the western end of the lake. Lake St. Joseph is called the head of the Albany River, although the Cat River which enters the north-western extremity of the lake takes its rise probably one hundred miles or more to the north-west and by the time it reaches Lake St. Joseph it is a considerable stream.

The Hudson's Bay Company have a post called Osnaburgh near the eastern end of Lake St. Joseph, where a considerable trade in furs is carried on with the Indians. Supplies for Osnaburgh Post are brought in from Hudson Station on the Canadian Government Railway, over a very good route by gasoline boat across Lost Lake down English River and across Lac Seul, thence by canoe up Root River to Root Portage at the western end of Lake St. Joseph. This portage is over the divide between Winnipeg and Albany River waters. From here supplies are taken to Osnaburgh by a small steamboat which is operated on Lake St. Joseph by the Hudson's Bay Company.

The geological features of the country will be separately reported upon by Professor Parsons, therefore, they will receive but passing mention in this report. The prevailing rock formation over the whole territory is Laurentian, typical rocks being granite and gneiss. Several areas of Keewatin rocks were encountered, and in almost every case there was a local magnetic attraction of the most pronounced character. The first of these occurs in the vicinity of Island Lake about ten miles north of the Canadian Government Railway, and extends easterly to Lake Savant. The most important area of magnetic disturbance in this belt occurs on Kashaweogama Lake lying to the east of Island Lake. An important belt of Keewatin rock occurs in the vicinity of Lake St. Joseph, and here again the magnetic disturbances are of the most pronounced character, and extend for a long distance east and west of the line. Low grade hematite and magnetite were seen on some of the islands in the western portion of the lake. Another belt of Keewatin occurs between the 79th mile and Clearwater Lake, the contact being in the lake, probably between the 87th and 88th miles. This belt is possibly an eastern extension of one which crosses Cat River near Slate Lake, and appears to be of considerable extent.

Still another belt of Keewatin extends for a considerable distance along the Gitchie Seebe River west of the meridian line, but apparently not extending as far east as the line. Considerable magnetic disturbance occurs on this belt, and here again there are indications of iron ore.

The base line as far as could be seen, lies entirely in a Laurentian area, the prevailing rocks being granite and gneiss typical of this region.

A peculiar feature of these Keewatin belts is the fact that the intensity of the magnetic disturbances is much greater on some of the lakes than on the shore. This may possibly indicate the existence of more or less extensive bodies of iron or other magnetic ore, under the waters of the lakes. If I might venture a suggestion, it would be that where there are indications of iron ore, particularly east of Island Lake, and on Lake St. Joseph, a more detailed examination be made with a view of determining definitely the possibilities of developing ore bodies on a commercial scale.

The climate is similar to that of other sections of Central Canada in the same latitude. The early part of the summer of 1919 was intensely hot and dry, and the growth of vegetation was exceedingly rapid. An instance of this is the fact that ripe blueberries were picked on the 30th day of June, and by the end of the first week in July they were in great abundance. Potatoes and roots generally do well where any attempt is made to cultivate them, although the amount of arable land is very small. A few of the Indians have small potato patches. One of these was seen on a point on Lake St. Joseph about the 16th of July, and showed a good healthy growth. This patch had recently been hoed, and showed every evidence of care and industry. A patch of potatoes at the Hudson's Bay Company's post at Osnaburgh were in blossom on the 19th of July, and looked very well. A slight frost occurred on the night of the 7th of August. On the 24th of September the Hudson's Bay Company's post at Cat Lake was visited on our way home, and a small patch of potatoes showed hardly any evidence of frost. The small lakes usually commence to freeze over about the 15th of October, and the larger ones are usually frozen over by the end of that month.

Moose and red deer are quite common south of Lake St. Joseph, but not so much farther north. Caribou are frequently seen in this region, becoming more plentiful as one goes farther north. The ordinary fur-bearing animals are quite plentiful, although great destruction of animal and bird life has been caused by fires which have overrun the country. Partridge were scarce and hardly a rabbit was seen all summer. Wild ducks are not as plentiful as one would expect. Fish are numerous in all the larger lakes and streams, the principal varieties being pike, pickerel, and suckers. Some excellent white fish were secured from an Indian on Lake St. Joseph who had a net set in the lake. The Indians appear to make use of fish weirs to a considerable extent, and on some of the streams weirs were seen which showed much ingenuity in construction.

The returns to be filed in your Department consist of this report, copies of the field notes properly certified, a general plan on mounted drawing paper on a scale of two miles to an inch, a timber plan on tracing linen on the same scale, and my accounts in triplicate and I trust that these will be found satisfactory.

Much of the information on the plans was obtained from sketches made by Professor Parsons and Mr. Bell, and I wish to express my appreciation of the hearty manner in which these gentlemen co-operated with me in seeing that the various phases of the work were carried on to a successful conclusion. I also wish to heartily thank Mr. Jabez Williams, transport officer for the Hudson's Bay Company at Lac Seul, and Mr. R. Hooker, of Osnaburgh, for courtesy and assistance rendered the party during the season.

In conclusion I would venture to predict that the economic development of this section of the country will largely depend upon the discovery of valuable minerals in the various areas of Keewatin rocks, and the chances of such discoveries would appear to be not unfavourable.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) JAMES S. DOBIE,

Ontario Land Surveyor.

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

Appendix No. 23.

SURVEY OF A MERIDIAN LINE IN THE VICINITY OF THE GROUND HOG RIVER, IN THE DISTRICTS OF SUDBURY AND TIMISKAMING.

PETERBOROUGH, April 15th, 1920.

SIR,—I have the honour to report that agreeable with instructions from your Department dated April 15th, 1919, I have completed the survey of meridian lines in the Districts of Sudbury and Timiskaming.

As instructed, I commenced the survey at the north-east angle of the Township of Muskego and after getting the necessary observations for latitude and azimuth, I ran due north astronomically eight miles seventy-one chains and sixty-six links where I intersected the base line surveyed by O.L.S. Niven in 1899 at a point one hundred and thirty-three chains and forty links east of his fifty-four mile posts. From O.L.S. Niven's fifty-four mile posts I ran north astronomically eight miles seventy-eight chains and ninety links where I intersected O.L.S. Neeland's first base line at a point one chain and sixty-nine links west of his nine mile posts. After moving these posts to the intersection of the meridian and base line I produced my meridian north astronomically nine miles and sixty-four links where I intersected O.L.S. Neeland's second base line at a point two chains and seventy links west of his nine mile posts. After moving these posts to the intersection of the meridian and base line I again produced my meridian north astronomically eight miles seventy-nine chains and thirty-one links where I intersected O.L.S. Neeland's third base line at a point four chains and fifteen links west of his nine mile posts. After moving these posts to the intersection of the meridian and base line I again produced my meridian north astronomically twenty-four miles six chains and five links to the south boundary of the Township of Nansen which I intersected at a point one hundred and eight chains and thirteen links east of the south-west angle of said township.

The meridian line from the north-east angle of the Township of Muskego to O.L.S. Niven's base line passes over a rough, rocky, broken country totally

unfit for agriculture and which has been overrun many times by fire and is now destitute of all timber of value. Several lakes were crossed on this line, all of which contain good clear water but little if any fish. The rock is of the Huronian formation but as far as I could see, and I examined it closely many times, is destitute of mineral. From O.L.S. Niven's base line to the southerly limit of the clay belt, a distance of a little over four miles, the line passes over a gently undulating sandy country which has evidently been repeatedly burnt over and is now practically destitute of either green or burnt timber of any description. From this point southerly (limit of the clay belt) to the south boundary of the Township of Nansen the character of the country is all the same, generally level or gently undulating and covered with spruce up to fourteen inches, poplar to twenty inches, white birch to ten inches, dead tamarac, scrub cedar and alder underbrush—the land is good clay free from stone with clay subsoil and will, no doubt, some day support a large number of people.

Patches of brulé are met with here and there and especially along the westerly shore of the Ground Hog River. Practically no outcroppings of rock were encountered in this forty-seven miles. The Piskanogami River is crossed between the first and second mile north of O.L.S. Neeland's first base line; it is a fine clear stream and has many valuable and easily developed falls, two of which lie just east of my meridian.

The Ground Hog River—which I did not cross with my meridian but which is very close to the line at a point twenty-seven miles north of Niven's base line is also a fine river for many miles but is sadly broken by an eight mile flat rapid between this point and the Grand Trunk Pacific. This tract of country lying between the Canadian Northern and Grand Trunk Pacific Railways is a veritable paradise for hunters and trappers. Moose are very plentiful and it is not an odd sight to see four or five in one of the rivers or lakes at the same time. Bear, beaver, marten and otter were also frequently seen along the rivers.

I also beg to submit with this report a plan showing the topography of the country passed over, also a timber plan and field notes all of which I trust will be found complete and satisfactory.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) J. W. FITZGERALD,

Ontario Land Surveyor.

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

Appendix No. 24.

SURVEY OF PART OF THE TOWNSHIP OF NANSEN, DISTRICT OF TIMISKAMING.

PETERBOROUGH, April 15th, 1920.

SIR,—I have the honour to report that agreeable with instructions from your Department dated April 15th, 1919. I have subdivided the residue of the Township of Nansen in the District of Timiskaming into regular lots of one hundred

and fifty acres each. The residue of the township allotted to me for subdivision consisted of lots one to twenty-nine inclusive, in concessions one, two, three and four, the northerly eight concessions having been subdivided by O.L.S. Dempster in 1912. Agreeable with your Departmental instructions, I commenced the subdivision at a spruce post marked one and one-half miles on the east boundary of the township, planted by O.L.S. James Hutcheon in 1910, and after securing the necessary observation for azimuth at this point, I ran due west astronomically across the first six lots leaving half a chain for road allowance immediately west of the east boundary and one chain for road allowance between lots six and seven. I then picked up O.L.S. Dempster's side line between lots six and seven at the front of the fifth concession and produced it due south astronomically to the south boundary of the township. I then produced the line between concessions two and three west across lots seven to twelve inclusive. I then picked up O.L.S. Dempster's side line between lots twelve and thirteen at the front of the fifth concession and produced this line south astronomically to the south boundary. I carried out the same procedure to the westerly limit of the township.

All the regular lots were made twenty-five chains and twenty-five links in width by fifty-nine chains and fifty links in depth containing one hundred and fifty acres each. I also cut out and rechained the south boundary giving the regular lots on the front of the first concession a uniform width of twenty-five chains and twenty-five links. Substantial posts of the most durable wood procurable in the vicinity were planted to define the corners of the lots and intersections of the lines and the iron posts forwarded to me from your Department were also properly marked and planted at the points indicated on the projected plan, which points I have also indicated on my plan.

The portion of the township subdivided by me is well watered by numerous creeks, there is, however, only one lake of any extent which lies on lots five and six in the first concession.

The first four concessions of this township may be described as a generally level or gently undulating country timbered with spruce up to twelve inches in diameter, poplar up to twelve inches in diameter, white birch, balsam and cedar up to ten inches in diameter interspersed with swamps covered with spruce, dead tamarac, scrub cedar and alder underbrush, scattered patches of brulé of small extent and covered with small poplar, white birch and willow. The soil on the uplands is, generally speaking, a good clay loam rich in humus and practically free of stone, with clay subsoil. In the lowlands and swamps the soil is black muck with clay subsoil. Only a few small outcroppings of rock occur in this part of the township. I consider fully fifty per cent. of the first four concessions suitable for mixed farming and am of the opinion that with a proper system of drainage, fully fifty per cent. of the remainder can be made so.

I also beg to submit with this report a plan showing the acreage and topography, also timber plan and field notes all of which I hope will be found complete and satisfactory.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) J. W. FITZGERALD,
Ontario Land Surveyor.

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

Appendix No. 25.

SURVEY OF PART OF THE BOUNDARY LINE BETWEEN THE DISTRICTS OF RAINY RIVER AND KENORA.

FORT FRANCES, February 16th, 1920.

SIR,—Instructions to survey part of the boundary line between the Districts of Rainy River and Kenora, and three meridian lines running south therefrom, were received early in June, but the survey was not commenced until August 4th, as, on account of the general strike, it was impossible to procure any tents in Winnipeg.

I left Fort Frances on August 4th, and proceeded via the Cascades and Manitou Lake to Smooth Rock Lake, where my first camp was established. Having found traces of the 6th meridian near Bear Lake, I re-ran the line through dense second growth, on 1894 brulé, and found the iron post marking the 24th mile. From this post I started the boundary line, my course being determined from the meridian line, and made preparations to observe Polaris at night. I was unable to see the star as a heavy rain storm came on in the afternoon and lasted all night. I therefore ran the line on to Smooth Rock Lake and there observed Polaris at Eastern Elongation, finding the line .02′ N. Correcting for this I continued west, to the 6th mile, where I deflected north six minutes, checking the instrumental deflection by the use of a deflection offset of 1.378 inches at a distance of one chain. Thereafter, this deflection was used at each six miles. Wooden posts were planted at each mile and iron posts at every three miles as instructed.

I continued the line to the 12th mile, whence I ran south twelve miles on the 1st meridian, and on the completion of this line I continued west on the base line to the 24th mile, marking the posts as instructed from 1 to 12 in each section of the base. I then ran south again twelve miles on the 2nd meridian, and in a similar manner I ran west to the 36th mile and thence south on the 3rd meridian as far as Kishkutena or Height of Land Lake.

Winter set in very early, there was a heavy fall of snow on October 10th, and thereafter the weather was very bad, snow, rain or sleet nearly every day, so that the ground and the trees were entirely covered with snow. I continued the base line west until October 25th, working whenever the weather permitted; on the 24th, over six inches of snow fell and froze in the creeks, so that on the 25th, we were unable to break through to Crooked Pine Lake.

As I had been unable to find any trace of the 7th meridian, with which I had to intersect, and as I had not been supplied with field notes showing the postion of the 7th mile post thereon, I decided to postpone finishing this part of the line until after the freeze up, and started back for Height of Land Lake to finish the 3rd meridian. On the 27th and 28th I continued south but on the 28th I was compelled to postpone the work as the lakes were all covered with about six inches of snow ice, which, while practically unbreakable from a canoe would not carry a man's weight. I made a cache of my supplies and outfit and started for home, having to go by way of Off Lake to Barwick.

On December 2nd, I again started out and drove to Sabaskong Bay, where I completed the base line, returning to Clearwater Lake, I then completed the 3rd meridian, reaching Fort Frances on the 13th December.

Plan.

The plan of this work has been extended beyond the actual limits of the survey in order to show connections with the base and meridian lines previously run. The outlines of all lakes and streams have been shown with the connecting creeks and portages, and the outlines of all timber berths and mining locations of which I have record have been plotted.

Connection.

I have been unable to reach any definite conclusion as to where this base line should intersect the 7th, meridian.

Using Niven's chainages the lengths of the east and west boundaries are:—

East Boundary.	West Boundary.
24 miles on 6th meridian	East Boundary, Kingsford....6m.5c.59
1m.37c.93 connection	" " Richardson...6m.6c.50 to 6th m.
	6th m. post to 49th.....6m.9c.00
25m.37c.93	49th to base 7m.18c.41
i.e. base line 1c.57 too far north	25m.39c.50

But Niven's 1st base having a latitude of 48° 45′ 30″ would be at a distance of 16m.55.83 south from the 49th, which would put the 24th mile post at a distance of 7m.24c.17 north of the 49th. The latitudes given on O.L.S. Niven's plans do not appear to be quite correct. Latitude of Carpenter base is given as 48° 44′ 10″, by distance south of 49th, this should be 48° 44′ 08.4″.

Latitude of first base is given as 48° 45′ 30″ by distance 1m.37c.93 north of Carpenter base this should be 48° 45′ 25.2″.

Latitude of 2nd base at 24th mile is 48° 50′ 42″, this gives a latitude for the 1st base, six miles south, of 48° 45′ 29″.

Latitude of my base is 49° 06′ 16.7″ from which a line 24 miles south would have a latitude of 48° 45′ 26.3″.

If the latitudes given for the Carpenter base and the 1st base are taken the distance on the connection line would be 1m.42c.62 in place of 1m.37c.93 as given by Mr. Niven. All of this seems to show that the latitude of Niven's 1st base at the 90th mile would agree very closely with that of a line 24 miles south of my base.

There is an excess in my chainage between the 6th and 7th meridians. Using Niven's chainages and following his base and meridian lines the distances are:—

South line, 6th meridian to Carpenter meridian	2851c.75
Divergence of meridians on 19m.40c.00, 1st base to Carpenter base	89
	2852c.64
Convergence of meridians on this distance across Carpenter	4c.95
	2847c.69
Carpenter meridian to 7th meridian	882c.93
	3730c.62
Convergence	20c.80
	3709c.82
Chained distance	3728c.71
Surplus	18c.89

In explanation of part of this excess I would point out that on working out the departures of the courses and distances given on the right of way plan of the Canadian Northern Railway there are surpluses found on two sections, viz.:—

	Surplus.
Across lots 7 to 12, Halkirk	2c.81
Across Rainy Lake, from west boundary, Lot 36 Watten to I. R. line, thence west following I. R. lines to Carpenter base, this all being my own chainage	7c.91

Also that in every case where I have rechained Niven's lines I have found excess, in the lines included in this plan these surpluses show:—

	Surplus.
South boundaries, Potts and Fleming	0c.86
South boundary, Dance and North boundary Miscampbell	0c.83
West boundary of Potts, between Niven's posts	1c75

Soil.

None of the land in the vicinity of these lines is of any value for agricultural purposes. The whole of the country is formed of rocky ridges with swamps, lakes and streams in the valleys between.

Timber.

The accompanying timber plan shows that practically the whole of the area included has been burnt over. The probable dates of these fires has been determined from the apparent age of the second growth timber, and has been indicated on the plan. This second growth is nearly all jack pine, with poplar, birch and spruce, only in a few places is there any second growth of red or white pine, these places are also indicated on the plan. When these fires passed over the country most of the large pine escaped destruction; all of this has since been cut, with the exception of scattering trees far from water, so that there is now no merchantable timber left except between my 3rd meridian and the 7th meridian, where the spruce and cedar swamps escaped the fires, and which are yet of value for pulpwood and cedar poles and posts. The tamarac in all these swamps has been killed by the Larch Fly.

Minerals.

No work has been done for many years on any of the locations which are shown on the plan, nor is it possible to give any estimate of their value. That many of the veins carry gold and other minerals in what should be paying quantities is undoubted, but so far mining has not been successful. It is certain, however, that in the future there will be renewed activity in mining in this district. The only evidence of any activity in the vicinity of the lines is between Furlonge and Stonedam Lakes, where several mining claims have been staked out and assessment work done on deposits of copper and iron pyrites. North of the base line, on Schist Lake, there is a good showing of iron ore on which some test pits have been sunk. Transportation difficulties, however, render these claims of little value at the present time.

SAMPLES.

Rock samples were taken at various points as indicated in the field notes. These have been forwarded to the Department of Lands and Forests.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) D. J. GILLON,

Ontario Land Surveyor,

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

Appendix No. 26.

TRAVERSE OF MISSINAIBI LAKE AND RIVER AND TRIBUTARY WATERS, DISTRICTS OF ALGOMA AND SUDBURY.

SAULT STE. MARIE, February 16th, 1920.

SIR,—Under instructions from you dated 8th May, 1919, to make survey of Dog, Crooked and Missinaibi Lakes, I commenced organizing for this survey on the 21st May. I left Sault Ste. Marie with complete outfit and four men for Missinaibi Station where I started survey of Dog Lake on 22nd May.

This survey has been carried out in strict accordance with instructions. From chained base lines a complete triangulation survey was carried out. Astronomic bearings were carried throughout and observations taken at intervals of not more than fifteen miles. Instrument and stadia rod were checked from time to time and continued in good adjustment. Stadia rod was used with two targets and readings taken by competent rodman and recorded carefully, and work checked and plotted every evening. Outlines of shores and islands were obtained by stadia readings from triangulation points on short traverses therefrom.

At intervals of about a mile apart along the shores of the lakes at conspicuous points, a tree was blazed and numbered, and where trees were not available, a post was planted—marked and well mounded with rock.

DOG LAKE REPORT.

On the westerly shore of Dog Lake the south boundary of Township Forty-seven, Range Twenty-seven was found, opened up and re-blazed and a new post planted and mounded with rock together with the old post. From the south-east angle of Township Forty-six, Range Twenty-seven, the line between Townships Forty-five and Forty-six was opened up and re-blazed westerly approximately two miles to the main line of the Canadian Pacific Railway. At the various points where the line intersected the shores of Dog Lake, posts were planted and mounded with rock. A bench mark painted on solid rock was established near lake shore at Missinaibi Station; to Canadian Pacific Railway datum.

The area of Dog Lake is about twenty-two and five-tenth square miles and has approximately one hundred and fifty miles of shore line and seventy islands. (See schedule.)

For storage purposes the highest level that could be maintained is in my opinion dictated by the elevation of the Height of Land at the east end which is only about seven feet above water level shown on plan.

The Canadian Pacific Railway tracks are in general at about a constant elevation of twenty to twenty-five feet above lake level as observed during survey.

The outlet is narrow and downstream the river falls rapidly between solid rock banks and would give good opportunity for controlling dams. The capacity for storage is in general terms one hundred and sixty square mile feet.

The shores slope up so that water area at plane seven feet above stage at time of survey will show little increase in area. There are very few marshes or low spots.

Tributary creeks are few in number and with the exception of McMurtry Lake, the bodies of water tributary are all shown on plan. McMurtry Lake is said to be about six miles and might average a mile wide. It is connected to Dog Lake by a small river about twenty chains long with very little fall and it should be a good additional storage. The Loch Lomond River would not be flooded as there is a considerable fall near its entrance to Dog Lake.

A very small amount of timber would be affected by flooding. Almost the whole of Dog Lake territory has been visited by fire on three different occasions, namely: About the year 1890 the district was almost completely burned over, followed again by fires in the years 1905 and in 1915 the country around the easterly end of the lake was again swept by fire. Areas of mature timber still exist such as pulpwood and tie timber. The second growth timber from fire-swept country is principally poplar to six inches in diameter.

As a summer resort this lake has attractive possibilities being very easily reached by the Canadian Pacific Railway at Missinaibi Station. There are many first class camping places with excellent sand beaches and the second growth timber is of sufficient size to give an attractive appearance.

The waters of the lake abound with fish of various species such as pike, pickerel, trout, white fish and herring.

As a country for moose hunting this district has few superiors, bear also being plentiful.

Crooked Lake Report.

Crooked Lake in the District of Sudbury has an area of about one and eighty-three one-hundredths square miles and approximately thirty miles of shore line and twenty-three islands. The islands principally are contained within the middle third of the length of the lake. The shores generally rise with a gentle slope from the water's edge and in no place are precipitous. Lake bed and shores are in general sand and boulders and with occasional rock outcrop. Both ends of lake are very shallow with mud bottom so much so that paddling is difficult on account of limited depth of water. Lake throughout appears to have comparatively small depth. The shores are practically free from marshes so that a moderate amount of increase in stage of water would not greatly increase area. Height of Land is about seven feet above observed stage of Crooked Lake.

The timber as noted on plan consists mostly of second growth composed of jack pine, spruce, balsam, birch, poplar and cedar interspersed with patches of brulé.

Fish are fairly plentiful. Game comprises moose and bear principally, the latter especially being attracted by the plentiful supply of blueberries.

MISSINAIBI LAKE REPORT.

On account of continued bad weather and approach of winter the traverse of this lake was not completed. About fifteen miles at the north-east end of the lake is yet unsurveyed.

The portion surveyed to date comprises a long and comparatively straight stretch of lake about twenty miles in length and averaging from one-quarter to three-quarter miles in width with a connecting course at mid-length northward from Fairy Point about one and one-half miles, and north-east from this about parallel to the remainder of the lake there is an arm about nine miles long and varying in width from one-quarter to three-quarter miles.

In general, the lake has a great depth and in no places were any shallow areas encountered. Navigation on any part of the lake would be possible for large tugs.

The shores of the lake are rocky and in many places precipitous. There are a few limited areas of marsh along the shores of the lake but flooding would not materially increase area.

Crooked Lake is a tributary to this lake entering it at the west end of the north-east arm above noted about three miles in an airline from Fairy Point. At the entrance to Missinaibi Lake there is a fall of fifteen feet high and up-stream from this about three and one-half chains is a fall about fifteen feet high which is one and one-half chains from the outlet of Crooked Lake.

The lake has long been used by traders as a link to James Bay. It is very probable that this lake would make an excellent storage for power development on Missinaibi River but the outlet I have not yet examined.

Timber such as red and white pine are scarce, only a small amount of this species scattered throughout the lake district. Spruce and balsam interspersed with birch, poplar and cedar will be found in large quantities together with jack pine suitable for tie timber.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) C. R. KENNY,

Ontario Land Surveyor,

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

Appendix No. 27.

SURVEY OF CERTAIN TOWNSHIP OUTLINES IN THE DISTRICT OF ALGOMA.

SAULT STE. MARIE, ONT., December 10th, 1919.

SIR,—We have the honour to submit the following report on the survey of certain township outlines in the District of Algoma, made under instructions from the Minister of Lands and Forests, dated at Toronto, May 1st, 1919.

The survey party, under our Mr. Ross, left Sault Ste. Marie on June 5th, and proceeded to the west boundary of the Township of Wicksteed by way of the

Algoma Central and Canadian National Railways. Actual work was commenced on June 7th, and completed on August 21st. The party arrived back in Sault Ste. Marie on August 24th.

During the whole course of the work we only lost half a day on account of rain, but this dry weather was the cause of many forest fires. We were chased on to an island in a lake at the south-east corner of the Township of Lessard and held there for three days. It was then necessary to cut our way through burning country to avoid starving. We also had great difficulty with labour throughout the whole course of the work.

We first ran our 2nd base line west astronomically about ten miles, from the north-west corner of the Township of Wicksteed. We then ran north astronomically nine miles from the north-west corner of the Township of Wicksteed. From the nine mile post on this line we ran about ten miles west astronomically on our 3rd base line. From this point we backed up to the south-west corner of the Township of Wicksteed by way of Nagagami Lake. Obakagami River and the Canadian National Railway. From there we ran our 1st base line west astronomically twenty miles thirty-five chains and ten links, to O.L.S. Niven's boundary line. From the nine mile post on this line we ran north astronomically twenty-seven miles two chains and thirty-four links. The intersection with the 2nd base line pointed to a mistake in chainage and this was discovered on the 1st base line. A tally stake at eight miles seventy-seven chains was mistaken for the nine mile stake and the meridian was run from this point. Posts to the west on the 1st base line were not affected. An error of one chain in measuring the base lines of each of two triangles was made between the 9th and 18th mile of the meridian. This was corrected throughout and all posts moved to true positions and the notes corrected. When we intersected the 2nd base line with our meridian, this base line was produced west astronomically to the Algoma-Thunder Bay boundary, making it a total length of twenty miles thirty-one chains and eighteen links. The last line to be run was the production of the 3rd base line west astronomically to the boundary line. This line has a total length of twenty miles twenty-seven chains and eight links.

We came out to the railway along the boundary line and took the train to Sault Ste. Marie from the station at Lux. My second chainman informed me on our return that the distance on the north boundary of the Township of Foch between the north-east corner and the 1st mile post is seventy-nine chains and eighty-five links and between the first and second mile posts, eighty chains and fifteen links. The explanation is as follows. We had to swear in a new chainman for that day, and he, in spite of instructions, held at the end of the steel in place of the end of the brass handle. This error was corrected by the chainman in the next mile which is planted two miles from the corner but he did not correct the position of the first mile post and did not report the error.

General.

The territory covered might be divided into two parts by an imaginary line drawn about three miles south of the Canadian National Railway, and parallel to it. To the south of this line it is very rough and rocky, to the north it is a rolling, sandy, clay country.

Soil.

The soil in the Townships of Flanders, Nagagami, Frances and Hiawatha is for the most part a sandy clay loam covered with black muck. There are

scattered areas of very gravelly clay of glacial origin. The valleys and low lying land in the Township of Lessard and Foch are arable but the total area of useful country from an agricultural point of view is very small. These townships are rock in the main.

Timber.

The Township of Lessard and the easterly nine miles of the Township of Foch are heavily timbered with large spruce, poplar and birch. Fire swept the southerly two miles of these townships during the summer of 1919. The westerly two miles of the Township of Foch has been swept clean by fire some twenty years ago and is still barren. The Townships of Nagagami, Flanders, Hiawatha and Frances are wooded with spruce from 3 in. to 8 in. in diameter, together with a certain amount of banksian pine near the Canadian National Railway. There is a very large burnt area in the neighbourhood of the line between the Townships of Nagagami and Flanders, Frances and Hiawatha.

Minerals.

The rock formation is entirely Laurentian as it came under our observation, being granite and gneiss. We saw no indications of minerals.

Water Powers.

There is one fall on the Obakagami River about three miles south of the lake of that name, which would develop about 1,000 horse-power if full use were made of the storage capacity of Obakagami Lake. A thirty foot dam could be cheaply constructed between rock walls to have a crest of about one hundred feet. Aside from this, the repaids on the Obakagami and Nagagami Rivers are of no consequence from a power development point of view.

Fish and Game.

Practically all the rivers and streams in this area abound in speckled trout. There are as well, pickerel, pike, maskinonge, whitefish and suckers. We are unable to make a complete report as to fish as it would be necessary to use a net to get the information.

There are great numbers of moose and a few deer. There did not appear to be any rabbits and there were very few partridge.

We are sending under separate cover, field notes, plans and accounts in connection with our work.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) Lang & Ross,

Ontario Land Surveyors.

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

Appendix No. 28.

TO RE-ESTABLISH PART OF THE BOUNDARY OF THE ALGONQUIN PROVINCIAL PARK, DISTRICT OF NIPISSING.

PEMBROKE, January 31st, 1920.

SIR,—Acting under your instructions of August 6th, 1919, I proceeded to Sligo, a camp on the Bonnechere River where it crosses the south boundary of the Township of Guthrie. I commenced work with a party of eight men on August 16th, 1919, and continued without interruption until December 12th, 1919.

During this time I retraced the south boundary of Guthrie from the north-west angle of Burns to the Township of Master; the south boundary of Master; the east boundaries of Master, Stratton and Bronson; the north boundary of Bronson; the east boundary of Edgar, across concessions eleven to sixteen inclusive; and the north boundary of the Township of Edgar; a total distance of sixty-six and a quarter miles.

All old posts found were renewed as instructed and iron bars placed at all township corners, excepting the south-west and north-west angles of McKay and the north-west corner of Edgar. The lines were well re-blazed and where timber was scarce posts were planted along the centre line of road allowances about ten chains apart and marked P.L. on the side facing the Algonquin Park, so as to facilitate following the line, especially in burnt parts.

I am enclosing in a parcel to your address, notes, plans and diary, with pay sheets, accounts, receipts and statements in triplicate, as required by your instructions.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) J. L. MORRIS,

Ontario Land Surveyor.

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

Appendix No. 29.

SURVEY OF CERTAIN TOWNSHIP OUTLINES ON THE KAPUSKASING RIVER, DISTRICT OF ALGOMA.

OTTAWA, January 5th, 1920.

SIR,—In accordance with your instructions of May 1st, 1919, *re* the survey of certain township outlines along the Kapuskasing River in the District of Algoma, I have the honour to submit the following report.

I left Ottawa on the evening of June 10th, and after stopping in North Bay during the day of June 11th, arrived at Agate on the afternoon of June 12th.

The station here is within 150 feet of Kapuskasing Lake and we made our first camp on its shores. I had my provisions shipped by freight and my assist-

ant, who had gone on ahead, had everything in readiness, including our iron posts, and on the morning of June 13th we loaded our outfit into five canoes and started down the Kapuskasing River.

The river at this time of the year was reasonably high and made canoeing much more pleasant, as we were enabled to "run" several rapids that in lower water would require portaging. The longest portage we had was about one mile in length and was the second last one before we came to our work. On the stretch of river extending through our work there were no portages or rapids, our last one going in being at the south boundary of Allenby Township. We left part of our provisions on the south boundary of Allenby and took the remainder down to the old G. T. Railway cache near the north-west corner of Allenby Township and made camp right at this corner of this township.

On the morning of June 23rd, we started on the meridian between Oscar and Concobar Townships, after having observed on the line the previous evening. This line was for the most part heavily wooded and undulating, having good clay soil on the higher places, with a subsoil of clay in the wet and marshy places. On the morning of June 27th, we had quite a snowflurry and the same evening it froze quite hard, sufficient to form ice about one-quarter inch thick on our water pails. Owing to the fact that two of my men disappointed me and one of my chainmen being unable to come in until July 1st, I was obliged to send out for more men and my assistant went out to Kapuskasing Station returning with four men. We made a main camp at the north-west corner of Concobar Township, and from here worked out two and a half miles east to the Kapuskasing River, the land being generally high and undulating and for the most part heavily wooded with large timber. Then we ran west on the line between Oscar and Bourinot Townships. While this land was undulating there was more low land as we got farther away from the river. In the fifth and sixth miles of this line, we encountered some good cedar up to fifteen and eighteen inches in diameter. The last quarter of a mile was through very open, small second growth poplar on a sandy loam. No bearing trees were marked here, as there was nothing large enough to be of use for this purpose. No trace was found of the westerly boundary of the township having been run yet, so we produced our lines six chains beyond the nine mile post, and returned to the easterly boundary of the township.

We then ran north on the meridian between Bourinot and Shanly Townships. The first couple of miles of this line was mostly through heavy timber with thick underbrush. From the second to the fifth mile was good pulpwood, mostly poplar, and the best we encountered anywhere on the line, while from the fifth to the ninth miles the land was higher and had been burnt over at some previous period. There is considerable second growth and windfall in this area. The nine mile post was planted on a rocky ridge, or outcrop of Keewatin. O.L.S. Code's line had not been run yet, so we proceeded on our line six chains past the nine mile post. On this line we encountered two lakes, as shown on the plan, and one day we canoed up to work following the stream from our camp near the four mile post, to our line on the north shore of the lake. We also utilized this stream for moving camp out to the Kapuskasing, and down to the south boundary of Allenby.

From here we packed east taking the provisions from our cache to the south-east corner of Allenby Township, and proceeded to run the meridian between Allenby and Seaton Townships. When we arrived at this corner we found that

Sutcliffe and Neelands had run their line out to this point a few days previous. We ran the line to the north-east corner of Concobar Township and then we turned to our nine mile post, and ran west to the Kapuskasing River, and the westerly boundary of the Township of Concobar.

On these latter lines the country for the most part was low and wet with open tamarac swamp or a thick growth of spruce, tamarac and balsam. Towards the north-easterly corner of Concobar Township, we encountered low ridges or knolls of clay or sandy clay loam, with some heavy timber thereon.

We reached the Kapuskasing and on August 4th, I left my assistant to run west on the Maude, Oscar Chord, while I went out to Kapuskasing to arrange for the disbanding of the party at the completion of the work.

I took one of my chainmen out with me as he had a poisoned hand and needed medical attention. This coupled with the fact that a couple of weeks previous I had to send out one of my Indians, necessitated my bringing in more men. So I returned with two men and a boy along with some provisions, to complete the work.

On reaching the nine mile post on the Maude, Oscar Chord, we were unable to locate Speight's line, run in 1909. We spread out and though we made a thorough search, we were unable to locate it, possibly because there was a heavy undergrowth of alder, and as the west boundary of Oscar Township had not been run yet. So we produced our line seven chains past the nine mile post, and returned to camp.

We then continued to run east on the chord, between Shanly and Concobar. When about four and one-half miles of this line had been completed one of our Indians, who had previously been troubled with appendicitis, was threatened with a recurrence and had to go out. Two others who for some time past had been anxious to go bear hunting, decided to leave and could not be persuaded to stay. This left me short of men and as I had only enough provisions to finish the job working with a complete party, I decided to run only as far as the south-east corner of Shanly Township, and then return. This we did, and continuing on down the Kapuskasing River arrived at the station of the same name, on the Canadian Government Railway, on August the 18th.

The river was quite shallow in a great many places coming out, and it was with difficulty we were enabled to get through. At Kapuskasing I paid off my men and arrived in Ottawa, on August the 20th.

The country through which we worked was for the most part comparatively low, the land and timber on the west side of the river being much superior to that on the east. On the latter side, it was practically level throughout, being covered with open tamarac; in places, while in others a thick growth of tamarac, spruce and balsam, interspersed with thick alder undergrowth.

However, on the easterly boundary of Concobar, we encountered some larger timber, e.g., balm of gilead, birch, and spruce, etc., as the ground here appeared to rise slightly, being very gently undulating.

On this side of the river, the soil was clay, or moss, with a clay subsoil, with a few sandy knolls.

On the west side of the river, the country for the most part is undulating and is quite heavily timbered. The timber on the higher lands is quite large, from six to eighteen inches in diameter, or even larger in some cases, and is of a good quality, birch, spruce, balsam, poplar, balm of gilead and cedar, while the valleys are tamarac, spruce and balsam, or alders.

When running west on the chord between Oscar and Bourinot Townships, we encountered some really good cedar, which has every indication of extending for a considerable distance north and south of the line.

The burnt area encountered apparently embraces the north-westerly corner of Bourinot Township as shown on the accompanying timber plan. The land apparently rises towards the end of the township and the nine mile post on the Bourinot. Shanly meridian is on an outcrop of Keewatin.

We encountered no economic minerals whatever, there being only a few scattered boulders or low rocky ridges on the Oscar, Bourinot Chord, the Bourinot, Shanly meridian and the Oscar-Maude Chord.

The land on the west side of the river is generally speaking good clay soil on the higher elevations, with a clay subsoil in the lower and wet places.

The game in this part of the country is plentiful, there being abundance of moose, bear, beaver and ducks.

At certain places no iron posts were planted as shown in the field notes attached hereto, as I had none at my disposal, having used the number sent me for this work.

Astronomic observations were taken whenever weather conditions would permit, the work throughout being carried on under my personal supervision and the foregoing report is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) N. B. MacRostie,

Ontario Land Surveyor.

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

Appendix No. 30.

To Subdivide the Township of Fowler, District of Thunder Bay.

Port Arthur, January 12th, 1920.

Sir,—We beg to report that in accordance with instructions issued from your Department dated April 15th, 1919, we have completed the survey of the Township of Fowler, in the District of Thunder Bay.

This township is bounded on the south by the Township of Ware, on the east by the Township of Jacques, on the west by the Township of Forbes and the Grand Trunk Pacific Block No. 1, and on the north by Dog Lake and the unsurveyed lands of the Crown.

The south-east corner of this township is about twenty-one miles north-west from the City of Port Arthur. The road from Port Arthur is well graded and gravelled to within a mile of the south-east corner of the Township.

The survey was commenced at the south-west angle of the Township of Jacques. From this point a mile was measured on the west boundary of Jacques and from here the line between concessions one and two was run west astronomically to the west boundary of the township. On this line posts were planted at intervals of 40.00 chains to mark the corners of lots fronting thereon. From the end of each mile on this concession line the sidelines between lots two and three, four and five, and so on were run south astronomically to intersect the northerly boundary of the Township of Ware and also north astronomically to the north boundary of the township. On the side line between lots two and three, the widths of concessions two, three, four and five were laid off, each being made 80.00 chains and from these points the concession lines were run east to intersect the westerly boundary of the Township of Jacques. The lines between concessions two and three and concessions three and four were then run west astronomically to the west boundary of the township and the lines between concessions four and five and between concessions five and six were run west astronomically to intersect the high water line of Dog Lake. The north boundary of the township was run west astronomically from the north-west angle of the Township of Jacques to Dog Lake. As the line between concessions one and two which was used as a base to lay off the widths of the various lots does not run across the full twelve miles, the line in front of concession four was used as a base to lay off the widths of lots nineteen, twenty, twenty-one and twenty-two, each of which was given 40.00 chains. The width of lot twenty-three was established by taking the distance below the westerly limit of lot twenty-two, as established above, and a line run by O.L.S. Fawcett, in 1907, as a trial line for the east boundary of Grand Trunk Pacific Block No. 1, the distance being 43.95 chains. The width of this lot in concession five and six was also made this distance. From the lot corners established, the side lines between lots twenty and twenty-one and between lots twenty-two and twenty-three were run south astronomically to the south boundary of the township and north astronomically to the north boundary of the township. On the line between lots twenty and twenty-one the depth of concession four was made 79.76 chains and from here the line in front of concession five was run west astronomically to the west boundary of the township. On the line between lots twenty-two and twenty-three the depths of concessions five and six were made 79.80 chains and 79.50 chains respectively and from the points so established lines were run west astronomically to the west boundary of the township and the north boundary was run east astronomically to Dog Lake. It was noted that in running the north boundary east to the lake, that the line produced coincided exactly with that portion of the north boundary of the township east of Dog Lake.

On several concession lines the widths of the odd numbered lots, with the exception of lot twenty-three, were made 40.00 chains. The width of lot twenty-three was established as explained above, the width being 43.95 chains. The widths of the even numbered lots were established by the intersection of the side lines with the concession boundaries. The south boundary of the township was re-chained and lot corners were established thereon.

Substantial wooden posts of size and timber specified were planted to mark the angles of the lots. Bearing trees were marked and their position noted where timber was available. As in many places all the timber had been burned off many posts have no bearing trees. In most of these cases the posts were well mounded with stones. Iron posts were marked and planted at the points indicated on the projected plan accompanying your instructions.

In the case of the posts at the following corners: Lots nineteen and twenty, concession two, lots five and six, concession three, lots seven and eight, concession four, lots five and six, concession five, and lots twenty-one and twenty-two, concession six, as these corners fell in bodies of water, posts were planted on the north shore of the bodies of water, in which they fell at points bearing north astronomically from their proper positions on the concession lines and the distances were measured from the concession lines and noted in the field notes. A post was planted on the easterly shore of One Island Lake to indicate the position of the line between lots five and six, concession two, as this line is almost entirely in the lake. Lot fifteen, concession four, on the north side of Hawk Bay is made to include the portion of what would be lot sixteen to the west of it. The easterly boundary of lot twenty-two, concession three, was made the Dog River.

A road allowance one chain in width was laid off around Dog Lake and Little Dog Lake and along both sides of the Dog River. Posts to mark the corners of lots fronting on the lakes or in cases where an intersection was in the lake, were planted at the perpendicular distance of one chain from the high water line. On Dog Lake witness posts were planted in front of these and the surrounding trees, where there were any, were well blazed.

The lines were well opened up and blazed. Observations were taken frequently and will be found recorded in the field notes. The magnetic variation remained fairly constant at two degrees east but in places this was found to vary to a considerable extent.

A stadia traverse was made of all bodies of water in the township and field notes prepared of same on the scale of ten chains to an inch. On Dog Lake the position of the original shore line is shown as nearly as it is possible to do without taking soundings. This is shown as a dotted line in the field notes.

Timber.

A timber plan of the township accompanies this report. Over half of the timber has been destroyed by forest fires at different times. That portion of the township east of One Island Lake is now grown up with jack pine, poplar and birch about twenty-five to thirty years old. In cases where fire has passed over in recent years the only timber of value now left is the spruce in the swamps. Of the timber not destroyed by fires nearly all of value has been cut. In the last year there have been four lumber camps operating within the township and by the coming spring only small patches of good timber will be left. Fires occurred in two places during the progress of the survey. One of these was west of One Island Lake and the other was south and west of Dog Lake in concessions three and four. Neither of these fires was started by any members of our party. Another fire has passed over a small area along the Dog River in lots twenty-three and twenty-four in concessions five and six, since the lines were run. None of these did any material damage.

Soil.

The southerly three concessions of the township are fairly good agricultural lands, there being between fifty per cent. and sixty per cent. good soil. This ranges from clay loam in the central portions to sandy loam on the easterly and westerly ends of the concessions. In the burned over area south of Dog Lake in concessions three and four, nearly all the timber is gone and this land

could be cleared and made ready for crops in a very short time. It would make excellent grazing and hay lands. The northerly three concessions are very rough and broken and the soil is very stony and rocky, there being scarcely twenty per cent. of the land suitable for farming in these concessions. We do not think that it would be advisable to open these concessions for settlement at this time, though consider that the southerly three should be opened up.

Minerals.

There are numerous outcroppings of rock in the township, especially in the northern part of the east half, but no minerals of any value were noticed. The south-easterly part of the township has at one time been very thoroughly investigated for iron though none was found. There is a considerable overburden in most places.

Topography.

The hills surrounding Hawk Lake and Dog Lake are from one hundred to two hundred feet in height with tops inland from ten chains to twenty chains. The northerly three concessions east of Dog Lake are rough and broken by hills from fifty to a hundred feet in height. The southerly three concessions are fairly level through lots one to fourteen. West of lot fourteen to Little Dog Lake and the Dog River in concessions one and two is very rough. A fairly level plateau is found in lots fifteen to twenty in concession three and this also extends into lots twenty and twenty-one in concession four.

Lakes and Rivers.

Several small lakes, not previously mapped, were found. The largest bodies of water in the township are Dog Lake, Hawk Lake and One Island Lake. The water in these is clear while that in some of the smaller lakes is of a dark colour. On Dog Lake the natural beauty of the lake has been destroyed by flooding. One Island Lake and the lakes to the east of it would make very desirable lakes for summer camping. The easterly part of the township nearly all drains directly or indirectly into Hawk Bay of Dog Lake. The source of Strawberry Creek is in the large swamp in lots nine, ten and eleven in concessions one and two. This flows south through the Township of Ware into the Kaministikwia River. Concessions one, two and three in lots thirteen to twenty are drained by three creeks into Little Dog Lake and the Dog River. In the returns of the survey of the Township of Jacques made by us One Island Lake as shown therein was improperly named. Since that time we have found that the lake generally known as "One Island" is that shown on the plan of Fowler Township. Storage dams have been built at the outlets of Hawk Lake, One Island Lake, and the small lake in lot ten, concession six. These are used to supply water to drive the creeks flowing out of them. The head in each case is about three feet.

Dog River is not navigable above Little Dog Lake. From here there is a portage and tote road to Dog Lake, a distance of about a mile and three-quarters. The outlet of Hawk Lake can be run with a canoe in high water and the inlet of Spike Lake is always navigable for canoes. The outlet of the small lake in lot ten, concession six is now being improved for driving purposes.

Islands.

Fifty-seven islands were found within the township. These were lettered and numbered from J.K. 20 to J.K. 76. J.K. 20 is in Little Dog Lake, J.K. 21 to 51 are in Dog River. J.K. 52 and 53 and J.K. 55 to 71 are in Dog Lake. J.K. 54 is in Florence Lake, J.K. 72 is in Bolduc Lake, J.K. 73 is in Kawene Lake. J.K. 74 is in Freed Lake. J.K. 75 is in Spike Lake and J.K. 76 is in One Island Lake. The areas of the islands are shown on the plan of the township. Many of them are very small, especially those in the Dog River. Several of the islands in Dog Lake have been formed by raising the level of the lake.

Routes, etc.

From Trout Lake, which is one mile south of the south-east angle of the township a tote road runs north-westerly to the south bay of One Island Lake. This road has been used for the last two winters for freighting in provisions and is also passable for waggons but will require considerable more improvement before it is fit for regular summer use. A winter road runs from the south-easterly corner of lot six, concession two, to connect with the road system in Ware Township. From the southerly boundary of the Township to Kaministikwia via this road is about twelve miles. Another road runs north from Kaministikwia along the Dog River to Little Dog Lake. This road is not improved for the two miles south of the township. In the township this road follows Little Dog Lake to the north end and here it branches and runs to Dog Lake. The portion between Little Dog Lake and Dog Lake can be used as a waggon road but the remaining part is too rough. A winter road branches off this road and runs across concession eight of Ware and enters Fowler in lot sixteen. It then swings east and north and is cut out to Hawk Bay. There is also a winter road running across One Island Lake to Hawk Bay, and on through lot eight in concession four, five and six to Dog Lake. A good trail that has once been used as a road runs from the north end of the portage from Little Dog Lake to Dog Lake to the dams at the outlet of the lake. Numerous tie roads were found in the neighbourhood of the small lakes in lots six, seven and eight in concessions five and six also in lots five and six in concessions one and two and in lots thirteen and fourteen in concessions one, two and three.

Clearings, Improvements, etc.

There are several sets of lumber camps in the township. These are in lot six, concession two (J. C. Greer), lot eight, concession five (J. Stirrett & Sons), lot seven, concession six (J. Stirrett & Sons) and in lots fourteen and fifteen, concession one (Jas. Hourigan & Co.). No other improvements than the buildings were made around any of these camps. Two trappers' cabins were seen on One Island Lake. There is also a full set of camps in lot twenty-three, concession five. These were used by the contractors when the storage dams were being built but are now in poor condition. No squatters were found and no other improvements noted.

Water Powers, etc.

The fall between Dog Lake and Little Dog Lake is about three hundred feet. Many rapids and falls were found along the course of the river. Detailed

investigations of these have been made by the Hydro-Electric Power Commission in 1913 and previously and more definite information than we can furnish could be obtained from them.

Very few indications of game were noticed as the country has been hunted and trapped over for many years. The lakes are not well stocked with fish though some lake trout were caught in Hawk Lake. It might be advisable to stock One Island, Florence and Hawk Lakes with trout as they could be made very attractive grounds for fishing.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) PHILLIPS & BENNER,
PER J. K. BENNER,

Ontario Land Surveyors.

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

Appendix No. 31.

SURVEY OF A MERIDIAN LINE AND TRAVERSE OF THAT PORTION OF DOG LAKE LYING NORTH OF THE TOWNSHIP OF FOWLER, DISTRICT OF THUNDER BAY.

PORT ARTHUR, ONT., April 30th, 1920.

SIR,—We beg to report that in accordance with instructions issued from your Department dated September 30th, 1919, we have completed the survey of that portion of Dog Lake lying north of the Township of Fowler, in the District of Thunder Bay, and a meridian line across same.

The traverse of Dog Lake was carried on in the winter months but a portion of the meridian was run in October last.

This lake is about thirty miles north-west of the City of Port Arthur. The route to it is via Dawson Road, thence along the boundary line between the Townships of Ware and Gorham to Trout Lake, thence north-westerly along a tote road to One Island Lake and then by canoe through One Island Lake and Hawk Lake. There is a winter road through Fowler Township to the bay of Dog Lake which enters lots nine and ten, concession six.

The survey of the meridian was commenced at the north-west corner of lot twelve, concession six, Township of Fowler, and from this point a meridian was run north astronomically across the various points of land and bays to the last intersection with the northerly margin of the lake. This line was all chained in the winter and posted according to instructions.

The traverse of the lake was commenced at the intersection of the north boundary of the Township of Fowler with the high water mark in lot thirteen, concession six, Township of Fowler. Trees were marked at intervals of about one mile the numbers running from one to seventy-five. Eighty-two islands were

found and surveyed within the portion of the lake covered by this report. These were lettered and numbered from J.K. 77 to J.K. 158 and on each island a tree was marked with the initials and numbers of the island and these will be found recorded in the field notes of the survey. The traverse of the shore line was made with reference to the margin as defined when the dam of the Kaministiquia Power Co. at the outlet of the lake is full. At the time the survey was made the lake was nearly at its original level and the approximate position of the old shore line as shown in dotted lines on the plan should be fairly accurate.

The greater portion of the margin of the lake is timbered with green forest, the most prevalent species being spruce. The west shore has been all burned off by forest fires that passed over the country about ten years ago. Lumbering operations are being carried on by John Stirrett and Sons on Timber Berth D. and their camp is near Station 26 of the traverse.

Few indications of game were noticed. The lake is poorly stocked with fish.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) PHILLIPS & BENNER,

Ontario Land Surveyors.

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

Appendix No. 32.

TRAVERSE OF LONG LAKE, DISTRICT OF THUNDER BAY.

SAULT STE. MARIE, March 17th, 1920.

SIR,—I beg to submit herewith the following report in connection with the traverse survey of Long Lake, made by me in the District of Thunder Bay, under instructions from your Department, dated July 22nd, 1919.

On receipt of these instructions preparations were immediately made. My assistants were brought from the Garden River Indian Reserve and the party left Sault Ste. Marie on the morning of July 30th, by the Algoma Central Railway via Oba arriving at Long Lake at midnight July 31st.

We commenced our survey from a post planted on the north boundary of the Long Lake Indian Reserve No. 77, surveyed by O.L.S. Dobie in 1910. We traversed the Canadian Northern Railway from this post, which was marked Post No. 1, to the north shore of Long Lake near the mouth of the Kenogami River. From here the stadia traverse of the lake was commenced, readings being taken at frequent intervals to show the irregularities of the shore line.

At intervals of about a mile apart posts were made and carved on the side next the lake. These were generally made from standing trees and were marked with a knife as follows: T.1, T.2, etc., up to T.85. In every case these posts were carefully tied to transit points with transit and a chain as shown on the plan prepared of this survey.

Islands.

All islands in the lake were located and traversed and marked by a square wooden post in a prominent place on the island. These posts were made where possible from standing trees and were carved with the letters G.L. 1, G.L. 2, up to G.L. 65, there being sixty-five islands in the lake ranging from a quarter of an acre up to 280 acres. The total water area of the lake was forty-nine square miles.

Timber.

The timber along the shores of the lake is generally small and is not of value except as pulpwood. Spruce of fair size is found scattered along the shore. Thick growths of jack pine are numerous especially at the south end of the lake, where there are large stretches of sand and gravel. Poplar, balm of gilead, birch and balsam are also quite common. Cedar occurs in a number of places along the shore.

Geology.

The rock outcrops for the north eight miles of Long Lake are granite. A contact between this rock and the Keewatin occurs at the narrows about eight or nine miles south of the north end of the lake. From this point the rock is mostly a dark coloured mica schist extending for about ten or eleven miles. South of these schist outcrops granite occurs again. The south stretch of the lake, however, is heavily covered with sand and gravel. White quartz veins are frequently seen in the schist outcrops, these carry no economic value, according to samples taken by us which were afterwards assayed. The highest assay shown from our samples was $1.20 per ton in gold.

Topography.

The southern end of Long Lake is very rugged and mountainous. At one place a sheer rise from the water occurs of 360 feet. The contour of the country, however, gradually decreases toward the north, where it is quite low. This part of the lake is drift covered and the clay land is utilized for farming purposes. Only a very small area, however, is suitable for cultivation, this occurring at the extreme northern end of the lake.

Game and Fish.

Moose and caribou are quite plentiful around Long Lake and fur-bearing animals appear to be numerous, especially beaver. This lake is a splendid one for fish, lake trout, pickerel, pike and whitefish are all plentiful. Some of the small creeks flowing into the lake abound with brook trout.

General Remarks.

Long Lake is a remarkably fine lake for summer resort purposes. Good water, navigable for the full length of fifty-one miles, very easy of access, Long Lake Station on the Canadian Northern Railway being situated on the shore of the lake. Three stores are doing business here. Two of these were built in the year of 1919 and the Hudson's Bay Company post, which is about two miles from the station, has been in existence for over 100 years. The water

elevation of Long Lake is 1,013 feet above sea level and the railway grade has an elevation of 1,031 feet.

The field work on Long Lake was completed on October 2nd, and the party arrived in Sault Ste. Marie on October 4th, where they were paid off and disbanded.

Accompanying this report is a plan on a scale of twenty chains to the inch, a list of the islands showing their area, etc.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) G. L. Ramsey,

Ontario Land Surveyor.

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

Appendix No. 33.

To Subdivide the Residue of the Township of Hanlan, District of Algoma.

Bracebridge, November 20th, 1919.

Sir,—Pursuant to your instructions dated the 15th April, 1919, I have surveyed the residue of the Township of Hanlan, consisting of the ninth to twelfth concessions, inclusive, similarly to the Township of Casgrain, that is the posting of the ninth concession, this line having been run by O.L.S. Angus, 1912, and the re-chaining and posting of Speight's base line, the front of the twelfth concession run in 1907, also the lakes Pushimi, Hanlan, Wolverine and Pivabiska, also the parts of these lakes in the Township of Bannerman.

After completing the survey of the residue of the Township of Casgrain on the 3rd of September, 1919, I proceeded immediately to the adjoining Township of Hanlan. The concession line between the tenth and eleventh concessions was run east and west astronomically from the side line between lots twelve and thirteen.

The survey of the remaining lines was performed similarly to those in the Township of Casgrain, except that the side line between lots six and seven is the east limit of the road allowance, following Angus' survey, 1912.

The lakes were surveyed by stadia traverse and ties were made to the intersecting concession and side lines.

A basic triangulation was made of the larger expanses of water. Iron posts were planted at the intersection of the surveyed lines as shown in the field notes.

General Features.

This part of the township is broken very largely by lakes, so much so that there are very few full lots in the concessions. The country is throughout these concessions, fairly high compared with the general run of land in this section. It is covered chiefly with spruce, poplar, and birch, here and there, there are small muskegs or swamps.

Soil.

The subsoil throughout is heavy clay covered on the high land with six inches of humus and on the lower land with from two feet to six feet of moss.

Generally speaking, there are few outcroppings of rocks except on the shores of the lakes.

Timber.

Spruce may be said to be the prevalent kind though there is very considerable poplar. Spruce ranges from three to ten inches in diameter. The poplar averages from three to eight inches. There are also birch, balsam and tamarac.

Minerals.

Except on the shores of the lakes which are for the most part rocky, there are few outcroppings of rock, and I submit herewith a sample which appears to be general throughout the township. Sample was taken at the intersection of the side lines between lots eighteen and nineteen.

There is no indication of any minerals. The rocks are igneous chiefly in the form of granite.

Fish and Game.

The lakes abound with fish, chiefly pickerel and pike. These have been caught up to twenty-five pounds. The game is plentiful. Moose abound in these regions. There are few bear, no deer. On the lakes there are generally ducks in large numbers.

Lakes and Rivers.

The lakes form a considerable extent of these four concessions, and are connected as shown on the traverse plans.

In Pivabiska Lake there are numerous islands.

The shores of the lakes may be said to be very rocky and vary in height from ten to forty feet.

There is a river flowing north-easterly into the junction of Hanlan and Wolverine Lakes, which I deemed it advisable to survey. It averages 1½ chains in width almost up to the eighth concession.

The survey was completed on October 15th, 1919, and the party discharged at Hearst on October 16th, 1919. It rained almost every day and this, together with the existing conditions of labour, I experienced great difficulty in keeping men.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) W. A. Sibbett,

Ontario Land Surveyor.

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

Appendix No. 34.

TO SUBDIVIDE THE RESIDUE OF THE TOWNSHIP OF CASGRAIN, DISTRICT OF ALGOMA.

BRACEBRIDGE, November 20th, 1919.

SIR,—Pursuant to your instructions dated the 15th April, 1919, I have surveyed the residue of the Township of Casgrain, that is the ninth to twelfth concessions inclusive, Pivabiska Lake and the Mattawishkhwia River, and beg to report as follows:—

I organized my party consisting of myself, two chainers, picket men, three axe men and a cook, at North Bay on the 29th July, 1919, and proceeded to Hearst, arriving there on the 31st, reaching the easterly limit of the ninth concession of Casgrain, by the Mattawishkhwia River on August 2nd, where I commenced my survey, which consisted of posting the front of the ninth concession (the line between the eighth and ninth concessions having been previously run by Coltham and Coltham, 1912) and running the line between the tenth and eleventh concessions, and the side lines between lots six and seven, twelve and thirteen, eighteen and nineteen, twenty-four and twenty-five north from the eighth concession, and the re-chaining and posting of Speight's base line, the north boundary of the township.

I found the north boundary, this line which had been run twelve years ago in a very bad shape through the entire township, owing to it being grown up with tag alders. I also surveyed the Mattawishkhwia River, Pivabiska Lakes and three other small lakes, as shown on the accompanying plan. Iron posts were planted at the intersection of the surveyed lines as shown in the field notes.

GENERAL FEATURES.

The four concessions of the township might be said to be chiefly muskeg covered, as usual, with small spruce and tamarac ranging from three to eight inches. Considerable portion of the higher land as shown on the plan has been burnt over, I should say, about thirty years ago, and is now covered with second growth of poplar and birch. West of Pivabiska Lake the land is somewhat higher than the general run, is slightly undulating, covered with poplar and birch.

SOIL.

The subsoil throughout is heavy clay, covered on the muskeg with anywhere from two to six feet of moss, on the burnt areas with a few inches of humus. There is very little rock in evidence.

TIMBER.

The general run of timber is spruce in the muskegs together with some balsam and tamarac. The diameter ranges from three to eight inches. The higher land has poplar and birch as shown on the accompanying timber plan.

MINERALS.

As stated there are few outcroppings of rock and I submit herewith, a sample which appears to be general throughout the township. The shores of Pivabiska

Lake are to a large extent rocky and the sample was taken from near the intersection of this lake by the tenth and eleventh concessions. There are no indications of any minerals, the rocks are igneous and chiefly a form of granite.

Fish and Game.

The large lakes and rivers abound with fish, chiefly pickerel and pike. The game is plentiful, moose abound in these regions. There are few bear, no deer. On the small lakes there are ducks in large numbers.

Lakes and Rivers.

Pivabiska Lake extends into the township through a narrows forming an expansion known as Bennet's Bay. The shores of the lake are rocky, the land rises anywhere from ten to fifteen feet around them. It is comparatively shallow, averaging fifteen feet deep. There are quite a number of shallow places and shoals of rocky boulders, which make it dangerous for navigation.

The Mattawishkhwia River averages from two and a half to three chains wide. The banks are not high and are earthy and soft. The river is shallow and below the eighth concession to the east boundary of the township there are considerable rapids which hinder navigation at low water though the fall at each is not much.

The river is navigable for good-sized canoes, heavily loaded, any place during high water.

The survey was completed on September 3rd, 1919, and the party proceeded to the Township of Hanlan, adjoining on the west.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) W. A. Sibbett,

Ontario Land Surveyor.

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

Appendix No. 35.

Survey of the Outlines of the Townships of MacVicar, Carmichael, Stringer, Ford, Hicks, Oke, Poulett and Aitken, District of Timiskaming.

New Liskeard, Ont., August 3rd, 1920.

Sir,—Under instructions from the Director of Surveys, dated May 12th, 1920, our Mr. Sutcliffe proceeded to Kakatush, which is at the Ground Hog River crossing of the old Canadian Northern Railway, on June 8th, and personally conducted the survey up to the time of its completion on July 12th. We went down the Ground Hog River about fifteen miles to the first portage across to

the Nat River to which we crossed and followed to approximately the commencement point of our work.

No serious obstacles were met with either on the journey in or during the work. Stellar observations were taken at the different points indicated in our field notes. The nine mile chords are not shown as east and west astronomically at all points on the chord, but the true astronomic bearings have been calculated and noted in the field notes. The work was followed out in the order outlined in the instructions, and in all cases we satisfactorily checked in with previous surveys on the east and west sides.

Instrument Work.

Light Mountain Gurley transits were used on the work and Stellar observations were taken as often as possible. These observations were facilitated by the use of curves previously plotted in our office for the proper latitude and longitude of the work, a copy of which is enclosed with the field notes. Correction for time was made by observation several times.

Chainage.

Chains four hundred links long were used and slope distances were taken when necessary and corrected with the use of a clinometer and slope tables. The tapes were properly tested and the chainers were duly sworn.

Posts and Bearing Trees.

The most durable wood obtainable was selected for posts. We found the new type of iron posts fairly satisfactory where the ground was suitable, but we had a few instances where it was impossible to even place witness posts and mounds within reasonable distances from the points they were intended to witness.

When possible, small trees were marked for bearing trees. The trees were chosen as nearly opposite one another as possible.

Blazing of Lines.

The picket man was held responsible for the blazing and the results obtained were satisfactory.

Timber.

With the exception of the Townships of MacVicar and Carmichael, the country was almost entirely covered by spruce bush with some balsam mixed through in places. Several muskegs were encountered, some of which were of considerable size. The north-west part of the Township of Poulett and the south-west part of Hicks is brulé about thirty years old. In the vicinity of the streams the brulé is covered by second growth poplar, whereas further back small spruce and alders have grown up. With the exception of the above mentioned townships the spruce timber is mostly small and suitable only for pulpwood, although along the south boundary of MacVicar some very good spruce was seen.

In the two above mentioned townships, particularly in the vicinity of the Ground Hog River, considerable very large poplar was encountered. It was sound and of good quality. In this same area the spruce is also large. Balsam is plentiful and some birch was seen, but generally speaking, there is very little birch in this section. No pine of any description was seen. It was only along the south and east boundaries of MacVicar, the south boundary of Carmichael and along the Ground Hog River, north of the head of the Long Rapids, that we saw timber of any real importance.

Water Courses.

The Ground Hog and Nat Rivers were the only streams of importance. There are a few small creeks but surprisingly few. The country as a whole is very level. It was only in the immediate vicinity of the above mentioned rivers that there were any hills of consequence. It was only on the south boundary of Oke that any lakes were seen.

Rock Formation.

Only along the rivers in the vicinity of rapids was any rock seen.

Agriculture.

The soil is almost entirely a good clay but will require extensive drainage to be of use for farming.

Animal Life.

Moose are very plentiful. Fur-bearing animals are also very numerous. The principal fish in the Ground Hog River are sturgeon, pickerel and pike, all of which are fairly plentiful.

Water Powers.

The only water power of importance is that surveyed by us in 1911 as W.P. 9, report of which was filed by us at that time.

Accompanying this report are a general plan on mounted paper, a timber plan on tracing linen and the usual field notes.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) Sutcliffe & Neelands,

Ontario Land Surveyors.

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

Appendix No. 36.

SURVEY OF CERTAIN TOWNSHIP OUTLINES IN THE DISTRICT OF THUNDER BAY.

NIPIGON, ONT., August 1st, 1920.

SIR,—I beg to submit herewith a detailed report on the survey of certain township outlines in the District of Thunder Bay, said townships lying north of the Canadian Pacific Railway, and adjoining the boundary line between the Districts of Thunder Bay and Algoma, said survey having been performed by me under instructions dated Toronto, May 12th, 1920.

Pursuant to instructions, I commenced my survey at an iron post planted by O.L.S. Stewart on the line between Townships seventy and seventy-one at the north-west angle of Township seventy, said point being also the north-east angle of Township seventy-one, and being 126 chains 47.9 links north of the centre line of the C. P. R. The meridian and base lines were run pursuant to instructions with the exception of the section of the first base line which forms the boundary between the Township of Atikameg and Bryant, which line was run from east to west, due to the position of White Lake. (See plan.)

The several lines were well cut out and well blazed—one man devoting his entire time to the blazing. All posts, iron and wooden, were correctly marked and planted, and the bearing trees taken wherever possible. Few cairns of stones were planted about posts as the country was, for the most part, sandy, and few stones could be found for this purpose. Particular care was given to the correct marking and planting of the iron posts, the digging of pits and making of mounds.

Frequent astronomical observations were taken, the notes of which accompany the field notes. I personally took the notes on the timber and soil, the chainmen doing the actual chaining only. While on the survey, I personally covered a considerable area on either side of each surveyed line to ascertain the size and extent of the timber, being particularly impressed with the large areas of spruce and banksian pine in the townships.

I beg to state that your instructions were closely adhered to in every respect. Before taking up in detail the timber, soil, etc.—may I advise you that I have been informed by reliable parties that the country to the north and to the west of these townships is well timbered, that the areas of spruce and banksian pine extend in these directions, particularly to the north, and that good water routes exist whereby such timber may be driven and brought out. If it is the intention of the Department to lay out additional townships for the sale of the timber therein, may I suggest that this territory be investigated before doing so?

TIMBER.

Throughout the six townships excellent spruce was found, running from four to ten inches in diameter. There are large areas that will yield from twenty-five to thirty cords to the acre. It is impossible to note here the location of these areas, they exist throughout the entire six townships. Reference to the field notes and timber plan will give the locations of the best of this spruce. The Townships of McGill, Atikameg and Mikano are the best for spruce timber.

Banksian pine is found throughout all six townships in large amounts, excellent tie timber size. The Austin Nicholson Co., of Chapleau, under permit in previous years, has taken tie timber out from the Townships of Atikameg, Bryant

and Flood, but not to any considerable extent. They have merely touched the fringe of it. They have camps at present on the meridian line between the Townships of Bryant and Flood. Last winter through a sub-contractor this company cut 87,000 ties but were unable to get their drive out. They are at present erecting a new dam in an endeavour to get their ties out this summer. No attempt has been made to burn or dispose of the slash and there is grave fire menace through the several townships on this account, especially as there are Indians, trappers and tourists continually passing through, and camping in, this area. Two rather serious fires were burning in this area during the progress of the survey, fires which I personally investigated and found not to have been started near, or caused by my survey camps.

No adequate and complete report is possible on the extent of the banksian pine in these townships without a careful cruise being made. The townships are all exceptionally well timbered with banksian pine running from six to eighteen inches in diameter. I was particularly impressed with the possibilities for a sawmill to be located near the north-east angle of the Township of Bryant. Excellent roads could be made, several are actually in existence, out to the C. P. R. siding at Bremner. In view of the scarcity of, and high prices for, lumber in this district, I beg to suggest that, if these townships are put up for tender, a clause be included compelling the erection and operation of such a mill.

Aside from the spruce and banksian pine, there is very little other timber in the townships. There is some large poplar and a little cedar but not in amounts to be of commercial value. Very little balsam was found and the birch, although frequently mentioned in my field notes, was in areas small in extent and of little value.

Soil.

The soil throughout the six townships was sandy with occasional rocky areas and frequent small areas of muskeg. The areas near the Shabotik River and in some other places near lakes or rivers was exceptionally good but these townships cannot be considered as good for agriculture, certainly not for settlement purposes. The value is to be found in the timber and in the timber alone.

Game.

The country is overrun with moose, and in the southerly two townships, red deer. Partridges were exceptionally plentiful. Pike are found in all of the large lakes. Fishing operations, under permit, are now being carried on in White Lake—the main catch being whitefish.

Roads.

The only roads through the townships are tote roads leading from the C. P. R. to the several tie camps and connecting the said camps. These roads are shown on the field notes. The entire country is very level, with the exception of the southerly part of the Township of Flood. Roads can easily and cheaply be built for logging operations in almost any part of the areas covered by this survey.

Minerals.

There were no minerals at all to be found on this survey. The rock, where it was encountered, was granite.

LAKES AND RIVERS.

As shown on the plan, White Lake and its connecting chain of lakes, form a water boundary to the west of the Townships of Bryant, Atikameg and McGill. This is a well travelled route, portages being short and well cut out. There are many lakes throughout the townships, all of clear, excellent water, with sandy shores. White Lake has rocky shores for the most part. This lake extends to Mobert and the Hudson's Bay Company post at that point on the C. P. R.

The Shabotik River crosses the Townships of Shabotik, Mikano and Atikameg in a general south-westerly direction. This is a wide, well travelled river, although Gum Creek, one of its tributaries, shown to be a well travelled river on existing maps, is impassable by canoes, being filled with log jams. For the information of cruisers, or others wishing to investigate these townships, I would suggest starting from Mobert and paddling up White Lake to the line between Atikameg and Bryant. The Townships of Bryant and Atikameg could be covered in that way. McGill could be covered by following the chain of lakes on to the north of White Lake. Shabotik and Mikano can best be covered by paddling up the Shabotik River on its north and south branches respectively. Flood could be reached by paddling up White River from the old, not the present, station of Bremner, or by taking one of the two existing tote roads that come out to the C. P. R. near mile eighteen on that railway. Should more detailed information be desired *re* the several routes for reaching the townships, I will be glad to supply same.

In conclusion, I beg to state that your instructions have been carefully followed in respect to the survey of these townships. I have put special attention upon the notes of the timber. I was particularly impressed with the great value of the spruce and banksian pine. I beg to enclose herewith plan and field notes, timber plan, astronomical observations, etc., etc., covering the entire work. Trusting that my work and this report upon the same will be found to be satisfactory.

I have the honour to be, Sir,

Your obedient servant,

(Sg.) M. E. CROUCH,

Ontario Land Surveyor.

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

Appendix No. 37.

SURVEY OF KASHAWEOGAMA AND ISLAND LAKES, IN THE DISTRICTS OF THUNDER BAY AND KENORA.

THESSALON, December 1st, 1920.

SIR,—In accordance with your instructions dated February 28th, 1920, I have made a survey of Kashaweogama and Island Lakes, in the Districts of Thunder Bay and Kenora, and beg to submit the following report.

I left home on the 9th March accompanied by one man and was joined by five men, according to arrangement at Sault Ste. Marie that evening. The

following morning I proceeded to Sioux Lookout via Franz and Fort William, and after securing there what was needed to complete my outfit, I proceeded to Bucke, where I arrived about two o'clock on the morning of Sunday, March 14th.

Word had been sent to Mr. A. H. A. Robinson, of the Department of Mines, Ottawa, to meet me in Bucke on Monday, March 15th, and he arrived on that date, his train being some hours late. I secured the services of a couple of local Indians with dog teams, to help move the outfit and supplies to the starting point of the survey, and found their help of great assistance, as even with their help, it was necessary to make two trips with the outfit. We found a very good trail as far as Lake Savant, where we branched off to the west, through a series of small lakes to Kashaweogama Lake. It was Friday afternoon, March 19th, before we were ready to start the actual survey. I had hoped to obtain an observation before starting, but cloudy weather prevented this, so a start was made from an assumed meridian on the morning of Saturday, March 20th. Fortunately, I was able to get an observation on Polaris early on Saturday evening, and corrected my bearings.

From this point on, the survey was carried on with all possible speed, as it was realized that the season was late, and the work had to be rushed in order to get out before the ice became too bad. We were held up occasionally for short intervals by stormy weather, and once just after we started, by a couple of hot days followed by rain, which took all the snow off the ice. The surface of the lake became so slippery that it was almost impossible to stand, and there was from four to six inches of water all over the lake. This, however, did not last long. For the most part, the weather conditions were good for the work, and the temperature continued low, so that the ice was still firm when we finished the survey on the afternoon of April 27th. During the last week we made it a point to be at work by daylight, in order to take advantage of the good walking in the early morning.

We started for the railway early on the morning of April 28th, and the trip out took two days. Considerable difficulty was encountered on account of the snow having nearly disappeared on the portages. Some of these were filled with fallen timber, so that our toboggans and snowshoes suffered severely, so much so that they were nearly all abandoned when we reached the railway. The ice on the lakes was quite firm, but some difficulty was experienced in getting on and off the ice as it was getting bad close to the shore.

The work on the survey was carefully done, all angles being measured with a transit, and the main traverse lines being measured with a Fice chain steel tape. The bearings were checked frequently by astronomical observations. The details of the shore line were measured with stadia rods, these measurements being taken close enough together to show all details of the shore line. At intervals of about a mile, a prominent tree was squared and marked with the letter "B" followed by the number of the tree in Roman numerals. Each island had a tree squared and marked in the same manner, except that trees on the islands were marked "I, No. —" followed by the number of the island in Roman numerals. These trees were all recorded in the notes, the bearings to them from the various transit stations being measured with a transit, and the distances with a steel tape.

The magnetometric survey which was to be carried on in connection with the shore line survey, was attended to by Mr. A. H. A. Robinson, of the Department of Mines, Ottawa, and this work was carefully and accurately done. The cross sections where the magnetic measurements were made, were laid off with a transit

and the distances chained. Soundings were taken where considered necessary, and the taking of these proved to be rather a laborious operation, as the ice in places was forty-two inches thick. As the area over which the magnetic survey was to be made did not extend much more than half way down Kashaweogama Lake, it was not necessary to continue this work any further, and Mr. Robinson left for home on March 31st, his work being done. Before he left I supplied him with a copy of my traverse bearings and distances, and such other information as was necessary for him to make a proper report, and I understand that his report has been filed in your Department some time ago.

There is not much to add to this report, as the timber and the geological features were reported on by Mr. Henry Bell, and by Professor Parsons, respectively, who accompanied me on the survey of the boundary between the Districts of Thunder Bay and Kenora in 1919. I might say in passing, however, that a very large portion of the territory adjacent to these lakes, as well as many of the islands in them, have been overrun by fire within recent years, and the timber destroyed. The result is that the greater portion of the country presents a most desolate appearance. The shores are mostly rocky, and the prevailing rocks are green schists and other rocks of Keewatin age. There is a short stretch of river between Kashaweogama and Island Lakes in which there is a fall of about three or four feet, which is passed by a portage on the north side about six or seven chains long. All of the waters of these lakes goes out via Dog River which leaves the west end of Island Lake.

The notes of the survey have all been plotted on cross section paper, on a scale of ten chains to an inch. Tracings of this plan in two parts, one showing Kashaweogama Lake, and the other showing Island Lake, have already been sent to your Department. These tracings show all the information that was obtained during the progress of the survey.

On account of having to get ready to start for Lake St. Joseph as soon as possible after the completion of the field work of this survey, it was not possible to complete the plans and other returns earlier in the season.

Accompanying this report, are a copy of my diary, time book, together with my pay sheets and accounts in triplicate, and I trust that you will find everything satisfactory.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) JAMES S. DOBIE,

Ontario Land Surveyor.

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

Appendix No. 38.

REPORT OF THE SURVEY OF CERTAIN TOWNSHIP OUTLINES NORTH OF THE CANADIAN PACIFIC RAILWAY, IN THE DISTRICT OF SUDBURY.

SOUTH PORCUPINE, December 1st, 1920.

SIR,—I have the honour, in accordance with your instructions to me dated May 11th, 1920, to submit the following report on the survey of certain township outlines, north of the Canadian Pacific Railway in the District of Sudbury.

On August 19th, my party arrived at the Woman River Station on the C. P. R., and the following morning proceeded down the river an approximate distance of four miles to the point where it intersects the meridian run by O.L.S. Speight in 1909. From this point part of the party proceeded north along this meridian to the twelve mile post, the starting point of the survey; the other members of the party proceeded down the river with supplies to be cached at or near the place where the 1st base line would cross the river.

The survey which commenced on August 26th was conducted throughout in strict accordance with your instructions. The base lines were run as chords of parallels of latitude, passing through the township corners. The east limits and west limits of townships were run north astronomically. Frequent observations were taken on Polaris, the notes of which accompany the other returns. In chaining, a clinometer was used at all times, and horizontal distances deduced from the measured slope. Distances across obstructions were measured by offset or triangulation. Many magnetic observations were taken, and the results thereof are shown in the field notes. The lines were well cut out and blazed, and posts of the specified varieties of wood were planted where required. Iron posts of the standard pattern, shipped by you to Woman River Station, were planted, and the necessary pits, mounds and trenches constructed as called for in your instructions.

Unusually low water in the streams this season made transportation difficult, but this was more than offset by the ideal weather conditions.

SOIL.

The country through which the lines passed is mostly rough and hilly, but in small tracts undulating, and can hardly be classed as agricultural. The soil, except in the swamps and valleys, consists of a few inches of leafy loam and twelve to eighteen inches of sand and clay on bed rock, as a rule. The swamps like all others of Northern Ontario, have varying depths of moss and muskeg.

TIMBER.

Approximately the western half of Dore and Garnet appear to have been burnt over about six years ago, and the ground is now covered with semi-decayed fallen timber, and a new growth of small poplars and birches. The remaining portion of the territory, except in small strips along streams and lakes, apparently had been burnt over about thirty years ago, and is now covered with a thick growth of healthy timber, large areas of which is pulpwood size. A few white and red pines survived the fires and are now thriving, apparently. The varieties of timber are spruce, balsam, white birch, poplar and banksian pine on the high lands, and cedar, small tamarac and black ash on the low lands.

Minerals.

The greater part of the rock throughout the country is granite and greenstone. Many small stringers of quartz were observed, but no large veins. Small stringers of hematite were noted in several places along the line between Heenan and Fenton Townships, but are not likely of any economic importance.

Water Powers.

There are three small water powers on the Ridout River within the limits of the land surveyed, and one larger power, but in a dry season like this the amount of power that could be developed would be almost negligible.

The water in all lakes and streams is clear and pure.

Game.

Large and small fur-bearing animals were numerous. Beaver work was seen in or along nearly all lakes and streams, and there were many indications of timber wolves, fox, lynx, fisher, otter and bear. Moose were very plentiful, and a few indications of red deer were observed. Partridge of different varieties were very plentiful, also. The lakes and streams contain pike, pickerel, trout, and whitefish.

I am submitting with this report a general township plan, a timber plan, field notes, account in triplicate and the required affidavits.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) Chas. V. Gallagher,

Ontario Land Surveyor.

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

Appendix No. 39.

Survey of the North Seventy-eight Miles of West Boundary of Nipigon Forest Reserve and Production Thereof North to Whitewater Lake, District of Thunder Bay.

Port Arthur, Ont., October 12th, 1920.

Sir,—We beg to report that in accordance with your instructions dated May 18th, 1920, we have completed the survey of the meridian forming the west boundary of the Nipigon Forest Reserve, and produced it north to intersect the south shore of Whitewater Lake.

A copy of the map of the Geological Survey of the Department of Mines, Ottawa, is enclosed showing our route coming from Whitewater Lake to the National Transcontinental Railway. A copy of this map and one furnished by

your Department were used by our supply men this summer and they report that they found them substantially correct. As shown on the map there is another route to Whitewater Lake from Outlet Bay on Smoothrock Lake by which it would appear to be easier to get to the end of our line, but was not used by us as we did not move farther north than the south-west bay of Whitewater Lake. Our route strikes the railway at a point about two and one-quarter miles east of Collins Station, the track passing over the last lake on the route, from the end of this lake a portage may be made into Trout Lake, Collins being only a short distance from the west end of this lake. From Gnome Lake, shown on the map to the track, the route appears to be different from that on the map, there are three portages from the track to Gnome Lake which is easily recognized and from this point the route is as shown on the map. There is said to be a route without portages from the south end of Tamarac Lake to the track but we were unable to find it.

The survey was commenced at the iron post planted at the north-west angle of the Black Sturgeon Timber Limit and run north astronomically ninety-four miles, twenty-four chains and twenty-two links to the south shore of Whitewater Lake, crossing the Canadian National Railway at fifty-eight miles, four chains and ninety-eight and four-tenths links. Observations were taken at sufficient intervals to keep the line within the specified limits. The normal magnetic variation was zero degrees. Iron and wooden posts were planted as directed in the instructions in regard to same. In some cases where it was not found possible to dig pits and make mounds on account of rock and boulders, where an iron post was to be planted, and it did not appear that any better conditions would prevail for a considerable distance, the iron post was set in place but the pits and mounds were omitted, such points are shown in the field notes.

The soil for the most part is sandy, a very large proportion of the country being a boulder bottom. In the south fifteen miles spruce swamps are the most prominent feature, there is some clay and clay loam land between these swamps but these areas are not large. Through the last twenty-five miles there is considerable of the rock and swamp typical of this part of the country.

Up to the thirty-fifth mile the country passed through is well timbered, spruce being the principal species, a large proportion of the trees are up to twenty-eight inches in diameter. There is also good jack pine in this section although not as plentiful as the spruce, about eighteen inches in diameter is the limit for this timber. There is a good stand of jack pine about one mile across north and south just north of the Gull River. There is also in this area birch up to sixteen inches, poplar to eighteen inches and balsam to eighteen inches, a few scattered white pine were seen on the seventeenth mile. From the thirty-fifth mile north the timber has for the most part been burnt or else is too small to have any value. There are a few spots shown on the timber plan where there is timber of good size, there are also small isolated areas, principally swamps in the stretches shown as burnt which are green.

The rock formation seen was almost uniformly granite; no minerals were seen.

No water powers of any magnitude were met with, although the supply men state that there is a big fall in the Gull River a few miles west of the line.

Throughout the whole line moose were plentiful and in some parts deer and caribou were seen, the latter notably in the region of Caribou Lake. Fish,

except pike, were not found to be plentiful in any of the lakes or rivers except Clearwater Lake and this appeared to be well stocked with trout.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) PHILLIPS & BENNER,

Ontario Land Surveyors.

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

Appendix No. 40.

739 BROADVIEW AVE., TORONTO, ONT., October 29th, 1920.

SIR,—Acting under instructions received July 17th, 1920, from the Department of Lands, Forests and Mines to accompany the Canadian Aero Film Co. in their flight to James Bay, I kept in touch with the said company to ascertain their date of departure. In due course I was informed that the plane would leave Hamilton, Monday, July 19th, 1920, so I left Toronto on that date in company with Mr. Fred Griffin, arriving at Cochrane on the following evening.

The plane on a trial trip Monday had an accident that was more serious than was first supposed, and so did not reach Lillibelle Lake, which is two miles north of Cochrane, until Wednesday afternoon, August 11th, 1920.

The party consisted of Mr. Irwin Proctor, President of the Canadian Aero Film Co., Capt. Roy Maxwell, pilot, George Doan, mechanic, Jack Hyde, rigger, Roy Tash, cameraman, H. M. Blake, of the Ontario Government Motion Picture Bureau, Fred Griffin, of the *Toronto Star Weekly*, and myself.

The plane used on the expedition was a HS2L Curtiss-built seaplane, having a maximum speed horizontal flight of eighty-five miles per hour and a consumption of gasoline of thirty gallons per hour, full open.

ABITIBI TRIP.

On August 13th a trip was made from Lillibelle Lake north and east of the Abitibi River down towards New Post.

Observations from the plane showed that the country lying for fifty miles east of the Abitibi River almost as far as New Post was dotted with small grassy lakes varying in size from one hundred to two thousand feet in length. Lakes of the same size were also noticed on the west bank, but numbering only about one-third those on the east bank. The lakes were general as far as the eye could see.

The area east of the Abitibi River and extending from the junction of the Frederick House and the Abitibi River north to near New Post was a dense unbroken forest, mostly spruce (eighty per cent.), some tamarac, and very little birch and poplar. About four per cent. of the area was water. No burnt areas were seen.

On the west side of the Abitibi River the forest was more broken being about twenty per cent. bald rock, two per cent. water, fifty per cent. spruce and the rest birch and poplar. This area differs from the east side of the Abitibi River, being dotted with patches of larger spruce of timber size (about fifteen per cent. of the spruce).

Small creeks running into the east bank of the Abitibi down which logs could be driven were fairly numerous.

A number of moose were seen on the shores of the lakes from the plane during the flight.

On account of the narrowness of Lillibelle Lake we missed the tops of the trees by about five feet while taking off for the Abitibi flight. As this had happened with the plane not fully loaded, Capt. Maxwell decided that Lillibelle Lake was too dangerous for a base. A scouting party left the next day on a gasoline jigger west from Cochrane on the Canadian National Railway to find a more suitable spot. Remi Lake, three miles north of Moonbeam Station, was decided on as the best possible place for a base. Our supplies were then shipped to Moonbeam and carted into a clearing on the north shore of Remi Lake where camp was pitched. The plane flew over light, taking one hour and thirty minutes.

Captain Maxwell reported finding a number of burnt areas for the first twenty miles. The next twenty miles he met a series of small lakes running north and south. There were also rock outcroppings with many patches of beaver meadow; the rest of the country passed over being thickly wooded with spruce of pulpwood size. Some eight or ten miles from the railroad along the Ground Hog River fire had swept both banks eating into a depth of two and a half miles on the west bank.

Remi Lake District.

A number of short trips were made to test the machine, get a general idea of the country and take pictures.

The ground was slightly undulating around Remi Lake and thickly wooded with about sixty-five per cent. spruce, the rest being hemlock, balsam, birch, poplar and cedar. The poplar and birch were in patches with long thin lines extending into the spruce areas. On account of the poplar and birch being a light green they were easily distinguished from the spruce which is a very dark green.

Captain Maxwell with his mechanic left on August 17th with the intention of caching some gasoline about half way to James Bay, in order to have sufficient to enable them to return to Remi Lake should the plane meet a storm or strong southerly wind on the trip back.

On the trip down they were unable to find a suitable spot to land so went right through to Moose Factory leaving thirty gallons of gasoline at the Revillion Freres' post there. They returned the following day, leaving the next day to cache thirty gallons of gasoline on a lake about twenty-five miles north of Remi Lake, which they had seen on the previous trip. This was done as a precaution against a forced landing through lack of fuel.

Mattagami-Moose Trip.

On August 27th we left for Moose Factory from Remi Lake. The country passed over just after leaving Remi Lake was very thickly wooded, with a few lakes. The trees were mostly spruce (about sixty-five per cent.) the rest being

tamarac, balsam, poplar, birch and balm of gilead. We travelled in a northerly direction, passing over three lakes on only one of which we could land, until we reached the Kapuskasing River. All this country which we came over and as far as we could see was densely wooded, about sixty-five to seventy-five per cent. of the trees being spruce of pulpwood size with patches of larger spruce of timber size (about fifteen per cent. of the spruce) among them. These could be distinguished as we were travelling at a height of 1,200 feet. The day being hot there was a heat haze which made the horizon quite indistinct and of a brownish colour. About forty miles north of Remi Lake and east of Devil's Rapids there were five lakes. They were too small to land on and take off again with any degree of safety. About fifty miles from Remi we first met muskeg. It was only in small patches, the rest of the country being well wooded. As we proceeded up the Mattagami the country on the east side was well wooded with spruce

Forced landing on Mattagami River.

although patches of poplar and birch, some of them being about two miles long, also showed. On the west bank it was also well wooded but gradually as we proceeded north the patches of muskeg became larger, until about fifteen miles south of the junction of the Missinaibi and Mattagami Rivers where again it became thickly wooded with spruce, tamarac, poplar and birch, and extended north to the junction.

Just previously to crossing O.L.S. Speight's line, which could be seen quite clearly from the air, and lying west of the river were six lakes of considerable size, the largest being about twelve square miles.

About twenty miles south of the junction of the Missinaibi and Mattagami Rivers along the east bank of the Mattagami there was a strip of muskeg about one-half mile wide extending northerly eight or ten miles, which had the appearance of an old river basin. Beyond the muskeg it was well wooded as far as the west bank of the Abitibi River.

Along the Moose River it was fairly well wooded near the banks, but beyond, to the west, there was nothing but muskeg wooded with scrubby spruce and tamarac. At the junction of the Abitibi and the Moose, and between the rivers, it was thickly wooded mostly with spruce, some of good size, tamarac, poplar and birch. It is here that the Hudson Bay Company get the timber that they use in their mill, some of the white spruce being about two feet in diameter (see photograph No. 19). At the mouths and along the Kwataboahegan and French Rivers it was thickly wooded with spruce, tamarac, poplar and birch.

The Mattagami River was very dry and the shoals could be easily seen; for miles the rocks showed up bleached and white, while down the centre of the bed was a small stream of water.

The islands at the mouth of the Moose River were thickly wooded.

One thing noticeable was the absence of streams of any size emptying into the main rivers; nor were there any lakes visible.

There were no burnt areas noticed.

The visibility was rather poor on this trip on account of the heat haze before mentioned, which in the distance gave things a brownish tint.

The difference in elevation between Remi Lake and James Bay was 925 feet. This was checked on the five trips.

The Shores of James Bay.

It was observed on the trips along the shores of James Bay both to the east and to the west that the character of the coast was extremely low and flat. At low tide a mile or more of mud is left bare. Photographs Nos. 36, 37 and 38 show this very plainly. They were taken about half tide.

A muskeg wooded in patches with scrubby spruce, tamarac and alder ran for at least fifty miles back from the shore. There were no large water courses we could follow to enable us to go further inland, neither were there lakes on which we could land in order to examine the country.

On the trip along the shore to Hannah Bay countless wild geese and ducks were seen. They looked very small below us, giving a black and white wave effect, as they flew in towards the swamps. Hannah Bay is a wonderful breeding place for these geese and ducks, and the Indians go there from Moose Factory returning with boat loads full of these birds. They cook and pour lard on them which keeps them until they are needed in the winter time.

The channels leading into James Bay at the mouth of the Moose River are very shallow with numerous bars and shoals. (See photographs 31, 32, 33 and 34.)

The steamer used by the Hudson's Bay Company to carry goods from the Charlton Islands, drawing six to eight feet, cannot cross the bars at the mouth of the Moose River at low tide.

Climate at Moose Factory is generally more moderate than at Remi Lake, not having such extreme temperatures. At Remi Lake, August 22nd, after a hot day we had quite a heavy frost at night, the next day again being hot, while at Moose Factory there had been no signs of a frost, but sudden changes have been known to take place when the wind changed from a southerly to a northerly direction, the temperature dropping as much as forty degrees in half an hour.

On Moose Island, potatoes, cauliflower, beets, carrots, turnips, etc., are grown, as well as hay, oats and wheat. The oats and wheat do not always ripen but

this year, owing to favourable weather conditions, they ripened about September 10th.

Revillon Freres' post on the mainland is built on a muskeg which has been drained. They can grow potatoes, but of a poorer quality than those on Moose Island. They get a good crop of hay. If the moss were burned off and the flats drained it would make good soil for hay and grazing purposes.

The soil on the islands at the mouth of the Moose River is very rich owing to its being of delta formation. These often escape frosts that occur on the mainland. Therefore, the quality and quantity of the produce grown on Moose Island should not be taken as a criterion of the possibilities of the mainland in this neighbourhood.

The rivers were very shallow this year and canoes going up to the railroad had to be poled for miles. The rocks shown in photographs Nos. 6, 21, 22 and 24 in ordinary years are covered by water.

In all five trips were made from Remi Lake to Moose Factory carrying four passengers and baggage as well as one hundred gallons of gasoline to use on the flights along the shores of James Bay. All gasoline that we used on our trips from Moose Factory had to be transported there by the seaplane.

The trip from Remi Lake to James Bay was very trying. The pilot generally had to rest for a few hours after making each flight. It was also dangerous, there were so few places where the plane could land with safety. Had the rivers been anything like their size during the flood season there would have been many suitable landing places.

The weather was exceptionally hot, causing a peculiar state of horizon. A bush fire was raging near New Post and a number of small fires were burning near Remi Lake. For days the smoke hung over the land delaying our departure. At Moose Factory the fog and mist, which came in with the tide, were also another cause of delay. In the middle of a hot calm day it was difficult to gain height and the air was exceedingly bumpy, making travelling very uncomfortable.

I would suggest on any future flights, in order to make extensive journeys through the unexplored regions around James and Hudson Bays, that the trip be planned far enough ahead so that a supply of gasoline could be landed at James Bay by boat or floated down the Albany by scow in the spring. As will be noticed from the description of the plane, thirty gallons of gasoline is consumed per hour, thus a considerable quantity of fuel would have to be cached on James Bay in order to carry on the extensive operations which the country warrants.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) E. T. Ireson,

Ontario Land Surveyor.

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

Appendix No. 41.

QUETICO PROVINCIAL PARK.

Superintendent's Report.

Kawene P.O., November 2nd, 1920.

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

Honourable Sir,—I beg to submit my report for the fiscal year ending October 31st, 1920.

During the season a quantity of fur was taken from the Park, but owing to the unusually early "freeze up" last year we did not get started in time as our traps had not arrived when the canoeing closed, and also many of the rangers were unaccustomed to trapping. However, one hundred bears and a number of smaller furs were taken. Owing to the extremely high wages paid for labour in this district rangers were very hard to get, and many that applied were not competent canoemen.

I am pleased to say we had no fires in the Park this year. The summer season in this district was very wet, the water being higher than for five years before. Owing to the unusually high water two docks and one bridge were washed away, but all have since been rebuilt.

Bass have been found in a small lake south of Quetico Lake. This is the farthest north that bass have been discovered on the Park.

Fur and game are very plentiful, particularly beaver, which are now both in the Park and surrounding district.

Partridge are very plentiful, as I can count while writing this report eleven partridge feeding on the clover at the doorway.

We have had more tourists than ever before, mostly Americans; five hundred and twelve dollars being collected for fishing and guides' licenses.

We will be obliged to build a barge for transportation of horses and supplies on Eva Lake, as the one now in use is worn out and no longer serviceable. Provision will be made for the building of the barge this coming winter.

One of our gasoline engines is out of order and must be sent to a machine shop for needed repairs. One canoe will also be required for next season's work.

I am, Sir,

Your obedient servant,

(Sgd.) Hugh McDonald,
Superintendent Quetico Park.

Appendix No. 42.

ALGONQUIN PROVINCIAL PARK OF ONTARIO.

HONOURABLE SIR,—I beg to hand you my twenty-second report on the Algonquin Provincial Park for the fiscal year ending October 31st, 1920.

Our staff has been composed of twenty-nine rangers and superintendent, housekeeper for rangers' quarters, and caretaker, whose duty it is to keep the grounds in order and the rangers' quarters.

RANGERS' DUTIES.

The duty of our rangers during the trapping season is, of course, to see that no illegal trapping is done within the Park boundaries, and, considering the vast territory to cover, and the many means of entrance to watch, they have succeeded

Headquarters—Algonquin Park.

very well in doing so, although, no doubt, some lawbreakers have escaped. The rangers have made during the year eight arrests, and succeeded in having imposed fines to the amount of $325.00, in addition to $25.00 costs, the latter sum representing the amount paid to bring in the parties. Where no costs were imposed the parties paid their way coming in. In every case their traps, etc., were confiscated, especially in the case of one gang that had everything taken from them, tents, blankets, rifles and provisions, one of the members being an old offender.

In this connection I would recommend that all rangers be made Provincial constables, so that they could follow a man out beyond the Park, and make arrests. Some of them were so made years ago.

During the year when no trapping is going on our men patrol the Park, cutting out portages, repairing shelter houses, and seeing that the Park regulations are carried out generally, particularly with regard to camp fires; and I am glad to report that notwithstanding the hundreds who spend the summer canoeing and camping in the Park, we have had very little trouble along these lines. We find

the public generally much more alive to the importance of care in this matter than they were years ago. I consider the posters, put up each year by the fire rangers, have had a good deal to do with this.

Fires.

We had some rather bad fires along the Canadian Northern Railway, but they did not do a great deal of damage in the Park. On the south side we have been very fortunate, as the fires that started along the railway were caught in time and no damage done. The fire tank has been stationed here all summer with two men in charge, constantly in readiness to go out on the first train to any fire started along the railway. This, with the telephone service, has very much minimized the damage along the railway from fires started by locomotives, which were our greatest menace.

Game.

Game of all kinds is increasing all over the Park, especially the beaver, the annual increase of which must run up into thousands. Otter, mink, martin and fisher are also abundant, while the deer are greatly in evidence everywhere. Wolves are still numerous in the Park and take a large toll of deer. The rangers are doing their utmost to destroy them, and a number are killed every year. The past winter was an unusually good one for the deer and partridge, and I never saw them come through in better condition.

Live Beaver.

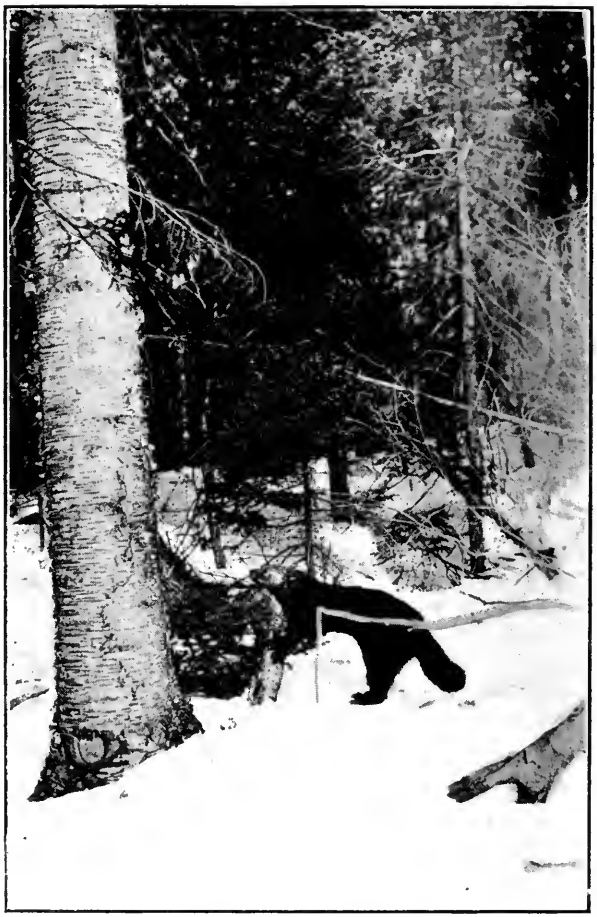
Regarding the taking of live beaver for shipment from the Park, last year an order was taken for something over one hundred for points in the United States. Of these fifty were shipped, but owing to the embargo placed upon shipments by the United States we discontinued taking them. We were at a considerable loss after having made preparations to take the full number which we would have had shipped in time if the express people had taken them; as it was, we had to keep the fifty over for some time, and it took the time of a man to attend to them and carry food from the bush to feed them. The price obtained was less than the skins were worth, while the work of taking them alive is ten times greater than taking the pelts, when you have to hold them over any time.

I would therefore recommend that the price of live beaver, if you should decide to take them, be put at $150.00 a pair. The dealers we have at times supplied in the States charge $100.00 per animal, and we have been supplying them at $30.00 each. It was through no fault of ours that all orders were not filled last year

I would respectfully recommend that all live animals sold from Algonquin Provincial Park, if possible, be disposed of in Canada. There is so much red tape in connection with shipments to the United States, that in getting back our empty crates it is hardly worth the bother it gives. For instance, I have only just got last summer's empty crates released by customs here, after at least a dozen letters and paying entry fees. I have no doubt, now that the war is over, many people in Canada will turn their attention to breeding fur-bearing animals, and a market could be found for all the Government wish to take out. The price, however, should be at least four times the value of the pelts, as they represent at least that much additional cost. A large quantity of fur has been taken out and sold in Toronto, bringing the nice sum of $14,179.00.

Tourists.

From a tourist standpoint this has been the most successful year since the outbreak of the war, and we were glad to see many of our young men back who had been overseas. Many came here to build up again, and the amount of benefit received was certainly a tribute to health giving qualities of our great Provincial health resort. The fishing was good, and some very fine specimens were taken both of speckled and salmon trout, and small-mouthed bass. People are beginning



A fisher, snapped in the park.

to realize the value of this vast reserve and health giving region and are taking a deeper interest in all that pertains to its improvement and protection. We sold this year fishing licenses to the amount of $1,821.00, and guides' licenses to the amount of $54.00. Guides pay a license of $1.00 each, so that we had 54 licensed guides working in the Park during the past year. These are paid by the different tourist parties coming in at the rate of $4.00 per day and canoe found, and $4.50 if the guides furnish their own canoe. This represents over $5,000 a month paid to men of the Province, principally by citizens of the United States in this one section alone, and gives a very faint idea of what the tourist

trade means to the Province of Ontario. We have collected in rents $810.00 which does not include the rents paid by the Grand Trunk Railway and others direct to Toronto. A number of new leases have been granted.

I would recommend a survey being made of Rock Lake such as was made of Cache Lake, and $10.00 being charged each applicant for lease in addition to the rental to cover survey. This work could be done now to advantage, as it could all be done on the ice with the help of our rangers, and the parties could stop at our shelter houses. This lake is pretty well crowded now, and Rock Lake is being taken up fast. It is very difficult to give a description of the parcels asked for without a survey.

School Camps.

We have a number of school camps in the Park which represent some fifty people, mostly boys. On Cache Lake we have The Large Girls' Camp under

Algonquin Park Inn, Railway Station, Pavilion.

the management of Miss F. L. Case, of Rochester, N.Y. At this camp we have some seventy-five persons including help and instructors. These camps are a great boon to the young people who attend them, and they go home from the holiday built up mentally and physically, and it begets in them a love of the out-doors that makes them infinitely better citizens wherever they may locate.

Cordwood.

The 541 cords of wood left over from last year, of the wood taken out at headquarters by our rangers and some help, has been shipped to different points. The shipping of that taken out by jobbers still drags on and will not be finished until well on in 1921.

Hotels.

The hotels in the Park have been crowded to their full capacity and many applicants had to be refused while a great many people tented out all over the Park. The Highland Inn will be open all winter, and is pretty well booked up.

The Grand Trunk are putting in an electric plant here which will be a great improvement, and it might be more economical for the Government to secure light from them instead of using gas, as now.

A survey of the eastern boundary was made, and I would recommend one being made of the western boundary, as there are hunting camps right up to the line in many places, and it is very poorly defined. I have iron Park notices for the boundary when surveyed that will make it impossible for any one to trespass unknowingly.

Yours very truly,

G. W. Bartlett,

Park Superintendent.

Honourable Beniah Bowman, Minister of Lands and Forests,
Toronto, Ontario.

Appendix No. 43.

Honourable Beniah Bowman,

Minister of Lands and Forests, Ontario.

Sir,—I have the honour to submit my report of the work performed by the Colonization Roads Branch of the Department of Lands and Forests, for the fiscal year ending October 31st, 1920.

Following the system I adopted last year, I am presenting the report in tabulated form. By the use of this method, the details can be given in a more concise form than in any other. On the final page is shown a summary of the total amounts of the various classes of work performed.

The total expenditure for the year was $451,808.59. Of this amount $265,993.05 was expended directly by the Government upon roads, bridges, and special road drainage, in some three hundred and twenty-five different townships. The amount expended upon inspection and miscellaneous services was $23,263.29, the balance, a sum of $162,552.25, was distributed as grants to one hundred and forty-six municipalities which had expended sums totalling double this amount under Colonization Roads By-laws.

With reference to future expenditures on Colonization Roads, I would recommend that the only roads upon which the Government should consider making the entire expenditure, without local assistance, would be leading, main, market, or trunk roads, or roads connecting up isolated settlements. On any other roads, the total expense should not be borne by the Government alone, but the work should be undertaken by local governing bodies, such as municipal councils, where townships are organized under the Municipal Act, or township road commissioners, where the townships are organized under the Statute Labour Act. In these cases, the expenditures should be supplemented by Government grants to be expended by such local bodies under the supervision of an Inspector or Engineer of the Department.

Some such system as this, I think, would tend to increase local interest in road construction and maintenance, and cultivate a more self-reliant and independent spirit in the various localities where expenditures are being made by this branch, by placing the responsibility for the efficient carrying on of much of the roadwork on the local officers of the different townships.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Superintendent Colonization Roads.

Toronto, Ontario, October 30th, 1920.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	Aberdeen Township roads	.....	....	.....	....	.....	.....	....	.....
2	Aberdeen, additional Beaver Hill road.	120	60	100	18	.....	.....	....	.....
3	Addington road	.....	....	220	24	gravel	280	5	440
4	Admaston Township roads	.....	....	.....	....	.....	.....	....	.....
5	Airy Township roads	.....	....	.....	....	.....	.....	....	.....
6	Albemarle Township roads	.....	....	.....	....	.....	.....	....	.....
7	Alice and Fraser Township roads	240	60	160	24	gravel	55	6	.....
8	Allan Township roads	.....	....	.....	....	.....	.....	....	.....
9	Allan Township drainage	.....	....	.....	....	.....	.....	....	110
10	Anson and Hindon Township roads	.....	....	.....	....	.....	.....	....	.....
11	Anstruther Township roads	.....	....	.....	....	.....	.....	....	.....
12	Appleby and Dunnett Township road.	182	18	182	14	gravel	8	6	.....
13	Armour and Ryerson Township road.	400	40	480	16	.....	.....	....	.....
14	Armstrong Township roads	.....	....	.....	....	.....	.....	....	.....
15	Assiginack Township roads	.....	....	.....	....	.....	.....	....	.....
16	Aubrey Township roads	.....	....	.....	....	.....	.....	....	.....
17	Badgerow Township roads	.....	....	.....	....	.....	.....	....	.....
18	Badgerow, Gibbons and Field Twp. rds.	.....	....	.....	....	.....	.....	....	505
19	Bagot and Blithfield Township roads.	180	35	180	15	gravel	150	10	.....
20	Baldwin Township roads	240	40	440	14	.....	.....	....	.....
21	Baldwin Township drainage	.....	....	.....	....	.....	.....	....	100
22	Balfour Township roads	.....	....	.....	....	.....	.....	....	.....
23	Bangor Wicklow and McClure Tp. Rds.	40	40	40	14	.....	.....	....	.....
24	Barber Township road	200	20	200	26	.....	.....	....	418
25	Barrie Township road	.....	....	.....	....	.....	.....	....	.....
26	Barrie Island roads	.....	....	.....	....	.....	.....	....	.....
27	Barrie Island drainage	.....	....	.....	....	.....	.....	....	200
28	Belmont and Methuen Township roads.	299	40	320	12	gravel	24	8	.....
29	Bethune Township roads	280	14	280	12	.....	.....	....	.....
30	Bexley Township roads	.....	....	.....	....	.....	.....	....	.....
31	Bigwood Township roads	350	14	400	14	gravel	50	6	.....
32	Bigwood, Kirkpatrick drainage	.....	....	.....	....	.....	.....	....	510
33	Billings Township road	80	40	80	32	.....	.....	....	.....
34	Blezard Township roads	.....	....	.....	....	.....	.....	....	160
35	Bonfield Township roads	100	50	100	16	.....	.....	....	.....
36	Boulter Township roads	160	40	160	15	.....	.....	....	.....
37	Bracebridge-Baysville road	100	50	100	35	gravel	100	10	403
38	Brethour Township roads	1,445	40	495	24	clay	15	8	210
39	Brethour and Casey townline	.....	....	.....	....	.....	.....	....	.....
40	Brethour and Pense townline	.....	....	.....	....	.....	.....	....	.....
41	Bright Township roads	.....	....	.....	....	.....	.....	....	.....
42	Broder Township roads	199	35	100	25	.....	.....	....	345
43	Bromley Township roads	.....	....	.....	....	.....	.....	....	.....
44	Brougham Township road	.....	....	.....	....	.....	.....	....	.....
45	Brudenell and Lyndoch Township Rds.	.....	....	.....	....	.....	.....	....	320
46	Bucke Township roads	290	30	395	22	gravel	50	6	335
47	Burpee Township roads	.....	....	.....	....	.....	.....	....	35
48	Burpee Township, drainage	.....	....	.....	....	.....	.....	....	170
49	Burleigh Township road	.....	....	.....	....	.....	.....	....	.....
50	Calvin Township roads	.....	....	.....	....	.....	.....	....	.....
51	Cameron Township roads	280	40	80	16	.....	.....	....	.....

COLONIZATION ROADS BRANCH.

MENT. 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	1	wood	earth	40	.....	..	760	20	gravel	605	5	3.00	1,303 24	1
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.38	318 42	2
...	...	.....	6	cedar	earth	150	280	15	35	24	gravel	960	6	4.00	4,900 00	3
...	...	.....	4	metal	.....	.....	20	30	288	16	gravel	751	6	3.00	541 48	4
...	...	.....	10	wood	.....	.....	.....	..	400	16	gravel	60	8	1.50	975 00	5
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	180	5	.57	500 00	6
...	...	.....	6	metal	clay	60	.....	..	165	18	gravel	270	7	1.75	1,347 00	7
...	...	.....	2	rock	earth	450	.....	..	320	22	gravel	175	5	1.75	700 87	8
...	...	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.34	200 00	9
...	...	.....	7	wood	stone	200	60	10	860	18	gravel	127	6	5.00	600 60	10
...	...	.....	2	cedar	stone	39	.....	..	82	15	gravel	63	7	.50	300 00	11
...	...	.....	6	wood	.....	.....	.....	..	.....	..	.....	.....	..	.60	997 92	12
1	16	cedar	2	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.50	375 00	13
...	...	.....	...	.....	clay	2,951	.....	..	400	18	gravel	640	8	4.00	3,306 01	14
...	...	.....	1	wood	.....	.....	.....	..	100	24	gravel	1,040	6	4.00	1,273 04	15
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	240	7	.75	386 63	16
...	...	.....	10	wood	.....	.....	.....	..	3,200	12	gravel	221	6	11.00	1,699 18	17
1	re	paired	6	cedar	.....	.....	.....	..	650	18	gravel	300	6	3.00	965 50	18
...	...	.....	1	cedar	.....	.....	300	30	640	14	gravel	805	6	.25	898 90	19
...	...	.....	4	wood	earth	240	.....	..	.....	..	gravel	35	7	1.50	729 84	20
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.31	175 00	21
...	...	.....	...	.....	.....	.....	80	18	80	18	gravel	80	18	.25	175 00	22
...	...	.....	8	cedar	rock	100	.....	..	560	14	gravel	260	7	2.50	1,211 21	23
...	...	.....	9	wood	clay	75	.....	..	.....	..	.....	.....	..	.62	599 22	24
...	...	.....	...	.....	stone	60	.....	..	140	14	gravel	140	8	.43	402 90	25
...	...	.....	5	wood	earth	125	80	20	360	24	gravel	349	5	1.50	1,189 65	26
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.62	149 75	27
1	22	plank	2	wood	stone	90	.....	..	.....	..	clay	40	7	1.25	299 90	28
...	...	.....	11	ce lar	.....	.....	.....	..	201	15	gravel	201	6	1.50	650 00	29
...	...	.....	4	metal	stone	105	20	10	668	22	gravel	280	6	2.75	814 30	30
1	12	wood	7	wood	.....	.....	.....	..	400	14	.....	.....	..	2.50	1,400 00	31
...	...	.....	...	.....	earth	100	.....	..	.....	..	.....	.....	..	1.75	450 00	32
...	...	.....	3	rock	stone	20	.....	..	280	24	gravel	600	7	3.00	1,276 02	33
...	...	.....	...	.....	stone	25	.....	..	1,220	15	.....	.....	..	4.00	716 50	34
...	...	.....	7	wood	.....	.....	.....	..	765	16	gravel	165	8	3.00	1,500 71	35
...	...	.....	1	wood	.....	.....	.....	..	30	16	gravel	20	8	.75	451 09	36
...	...	.....	6	wood	stone	95	.....	..	350	24	gravel	350	10	1.75	4,989 62	37
...	...	.....	1	wood	clay	66	.....	..	.....	..	gravel	140	7	5.25	2,058 92	38
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	219	7	.69	400 00	39
...	...	.....	...	.....	clay	370	.....	..	160	20	.....	.....	..	.50	250 00	40
...	...	.....	...	.....	.....	.....	80	18	.....	..	gravel	392	5	1.25	600 78	41
...	...	.....	13	cedar	gravel	445	.....	..	2,900	18	gravel	90	8	10.00	1,981 93	42
...	...	.....	...	.....	.....	.....	.....	..	30	35	gravel	223	8	.75	800 00	43
...	...	.....	2	cedar	.....	.....	.....	..	320	14	gravel	200	7	1.00	506 75	44
...	...	.....	13	cedar	.....	.....	.....	..	1,420	14	gravel	490	8	4.50	1,102 25	45
1	20	log	5	ce lar	clay	740	.....	..	640	22	gravel	441	7	4.75	2,844 55	46
...	...	.....	6	wood	stone	419	30	12	320	22	gravel	460	5	2.25	1,561 25	47
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.54	300 00	48
...	...	.....	...	.....	.....	.....	.....	..	.....	..	C. stone	70	7	.22	300 00	49
...	...	.....	4	wood	.....	.....	.....	..	85	16	gravel	145	8	.75	575 75	50
...	...	.....	7	wood	.....	.....	.....	..	100	16	.....	.....	..	1.10	805 05	51

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
52	Campbell Township roads	.....	....	.....	....	.....	.....	....	20
53	Campbell Township drainage	.....	....	.....	....	.....	.....	....	70
54	Cane Township roads	16	35	236	26	gravel	137	7	114
55	Capreol Township roads	680	40	160	15	.....	.....	....	160
56	Carden Township roads	.....	....	18	16	gravel	37	6	.....
57	Carden, Laxton Victoria road	.....	....	.....	....	.....	.....	....	.....
58	Carden-Bexley Victoria road	.....	....	.....	....	.....	.....	....	.....
59	Cardwell Township roads	400	50	400	20	earth	400	16	.....
60	Carling Township roads	240	40	160	30	.....	.....	....	100
61	Carlow Township roads	.....	....	.....	....	.....	.....	....	.....
62	Carnarvon Township roads	.....	....	.....	....	.....	.....	....	.....
63	Cartier Township roads	240	12	.....	....	.....	.....	....	240
64	Casey Township roads	545	12	538	12	.....	.....	....	590
65	Casimir Township road	6	14	14	12	.....	.....	....	14
66	Cavendish Township roads	.....	....	.....	....	.....	.....	....	12
67	Chaffey Township road	40	40	40	30	.....	.....	....	.....
68	Chandos Township roads	.....	....	.....	....	.....	.....	....	.....
69	Chandos Township drainage	.....	....	.....	....	.....	.....	....	170
70	Chapleau Township roads	.....	....	222	40	metal	150	30	206
71	Chapman and Croft Township road	.....	....	.....	....	.....	.....	....	.....
72	Chapman and Lount road	16	8	16	8	gravel	16	8	.....
73	Chisholm Township roads	.....	....	200	16	.....	.....	....	.....
74	Christie Township roads	94	40	34	16	.....	.....	....	20
75	Clarendon Township roads	325	40	325	12	.....	.....	....	.....
76	Clarendon and Lavant road	.....	....	287	16	.....	.....	....	420
77	Clarendon and Miller road	.....	....	.....	....	.....	.....	....	.....
78	Cockburn Island roads	175	40	160	30	.....	.....	....	.....
79	Coleman Township road	.....	....	.....	....	.....	.....	....	40
80	Cosby, Martland, etc., boundary	.....	....	600	14	gravel	1,200	6	.....
81	Creighton Township road	.....	....	.....	....	.....	.....	....	360
82	Crearer Township roads	1,150	36	1,200	20	gravel	280	6	.....
83	Croft Township road	.....	....	80	12	gravel	60	6	.....
84	Dalton Township roads	.....	....	.....	....	.....	.....	....	.....
85	Dalton and Rama boundary	.....	....	.....	....	.....	.....	....	.....
86	Darling Township road	.....	....	.....	....	gravel	70	10	.....
87	Dawson Township roads	200	44	110	24	.....	.....	....	20
88	Denbigh Township road	.....	....	.....	....	.....	.....	....	.....
89	Denison Township road	960	14	.....	....	.....	.....	....	.....
90	Dowling Township roads	40	20	.....	....	.....	.....	....	30
91	Dryden Township roads	.....	....	.....	....	.....	.....	....	135
92	Dummer Township roads	.....	....	.....	....	.....	.....	....	.....
93	Dungannon Township roads	50	40	50	20	gravel	50	7	20
94	Dunnet Township roads	.....	....	.....	....	.....	.....	....	.....
95	Dymond Township roads	180	20	280	20	gravel	240	7	220
96	Eastnor Township road	50	66	50	66	.....	.....	....	50
97	Elzevir Township road	.....	....	.....	....	.....	.....	....	.....
98	Elzevir Township drainage	.....	....	.....	....	.....	.....	....	50
99	Ennismore Township roads	.....	....	.....	....	.....	.....	....	.....
100	Faraday Township roads	.....	....	.....	....	.....	.....	....	.....
101	Fenwick Township roads	150	33	176	20	gravel	12	6	.....
102	Feronia to Widdifield road	240	66	320	26	.....	.....	....	.....

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	8	wood	stone	215	350	14	1,980	24	gravel	1,592	6	9.50	2,953 62	52
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.22	100 00	53
...	...	.....	2	wood	clay	77	250	16	1,280	24	gravel	827	7	6.85	3,294 29	54
...	...	.....	5	wood	stone	35	320	15	480	15	gravel	165	6	3.50	802 62	55
...	...	.....	...	.....	.....	.....	40	12	288	14	gravel	322	6	1·50	802 03	56
...	...	.....	1	wood	stone	68	320	10	210	24	gravel	220	5	2.00	500 00	57
...	...	.....	...	.....	stone	30	.....	..	490	18	gravel	256	6	1.60	501 00	58
...	...	.....	8	wood	earth	40	100	40	100	18	gravel	40	10	1.57	981 80	59
...	...	.....	...	.....	.....	.....	.....	..	80	12	.....	.....	..	1.00	601 10	60
...	...	.....	...	.....	.....	.....	80	20	240	14	.....	.....	..	1.00	198 73	61
...	...	.....	4	metal	earth	1,290	180	24	495	18	gravel	523	6	2.40	1,732 33	62
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	960	8	3.75	203 70	63
...	...	.....	4	wood	.....	.....	.....	..	260	18	gravel	440	7	4.50	3,171 30	64
1	10	wood	...	.....	stone	5	.....	..	.....	..	.....	.....	..	.25	175 00	65
1	25	cedar	5	cedar	.....	.....	516	12	310	15	stone	145	8	2.00	352 29	66
...	...	.....	2	cedar	stone	30	.....	..	300	18	gravel	200	10	1.00	499 89	67
...	...	.....	2	cedar	stone	60	320	24	175	15	gravel	350	8	2.25	569 50	68
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.53	450 00	69
...	...	.....	3	wood	sand	345	.....	..	.....	..	.....	.....	..	.75	1,000 00	70
...	...	.....	...	.....	.....	.....	.....	..	25	16	gravel	200	7	.70	359 22	71
...	...	.....	4	cedar	earth	145	.....	..	180	8	gravel	180	8	.62	400 00	72
1	10	wood	8	wood	.....	.....	40	40	535	16	gravel	195	8	2.00	1,997 11	73
...	...	.....	13	wood	.....	.....	176	20	80	16	gravel	704	6	2.75	988 39	74
...	...	.....	9	ce lar	earth	45	15	10	40	12	gravel	133	8	1.50	601 50	75
...	...	.....	...	.....	stone	60	.....	..	210	16	.....	.....	..	1.60	800 00	76
...	...	.....	...	.....	stone	112	96	15	104	12	gravel	268	8	1.25	399 90	77
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	50	5	.73	399 82	78
...	...	.....	3	wood	earth	946	.....	..	.....	..	gravel	240	8	1.00	1,000 00	79
1	12	cedar	11	cedar	.....	.....	.....	..	637	18	gravel	455	6	6.00	1,989 56	80
...	...	.....	9	ceda:	clay	760	60	30	100	30	clay	125	16	.50	300 00	81
1	10	cedar	6	ce lar	.....	.....	.....	..	.....	..	.....	.....	..	4.25	1,171 85	82
...	...	.....	2	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.25	300 00	83
...	...	.....	...	.....	stone	15	240	16	1,291	16	gravel	269	6	5.00	593 20	84
...	...	.....	...	.....	stone	4	.....	..	600	24	C. stone	186	6	2.00	400 00	85
...	...	.....	3	cedar	.....	.....	100	10	128	12	gravel	395	8	2.00	799 78	86
...	...	.....	4	wood	stone	45	200	14	30	20	.....	.....	..	1.25	502 19	87
...	...	.....	10	cedar	.....	.....	80	15	240	14	gravel	269	8	1.00	416 25	88
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	3.00	130 00	89
...	...	.....	4	wood	.....	.....	400	15	240	28	clay	50	14	2.00	512 15	90
...	...	.....	2	cedar	.....	.....	.....	..	270	12	.....	.....	..	.85	299 87	91
...	...	.....	...	.....	.....	.....	.....	..	.....	..	C. stone	201	6	.63	275 00	92
...	...	.....	6	cedar	stone	350	20	20	460	16	gravel	80	7	2.00	1,403 22	93
...	...	.....	3	cedar	.....	.....	.....	..	190	12	gravel	190	6	.60	500 00	94
...	...	.....	2	wood	earth	985	20	8	960	20	gravel	1,134	7	5.00	5,558 37	95
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.16	500 00	96
...	...	.....	...	.....	.....	.....	.....	..	160	16	gravel	160	7	.50	201 20	97
...	...	.....	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.16	200 00	98
...	...	.....	...	.....	.....	.....	.....	..	100	16	gravel	392	7	1.25	503 00	99
1	14	cedar	5	cedar	.....	.....	100	20	560	16	gravel	560	7	1.75	1,199 52	100
...	...	.....	3	cedar	sand	30	320	30	94	24	gravel	200	6	4.50	3,100 00	101
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.50	508 69	102

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
103	Ferris, Astorville to Callander	.....	....	.....	....	.....	.....	....	.....
104	Ferris Township roads	.....	....	.....	....	.....	.....	....	15
105	Field and Bastedo Township roads..	.....	....	.....	....	.....	.....	....	.....
106	Firstbrook Township roads	.....	....	.....	....	.....	.....	....	.....
107	Foley Township roads	.....	....	.....	....	.....	.....	....	.....
108	Freeman Township road	640	60	640	20	cinders	640	10	.....
109	Frontenac Trunk road, drainage	.....	....	.....	....	.....	.....	....	400
110	Galbraith Township roads	100	40	100	20	earth	40	6	.....
111	Galbraith and Aberdeen road	.....	....	.....	....	.....	.....	....	.....
112	Galbraith Township roads	.....	....	.....	....	.....	.....	....	.....
113	Garson Township road	.....	....	.....	....	.....	.....	....	50
114	Gibbons and Crerar road	.....	....	.....	....	.....	.....	....	.....
115	Gladstone Township road	.....	....	.....	....	.....	.....	....	.....
116	Gladstone and Parkinson road	.....	....	.....	....	.....	.....	....	.....
117	Glamorgan Township roads	.....	....	.....	....	.....	.....	....	120
118	Glamorgan and Monmouth road	.....	....	.....	....	.....	.....	....	.....
119	Gordon Township roads	.....	....	.....	....	.....	.....	....	.....
120	Gordon Township drainage	.....	....	.....	....	.....	.....	....	1,020
121	Gould Township road	160	24	120	16	.....	.....	....	.....
122	Grattan Township roads	.....	....	.....	....	.....	.....	....	26
123	Griffith and Matawatchan Twp. roads.	.....	....	.....	....	.....	.....	....	19
124	Gurd Township roads	.....	....	.....	....	.....	.....	....	.....
125	Hagar Township roads	580	30	520	18	.....	.....	....	960
126	Hagar and Loughrin Boundary road.	90	60	90	9	.....	.....	....	.....
127	Hagar, St. Charles road	.....	....	.....	....	.....	.....	....	50
128	Hagarty Township roads	75	66	75	20	.....	.....	....	.....
129	Hallam Township roads	80	40	80	40	gravel	80	6	.....
130	Hagerman Township roads	.....	....	.....	....	.....	.....	....	.....
131	Harley Township roads	.....	....	320	24	.....	.....	....	460
132	Harley and Dymond townline	.....	....	.....	....	.....	.....	....	.....
133	Harley and Dymond townline	320	30	240	24	earth	320	8	.....
134	Harley and Casey townline	.....	....	.....	....	.....	.....	....	.....
135	Harley and Kerns townline	.....	....	.....	....	.....	.....	....	.....
136	Harris Township roads	.....	....	.....	....	.....	.....	....	30
137	Harris and Casey townline	.....	....	.....	....	.....	.....	....	143
138	Harris and Dymond boundary	.....	....	.....	....	.....	.....	....	100
139	Harrow and May townline	.....	....	.....	....	.....	.....	....	.....
140	Hanmer Township roads	.....	....	.....	....	.....	.....	....	.....
141	Harvey Township roads	.....	....	.....	....	.....	.....	....	.....
142	Head, Clara and Maria Twp. road....	.....	....	.....	....	.....	.....	....	.....
143	Henwood Township roads	30	30	260	22	.....	.....	....	196
144	Hilliard Township roads	140	42	320	28	clay	30	7	325
145	Hilliard and Armstrong Boundary ..	.....	....	.....	....	.....	.....	....	.....
146	Hilliard and Ingram Boundary	.....	....	.....	....	.....	.....	....	112
147	Himsworth North Township roads ..	160	30	320	14	gravel	240	7	38
148	Himsworth North Nipissing road	40	30	180	14	.....	.....	....	50
149	Himsworth South Township roads...	160	30	80	14	.....	.....	....	38
150	Hinchinbrooke Township road	.....	....	.....	....	.....	.....	....	7
151	Horton Township roads	.....	....	.....	....	.....	.....	....	.....
152	Howe Island roads	.....	....	.....	....	.....	.....	....	115
153	Howland Township road	.....	....	.....	....	.....	.....	....	.....

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE										
							Side-Brushed		Graded and Shaped		SURFACED						
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	MILEAGE	EXPENDITURE		NUMBER
															$	c.	
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	240	7	.75	436	25	103
...	...	.....	8	wood	stone	300	320	10	710	16	gravel	228	7	4.00	1,585	25	104
...	...	.....	4	cedar	.....	.....	.....	..	200	16	.....	.....	..	.65	199	10	105
1	30	timb'r	6	wood	gravel	90	.....	..	.....	..	gravel	375	7	2.10	2,001	79	106
...	...	.....	...	.....	stone	12	.....	..	480	12	gravel	497	7	1.60	912	00	107
...	...	.....	6	stone	.....	.....	.....	..	.....	..	.....	.....	..	2.00	1,395	50	108
...	...	.....	1	stone	earth	65	95	20	248	14	gravel	300	7	1.50	3,000	00	109
...	...	.....	3	wood	stone	1,160	80	16	110	20	gravel	430	5	2.00	1,809	24	110
...	...	.....	...	.....	.....	.....	160	16	320	20	gravel	175	5	1.00	400	67	111
...	...	.....	2	cedar	.....	.....	150	30	320	15	gravel	192	7	1.25	450	50	112
...	...	.....	2	wood	.....	.....	.....	..	.....	..	gravel	320	8	1.00	202	11	113
...	...	.....	6	plank	.....	.....	.....	..	1,000	18	gravel	200	6	3.25	673	99	114
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	240	5	.75	346	62	115
...	...	.....	3	wood	earth	100	.....	..	1,280	22	gravel	600	6	4.00	1,301	75	116
...	...	.....	13	wood	.....	.....	365	8	536	16	gravel	110	7	2.00	600	00	117
1	125	log	...	.....	.....	.....	160	10	.....	..	earth	120	8	.50	400	00	118
...	...	.....	6	metal	stone	50	.....	..	125	24	gravel	631	6	2.50	1,376	00	119
...	...	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	3.20	740	00	120
...	...	.....	...	.....	earth	250	.....	..	.....	..	.....	.....	..	.50	400	00	121
...	...	.....	5	cedar	stone	321	260	40	920	12	gravel	185	..	3.25	805	48	122
...	...	.....	28	cedar	.....	.....	395	30	1,484	18	.....	.....	..	5.00	1,223	75	123
...	...	.....	4	cedar	.....	.....	15	20	240	14	earth	240	6	.75	301	85	124
...	...	.....	3	cedar	.....	.....	.....	..	500	16	.....	.....	..	4.00	1,104	59	125
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.28	148	35	126
...	...	.....	3	wood	rock	30	.....	..	104	12	.....	.....	..	.33	400	00	127
...	...	.....	4	wood	gravel	600	.....	..	520	18	gravel	670	7	3.00	1,124	00	128
...	...	.....	5	wood	earth	1,803	70	10	1,280	16	gravel	340	6	5.00	2,476	50	129
...	...	.....	7	cedar	.....	.....	.....	..	200	12	gravel	150	7	.75	300	00	130
...	...	.....	1	wood	clay	4,214	.....	..	570	16	gravel	398	7	5.00	2,675	68	131
...	...	.....	...	.....	gravel	110	.....	..	320	26	gravel	140	7	1.00	700	00	132
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.00	400	00	133
...	...	.....	...	.....	.....	.....	.....	..	170	26	.....	.....	..	.53	400	00	134
...	...	.....	...	.....	.....	.....	.....	..	320	26	.....	.....	..	1.00	400	00	135
...	...	.....	4	cedar	clay	1,297	.....	..	680	24	gravel	803	8	3.50	3,095	82	136
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	30	7	.50	350	00	137
...	...	.....	1	wood	.....	.....	.....	..	110	26	gravel	320	7	1.00	849	80	138
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	90	6	.28	300	50	139
...	...	.....	3	wood	.....	.....	.....	..	900	24	.....	.....	..	3.00	500	00	140
...	...	.....	...	.....	.....	.....	780	10	203	18	gravel	327	7	2.25	606	50	141
...	...	.....	...	.....	.....	.....	.....	..	280	16	.....	.....	..	.88	399	14	142
3	16	wood	5	wood	clay	385	25	40	1,998	24	gravel	130	7	7.50	2,963	36	143
...	...	.....	6	wood	.....	.....	.....	..	750	24	gravel	177	7	4.00	2,410	53	144
...	...	.....	1	wood	.....	.....	.....	..	.....	..	gravel	280	7	.88	605	03	145
...	...	.....	...	.....	.....	.....	112	12	.....	..	gravel	100	7	.63	697	07	146
...	...	.....	11	cedar	earth	60	640	14	240	14	gravel	320	6	3.25	703	88	147
...	...	.....	8	cedar	.....	.....	320	14	160	14	gravel	320	7	1.00	300	00	148
...	...	.....	4	cedar	.....	.....	480	14	80	14	gravel	160	6	2.00	553	55	149
...	...	.....	1	stone	.....	.....	20	20	.....	..	gravel	180	8	.55	300	00	150
...	...	.....	...	.....	.....	.....	.....	..	300	16	gravel	200	8	1.00	275	00	151
...	...	.....	...	.....	earth	80	.....	..	.....	..	C. stone	235	8	.75	475	00	152
...	...	.....	...	.....	stone	200	.....	..	30	7	gravel	30	7	.13	401	85	153

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
154	Howland and Bidwell Township road.	.....	....	.....	....	.....	.....	....	.....
155	Hudson Township roads	.....	....	.....	....	.....	.....	....	.....
156	Hudson and Dymond townline	.....	....	.....	....	.....	.....	....	.....
157	Hugel and Kirkpatrick Twp. roads ..	150	18	350	14	.....	.....	....	519
158	Humphrey Township roads	.....	....	.....	....	.....	.....	....	.....
159	Hungerford Township roads	.....	....	.....	....	.....	.....	....	.....
160	Huntingdon Township roads	.....	....	.....	....	.....	.....	....	.....
161	Jocelyn Township road	.....	....	.....	....	.....	.....	....	.....
162	Johnson Township roads	160	24	122	22	.....	.....	....	10
163	Joly Township road	32	48	34	20	sand	32	10	7
164	Kaladar Township, Addington road..	.....	....	.....	....	.....	.....	....	.....
165	Kennebec Township roads	.....	....	.....	....	.....	.....	....	.....
166	Kennebec and Barrie Township roads.	.....	....	.....	....	.....	.....	....	60
167	Kirkpatrick Township road	.....	....	.....	....	.....	.....	....	25
168	Kerns Township road	300	22	300	22	gravel	60	7	.....
169	Kerns and Armstrong Township road.	.....	....	.....	....	.....	.....	....	.....
170	Kerns and Henwood Township road.	.....	....	.....	....	.....	.....	....	.....
171	Kerns and Hudson Township road ..	.....	....	.....	....	.....	.....	....	.....
172	Laird Township roads	.....	....	.....	....	.....	.....	....	100
173	L'Amable to Maynooth, etc. roads....	20	40	20	18	.....	.....	....	.....
174	Laxton and Digby Township roads..	.....	....	.....	....	.....	.....	....	19
175	Laxton and Bexley Township roads..	.....	....	.....	....	gravel	69	6	50
176	Lee Valley road	.....	....	.....	....	.....	.....	....	.....
177	Lefroy Township roads.....	.....	....	.....	....	.....	.....	....	40
178	Limerick Township roads	.....	....	.....	....	.....	.....	....	.....
179	Lindsay Township roads	.....	....	.....	....	.....	.....	....	.....
180	Lindsay Township drainage	200	16	.....	....	.....	.....	....	40
181	Loughborough Township roads	.....	....	.....	....	.....	.....	....	460
182	Loughborough and Bedford Typ. roads.	.....	....	.....	....	.....	.....	....	300
183	Lorne Township roads	910	30	910	14	.....	.....	....	300
184	Loughrin Township roads	640	35	640	35	.....	.....	....	.....
185	Louise Township road	.....	....	.....	....	.....	.....	....	.....
186	Louise Township drainage	240	20	80	20	.....	.....	....	60
187	Lount and Machar Township road ...	.....	....	.....	....	.....	.....	....	.....
188	Lount, Machar and Gurd Twp. road..	.....	....	.....	....	.....	.....	....	.....
189	Lumsden Township roads	.....	....	.....	....	.....	.....	....	90
190	Lutterworth Township roads	.....	....	.....	....	.....	.....	....	7
191	Lyell Township road	.....	....	.....	....	.....	.....	....	8
192	Machar Township roads	.....	....	.....	....	.....	.....	....	.....
193	Machar and Gurd Township roads....	.....	....	.....	....	.....	.....	....	.....
194	Madoc Township roads	.....	....	.....	....	.....	.....	....	.....
195	Mara Township roads	33	50	33	18	gravel	31	6	67
196	Mara Township drainage	185	7	.....	....	.....	.....	....	185
197	Marmora Township drainage	182	12	.....	....	.....	.....	....	80
198	Martland Township roads	350	14	340	14	.....	.....	....	30
199	Matchedash Township drainage	27	5	.....	....	.....	.....	....	480
200	Mattawan Township roads	60	40	50	16	.....	.....	....	.....
201	May township road	.....	....	.....	....	.....	.....	....	.....
202	May and Hallam Township road	.....	....	.....	....	.....	.....	....	40
203	Mayo Township roads	.....	....	.....	....	.....	.....	....	.....
204	Medonte Township roads	.....	....	.....	....	.....	.....	....	8

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	1	rock	stone	350	.....	..	.....	..	gravel	140	6	.50	507 86	154
1	16	wood	8	wood	clay	1,474	320	5	1,600	24	gravel	979	7	6.25	2,450 75	155
...	...	.....	...	.....	.....	.....	.....	..	320	24	gravel	480	7	1.50	1,001 02	156
...	...	.....	11	plank	.....	.....	.....	..	1,050	18	gravel	50	6	4.25	1,999 87	157
...	...	.....	7	cedar	.....	.....	265	20	320	16	gravel	270	6	1.00	898 82	158
...	...	.....	...	.....	.....	.....	.....	..	200	16	gravel	200	7	.63	400 50	159
...	...	.....	...	.....	.....	.....	.....	..	100	14	gravel	100	7	.31	300 00	160
...	...	.....	...	.....	.....	.....	.....	..	160	20	gravel	90	5	.50	300 00	161
...	...	.....	1	wood	earth	422	.....	..	100	22	gravel	270	5	1.50	944 64	162
2	14	cedar	...	.....	stone	28	.....	..	.....	..	.....	.....	..	.12	150 00	163
...	...	.....	...	.....	stone	64	.....	..	800	14	gravel	160	5	3.00	307 50	164
...	...	.....	12	wood	.....	.....	60	15	442	16	gravel	344	9	4.00	1,004 60	165
...	...	.....	...	.....	.....	.....	20	30	34	15	gravel	340	5	1.10	400 62	166
...	...	.....	10	wood	.....	.....	.....	..	350	14	gravel	150	6	1.25	1,000 00	167
...	...	.....	3	wood	earth	1,774	.....	..	.....	..	gravel	590	7	3.00	2,049 54	168
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	160	7	.50	600 00	169
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	207	7	.63	800 00	170
...	...	.....	...	.....	.....	.....	.....	..	240	24	gravel	145	7	.75	399 95	171
...	...	.....	2	wood	earth	200	50	30	200	24	gravel	180	5	1.00	550 50	172
1	14	cedar	8	cedar	stone	60	100	20	900	16	gravel	510	7	3.25	3,001 65	173
...	...	.....	3	stone	stone	65	25	10	104	18	gravel	164	6	.75	506 65	174
...	...	.....	4	metal	stone	80	105	20	130	20	gravel	179	7	.75	502 85	175
1	16	wood	...	.....	earth	100	.....	..	.....	..	.....	.....	..	.03	448 99	176
...	...	.....	...	.....	earth	744	.....	..	160	20	gravel	245	6	1.00	799 97	177
...	...	.....	...	.....	.....	.....	80	20	120	14	gravel	80	7	.50	306 75	178
...	...	.....	...	.....	.....	.....	.....	..	40	16	gravel	170	5	.60	500 00	179
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.63	207 25	180
...	...	.....	5	tile	stone	177	.....	..	331	14	gravel	420	5	1.50	599 95	181
...	...	.....	...	.....	stone	50	.....	..	340	14	gravel	136	9	1.20	299 43	182
...	...	.....	22	wood	earth	135	.....	..	90	22	gravel	240	6	3.75	1,175 00	183
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	2.00	280 51	184
1	11	wood	11	wood	stone	15	.....	..	200	20	gravel	40	6	.75	593 53	185
...	...	.....	5	wood	earth	50	.....	..	.....	..	.....	.....	..	.75	99 53	186
...	...	.....	1	cedar	.....	.....	.....	..	40	18	gravel	40	7	.25	203 40	187
...	...	.....	2	cedar	.....	.....	480	20	640	12	.....	.....	..	2.00	500 00	188
...	...	.....	4	wood	.....	.....	40	20	250	16	.....	.....	..	1.00	301 00	189
...	...	.....	6	wood	stone	70	116	15	304	16	gravel	361	6	2.00	920 42	190
...	...	.....	...	.....	rock	15	.....	..	320	16	gravel	10	8	1.00	450 00	191
...	...	.....	1	cedar	.....	.....	.....	..	160	16	gravel	217	6	.75	604 06	192
...	...	.....	1	cedar	.....	.....	100	16	100	16	.....	.....	..	.31	300 80	193
...	...	.....	1	cedar	.....	.....	.....	..	120	16	gravel	120	7	.37	299 70	194
...	...	.....	...	.....	clay	649	.....	..	915	18	gravel	101	6	3.00	791 37	195
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.58	197 15	196
...	...	.....	...	.....	rock	8	.....	..	.....	..	.....	.....	..	.57	591 20	197
...	...	.....	5	wood	.....	.....	.....	..	2,800	14	gravel	300	6	10.00	1,299 47	198
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.50	227 26	199
...	...	.....	5	wood	.....	.....	.....	..	145	16	gravel	140	10	.90	799 62	200
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	110	6	.38	401 37	201
...	...	.....	...	.....	earth	40	.....	..	80	24	gravel	60	6	.25	258 33	202
...	...	.....	2	cedar	.....	.....	.....	..	200	14	gravel	160	7	1.00	509 50	203
...	...	.....	...	.....	clay	1,902	..	..	8	22	gravel	194	7	.75	913 30	204

9 L.F.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
205	Medonte Township drainage	.....	....	.....	....	.....	.....	....	40
206	Medora Township roads	.....	....	.....	....	.....	.....	....	200
207	Medora and Wood Township road	.....	....	.....	....	.....	.....	....	.....
208	Merritt Township roads	160	25	160	16	.....	.....	....	10
209	Mills Township roads (Manitoulin)	.....	....	.....	....	.....	.....	....	.....
210	Mills Township roads (Parry Sound)	200	30	320	12	earth	240	12	.....
211	Mills and Hardy Township road	.....	....	.....	....	.....	.....	....	18
212	Minden Township road	.....	....	.....	....	.....	.....	....	.....
213	Minden and Somerville Twp. road	.....	....	.....	....	.....	.....	....	.....
214	Monck Township road	200	50	100	20	earth	100	20	.....
215	Monteagle Township roads	.....	....	.....	....	.....	.....	....	.....
216	Monteith Township road	.....	....	.....	....	.....	.....	....	.....
217	Morgan Township roads	80	30	80	12	clay	80	8	600
218	Morrison Township road	.....	....	.....	....	.....	.....	....	.....
219	Murchison Township road	.....	....	.....	....	.....	.....	....	.....
220	Muskoka Township roads	320	45	540	20	gravel	60	10	.....
221	Muskoka District drainage	.....	....	.....	....	.....	.....	....	200
222	Macaulay and Draper townline	.....	....	.....	....	.....	.....	....	200
223	McDonald Township road	.....	....	.....	....	.....	.....	....	.....
224	McDonald, Kehoe and Meredith road	.....	....	.....	....	.....	.....	....	.....
225	Meredith and Aberdeen Add'l road	.....	....	.....	....	.....	.....	....	.....
226	McDougal Township drainage	.....	....	.....	....	.....	.....	....	40
227	McKenzie Township road	.....	....	.....	....	.....	.....	....	.....
228	McKenzie and Burton Twp. road	160	12	400	12	earth	400	12	.....
229	McKim Township roads	25	30	25	30	.....	.....	....	.....
230	McKinnon and Harrow Twp. road	100	50	100	35	earth	50	6	20
231	McLean and Ridout Township roads	.....	....	.....	....	.....	.....	....	.....
232	McMurrich Township roads	.....	....	.....	....	.....	.....	....	.....
233	McMurrich and Perry Township roads	.....	....	.....	....	.....	.....	....	.....
234	McNab Township roads	32	12	32	12	gravel	32	6	70
235	MacPherson Township roads	.....	....	.....	....	.....	.....	....	184
236	MacPherson Township Boundary Rd.	.....	....	364	16	gravel	45	6	826
237	MacPherson and Caldwell Twp. road	.....	....	.....	....	.....	.....	....	.....
238	MacPherson and London Twp. road	700	36	700	18	gravel	35	6	28
239	Nipissing Township roads	460	40	280	18	.....	.....	....	280
240	Nipissing and Gurd Twps., Alsace rd.	100	40	100	16	.....	.....	....	.....
241	North Algona Township roads	.....	....	.....	....	.....	.....	....	.....
242	Oakley Township road	.....	....	.....	....	.....	.....	....	.....
243	Oakley and Draper townline	.....	....	.....	....	.....	.....	....	.....
244	Olden Township roads	65	40	30	40	.....	.....	....	.....
245	Orillia Township roads	.....	....	.....	....	.....	.....	....	.....
246	Orillia Township drainage	.....	....	.....	....	.....	.....	....	80
247	Orillia and Matchedash road	.....	....	.....	....	.....	.....	....	.....
248	Orillia and Matchedash Twp. dralnage	.....	....	.....	....	.....	.....	....	80
249	Oro Township roads	.....	....	.....	....	.....	.....	....	.....
250	Oro and Medonte Township road	.....	....	.....	....	.....	.....	....	.....
251	Oro and Medonte Township drainage	.....	....	.....	....	.....	.....	....	160
252	Oso and Bedford road	.....	....	.....	....	.....	.....	....	.....
253	Oso and Olden road	.....	....	.....	....	.....	.....	....	.....
254	Pakenham Township road	320	18	.....	....	.....	.....	....	320
255	Palmerston Township roads	.....	....	.....	....	.....	.....	....	.....

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet		$ c.	
...	...	.....	1	cement	.....	.....	.....	..	.....	..	gravel	22	7	.25	300 85	205
...	...	.....	5	stone	stone	20	20	25	400	20	earth	200	12	1.25	399 00	206
...	...	.....	6	metal	rock	30	480	30	400	20	earth	250	20	1.50	988 36	207
1	18	cedar	26	wood	earth	155	150	16	250	16	gravel	160	5	2.00	764 66	208
...	...	.....	3	wood	stone	12	60	40	610	16	gravel	525	6	3.00	1,077 00	209
...	...	.....	5	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.25	450 00	210
...	...	.....	...	.....	.....	.....	.....	..	160	12	gravel	40	7	.50	200 00	211
...	...	.....	9	wood	stone	50	325	20	720	16	gravel	94	3	3.00	599 90	212
...	...	.....	4	wood	rock	5	165	20	535	16	earth	245	6	2.25	499 87	213
...	...	.....	5	cedar	earth	30	.....	..	.....	..	.....	.....	..	.63	490 73	214
...	...	.....	10	cedar	.....	.....	.....	..	420	14	gravel	260	7	1.75	912 17	215
...	...	.....	7	cedar	.....	.....	400	20	.....	..	gravel	260	7	1.25	208 50	216
...	...	.....	4	wood	rock	375	.....	..	360	16	gravel	360	8	1.50	1,101 63	217
...	...	.....	...	.....	.....	.....	.....	..	1,300	20	gravel	240	10	4.50	500 00	218
...	...	.....	5	wood	.....	.....	.....	..	400	16	.....	.....	..	1.25	500 00	219
1	10	wood	8	metal	.....	.....	.....	..	.....	..	.....	.....	..	1.75	698 67	220
...	...	.....	3	wood	rock	120	.....	..	.....	..	.....	.....	..	.63	743 17	221
1	12	cedar	8	cedar	stone	40	600	25	700	20	gravel	700	10	2.50	2,996 91	222
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	75	5	.24	200 00	223
...	...	.....	...	.....	earth	40	.....	..	200	22	gravel	60	5	.75	303 25	224
...	...	.....	...	.....	earth	40	.....	..	100	24	gravel	120	5	.50	398 06	225
...	...	.....	...	.....	rock	8	.....	..	.....	..	.....	.....	..	.13	175 00	226
...	...	.....	7	cedar	.....	.....	.....	..	240	12	gravel	240	6	.75	349 87	227
...	...	.....	7	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.25	305 75	228
...	...	.....	...	.....	.....	.....	.....	..	960	20	gravel	960	10	3.08	675 00	229
...	...	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.40	500 60	230
...	...	.....	7	cedar	.....	.....	.....	..	1,040	20	gravel	500	10	3.50	498 23	231
...	...	.....	...	.....	rock	2	.....	..	80	14	gravel	80	6	.25	203 50	232
...	...	.....	5	wood	.....	.....	400	10	.....	..	gravel	700	10	2.50	2,001 40	233
...	...	.....	...	.....	stone	9..	25	15	18	12	gravel	243	6	1.00	500 00	234
2	12	wood	28	wood	.....	.....	.....	..	2,620	20	gravel	2,720	6	10.00	3,000 00	235
...	...	.....	15	wood	.....	.....	.....	..	650	18	gravel	140	6	3.25	1,498 88	236
...	...	.....	13	cedar	.....	.....	.....	..	1,275	18	gravel	700	6	4.50	2,000 00	237
...	...	.....	12	cedar	.....	.....	.....	..	.....	..	.....	.....	..	2.50	497 51	238
...	...	.....	10	cedar	.....	.....	.....	..	320	16	.....	.....	..	3.10	1,310 67	239
...	...	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	.31	359 85	240
...	...	.....	...	.....	.....	.....	70	33	70	15	gravel	137	10	.75	499 84	241
...	...	.....	5	cedar	stone	60	30	10	625	20	gravel	90	5	2.00	499 90	242
...	...	.....	6	wood	.....	.....	60	25	200	20	gravel	900	10	3.00	1,999 31	243
...	...	.....	...	.....	earth	40	.....	..	100	12	gravel	60	5	.75	418 65	244
...	...	.....	...	.....	.....	.....	232	36	245	22	gravel	177	6	1.25	606 36	245
...	...	.....	3	metal	gravel	30	.....	..	.....	..	.....	.....	..	.25	179 70	246
...	...	.....	...	.....	.....	.....	212	18	82	18	gravel	41	6	.75	395 75	247
...	...	.....	1	cedar	.....	.....	200	18	.....	..	.....	.....	..	.63	98 58	248
...	...	.....	...	.....	.....	.....	.....	..	40	18	gravel	59	8	.25	212 35	249
...	...	.....	...	.....	earth	920	.....	..	.....	..	.....	.....	..	.05	400 00	250
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	100 00	251
...	...	.....	...	.....	.....	.....	.....	..	80	12	gravel	87	10	.30	300 00	252
...	...	.....	...	.....	stone	27	105	10	200	14	gravel	88	8	.75	199 79	253
...	...	.....	1	cedar	stone	200	320	10	380	18	gravel	360	8	3.50	909 00	254
...	...	.....	1	stone	stone	278	.....	..	10	14	gravel	280	8	1.00	660 35	255

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
256	Palmerston and Clarendon Twp. roads.	78	40	78	26	gravel	40	8	.....
257	Papineau Township roads	60	40	60	16	gravel	10	10	.....
258	Parke Township roads	.....	....	.....	....	.....	.....	....	.....
259	Patterson Township road	.....	....	.....	....	.....	.....	....	.....
260	Patton Township roads	.....	....	.....	....	.....	.....	....	60
261	Pembroke Township roads	.....	....	.....	....	.....	.....	....	.....
262	Perry and Monteith Township roads.	80	7	20	12	sand	80	7	130
263	Petawawa Township roads	.....	....	.....	....	.....	.....	....	46
264	Phelps Township roads	360	40	360	18	.....	.....	....	.....
265	Plummer Township roads	.....	....	.....	....	.....	.....	....	60
266	Plummer Add'l Township roads.....	340	60	60	20	gravel	70	5	160
267	Pringle Twp. Commanda road	.....	....	.....	....	.....	.....	....	20
268	Radcliffe Township roads	.....	....	.....	....	.....	.....	....	.....
269	Raglan Township roads	.....	....	.....	....	.....	.....	....	.....
270	Rama Township roads	.....	....	.....	....	.....	.....	....	.....
271	Ramsay Township roads	.....	....	.....	....	.....	.....	....	.....
272	Rayside Township roads	.....	....	.....	....	.....	.....	....	161
273	Robinson Township roads	240	40	160	26	.....	.....	....	.....
274	Rolph Township roads	.....	....	.....	....	.....	.....	....	.....
275	Ross Township roads	40	18	26	18	gravel	40	18	.....
276	Ryde and Draper Townline road	.....	....	.....	....	.....	.....	....	.....
277	Ryerson and McMurrich Boundary rd.	225	30	225	8	earth	225	6	500
278	St. Edmunds Township road	.....	....	35	20	gravel	45	5	.....
279	Sabine Township roads	.....	....	.....	....	.....	.....	....	.....
280	Salter, May and Harrow Tp. river rd.	.....	....	.....	....	.....	.....	....	.....
281	Sandfield Township roads	.....	....	.....	....	.....	.....	....	.....
282	Sebastopol Township roads	.....	....	.....	....	.....	.....	....	.....
283	Shakespeare and Baldwin Tp. roads..	.....	....	.....	....	.....	.....	....	.....
284	Sheffield Township roads	.....	....	.....	....	.....	.....	....	.....
285	Sheguiandah Township drainage	.....	....	.....	....	.....	.....	....	90
286	Sherwood and Jones Township roads.	320	12	74	14	gravel	74	8	386
287	Somerville Township road	.....	....	.....	....	.....	.....	....	.....
288	South Algona Township roads.....	.....	....	.....	....	.....	.....	....	190
289	Snowdon Township roads	.....	....	.....	....	.....	.....	....	.....
290	Spence Township roads	.....	....	.....	....	.....	.....	....	.....
291	Springer Township roads	.....	....	.....	....	.....	.....	....	.....
292	Stafford Township roads	.....	....	.....	....	.....	.....	....	.....
293	Stanhope Township roads	115	35	133	20	.....	.....	....	.....
294	Stephenson & Watt Townline road...	.....	....	.....	....	.....	.....	....	.....
295	Stisted Township roads	.....	....	.....	....	.....	.....	....	.....
296	Storrington Township roads	.....	....	.....	....	.....	.....	....	.....
297	Striker Township roads	260	35	200	16	.....	.....	....	.....
298	Strong Township roads	80	30	70	18	gravel	40	7	15
299	Sunnidale Township road	.....	....	.....	....	.....	.....	....	.....
300	Tarbutt Additional Township roads..	.....	....	.....	....	.....	.....	....	.....
301	Tarentorous Township road	122	43	110	24	.....	.....	....	.....
302	Tay Township roads	.....	....	.....	....	.....	.....	....	.....
303	Tay Township drainage	224	6	.....	....	.....	.....	....	429
304	Tehkummah Township roads	.....	....	.....	....	.....	.....	....	.....
305	Thessalon Township roads	.....	....	.....	....	.....	.....	....	.....
306	Thompson Township roads	.....	....	.....	....	.....	.....	....	60

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE										
							Side-Brushed		Graded and Shaped		SURFACED						
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	MILEAGE	EXPENDITURE		NUMBER
...	...	.....	1	stone	stone	18	180	10	280	14	gravel	470	8	1.75	1,102	93	256
...	...	.....	7	wood	.....	.....	.....	..	520	16	gravel	200	8	2.25	1,299	13	257
...	...	.....	...	.....	.....	.....	.....	..	1,120	14	gravel	560	6	3.50	1,528	25	258
...	...	.....	...	.....	.....	.....	.....	..	160	12	gravel	240	6	.75	300	00	259
...	...	.....	4	wood	earth	1,365	100	25	170	20	gravel	154	6	.75	698	59	260
...	...	.....	...	.....	.....	.....	.....	..	411	16	gravel	241	8	1.30	600	00	261
1	12	cedar	7	cedar	stone	20	240	20	140	12	sand	140	8	1.00	677	24	262
...	...	.....	1	stone	.....	.....	159	33	261	18	gravel	121	8	1.00	700	00	263
...	...	.....	9	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.13	501	01	264
...	...	.....	...	.....	earth	150	.....	..	160	20	gravel	290	5	1.00	701	35	265
...	...	.....	5	wood	earth	444	.....	..	.....	..	gravel	170	6	.75	1,602	65	266
1	re	paired	...	.....	.....	.....	240	20	480	10	gravel	80	7	1.50	400	00	267
1	10	plank	14	cedar	.....	.....	640	12	865	12	.....	.....	..	2.75	699	49	268
...	...	.....	7	cedar	.....	.....	187	35	1,120	17	gravel	45	6	3.50	710	04	269
...	...	.....	...	.....	rock	410	194	15	23	18	gravel	157	6	.75	998	67	270
...	...	.....	...	.....	.....	.....	.....	..	45	20	C. stone	378	6	1.20	375	00	271
...	...	.....	5	wood	.....	.....	63	30	151	20	sand	140	18	.75	900	00	272
...	...	.....	...	.....	gravel	80	25	12	90	20	gravel	125	6	1.50	1,139	95	273
...	...	.....	2	metal	.....	.....	320	30	640	18	.....	.....	..	2.00	199	00	274
1	10	cedar	2	cedar	clay	32	.....	..	200	16	gravel	100	8	1.00	800	00	275
...	...	.....	2	cedar	.....	.....	.....	..	800	20	gravel	60	10	2.50	999	80	276
...	...	.....	2	metal	gravel	320	.....	..	.....	..	gravel	320	7	1.75	800	68	277
...	...	.....	1	cedar	stone	225	.....	..	.....	..	.....	.....	..	.10	500	00	278
...	...	.....	4	wood	.....	.....	.....	..	450	16	gravel	10	8	1.50	450	00	279
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	220	5	1.69	550	40	280
...	...	.....	...	.....	stone	500	7	15	60	22	gravel	475	6	1.50	999	99	281
2	13	cedar	13	cedar	stone	27	240	20	1,360	12	gravel	270	6	4.70	807	25	282
...	...	.....	2	wood	earth	500	.....	..	560	20	gravel	70	6	1.75	698	72	283
...	...	.....	1	concrete	stone	120	.....	..	30	19	gravel	346	7	1.20	350	00	284
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.28	196	87	285
...	...	.....	5	cedar	gravel	593	720	12	960	12	gravel	654	8	5.25	914	20	286
...	...	.....	...	.....	.....	.....	.....	..	.....	..	C. stone	176	6	.55	306	00	287
...	...	.....	7	cedar	clay	40	150	20	595	14	gravel	441	8	2.75	1,199	00	288
...	...	.....	3	wood	.....	.....	560	16	560	18	gravel	200	5	2.00	500	00	289
...	...	.....	4	cedar	.....	.....	40	30	160	7	gravel	480	6	1.50	551	50	290
...	...	.....	6	plank	.....	.....	.....	..	790	14	gravel	650	6	4.25	2,112	05	291
...	...	.....	...	.....	.....	.....	.....	..	280	30	gravel	211	6	1.00	600	00	292
...	...	.....	2	stone	stone	72	.....	..	.....	..	.....	.....	..	.50	401	48	293
...	...	.....	3	stone	stone	36	.....	..	900	18	gravel	500	10	3.00	1,000	00	294
...	...	.....	11	wood	stone	70	700	25	880	20	earth	310	16	2.85	908	25	295
...	...	.....	3	metal	.....	.....	10	20	.....	..	gravel	430	8	1.25	300	00	296
...	...	.....	7	wood	.....	.....	80	20	250	18	gravel	90	6	1.50	801	25	297
...	...	.....	10	cedar	.....	.....	20	15	30	16	gravel	70	6	.50	550	00	298
...	...	.....	...	.....	.....	.....	.....	..	.....	..	gravel	250	7	.78	400	00	299
...	...	.....	1	cedar	stone	10	.....	..	240	22	gravel	140	5	.75	350	00	300
...	...	.....	...	.....	.....	.....	.....	..	.....	..	.....	.....	..	.38	199	90	301
...	...	.....	...	.....	clay	135	.....	..	274	22	R. clay	291	7	1.00	497	30	302
...	...	.....	1	cement	.....	.....	.....	..	.....	..	.....	.....	..	1.43	375	00	303
...	...	.....	3	rock	stone	50	70	16	170	24	gravel	440	6	2.75	1,099	65	304
...	...	.....	1	wood	stone	800	.....	..	40	23	gravel	70	5	.25	398	92	305
...	...	.....	...	.....	.....	.....	127	20	127	24	gravel	163	6	.75	503	75	306

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	NAME OF WORK	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
307	Tiny Township roads	.....	....	.....	....	.....	.....	....	240
308	Tudhope Township roads	198	40	198	12	clay	400	7	198
309	Tudor and Cashel Township road	.....	....	.....	....	.....	.....	....	.....
310	Tyendinaga Township roads	.....	....	.....	....	.....	.....	....	.....
311	VanHorne Township roads	.....	....	.....	....	.....	.....	....	.....
312	Vankoughnet Township roads	270	36	282	22	.....	.....	....	204
313	Verulam and Somerville Twp. road	.....	....	.....	....	.....	.....	....	.....
314	Vespra Township roads	.....	....	.....	....	.....	.....	....	.....
315	Wallbridge Township roads	20	30	150	60	gravel	150	6	60
316	Wainwright Township Culvert	.....	....	.....	....	.....	.....	....	.....
317	Waters Township roads	.....	....	.....	....	.....	.....	....	.....
318	Wells Township roads	.....	....	.....	....	.....	.....	....	.....
319	Westmeath Township roads	.....	....	50	35	gravel	35	12	.....
320	Widdifield Township roads	.....	....	.....	....	.....	.....	....	77
321	Wilberforce Township roads	103	28	100	21	gravel	20	8	60
322	Wollaston Township roads	.....	....	.....	....	.....	.....	....	.....
323	Wylie Township roads	.....	....	.....	....	.....	.....	....	80
324	Beckwith Township roads	.....	....	.....	....	.....	.....	....	.....
	Total	23,103	....	22,014	....	.....	7,297	....	21,163

COLONIZATION ROADS BRANCH.—*Concluded.*

MENT, 1919-1920.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE									
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	MILEAGE	EXPENDITURE	NUMBER
															$ c.	
...	...	....	....	.....	earth	50	.....	..	.....	..	gravel	170	6	1.28	594 40	307
...	...	....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.62	1,024 80	308
...	...	....	1	cedar	stone	100	.....	..	400	14	gravel	160	7	1.25	500 99	309
...	...	....	....	.....	.....	.....	.....	..	240	16	gravel	160	7	.75	301 95	310
...	...	....	....	.....	.....	.....	.....	..	.....	..	gravel	600	5	1.88	908 25	311
...	...	....	8	cedar	sand	1,570	183	12	880	20	gravel	193	6	4.50	2,200 00	312
...	...	....	....	.....	.....	.....	.....	..	.....	..	C. stone	376	6	1.17	300 00	313
...	...	....	....	.....	.....	.....	.....	..	.....	..	gravel	542	7	1.70	500 72	314
...	...	....	3	plank	.....	.....	.....	..	.....	..	.....	.....	..	.50	428 92	315
...	...	....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	.01	12 00	316
...	...	....	1	wood	earth	300	.....	..	20	10	gravel	320	6	1.07	358 15	317
...	...	....	....	.....	.....	.....	160	20	320	20	gravel	300	5	1.00	606 07	318
...	...	....	1	concrete	gravel	100	.....	..	29	19	gravel	70	6	.35	800 00	319
...	...	....	9	wood	.....	.....	.....	..	498	18	gravel	370	8	2.00	1,114 69	320
...	...	....	11	metal	.....	.....	560	30	710	16	gravel	737	8	5.10	1,945 00	321
...	...	....	....	.....	.....	.....	40	20	160	14	gravel	160	7	.50	298 47	322
...	...	....	....	.....	.....	.....	.....	..	160	20	gravel	60	12	.50	300 00	323
...	...	....	....	.....	.....	.....	.....	..	.....	..	gravel	100	7	.30	375 00	324
33	...	....	1064	.....	.....	44,974	21355	..	100811	..	.....	71,768	..	582.02	265,993 05	

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION.

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	Admaston By-law No. 240	.....	....	1,235	15	gravel	450	8
2	Alberton By-law No. 1	312	66	312	16	gravel	674	6
3	Alice & Fraser By-law No. 5	380	24	248	16	gravel	260	7
4	Amabel By-law No. 235	.....	....	510	18	gravel	1,010	6
5	Assiginack By-law No. 427	.....	....	2,500	16	gravel	2,600	5
6	Atwood By-law No. 105	340	66	48	30	gravel	294	5
7	Bagot & Blythfield By-law No. 334	300	30	1,000	16	gravel	1,000	5
8	Belmont & Methuen By-law 614	.....	....	171	16	C. stone	336	8
9	Billings By-law No. 252	.....	....	810	16	gravel	495	7
10	Blezard By-law No. 112	.....	....	1,280	16	gravel	640	6
11	Blue By-law No. 48	351	66	448	16	gravel	120	5
12	Brethour By-law No. 16	.....	....	3,572	24	gravel	952	6
13	Bromley By-law No. 294	.....	....	2,047	16	gravel	1,348	6
14	Brougham By-law No. 412	.....	....	222	12	gravel	222	6
15	Brudenell & Lyndoch By-law No. 251	.....	....	1,740	16	gravel	80	6
16	Bucke By-law No. 233	80	10	480	16	stone	915	6
17	Burleigh & Anstruther By-law No. 1	.....	....	61	16	gravel	162	6
18	Burpee By-law No. 105	.....	....	250	24	gravel	250	6
19	Camden By-law No. 497	.....	....	.....	....	gravel	640	6
20	Caldwell By-law No. 282	.....	....	3,350	16	gravel	2,095	6
21	Cardiff By-law No. 548	1,035	10	1,265	16	gravel	108	5
22	Carlow By-law No. 113	280	20	760	14	gravel	480	6
23	Casey By-law No. 57	.....	....	3,460	22	gravel	208	7
24	Casimir, Jennings & Appleby By-law No. 87	.....	....	910	14	gravel	340	6
25	Chamberlain By-law No. 64	.....	....	440	20	gravel	60	8
26	Chapple By-law No. 265	870	66	1,720	16	gravel	1,740	6
27	Chapman By-law No. 7	.....	....	661	16	gravel	1,061	6
28	Chisholm By-law No. 103	.....	....	.....	....	gravel	225	7
29	Conmee By-law No. 48	160	40	398	16	.....	.....	....
30	Cosby & Mason By-law No. 47	.....	....	3,480	14	gravel	360	7
31	Dilke By-law No. 93	110	20	154	16	gravel	260	7
32	Draper By-law No. 390	.....	....	2,640	14	gravel	1,418	5
33	Drury, Denison & Graham By-law No. 191	1,280	16	4,280	16	gravel	3,735	6
34	Dummer By-law No. 879	.....	....	2,776	15	gravel	431	8
35	Dungannon By-law No. 90	40	20	480	14	gravel	60	7
36	Dymond By-law No. 192	.....	....	9,915	16	gravel	984	5
37	Dysart By-law No. 623	3,373	16	2,088	14	gravel	2,234	5
38	Eastnor By-law No. 25	350	66	350	28	.....	.....	....
39	Eldon By-law No. 494	.....	....	537	16	gravel	615	5
40	Elzevir & Grimsthorpe By-law No. 48A	.....	....	320	16	gravel	480	6
41	Emo By-law No. 238	1,895	20	125	20	gravel	1,766	6
42	Ferris By-law No. 584	.....	....	1,270	14	gravel	170	6
43	Front of Leeds & Lansdowne By-law 750	.....	....	211	16	gravel	1,229	6
44	Front of Yonge By-law No. 102	.....	....	205	9	.....	.....	....
45	Grattan By-law No. 277	330	16	813	16	gravel	865	5
46	Gordon By-law No. 162	.....	....	710	24	gravel	1,245	7
47	Hanmer By-law No. 100	.....	....	4,800	20	.....	.....	....
48	Harley By-law No. 254	.....	....	4,720	16	gravel	868	7
49	Harley By-law No. 239	.....	....	4,940	20	gravel	973	6
50	Harris By-law No. 68	.....	....	680	16	gravel	460	5
51	Harvey By-law No. 360	6	10	1,538	16	gravel	818	5
52	Hilliard By-law No. 116	.....	....	3,350	24	gravel	795	7
53	Hilton By-law No. 405	153	16	278	20	gravel	185	5

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1920.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cu. yds.	Number	Span, feet	Material	Number	Material				
										$ c.	
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	945 00	1
.....	.....	.....	.....	.....	.....	5	wood ...	1.00	2.50	979 12	2
.....	stone...	25	4	24	cedar.	2	cedar...	.....	3.00	662 36	3
.....	.....	.....	.....	.....	.....	1	concrete	.....	5.00	1,604 47	4
.....	.....	.....	.....	.....	.....	17	wood ...	.....	9.00	2,500 00	5
.....	.....	.....	.....	.....	.....	1	wood ...	1.07	1.00	1,187 50	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,350 00	7
.....	.....	.....	.....	.....	.....	1	cedar...	.....	2.00	450 00	8
.....	earth...	50	.....	.....	.....	9	wood ...	.....	6.00	700 00	9
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	300 00	10
50	.....	.....	.....	.....	.....	2	wood...	1.10	2.00	762 50	11
80	earth...	665	1	15	wood .	7	wood ...	.....	12.00	2,363 09	12
185	clay....	261	1	33	cedar.	21	cedar...	.....	8.00	2,300 00	13
.....	.....	.....	.....	.....	.....	1	cedar...	.....	1.00	300 00	14
.....	stone...	40	1	21	cedar.	16	cedar...	.....	7.00	899 98	15
99	clay....	709	.....	.....	.....	6	wood...	.....	4.00	2,249 50	16
.....	.....	.....	.....	.....	.....	1	wood ...	.....	.75	270 00	17
.....	stone...	30	.....	.....	.....	.....	.....	.....	1.50	300 00	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	500 00	19
.....	.....	.....	.....	.....	.....	8	wood ...	.....	12.00	1,899 98	20
121	.....	.....	.....	.....	.....	28	cedar...	.....	4.00	970 00	21
.....	.....	.....	.....	.....	.....	8	cedar...	.....	3.00	624 33	22
2,500	earth...	160	5	repair	ed....	16	wood ...	1.00	11.00	1,683 73	23
.....	.....	.....	.....	.....	.....	6	wood ...	.....	5.00	850 00	24
.....	.....	.....	2	27	wood .	19	wood ...	.....	2.00	745 13	25
310	earth...	603	1	16	wood .	14	wood ...	1.75	7.00	5,000 00	26
.....	.....	.....	.....	.....	.....	5	wood ...	.....	4.00	653 37	27
160	.....	.....	.....	.....	.....	.....	.....	.....	1.00	474 87	28
198	earth...	150	.....	.....	.....	11	wood ...	.50	2.00	500 00	29
.....	.....	.....	.....	.....	.....	11	wood...	.....	11.00	625 00	30
30	.....	.....	.....	.....	.....	.....	.....	.25	1.00	699 96	31
.....	rock....	10	1	repair	ed....	35	wood ...	.....	9.00	999 84	32
3,418	rock....	549	5	16	cedar.	12	cedar...	3.00	14.00	3,260 50	33
.....	.....	.....	.....	.....	.....	3	concrete	.....	9.00	450 00	34
.....	rock....	50	.....	.....	.....	4	cedar...	.25	1.50	449 87	35
508	earth...	1,101	2	25	wood .	28	wood ...	.....	32.00	2,485 02	36
211	stone...	630	1	14	wood .	38	wood...	.....	12.00	4,309 57	37
700	.....	.....	.....	.....	.....	.....	.....	1.10	.....	1,600 00	38
64	clay....	74	.....	.....	.....	.....	.....	.....	2.00	683 81	39
.....	earth...	800	.....	.....	.....	10	cedar...	.....	2.00	500 00	40
68	earth...	150	1	16	wood .	25	wood ...	.....	8.00	2,880 47	41
.....	.....	.....	.....	.....	.....	13	wood ...	.....	4.00	500 00	42
.....	stone,..	118	.....	.....	.....	6	metal ..	.....	4.00	1,200 00	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	100 00	44
310	earth...	1,852	.....	.....	.....	8	cedar...	.....	3.00	1,170 00	45
.....	.....	.....	.....	.....	.....	4	cedar...	.....	4.50	1,247 52	46
580	.....	.....	.....	.....	.....	11	wood ...	.....	15.00	675 00	47
450	earth...	599	.....	.....	.....	18	wood ...	.25	16.00	1,487 36	48
2,080	earth...	163	2	27	wood .	5	wood ...	.....	16.00	1,494 89	49
518	.....	.....	.....	.....	.....	9	wood ...	.....	3.00	650 00	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	839 95	51
715	earth...	62	4	18	wood .	4	wood ...	.....	12.00	1,709 74	52
.....	.....	.....	.....	.....	.....	1	wood ...	.....	1.00	200 00	53

10 L.F.

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION.

NUMBER	TOWNSHIP	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, Rods	Width, feet
54	Hinchinbrooke By-law No. 5	.....	....	553	16	gravel	967	5
55	Horton By-law No. 274	.....	....	510	24	gravel	340	6
56	Howland By-law No. 159	.....	....	2,380	14	gravel	1,031	5
57	Hudson By-law No. 80	160	10	880	22	gravel	508	7
58	Humphrey By-law No. 361	.....	....	30	18	gravel	80	7
59	Hungerford By-law No. 239	.....	....	420	16	gravel	370	7
60	Huntingdon By-law No. 419	.....	....	280	16	gravel	200	7
61	Jaffray & Melick By-law No. 106	260	20	184	18	gravel	230	5
62	James By-law No. 112	.....	....	284	14	gravel	280	8
63	Jocelyn By-law No. 303	280	24	34	22	gravel	165	6
64	Johnson By-law No. A102	152	16	.....	....	gravel	345	6
65	Joly By-law No. 174	97	20	142	20	gravel	111	6
66	Keppel By-law No. 9	.....	....	111	20	gravel	543	6
67	Kerns By-law No. 174	.....	....	1,520	24	gravel	1,673	6
68	Laird By-law No. 129	.....	....	170	16	gravel	944	5
69	Lavallee	170	66	1,034	16	gravel	924	6
70	Limerick By-law No. 1	.....	....	80	14	gravel	320	7
71	Lindsay By-law No. 300	40	10	115	18	gravel	752	6
72	Macaulay By-law No. 68	200	14	1,200	18	gravel	816	5
73	Machar By-law No. 765	.....	....	250	14	gravel	118	5
74	Madoc By-law No. 47	.....	....	920	16	gravel	580	7
75	Mara By-law No. 568	.....	....	548	18	C. stone	1,028	6
76	Marmora & Lake By-law No. 546	20	14	485	16	gravel	605	7
77	Martland By-law No. 139	.....	....	5,500	14	gravel	695	6
78	Matchedash By-law No. 204	.....	....	138	18	clay	791	7
79	Mayo By-law No. 328	80	20	460	16	gravel	340	6
80	Medonte By-law No. 572	.....	....	144	18	gravel	348	7
81	Medora & Wood By-law No. 337	200	25	2,840	20	gravel	1,130	5
82	Minden By-law No. 329	617	7	734	16	gravel	212	5
83	Monck By-law No. 466	200	50	3,418	18	gravel	700	8
84	Monmouth By-law No. 246	479	8	1,098	16	gravel	505	5
85	Monteagle & Herschel By-law No. 495	.....	....	600	14	gravel	160	7
86	Morley & Pattullo By-law No. 198	1,120	66	1,432	16	gravel	1,177	6
87	Muskoka By-law No. 293	490	40	3,620	16	gravel	1,145	5
88	McDonald, Meredith & Aberdeen Additional By-law No. 146	.....	....	349	20	gravel	882	6
89	McDougall By-law No. 170	10	12	2,890	12	gravel	2,520	7
90	McIrvine By-law No. 226	.....	.....	.....	....	gravel	680	6
91	Neebing By-law No. 385	640	40	1,000	16	gravel	730	6
92	Neelon & Garson By-law No. 138	.....	....	880	20	gravel	2,765	6
93	North Algona By-law No. 15	.....	....	.....	....	gravel	400	10
94	North Crosby By-law No. 530	.....	....	251	16	gravel	351	7
95	O'Connor By-law No. 171	720	15	1,680	20	rock	40	7
96	Olden By-law No. 54B	1,049	15	1,272	15	gravel	675	9
97	Oliver By-law No. 187	1,440	10	880	20	shale	720	7
98	Orillia By-law No. 970	.....	....	396	18	gravel	1,454	5
99	Oro By-law No. 454	17	20	168	20	gravel	265	5
100	Oso By-law No. 161	75	16	381	14	gravel	1,363	5
101	Paipoonge By-law No. 168	240	40	1,780	18	gravel	2,440	7
102	Palmerston & Canonto By-law No. 244	.....	....	640	12	gravel	1,190	8
103	Plummer Additional By-law No. 167	.....	....	160	20	gravel	765	5
104	Portland By-law No. 623	.....	....	.....	....	C. stone	320	10
105	Prince By-law No. 79	10	12	.....	....	gravel	143	6
106	Rama By-law No. 373	109	7	204	18	gravel	564	6
107	Ratter & Dunnet By-law No. 26	81	8	387	16	gravel	583	6
108	Rayside By-law No. 233	.....	....	.....	....	.....	.....	....

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1920.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cu. yds.	Number	Span, feet	Material	Number	Material				
160	earth...	145	.....	.....	.....	3	wood ...	.....	4.00	1,400 00	54
.....	.....	.....	.....	.....	.....	8	C. iron.	.....	2.00	878 82	55
.....	earth...	60	1	repair	ed....	2	wood ...	.....	8.00	1,000 00	56
600	stone...	10	.....	.....	.....	5	wood ...	.....	3.00	600 00	57
78	.....	.....	.....	.....	.....	.....	.....	.....	.50	225 00	58
.....	.....	.....	.....	.....	.....	2	metal ..	.....	1.50	324 82	59
.....	.....	.....	.....	.....	.....	1	cedar...	.....	1.00	275 00	60
238	clay	40	1	16	timb'r	15	wood ...	.75	1.00	1,081 04	61
560	earth...	100	.....	.....	.....	4	wood ...	.....	1.00	1,235 11	62
197	earth...	200	.....	.....	.....	8	wood ...	.....	1.50	600 00	63
207	earth...	225	.....	.....	.....	1	tile.....	.....	2.00	399 75	64
34	earth...	60	.....	.....	.....	1	cedar...	30	.25	175 00	65
.....	stone...	350	.....	.....	.....	.....	.....	.....	2.00	695 52	66
18	.....	.....	1	12	wood .	2	wood ...	.....	6.00	2,386 68	67
180	earth...	30	.....	.....	.....	3	wood ...	.....	4.00	994 47	68
208	clay	627	.....	.....	.....	3	wood ...	1.25	4.00	1,999 80	69
.....	.....	.....	.....	.....	.....	5	cedar...	.....	1.00	400 00	70
.....	stone...	20	.....	.....	.....	.....	.....	.....	3.00	1,250 00	71
.....	earth...	200	1	12	cedar.	13	wood ...	.....	5.00	500 00	72
.....	earth...	52	.....	.....	.....	2	cedar...	.....	1.00	300 00	73
.....	.....	.....	.....	.....	.....	1	cedar...	.....	3.00	599 02	74
.....	gravel..	180	.....	.....	.....	1	wood ...	.....	4.00	1,250 00	75
.....	.....	.....	.....	.....	.....	1	cement .	.....	2.00	750 00	76
.....	.....	.....	.....	.....	.....	17	wood ...	.....	18.00	998 83	77
.....	.....	.....	.....	.....	.....	2	metal...	.....	3.00	612 47	78
.....	.....	.....	.....	.....	.....	10	cedar...	.....	2.50	500 00	79
.....	stone...	187	.....	.....	.....	1	metal...	.....	2.00	745 37	80
.....	.....	.....	.....	.....	.....	17	metal...	.....	10.00	1,070 00	81
46	.....	.....	.....	.....	.....	24	wood ...	.....	5.00	690 00	82
.....	.....	.....	1	12	wood .	26	wood ...	.75	12.00	1,280 00	83
38	.....	.....	1	repair	ed....	20	wood ...	.....	6.00	662 42	84
.....	stone...	80	.....	.....	.....	5	cedar...	.....	2.50	592 87	85
457	clay	676	1	12	timber	16	wood ...	3.50	4.00	2,750 00	86
.....	earth...	66	4	12	wood .	24	wood...	.....	15.00	1,000 00	87
50	.....	.....	.....	.....	.....	1	wood ...	.....	4.00	749 75	88
.....	.....	.....	.....	.....	.....	16	wood ...	.....	14.00	3,059 91	89
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.13	500 00	90
.....	earth...	1,600	.....	.....	.....	11	wood ...	2.00	3.00	3,099 50	91
1,000	.....	.....	.....	.....	.....	3	wood ...	.....	10.00	1,999 42	92
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.25	200 00	93
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	599 12	94
66	earth...	663	1	16	cedar.	30	wood ...	1.00	6.00	1,889 58	95
303	stone...	223	1	30	cedar.	10	cedar...	.....	5.00	750 00	96
266	clay	400	.....	.....	.....	8	cedar...	.....	5.00	1,250 00	97
10	earth...	238	.....	.....	.....	5	metal...	.....	6.00	2,100 00	98
.....	earth...	1,488	.....	.....	.....	3	metal...	.....	1.50	464 52	99
97	stone...	107	.....	.....	.....	13	wood ...	.....	5.00	975 00	100
80	.....	.....	.....	.....	.....	9	wood ...	.75	8.00	4,353 35	101
600	earth...	190	.....	.....	.....	18	metal...	.25	4.00	1,000 00	102
140	earth...	30	.....	.....	.....	.....	.....	.....	4.00	800 00	103
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	750 00	104
85	earth...	80	.....	.....	.....	2	wood ...	.....	2.00	388 00	105
.....	stone...	639	.....	.....	.....	.....	.....	.....	2.50	1,119 95	106
85	stone...	100	.....	.....	.....	28	wood ...	.....	3.00	1,000 00	107
.....	earth...	200	.....	.....	.....	.....	.....	.....	.10	82 86	108

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION.

NUMBER	TOWNSHIP	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, Rods	Width, feet	Length, rods	Width, feet	Material	Length, Rods	Width, feet
109	Richmond By-law No. 668	.....	....	320	16	C. stone	640	12
110	Ridout By-law No. 39	.....	....	2,800	18	gravel	2,900	8
111	Ross By-law No. 370	.....	....	875	24	gravel	984	6
112	St. Edmunds By-law No. 242	.....	....	.....	....	gravel	585	5
113	St. Joseph By-law No. 441	320	20	195	20	gravel	1,361	7
114	Sandfield By-law No. 247	20	12	30	22	gravel	570	6
115	Sarawak By-law No. 6	.....	....	172	16	gravel	1,018	7
116	Sebastopol By-law No. 299	150	20	610	14	gravel	90	8
117	Sheffield By-law No. 650	.....	....	357	16	gravel	1,354	7
118	Sherborne By-law No. 286	202	8	397	16	gravel	445	6
119	Sherwood Jones & Burns By-law No. 20.	685	30	845	14	gravel	421	8
120	Shuniah By-Law No. 452	692	20	7,496	16	gravel	3,036	6
121	Snowdon By-law No. 203	358	8	814	14	gravel	575	6
122	Somerville By-law No. 720	.....	....	184	16	gravel	383	5
123	South Crosby By-law No. 869	.....	....	286	16	gravel	629	5
124	Springer By-law No. 309	.....	....	5,480	16	gravel	213	5
125	Stafford By-law No. 699	.....	....	434	30	gravel	578	8
126	Stanhope By-law No. 359	124	6	1,295	16	gravel	278	6
127	Stisted By-law No. 246	.....	....	1,000	20	gravel	130	10
128	Storrington By-law No. 483	.....	....	490	16	gravel	186	8
129	Strong By-law No. 411	.....	....	110	15	gravel	90	11
130	Sunnidale By-law No. 490	70	8	499	18	clay	499	6
131	Tarbutt & Tarbutt Additional By-law No. 2A	35	12	95	20	gravel	575	6
132	Tarentorus By-law No. 198	900	8	1,246	16	gravel	1,326	6
133	Tay By-law No. 786	.....	....	738	20	gravel	1,334	7
134	Thessalon By-law No. 11	60	40	80	20	gravel	170	5
135	Thompson By-law No. 117	.....	....	.....	....	gravel	352	5
136	Tiny By-law No. 607	.....	....	1,287	18	gravel	547	7
137	Tisdale By-law No. 208	.....	....	80	20	gravel	570	10
138	Tudor & Cashel By-law No. 8	20	20	550	14	C. stone	600	7
139	Tyendinaga By-law No. 693	.....	....	480	16	gravel	280	7
140	Vespra By-law No. 629	.....	....	629	18	gravel	1,168	7
141	Watt By-law No. 535	100	45	5,890	20	gravel	2,040	10
142	Westmeath By-law No. 240	.....	....	.....	....	gravel	3,381	7
143	Widdifield By-law No. 300	13	16	756	24	gravel	743	12
144	Wilberforce By-law No. 477	.....	....	647	18	gravel	702	7
145	Wolfe Island By-law No. 480	.....	....	.....	....	C. stone	480	8
146	Wollaston By-law No. 2	80	40	560	14	gravel	400	7
147	Worthington By-law No. 96	320	66	133	28	gravel	75	5
	Total	24,750	....	163,850	....	.....	109407	....

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1920.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cu. yds.	Number	Span, feet	Material	Number	Material				
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	2,000 00	109
.....	.....	.....	.....	.....	.....	2	wood...	.....	9.10	1,600 00	110
.....	earth...	164	.....	.....	.....	2	metal...	.....	4.50	1,350 00	111
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	500 00	112
100	earth...	22	.....	.....	.....	.....	.....	.....	5.00	1,600 00	113
.....	.....	.....	3	repair	ed....	2	wood...	.....	2.00	500 00	114
.....	earth...	172	.....	.....	.....	3	metal...	.....	4.00	1,500 00	115
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	300 00	116
.....	.....	.....	.....	.....	.....	8	wood...	.....	5.00	992 55	117
27	.....	.....	.....	.....	.....	9	cedar...	.....	2.50	826 10	118
380	.....	.....	.....	.....	.....	5	cedar...	1.00	2.00	900 00	119
285	earth...	1,066	2	19	plank	17	wood...	.50	25.00	3,850 00	120
40	earth...	90	.....	.....	.....	17	wood...	.....	3.00	690 00	121
18	stone...	10	1	12	cem'nt	9	wood...	.....	1.50	686 45	122
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	404 91	123
.....	.....	.....	.....	.....	.....	.....	.....	.....	18.00	555 52	124
.....	.....	.....	.....	.....	.....	.....	.....	2.00	2.00	540 00	125
.....	stone...	80	.....	.....	.....	9	wood...	.....	4.50	438 44	126
.....	.....	.....	.....	.....	.....	3	wood...	.....	4.00	200 00	127
325	earth...	50	.....	.....	.....	3	metal ..	.....	1.75	725 75	128
.....	stone...	300	.....	.....	.....	4	wood...	.....	1.00	229 54	129
397	.....	.....	.....	.....	.....	2	cedar...	.....	1.60	600 00	130
60	.....	.....	.....	.....	.....	1	wood...	.....	2.00	499 37	131
72	earth...	1,974	2	57	cedar.	4	metal ..	.25	4.50	2,497 34	132
85	clay....	124	.....	.....	.....	4	metal ..	.....	5.00	1,704 76	133
80	earth...	454	.....	.....	.....	1	metal ..	.25	.50	300 00	134
23	.....	.....	.....	.....	.....	1	stone...	.....	1.25	300 00	135
75	earth...	2,152	1	40	wood.	8	metal ..	.....	5.00	1,498 46	136
640	.....	.....	.....	.....	.....	2	wood...	.....	2.00	3,136 01	137
.....	.....	.....	.....	.....	.....	7	cedar...	.....	3.00	790 04	138
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.00	449 82	139
52	earth...	293	.....	.....	.....	3	metal ..	.....	5.00	1,100 00	140
.....	.....	.....	3	10	plank	20	cedar...	.....	20.00	1,600 00	141
.....	.....	.....	.....	.....	.....	.....	.....	.....	11.00	1,484 85	142
.....	earth...	1,250	.....	.....	.....	1	wood...	.....	2.10	1,500 00	143
.....	.....	.....	.....	.....	.....	1	metal ..	.....	3.00	900 00	144
.....	.....	.....	2	10	cem'nt	6	cement .	.....	1.60	750 00	145
.....	earth...	200	.....	.....	.....	1	metal ..	.....	3.00	780 96	146
.....	.....	.....	.....	.....	.....	.....	.....	1.00	.50	675 00	147
21,817	.....	26,512	58	.....	.....	1,005	.....	24.82	718.63	162,552 25	.....

MISCELLANEOUS EXPENDITURES, COLONIZATION ROADS.

Services.	Expenditures.	
1. Inspection of Roads and Bridges	$15,548 42	$15,548 42
2. Storage of Tools (W. W. Pringle)	$2 00	
Storage of Tools (B. R. McMullin)	36 00	
Rent of Storehouse (W. E. Kerr)	72 00	$110 00
3. Compensation for Injuries:		
E. L. Bell	$41 25	
L. S. Walker	258 00	
L. L. Martin	18 15	
N. Leclaire	98 18	
T. H. Webster	35 57	$451 15
4. Conference expenses (Road Inspectors)	$1,185 20	$1,185 20
5. Conference expenses	$37 50	$37 50
6. Mud Creek Bridge	$478 75	$478 75
7. Surveys:		
Feronia to Widdifield Road	$577 55	
Mattagami River Bridge	210 00	
German Township Road	54 00	
Porcupine Road	432 95	
Feronia Road	35 00	
Miscellaneous	32 00	$1,341 50
8. Road Account, 1919 (Fulkoskie)	$30 22	$30 22
9. Rental of right-of-way (C.P.R.)	$2 00	$2 00
10. Purchase of machinery, etc:		
Northern Canada Supply Co. (steam drill)	$275 00	
Freight on grader	10 50	
Toronto Motor Car Co. (motor car)	1,035 86	
McLaughlin Motor Car Co. (repairs to car)	33 85	
J. H. Biehl (motor car)	990 00	
Goodyear Tire & Rubber Co. (tires)	117 97	$2,463 18
11. Road Accounts, 1919:		
Feronia Road	$30 75	
Palmerston Township Road	27 50	
Calabogie Graphite Mine Road	136 23	
Field Road	202 50	
Griffith and Matawatchan Road	10 00	
Sherwood and Jones Road	10 00	
Nepowassan Road	10 00	
Hagar and St. Charles Road	768 25	
Gorham Township Road	108 12	
Clarendon and Palmerston Road	3 40	
Bagot and Blythfield Road	25 00	
Somerville Township Road	19 95	
Balfour Morgan Road	9 20	
Franklin Township Road	24 42	
Matchedash Township Road	17 55	
Ware Township Road	40 75	
Inspection October, 1919	171 75	$1,615 37
		$23,263 29

No.	RECAPITULATION	Cleared and stumped	Graded and shaped	Surfaced	Ditched	Cut and fill	Bridges	Culverts	New Road	Old Road	EXPENDITURE	No.
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles		
											$ c.	
1	Direct Grants and Drainage...	44,458	122,825	79,065	21,163	44,974	33	1,064	77.02	505.00	265,993 05	1
2	By-law Grants.....	24,750	163,850	109,407	21,817	26,512	58	1,005	24.82	718.63	162,552 25	2
3	Miscellaneous Expenditures...	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,263 29	3
	Grand Total.....	69,208	286,675	188,472	42,980	71,486	91	2,069	101.84	1,223.63	451,808.59	

Appendix No. 44.

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

SIR,—I have the honour to submit to you the report on the construction and maintenance of highways and bridges, under the provisions of the Northern and North Western Ontario Development Act, 1912, and amendments, during the season ending 31st October, 1920.

Operations were carried on in the Districts of Rainy River, Kenora and Thunder Bay, the Sub-districts of Sault Ste. Marie, St. Joseph's Island and Manitoulin, the Districts of Algoma, Sudbury, Nipissing, Parry Sound, Muskoka and Timiskaming, the Counties of Renfrew and Simcoe and in Algonquin Park. In the detailed report following, the District of Timiskaming is shown in sub-divisions as follows: Cochrane, Englehart, Kapuskasing and Hearst, Matheson, and Porcupine.

The North Bay-Toronto, Mattawa-Pembroke and other trunk roads traversing more than one district have been shown separately in the detailed report and only works completely in a district are shown under that district heading, the districts being placed in alphabetical order.

The sudden death of Mr. Whitson, on June 12th, 1920, coming at a time when early summer organization and re-organization was under way, rendered the matter of arranging efficient supervision a difficult undertaking without an actual cessation of activities for a time, but the work was carried on as efficiently as possible under the circumstances and supervised by the then existing staff without additions.

In conclusion, I would add, as in former reports, that the Department's organization should include considerably more technically trained and experienced road makers to advise and direct the actual work carried on in the various districts.

All of which is respectfully submitted,

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Director, Northern Development Branch.

Toronto, October 31st, A.D. 1920.

ALGONQUIN PARK.

On the Minessing Road from Algonquin Park Station to Minessing Camp, a distance of 7½ miles, 2¼ miles brushed out and 3 miles widened by tree cutting 8 ft. wide, 200 ft. lineal of crosslaying, 300 ft. of ditching, ½ mile of ditches cleaned, 125 loads of stone used for filling, 18 culverts constructed, and 2,503 cu. yds. of gravel used in surfacing and repairs, and the whole distance kept dragged.

MATTAWA-PEMBROKE ROAD.

From Chalk River Bridge to Tuckers Creek Bridge, in the Townships of Buchanan and Wylie, about 4 miles of this road were brushed out, stumped, grubbed, and graded, 14 iron culverts were installed, two bridges repaired, and 2,400 cu. yds. of gravel used in surfacing.

In the Townships of Petawawa and Alice from Pembroke to Petawawa, 5 miles were dragged and the whole 10 miles repaired with gravel.

West of Chalk River, in the Townships of Buchanan, Wylie and Ralph, 1½ miles covered with 300 loads of cinders, 4 miles dragged, 2 new culverts installed, several repaired, and 130 cu. yds. gravel used in general repairs.

In the Townships of Papineau and Cameron, from Mattawa to Klock, a distance of 15 miles, 2½ miles cut out, 4¼ miles stumped and grubbed, 8 miles graded, 1,820 ft. ditching, 9 miles dragged, 1,452 cu. yds. of gravel used in surfacing and repairs, 2 timber, 1 stone, and 13 iron culverts installed.

Mattawa-Pembroke Road.

ROAD FROM NORTH BAY TO SUDBURY.

On the the 24-mile section between North Bay and Sturgeon Falls, 15½ miles brushed, 2,586 cu. yds. gravel used in surfacing and repairs, 9,560 ft. ditching, 3 culverts repaired, and 4 miles dragged.

From Sturgeon Falls to Verner, a distance of ten miles, 321 cu. yds. of gravel used in repairing 3 miles across Lots 1 to 6, Township of Caldwell, 1,971 cu. yds. of gravel on the 6 miles east of Verner, and in the Township of Springer, on the 4 miles west of Sturgeon Falls, 1 iron culvert was installed, 1 culvert rip-rapped with 10 loads of stone, and 1,477 cu. yds. gravel used in repairs and re-surfacing. From 1 mile east of Cache Bay to 3 miles west of Cache Bay 510 cu. yds. of gravel was used in surfacing and repairs.

In the Townships of Caldwell and Kirkpatrick, 8 miles were repaired using 1,075 cu. yds. of gravel. In Kirkpatrick Township, between Kirk and Warren, 181 cu. yds. of gravel were used in repairs over a distance of 5 miles. In Dunnett Township, the road for 4 miles east and 3 miles west of Warren was repaired with 989 cu. yds. of gravel.

From Warren to Hagar the road for 5 miles, in the Township of Hagar, was repaired with 104 yards gravel, and the culverts were also repaired.

On the 6 miles east of Markstay, in Hagar and Ratter Townships, the ditches were cleaned and road repaired with 388 yds. gravel.

Between Markstay and Stinson, 7 miles were brushed out, 121 yds. of clay used in fill, 200 cu. yds. of stone and 692 yds. of gravel were used in surfacing and repairs—this work was in the Townships of Hagar and Awrey.

Between Stinson and Wahnapitae. 7 miles of road were repaired with 192 cu. yds. of gravel and the culverts repaired.

The 4 miles from Wahnapitae to Coniston were repaired, 455 cu. yds. of gravel and 11 loads of stone being used.

From Coniston to Sudbury, 8 miles repaired with 304 cu. yds. of gravel and 3 iron culverts installed.

TRUNK ROAD, NORTH BAY TO TORONTO.

County of Simcoe:

In the Township of North Orillia, 3 miles were graded, 11 iron culverts constructed and 7,976.5 cu. yds. of crushed stone used in surfacing, the distance covered being about 7 miles.

District of Muskoka:

From 3 miles south to 3 miles north of Gravenhurst, in the Township of Muskoka, general repairs were carried out, using 510 cu. yds. of gravel, and .15 mile was brushed out.

From lot 1, Concession 10, Macaulay, to lot 25, Concession "A," Monck, a distance of 1¼ miles, 800 cu. yds. of gravel used in surfacing.

Between Bracebridge and Falkenburg, in the Township of Monck, between Concessions 8 and 9, 973 cu. yds. of crushed rock used in surfacing over a mile of road.

On lot 9, Concession 6, Township of Stephenson at the end of Long Lake, 825 cu. yds. of rock cut to widen road through cuts. Between lots 20 and 21, Concession 10, 60 cu. yds. of rock quarried for bridge. From Utterson north to lot 30, Concession 12, ¼ mile stumped and grubbed, 3¾ miles graded, 2,234 cu. yds. gravel used in surfacing and repairs, 800 ft. ditching, and 3½ miles dragged. From lot 30, Concession 12, Stephenson, north to Huntsville, in Township of Chaffey, 1½ miles grubbed, 4½ miles graded, 1,090 cu. yds. gravel used in surfacing, 5,700 ft. ditching, 3 stone culverts constructed and 1½ miles dragged.

From Melissa in Concession 10, Chaffey, northwards to Scotia Junction in Concession 8, Township of Perry, District of Parry Sound, 8.5 miles dragged, 3 miles graded, 927 cu. yds. gravel used in surfacing, and 1,000 ft. ditching.

In the Township of Chaffey, ¾ mile cut out, stumped and grubbed, 3½ miles graded, 5,127 cu. yds. gravel used in surfacing over 10 miles, 5,158 ft. ditching, 2 timber, 4 stone and 5 iron culverts constructed, 1 temporary bridge erected, 1.5 miles dragged, and 155 yds. of stone used in approach to bridge.

District of Parry Sound:

Township of Perry:

From 1¼ miles north of Novar to northern boundary of township, a distance of about 14 miles, 14 miles brushed out and dragged. One timber culvert constructed, 420 ft. ditched and 149 cu. yds. gravel used in surfacing and repairs.

In the Township of Armour, south of Burks Falls, 3½ miles graded, 141 cu. yds. gravel used in repairs, 2 culverts repaired, 2¼ miles dragged, and washouts filled.

Baysville-Bracebridge Road (Muskoka).

From Burks Falls, in Armour Township, to Powassan, in Himsworth Township, a distance of about 35 miles, 7 miles brushed out, 14 miles graded, 630 yds. gravel and 676 yds. cinders used in repairs, 4 timber culverts constructed and 35 miles dragged.

From Powassan to North Bay, in the Townships of Himsworth and Ferris, a distance of about 23 miles, 4 timber culverts constructed, 9½ miles brushed out, 171 cu. yds. gravel used in surfacing and repairs, 2½ miles graded and 23 miles dragged.

In addition to the foregoing, the road from Burks Falls to Callander, 53 miles was graded up and repaired with 220 cu. yds. gravel.

ROAD FROM SWASTIKA TO KIRKLAND LAKE AND TOUGH OAKES MINES.

This road, in the Township of Teck, District of Timiskaming, is the only outlet for the "Kirkland Lake Gold Camp" and all supplies and material have been transported by this route. The construction of a water bound macadam road, in lieu of a railroad, was commenced in the season of 1919. The work necessitated considerable expenditure in drainage and a number of minor diversions from the original travelled road were found advisable. The distance from Swastika to Tough Oakes is approximately 6 miles and the entire distance is now well surfaced with crushed stone and steam rolled, with the exception of a few hundred feet the surfacing material for which we were unable to secure, owing to a shut off of power which put the crushing plant out of business a week or so before the forced closing down of the work, due to snowstorms. During the season, 13,468 cu. yds. of stone were placed on the road covering a distance of 4.9 miles.

COCHRANE DISTRICT.

Township of Brower:

Between lots 8 and 9 across Concession 4, 1 mile stumped and grubbed, 2 miles side ditching and 240 ft. off-take ditching.

Between Concessions 2 and 3 across parts of lots 11 and 12, 740 feet side ditching and 480 ft. repairs.

From line between lots 8 and 9 to Abitibi Station, south of C. N. Railway, 2/5 mile cut and burned, and 5 timber culverts constructed.

Between Concessions 4 and 5 across lot 9, 1 mile stumped and grubbed and 5,500 ft. of side ditching.

Between lots 6 and 7 across Concessions 3 to 6, 1 mile stumped and grubbed, 10,520 ft. of side ditching, and 10 timber culverts constructed.

On south side of T. & N. O. Rralway from M.P. 245½ to boundary of St. John and Brower, also across lot 11 on St. John and Brower Townline, 1 mile cut and burned, 8 miles stumped and grubbed, and 12,578 ft. of side ditching.

Between Concessions, 4 and 5 across lot 6, ½ mile graded, 9 timber culverts and 1 timber bridge constructed.

South of C. N. Railway, across lots 7, 8 and 9, Concession 4, 4 timber culverts constructed.

Between Concessions 3 and 4 across lot 9, ¼ mile graded.

Between Concessions 5 and 6 across lot 6, 2 timber culverts constructed.

Townline Townships of Brower and Kennedy:

Ferry across the Abitibi River on lot 5 repaired and placed in good condition.

Townline Townships of Brower and Fox:

On Concession 1, 4 timber culverts constructed.

Township of Calder:

On south boundary across lots 1 and 2, ¼ mile stumped, grubbed and graded.

Between Concessions 6 and 7 across lots 17-24, 21,852 ft. of side ditching and 1,139 ft. of off-take ditching.

Between Concessions 8 and 9 across lots 13-15, 5,267 ft. of side ditching and 3,855 feet of off-take ditching.

Between Concessions 8 and 9 across lots 1-3, 5,870 ft. of side ditching and 206 ft. of off-take ditching

Between Concessions 8 and 9 on lot 25, scow 30 ft. x 16 ft. by 2½ ft. constructed for ferry across Driftwood River.

Between Concessions 4 and 5 on lot 2, 2 chains graded and one timber bridge constructed 102 ft. x 16 ft. x 9½ ft.

Between Concessions 10 and 11 on lot 16, 1 timber bridge constructed 80 ft. x 12 ft. x 7 ft.

Between lots 16 and 17 across Concessions 7 to 10, 7 timber culverts constructed and 1 repaired, also 3 chains of creek cleared of logs and underbrush.

Township of Calvert:

Between Concessions 4 and 5 across lots 3-5, 1 mile graded and 4 timber culverts constructed.

Between lots 4 and 5 across Concessions 3 and 4, 1 mile cut and burned.

From "Wye" to "Townsite," Iroquois Falls, ¼ mile graded and 4 timber culverts constructed.

Between Concessions 4 and 5 across lots 1 and 5, 1 mile graded, 1 timber bridge constructed 52 ft. x 14 ft. x 7 ft., and 1 mile repaired.

Trunk Road, Porquis Junction to Iroquois Falls, 2½ miles graded.

Township of Clergue:

Between Concessions 4 and 5 across lots 1-6, 1½ miles burned, 1 mile stumped and grubbed, 1½ miles graded, 16 timber culverts constructed, and 788 ft. of off-take ditching.

Between Concessions 5 and 6 across lots 11 and 12, 9½ chains stumped and grubbed, and 3,240 ft. side ditching.

On street from station to schoolhouse, Townsite of Porquis Junction, 3 timber culverts constructed, ½ mile gravelled with 394 cu. yds. of gravel and ⅕ mile graded.

Township of Clute:

Between lots 12 and 13 across part of Concession 9, 5½ chains stumped and grubbed, and 1,300 ft. of side ditching.

Between Concessions 8 and 9 across lots 11 and 12, 7,186 ft. of side ditching, 530 ft. off-take ditching, ½ mile stumped and grubbed.

Between Concessions 10 and 11 across lots 27 and 28, 1/10 mile stumped and grubbed.

Between Concessions 4 and 5 across lots 26 and 28, 1/12 mile stumped and grubbed, 3,552 ft. side ditching, 420 ft. off-take ditching, 1 culvert constructed and 13 chains repaired.

Between Concessions 8 and 9 across lots 22 and 23, ½ mile cut and burned, stumped and grubbed and graded, 3,489 ft. side ditching, 116 ft. off-take ditching 9 timber culverts and 1 timber bridge constructed 107 ft. x 12 ft. x 8 ft.

Between Concessions 10 and 11 across lots 1-3, ½ mile stumped and grubbed, 514 ft. of side ditching and 211 ft. of off-take ditching.

Between Concessions 8 and 9 across lots 4-7, 3/8 mile cut and burned, 3/4 mile stumped and grubbed, 4,841 ft. of side ditching, 834 ft. of off-take ditching and 1 timber culvert constructed.

Between lots 12 and 13 across Concession 9, 435 ft. of side ditching.

Between lots 18 and 19 across Concession 4, 7,810 ft. of side ditching and 643 ft. of off-take ditching.

Between Concessions 4 and 5 across lots 8 and 9, 4,572 ft. of side ditching, 121 ft. of off-take ditching, and 3 timber culverts constructed.

Between Concessions 4 and 5 across lot 25, 1/4 mile cut and burned, stumped and grubbed, 4,800 ft. of side ditching and 110 ft. of off-take ditching.

Between Concessions 10 and 11 across lots 24 and 25, 1/2 mile stumped and grubbed.

Between Concessions 8 and 9 across lots 23-26, 1 mile graded and 6 timber culverts constructed.

Between lots 12 and 13 on Concession 6, log jam at Buskegow Bridge removed.

Between Concessions 6 and 7 across lots 25 and 26, 4 chains graded, 1,254 ft. side ditching and 1 timber bridge repaired.

From Concessions 2 and 3 to Frederick House River, south of C. N. Ry., 5 chains graded and 1 culvert constructed.

Townline, Townships of Clute and Fournier:

Lots 4 to 7 inclusive and across Frederick House River, 2 timber bridges repaired, 660 ft. off-take ditching, 1 timber culvert 18 ft. x 4 ft. x 2 ft., and 1 timber bridge 44 ft. x 10 ft. x 4 ft. constructed.

Townline, Townships of Clute and Calder:

Across Concessions 5 to 9, 7 chains graded and 2 timber culverts repaired.

Townline, Townships of Clute and Glackmeyer:

Across Concessions 3 and 4, 3/8 mile graded, 3,810 ft. of side ditching, 2,540 ft. of off-take ditching and 5 timber culverts constructed.

Township of Dundonald:

Between lots 6 and 7 across Concession 3, 3/4 mile underbrushed.

Township of Fox:

Between Concessions 2 and 3 across lots 7-12, 1 1/2 miles cut out and 1/8 mile burned, 3/4 mile stumped and grubbed, 3,745 ft. side ditching and 228 ft. off-take ditching.

Between Concessions 4 and 5 across lots 7-12, 2 1/2 miles underbrushed, 1 mile stumped and grubbed, and 2 miles graded.

Between lots 8 and 9 across Concessions 2 and 3, 1 1/8 miles cut, burned, stumped and grubbed.

Between lots 4 and 5 across Concessions 2 and 3, 2 miles cut and burned.

Townline, Townships of Fox and Pyne:

Across lots 10-12, 1/2 mile underbrushed and 2 timber culverts constructed.

Township of Fournier:

Between Concessions 5 and 6 across lots 3-7, 19,400 ft. side ditching, 1,492 ft. off-take ditching, 2 miles underbrushed, stumped and grubbed; and across lot 2, ⅛ mile stumped and grubbed, and 3,442 ft. of side ditching.

Between lots 7 and 8 across Concessions 5 and 6, 2 miles of survey line cut out.

Township of German:

Between lots 11 and 12 across Concessions 5 and 6, ½ mile stumped, grubbed and graded. Dam on Frederick House River at Connaught repaired.

Township of Glackmeyer:

Between lots 21 and 22 across Concessions 3 and 4, ⅝ mile cut out 15 ft. wide, ⅜ mile cut out 33 ft. wide. stumped and grubbed.

Between lots 24 and 25 across Concessions 7 and 8, 1½ miles burned, stumped and grubbed, and 1,492 ft. of side ditching.

Between lots 24 and 25 across Concession 2, and between Concessions 2 and 3 across lots 25-28, 1⅛ miles graded, 1,030 ft. of off-take ditching, 1 timber culvert constructed and ¾ mile repaired.

Between Concessions 6 and 7 across lots 15-18, 1 timber culvert constructed and 1¼ miles repaired.

Between Concessions 8 and 9 across lot 28, 2 chains gravelled, 33 ft. of off-take ditching and 1 bridge 40 ft. x 12 ft. x 6 ft. constructed.

Between Concessions 10 and 11 across lots 13-19, ¼ mile graded, 330 ft. side ditching, 1 timber culvert and 1 timber bridge 30 ft. x 14 ft. x 4 ft. constructed and 1 bridge repaired.

Between Concessions 4 and 5 across lots 9-11, 1 timber bridge repaired and 1 mile of road repaired.

Between Concessions 2 and 3 across lots 16 and 17, 3 culverts repaired and ¾ mile of road repaired.

Between Concessions 4 and 5 across lots 13-17, 2 timber culverts constructed and 1½ miles of road repaired.

Townline, Townships of Glackmeyer and Lamarche:

Across lots 9-11, 1 mile graded, 2 chains gravelled, 2,600 ft. of side ditching and 1½ miles of road repaired.

Township of Kennedy:

Between lots 24 and 25 across Concessions 3 and 4, 1¼ miles stumped and grubbed, and 15,678 ft. of side ditching.

Between Concessions 4 and 5 across lots 22-24, 1 mile stumped and grubbed, 10,062 ft. of side ditching and 5 timber culverts constructed.

On south boundary across lots 19-22, 2 timber culverts repaired and 5 chains of road repaired.

Township of Lamarche:

Across north part of lot 9, Concession 6, also across north part of lot 6, Concession 6, Lamarche, and south part of lot 19, Concession 1, Glackmeyer, 4,715 ft.

of off-take ditching which necessitated cutting, burning stumping and grubbing ⅞ mile 10 ft. wide.

Between lots 6 and 7 across Concessions 1-6, ¼ mile cut, stumped and grubbed, 6 ft. wide for off-take ditch, 5¼ miles grading, ⅜ mile gravelling, 1,320 ft. side ditching, 6 timber culverts and one timber bridge constructed, 1 bridge repaired and 2 miles of road repaired.

Between lots 8 and 9 across Concession 5, ¾ mile graded, ⅛ mile gravelled, 198 ft. of side ditching, 5 timber culverts constructed, 2 bridges repaired, and 1¼ miles of road repaired.

Township of Leitch:

Between Concessions 4 and 5 across lots 1-3, 5 chains cut, burned, stumped and grubbed, 2,614 ft. of side ditching, 220 ft. of off-take ditching, and 5 timber culverts constructed.

Between Concessions 2 and 3 across lots 1-3, 6,600 ft. of side ditching, 1,125 ft. of off-take ditching and 2 timber culverts constructed.

Township of Newmarket:

From M. P. 236 T. & N. O. Railway north to boundary of St. John Township, ⅕ mile cut out and ⅜ mile stumped and grubbed.

ENGLEHART DISTRICT.

Townline, Townships of Armstrong and Evanturel:

Across lots 9-11, 2,400 ft. cut, burned, stumped and grubbed.

Townline, Townships of Beauchamp and Dack:

Across lot 2, low lying portion of road filled in and gravelled.

Township of Boston:

Crossing over Boston Creek near Station, 1 timber bridge constructed, 30-ft. span with dovetailed piers loaded with rock.

Township of Catharine:

Between Concessions 1 and 2, lot 12, ¼ mile stumped and grubbed, ½ mile graded, 5 timber culverts constructed and 4 hills cut to improve grade.

On lot 9, Concession 6, 1 timber bridge, 50-ft. span, constructed on the Boston Creek-Skead Trail, also 1 small pole bridge, span 15-ft.

Township of Chamberlain:

Between Concessions 3 and 4 across lots 7 and 8, ½ mile stumped, 1 mile grubbed and graded, 5 timber culverts constructed and 25 yds. cross-laying 10 ft. wide.

Between lots 2 and 3, Concession 1, ¼ mile of road clay covered.

Between Concessions 5 and 6, lots 8, 9 and 10, between Concessions 4 and 5, lots 11 and 12, and between lots 10-11, Concession 5, ½ mile stumped and grubbed, 3¾ miles graded, hills cut down, 7 timber culverts and 2 timber bridges constructed.

Townline, Townships of Chamberlain and Pacaud:

On lot 1 a 60-ft. span bridge was partially reconstructed, work being still in progress at the close of year.

Townline, Townships of Chamberlain and Dack:

Across lot 2, ⅙ mile gravelled.

Township of Dack:

Between Concessions 4 and 5 across lots 3 and 4, ½ mile side ditches cleaned out, boulders removed from road, and 4 rods of road raised with gravel.

Between Concessions 3 and 4 across lots 5 and 6, road dragged 1 mile.

Between Concessions 3 and 4, lot 7, washout on hills and approach to culvert filled in and grade of hills reduced.

Between Concessions 4 and 5 across lots 5 and 6, 100 yds. of road cut out, stumped and temporary culverts constructed.

Townline, Townships of Dack and Evanturel:

Across Concession 6, 1,322 ft. gravelled 6½ ft. wide, 2 spans on High Falls bridge re-constructed.

Townline, Townships of Dack and Beauchamp:

On lot 2, low lying portion of road filled in with gravel.

Township of Evanturel:

Between Concessions 2 and 3, lot 12, ½ mile cut out, stumped, grubbed and graded, 3 timber culverts constructed and 2 hills cut down.

Between Concessions 5 and 6 lot 10, washout on approach to bridge repaired, bridge piles spliced, pier re-sheeted, and cut water plates installed.

Township of Ingram:

Across Concession 2, lots 6 and 7, 2,700 ft. side ditching.

Between lots 2 and 3, Concession 3, ½ mile stumped and graded, 150 yds. gravelled 6 ft. wide, and 1 timber culvert constructed.

Between Concessions 2 and 3, lots 1 and 2, 1,280 ft. gravelled 6½ ft. wide.

Between lots 2 and 3, Concession 2, 693 ft. gravelled 6½ ft. wide.

Between Concessions 3 and 4, off-take ditch cleaned out to drain trunk road.

Township of Mickle:

Covering repaired on 2 bridges over Bear Creek on Elk Lake-Gowganda Road.

Township of Marquis:

Across lots 1 to 7, 4½ miles cut out 66 ft. wide.

Townline, Townships of Savard and Sharpe:

Across Concessions 1 and 2, 2 miles graded with ditcher and 1 timber culvert constructed. This work not quite completed.

Township of Marter:

Between Concessions 3 and 4, across lots 5 to 8, 2 miles graded, 5 timber culverts constructed, side hills cut and grades reduced.

Township of Pacaud:

Between Concessions 2 and 3, lots 5 to 8, 2 miles cut out 66 ft. wide.

Between lots 4 and 5, Concessions 1 and 2 and between Concessions 2 and 3, lots 5 and 6, 1 mile stumped and grubbed, 2 miles graded, 3 timber culverts constructed, approaches to bridge renewed, side hills cut and grades reduced.

Townline, Townships of Pacaud and Boston:

Across lots 11 and 12 to Rosegrove spur, 2¼ miles cut out 66 ft. wide.

Township of Robillard:

Between lots 8 and 9, Concession 4, 1 mile stumped 20 ft. wide.

Between lots 8 and 9, Concession 2, 2 miles graded, 1,500 ft. off-take ditching, 20 culverts constructed, and grades reduced.

Between lots 2 and 3, Concession 6 and between Concessions 5 and 6, lots 2, 3 and 4, ½ mile stumped and grubbed, 2½ miles graded, and 5 timber culverts constructed.

Between lots 8 and 9, Concession 6, ¼ mile stumped and grubbed, ½ mile graded, 3 timber culverts constructed, and grade reduced on 2 hills.

Township of Savard:

Between lots 6 and 7, across Concessions 3 and 4, ¼ mile stumped, ½ mile graded, 3 timber culverts constructed, and grade reduced on 6 hills.

Between Concessions 4 and 5, across lot 6, ½ mile stumped, grubbed and graded, 4 timber culverts constructed, and 50 ft. of cross-laying 10 ft. wide.

Township of Sharpe:

Between Concessions 1 and 2, lot 1, ½ mile stumped and grubbed, and 1 mile of side ditching.

KAPUSKASING AND HEARST DISTRICT.

Trunk Road along C. N. Railway:

In the Townships of O'Brien and Owens, from M.P. 64 to M.P. 73, 300 ft. graded 22 ft. wide, 8,500 feet side ditching, 2,000 ft. of off-take ditch, 10 timber culverts constructed, 7½ miles repaired and dragged, 8,500 ft. re-ditching, 3,000 ft. of muskeg surfaced with clay, and approaches to 3 culverts filled.

Trunk Road, Ryland to Hearst:

In the Townships of Way and Hanlan, 1 mile graded, 2,000 ft. muskeg covered with clay, 2,000 ft. side ditching, 2 timber culverts constructed, 8 miles dragged and 6 culverts re-covered.

Township of Casgrain:

Between lots 24 and 25, across part of Concession 1, 3,000 ft. re-ditched.

Between Concessions 2 and 3, across lot 16, 1,000 ft. graded, 1 timber culvert constructed, and approach to 1 culvert filled.

Between lots 18 and 19, across part of Concession 3, 1,250 ft. ditched, 2 timber culverts constructed, and approaches to culverts filled.

Between Concessions 2 and 3, across part of lot 23, 1,000 ft. ditched. In addition to the foregoing, 10 culverts in various locations were re-covered.

Boundary Line, Townships of Casgrain and Kendall:

Across lot 25 and part of lot 27, 5,000 ft. side ditching and 5,000 ft. re-ditched.

Township of Kendall:

Between Concessions 6 and 7, across lot 28, 3,330 ft. side ditching.

Between Concessions 6 and 7, across lot 26, 1,665 ft. cut, burned and grubbed 66 ft. wide, 3,330 ft. side ditching and 500 ft. off-take ditching.

Between Concessions 8 and 9, across lots 27 and 28, 5,630 ft. side ditched.

Between lots 24 and 25, across part of Concession 12, 4,000 ft. side ditched.

In addition to the foregoing, a bridge was constructed over Mattawishquia River at Ninth Street, Hearst, and the approaches filled and graded. Cinders were placed on 2,400 ft. of approaches to railway crossing, and 2½ miles of trunk road along railway repaired between M.P. 125, and M.P. 129.

Boundary Line, Townships of Kendall and Way:

At railway crossing, 1,400 ft. grading 22 ft. wide, 400 ft. of off-take ditch and 2 concrete culverts 18 in. diameter.

Township of Fauquier:

Between lots 12 and 13, across Concessions 3 to 6, ¾ mile cut out, 3¾ miles burned and grubbed, 9 temporary bridges constructed, 5¾ miles of side ditching, and ½ mile off-take ditching.

Between Concessions 4 and 5, across lots 6 to 12 and between lots 6 and 7, across Concessions 3 and 4, 3½ miles cut out and grubbed.

Boundary Line, Townships of Hanlan and Way:

Across lots 4, 5, 6 and 7, 3½ miles side ditching and 2,000 ft. off-take ditching.

Township of O'Brien:

Between lots 24 and 25, across part of Concession 10, 1,300 ft. ditching and 1,300 ft. re-ditching.

Between Concessions 8 and 9, across part of lot 22, 250 ft. ditching and 250 ft. re-ditching.

Township of Shackleton:

Between Concessions 10 and 11, across lots 23 to 27, 1,980 ft. cut out.

Between lots 24 and 25, across Concessions 7 and 8 and between Concessions 6 and 7, across lots 22 to 24, 4,620 ft. cut out.

KENORA DISTRICT.

Kenora—Pellatt Road:

From Tunnell Island, at Kenora, to the line between lots 11 and 12, Concession 4, Pellatt Township, a distance of about 14 miles, this road was kept dragged, 4 miles were cut out, ¾ mile stumped and grubbed, 13½ miles graded or re-graded, 5,300 ft. ditched, 12 timber culverts constructed and 12 repaired, and 2,475 cu. yds. of gravel used in surfacing and repairing.

Two miles of road on the line between lots 8 and 9, Concessions 3 and 4, known as Sandy Lake Road, were included in the operations enumerated in the foregoing paragraph.

East Melick and Charlesbois Roads:

From mining claim K104 north easterly across the Mandarin mining location, etc., to the line between lots 12 and 13, Concession 8 Jaffray, on the East Melick Road; and across lot 2, Concession 1 Melick, on the Charlesbois Road, .85 mile was cut, .47 stumped and grubbed, 1.25 graded or re-graded, 3,500 ft. ditched, 3 stone culverts constructed and 1 repaired, 50 cu. yds. rock cut, and 550 yds. of gravel used in surfacing. The work covered a distance of 3 miles.

Winnipeg River Road:

On lot 2, concession 6, Jaffray, a ¼ of a mile was cut out, ditched and graded, 60 yds. of gravel being used in surfacing.

Kenora-Keewatin Road:

The only work on this road consisted of blasting operations at a dangerous turn in the road where 12 cu. yds. of rock were removed.

East Melick Road to Redditt:

Starting at the junction with Charlesbois Road, on lot 12, Concession 8, Jaffray and continuing northwards on lot 12, Jaffray; lot 1, Concession 1, Melick; and between lots 4 and 5, across Concession 2 and south half Concession 3, 2 miles were cut out, 1.4 miles stumped and grubbed, 2.7 miles graded, 264 ft. ditched, 3 timber culverts constructed, 40 cu. yds. of rock blasted, and 532 cu. yds. of gravel used in surfacing.

West Melick Road:

From the boundary between Jaffray and Melick northwards between mining claims S 479 and D 747, etc., to the line between lots 12 and 13, Concession 3,

Melick, on the north boundary of claim S 490, a distance of 2½ miles, 2 miles were cut out 66 ft. wide and a ¼ mile 40 ft. wide, 1¼ mile was stumped and grubbed, 1½ mile graded, 14,500 ft. ditched, 9 timber culverts constructed, and 925 cu. yds. of gravel used in surfacing.

Oxdrift to Vermilion Bay:

Running along the C. P. Railway right-of-way, through the Townships of Eton, Sandford, Mutrie and Langton, 8.5 miles cut out 66 ft. wide, 9.75 miles stumped and grubbed, 13 miles graded or re-graded, 17,454 ft. ditched, 15 timber and 2 galvanized iron culverts constructed, 4,395 cu. yds. of gravel was used in surfacing and repairing, and the entire 20 miles kept dragged up and in good condition.

Dryden to Wabigoon:

Running along the C. P. Railway right-of-way, through the Townships of Wainwright and Zealand, a distance of 17 miles. This road was kept in repair.

Township of Aubrey:

"Lyles Road," between lots 8 and 9, across Concessions 5 and 6 thence southerly across I.R.27 and between lots 6 and 7, on south half of Concession 4, together with a branch road running north-easterly across lots 4, 5 and 6 from the south east corner of lot 7, Concession 4. One mile cut out, 1½ miles brushed 30 ft. wide, 4½ miles stumped, grubbed and graded, 400 ft. ditched, and 3 timber culverts constructed.

"Aubrey-Oxdrift" Road, between lots 3 and 4, Concession 6, ¼ mile cut, stumped and grubbed, ½ mile graded and ditched, 2 timber culverts constructed, 420 ft. of cross-laying, and 150 yds. of gravel used in surfacing and repair.

Townline between Aubrey and Eton:

"Snider's Road," across lots 1, 2 and 3, 1 mile stumped and grubbed, 1½ miles graded and ditched, 5 timber culverts constructed, 365 ft. of road cross-laid, and 300 ft. of creek cleaned out to secure drainage.

Township of Drayton:

"Road to Alcona Station," between lots 1 and 2, across Concession 1, between Concessions 1 and 2, across lot 2, between lots 2 and 3, across Concessions 2 and 3, and across lot 2, Concession 2 from foregoing to station, 3 miles cut and burned 66 ft. wide, 3 miles stumped and grubbed 35 ft. wide, 1¾ miles graded, 3,540 ft. ditched, 2 stone culverts constructed, ½ mile of road cross-laid, and 900 cu. yds. of gravel used in surfacing.

Township of Eton:

Between lots 6 and 7, across north half Concession 4 and south half Concession 5, between lots 7 and 8, across Concession 4 and south half Concession 5, between lots 8 and 9, across south half Concession 5, between Concessions 3 and 4, across lots 7 and 8, and between Concessions 4 and 5, across parts of lots 6, 7 and 8.

.38 mile cut out 66 ft. wide, .65 cut out 35 ft. wide, 1.65 miles stumped and grubbed, 8,216 ft. ditched, 3 timber culverts constructed, and 110 yds. of cross-laying repaired.

Between lots 2 and 3, across Concessions 4 and 5 and between Concessions 4 and 5, across lot 2, 2.4 miles cut out and burned, 2½ miles stumped and grubbed, 1.85 miles graded, ¾ mile ploughed only, 540 ft. ditched, and 9 timber culverts constructed.

Between lots 10 and 11, across Concessions 2 and 3, 1 mile cut out and graded, 2,475 ft. of ditching, 1 mile of repairs, and 4 timber culverts put in.

Between Township of Eton and Township of Wainwright, across Concessions 2 and 3, ½ mile cut out, 1¼ miles stumped and grubbed, 2 miles graded, 1,085 ft. of ditching, and 5 timber and 1 iron culvert constructed.

Townships of Vanhorne and Zealand:

"Sandy Beach Road," between Concessions 4 and 5, across lots 1 and 2 Vanhorne, and 23 Zealand, 1½ miles brushed out, 310 ft. ditched, 1 culvert repaired, and 1¾ miles dragged.

Township of Wainwright:

Between lots 4 and 5, across Concessions 1 to 4, between lots 3 and 4, across north half Concession 1, between lots 2 and 3 across north half Concession 1 and south half Concession 2, between Concessions 1 and 2 across lots 1 to 4 and across lot 23 Zealand Township, and between lots 22 and 23 across north half Concession 7 Zealand, 3¼ miles cut out, ½ mile stumped and grubbed, 5¼ miles graded, 5,678 ft. of ditching, 9 timber and 3 iron culverts constructed, 1 bridge built, 885 cu. yds. gravel used in surfacing, and the whole road dragged and washouts repaired.

Township of Wabigoon:

Between lots 8 and 9 across north half Concession 3 and south half Concession 4, between lots 2 and 3 across Concession 5 and north half Concession 4, between Concessions 5 and 6 across lots 3-12, and on the Trunk Road from Vermilion Bay on lot 5, Concession 4, Langton, to Quibel on lot 8, Concession 5, Wabigoon, 5 miles cut out and burned, 2½ miles stumped and grubbed, 3½ miles graded, 3,925 feet of ditching, 22 timber culverts and 1 timber bridge constructed, 68 yards of gravel used in repairing, and dragging carried on over a distance of 12½ miles of road.

Township of Zealand:

Between Concessions 8 and 9 across lot 19, and between lots 19 and 20 across Concessions 7, 8 and part of 9, 1½ miles cut out, stumped and grubbed, ⅓ mile graded, 4,650 feet of ditching, 3 timber culverts and one bridge constructed, 942 yards of gravel used in surfacing and repair and one mile dragged.

MATHESON DISTRICT.

Township of Beatty:

Between lots 9 and 10 across Concessions 1 and 2, 2 miles graded, 400 feet of offtake ditching, 11 timber culverts and 1 timber bridge, 20 x 16 x 6 constructed.

Townline Townships of Beatty and Hislop:

Across lots 1-3, 1 timber culvert constructed and holes in 1½ miles of road, caused by bush fires, repaired.

Townline Townships of Beatty and Carr:

Across Concessions 3 and 4, 1½ miles gravelled.

Township of Benoit:

Between Concessions 1 and 2 across lots 4-8, 15 timber culverts constructed.

Townline Townships of Benoit and Cook:

Across lots 6-8, ¾ mile cut out.

Township of Bond:

Between lots 2 and 3 across Concession 3, ⅓ mile cut and burned.

Between lots 2 and 3 across Concession 5, 7-10 miles burned, stumped, grubbed and graded, 1,700 feet of offtake ditching, and 9 timber culverts constructed.

Township of Bowman:

Trunk Road south-east from Matheson, Concessions 5 and 6, lot 4, ½ mile gravelled, 66 feet offtake ditching, 2 timber culverts constructed, 1 mile of road regraded.

Between Concessions 4 and 5 across lots 8-10, ¼ mile burned. Between lots 10 and 11, Concession 6, one mile graded, 300 feet offtake ditching, 6 timber culverts and 1 timber bridge, 80 x 16 x 8, constructed.

Between lots 6 and 7, Concession 4, ⅛ mile graded and 1 timber bridge 20 x 16 x 8 constructed.

Between lots 2 and 3, Concession 3, 1 mile cut and burned.

Town Lines between Bowman and Carr, Bowman and Currie and Currie and Taylor:

1½ miles gravelled, 3 bridges repaired, 4 miles regraded, 2 timber culverts constructed, 1,500 feet side ditching, 1 mile repaired.

Across Concessions 4 and 5, Bowman and Currie, 1,540 feet offtake ditching, 5 timber culverts constructed, 3,868 feet muskeg covered with clay and one mile dragged.

Township of Carr:

Trunk Road through Concession 2, ½ mile gravelled.

Between lots 4 and 5, Concessions 1 and 2, 1 bridge repaired, 1 bridge constructed.

Between Concessions 2 and 3, lot 5, 3 concrete culverts, 2 timber bridges, and ¼ mile of road regraded.

Between Concessions 4 and 5, lots 5-8, 2 miles graded, 8 timber culverts.

Between Concessions 3 and 4, lots 5 and 6, 1 mile burned, stumped and grubbed.

Townline Townships of Currie and Bond:

Across Concession 3, 1,650 feet of road cut and burned, 66 feet wide.

Township of Hislop:

Between lots 3 and 4, Concessions 4 and 5, 1¾ miles cut and burned, 1 mile stumped and grubbed and 1 timber bridge, 106 ft. x 16 ft. x 10 ft. constructed.

Between Concessions 5 and 6, lots 2 and 3, 1 mile cut, burned, stumped and grubbed.

Between Concessions 3 and 4, lots 4 and 5, 1 mile cut, burned, stumped and grubbed.

Between Concessions 2 and 3, lots 10 and 11, 1 mile cut, burned, stumped and grubbed.

Between Concessions 5 and 6, lot 10, covering of bridge repaired.

Townline Townships of Hislop and Playfair.

Across lots 9 and 10, 1 mile stumped, grubbed and graded, 875 feet offtake ditching and 4 timber culverts constructed.

Township of Maisonville:

Between Concessions 1 and 2, lot 7, 1 timber culvert and 2 timber bridges constructed.

Township of Playfair:

Between Concessions 5 and 6, lot 4, bridge over Black River repaired, and 1 timber culvert repaired.

Between lots 3 and 4, Concession 3, 1 mile of road burned 66 ft. wide.

Between lots 2 and 3, Concession 5, 1 mile graded, 300 feet of offtake ditching, 5 timber culverts and 1 timber bridge constructed.

Between Concessions 5 and 6, across lots 9-11, 1½ miles graded, 700 feet offtake ditching, 3 timber bridges and 6 timber culverts constructed.

Between lots 8 and 9 through Concession 6, 1,980 feet of muskeg road covered with clay.

Trunk Road through Concession 5 across lots 5 and part of 4, 3,498 feet graded, 800 feet of offtake ditching and 3 timber culverts constructed.

Between lots 2 and 3, Concession 6, 1 mile graded, 500 feet offtake ditching and 8 timber culverts constructed.

Township of Stock:

Between Concessions 1 and 2 across lots 3-6, 2 miles stumped, grubbed and graded, 1,000 feet offtake ditching, 8 timber culverts and 2 timber bridges constructed.

Between lots 2 and 3, Concession 2, ½ mile stumped, grubbed and graded, 500 feet offtake ditching and 4 timber culverts constructed.

Between Lots 4 and 5, Concession 5, 2 miles side ditching and 1,518 feet offtake ditching.

Between Concessions 4 and 5, across lots 1-4, 1 mile burned, stumped and grubbed, 1½ miles graded, 900 feet offtake ditching and 8 timber culverts constructed.

Townline Townships of Stock and Taylor:

Across Concessions 1 and 2 and part of 3, 2½ miles gravelled.

Township of Taylor:

Between lots 8 and 9 and between Concessions 5 and 6, 2 miles gravelled, 8 timber culverts constructed and 2 miles repaired.

Between lots 2 and 3, Concessions 1 and 2, ½ mile burned, stumped and grubbed, 2 miles graded, 300 feet gravelled, 800 feet offtake ditching and 12 timber culverts constructed.

Between Concessions 4 and 5, lot 11, 1 timber bridge 122 ft. x 16 ft. x 11 ft. constructed.

Between lots 10 and 11, Concessions 1 and 2, 347 feet cut out, 1 mile stumped, grubbed and graded, 2,838 feet side ditching, 3 timber culverts constructed and 2 repaired.

Between Concessions 2 and 3 across lot 6, 1,000 feet of muskeg road covered with clay.

Between lots 4 and 5, Concession 5, 1 mile burned, stumped and grubbed.

Between Concessions 3 and 4, lot 3, ⅜ mile graded, and 2 timber culverts constructed.

Between Concessions 1 and 2, lots 11 and 12, 1 mile cut and burned.

Townline Townships Taylor and Walker:

Across lots 2-6, 2½ miles stumped and grubbed, graded and culverts and bridges constructed.

Trunk Road, Concessions 1 and 6, 4,620 feet graded, 200 feet offtake ditching, and 3 timber culverts constructed.

Township of Walker:

Between Concessions 2 and 3, lot 9, 1 timber culvert constructed.

Between Concessions 2 and 3, lot 8, ½ mile stumped, grubbed and graded and 2 timber culverts constructed.

Between Concessions 4 and 5 across lots 9-11, 1½ miles graded, 925 feet of offtake ditching, and 7 timber culverts constructed.

Between lots 10 and 11, Concession 1, ½ mile burned, stumped and grubbed.

Between lots 4 and 5, Concessions 1 and 2, 2 miles cut, burned, stumped and grubbed.

Between lots 10 and 11, Concession 3, ½ mile burned, stumped, grubbed and graded, 600 feet offtake ditching and 2 timber culverts constructed.

Between lots 8 and 9, Concession 3, ½ mile burned, stumped and graded and 2 timber culverts constructed.

MUSKOKA DISTRICT.

Road from Utterson to Parry Sound:

In the Township of Stephenson and on the Watt-Stephenson townline, 5½ miles graded, 16,500 feet ditching, 1 timber, 1 stone and 5 iron culverts installed and 208 cubic yards gravel used in surfacing and repairs.

Road from Falkenburg to Beatrice and North to Ufford Road:

In the Townships of Macaulay and Monck and on the Watt-Stephenson townline, 5 miles graded, 1,697 cubic yards gravel used in surfacing and repairs, one mile of ditching, 3 stone and 3 metal culverts installed, and 15½ miles dragged.

Road construction—Muskoka District.

DISTRICT OF NIPISSING.

Trunk Road Callander to Mattawa:

In the Township of Ferris, between Concessions 8 and 9 across lots 10 to 22 and between lots 9 and 10 across Concessions 7 and 8, 2 miles cut out, 10 miles of dragging, 1 mile ditching, 4 timber and 11 stone culverts installed, and 2,330 cubic yards of gravel used in surfacing and repairs.

Road from Feronia to Widdifield:

In the Township of Widdifield, 3.2 miles of road cut and burned 66 feet wide, stumped and grubbed 26 feet wide, ready for grading; this connects up the Widdifield settlement with the Town of North Bay.

Township of Chisholm:

Between lots 10 and 11 across Concessions 10 and 11; between Concessions 10 and 11 across lots 6-15; between lots 5 and 6 across Concessions 11 and 12; between

Concessions 12 and 13 across lots 1 to 5 on the Chisholm Road, 2½ miles cut out, ½ mile stumped and grubbed, 4 miles graded, 826 cubic yards of gravel used in surfacing and repairs, 4,240 feet of ditching, 9 timber culverts constructed and 9 miles dragged.

Township of Widdifield:

On the Trunk Road between North Bay and Trout Mills, 1½ miles brushed out, 660 cubic yards gravel used in surfacing and repairs, 450 feet of ditching, 2 miles dragged, 1 timber culvert constructed.

Townships of Himsworth and Chisholm:

On the line between Concessions 12 and 13 across lots 1-15, Himsworth, and 1-5, Chisholm, 5½ miles graded and dragged, 166 cubic yards gravel used in surfacing and repairs, 1 timber and 8 stone culverts constructed.

Newly-made road—Parry Sound District.

PARRY SOUND DISTRICT.

Road from Barnesdale to Footes Bay:

In the Township of Conger, from Barnesdale, southwards, ¾ mile of road was cut out, stumped and grubbed.

Road from Powassan to Nipissing and Restoule:

From lot 14, Concession 16, Gurd, to lot 27, Concession 6, Nipissing, between Nipissing Village and Restoule, 1 mile graded, 630 cubic yards gravel used in surfacing and repairs, 17 timber culverts installed and one bridge (timber and stone) constructed.

In the Township of Himsworth, 130 cubic yards of gravel used in surfacing and repairs between lots 20 and 21 across Concession 15. Between Powassan and

Nipissing, 10 miles were dragged and ¼ mile repaired; 117 yards of gravel used and 1 bridge repaired from north-east corner of lot 11, Concession 10, to south-west corner lot 13, Concession 10, Nipissing, and lot 25, Concession 18, Himsworth.

In the Township of Nipissing 882 cubic yards of gravel used and 1¼ miles road dragged across lots 27 and 28, Himsworth, and lots 1-8, Nipissing, between Concessions 18 and 19.

Across lots 15 and 16, Concession 9, north boundary lot 13, Concession 10 to south-east corner lot 20, Concession 8, across lots 16-20, Concession 7; lot 14, Concession 10 to lot 21, Concession 7, 1¾ miles cut out, 2 miles stumped and grubbed, 3¾ miles graded, 1,882 yds. gravel used in surfacing, etc., 5,880 feet side ditching, 16 stone, 9 timber and 7 timber and stone culverts constructed and 2 miles of road repaired.

Steel Bridge—Timmins, Mattagami River.

Commanda Road:

In the Township of Gurd, 2½ miles cut out, 2 miles stumped and grubbed, 3½ miles graded, 1,318 cubic yards gravel used in surfacing and repairs, 7,920 feet of ditching, 33 timber, 6 stone and 6 iron culverts constructed, ½ mile cross-laying 12 feet wide, 8 miles of road dragged, and 320 rods wire fencing.

PORCUPINE DISTRICT.

Township of Mountjoy:

Trunk road north of Mattagami River from bridge on lot 2, Concession 2 to line between lots 9 and 10, 3¼ miles graded, 500 feet of cross laying 10 feet wide, 3.2 miles ditching, ½ mile dragged, 4 timber culverts constructed and 1,110 yards of gravel used in surfacing and repairs.

Trunk Road south of Mattagami River from Mountjoy Bridge on lot 2, Concession 2 to half-way across lot 5, Concession 1, 2¾ miles graded and 200 cubic yards gravel used in surfacing and repairs.

Trunk Road east of Mattagami River across Concession 5, 300 feet stumped and grubbed, 670 feet cross laying 16 ft. wide, 360 cubic yards filling and 400 cubic yards gravel used in surfacing and repairs. Between lots 4 and 5, across Concession 3 and north half Concession 2, ½ mile burned, 1 mile grubbed, 250 ft. cross laying, 11,040 ft. ditching and 5 timber culverts constructed.

Townline Townships of Shaw and Delora:

Timber bridge constructed over Shaw Creek, 40 ft. x 16 ft.

Township of Tisdale:

On Lot 12, Concession 2, 75 acres cut and burned in Timmins fire guard.

On the Trunk Road from South Porcupine to Schumacher, considerable grading and gravelling was done under the supervision of the Township Council. A contract for approximately 2,000 yards of gravel was let, and at least an equal quantity was placed on the road by day labour. Operations were carried on over approximately 4 miles of road, 1,400 feet of which was covered with rock, 18 feet wide, one clay cut 200 feet in length and one timber culvert constructed 25 ft x 5 ft. 6 in. x 4 ft. After sheeting with gravel, the road was graded, raked and rolled.

Bridge over Mattagami River at Timmins:

For a number of years a scow crossing on lot 2, Concession 2, Mountjoy Township, carried all the traffic into the agricultural portion of the township from the Town of Timmins. This has been replaced by a steel bridge, in two spans, 125 feet each, which was erected on substructure partially completed in 1919.

RAINY RIVER DISTRICT.

Trunk Road, Fort Frances to Rainy River:

Starting in the Township of McIrvine at Fort Frances and running practically alongside the Canadian National Railway to Rainy River, in the Township of Attwood, a distance of approximately 60 miles, this road has been kept in very good condition. Dragging operations were carried on when weather conditions were favourable, gravel sheeting was placed where surface showed signs of wear, and soft spots were drained and afterwards gravelled. Four miles cut out or brushed, 27½ miles regraded, 11,140 cubic yards gravel used in surfacing, 9,007 feet of ditching, 12 wood culverts constructed, two culverts and 8 bridges repaired, 60 cubic yards of stone and 60 cubic yards of clay used in filling.

Main Roads:

"Sleeman-Bergland Road," 5 miles, "Spohn Road," north from Rainy River, 4 miles and "Carpenter-Dobie Road," 4 miles were kept dragged and in fair condition.

Carpenter-Dobie Townline:

This four miles of road in addition to dragging had 110 rods covered with 222 yards of gravel and one timber culvert constructed.

Township of Carpenter:

Between lots 5 and 6 across Concession 5, 3,795 feet ditching.

Townships of McCrosson, Tovell and Morson:

In McCrosson Township between lots 2 and 3, north half Concession 3, and between Concessions 3 and 4, across lots 1 and 2, on line between McCrosson and Tovell across Concessions 4 and 6, and on line between lots 12 and 13 across Concessions 1 and 2, Morson, 2½ miles cut out, 1 mile stumped and grubbed, ½ mile graded, 1,640 feet ditching and 2 timber culverts constructed.

Township of Nelles:

Between Sections 7 and 8, south half, ¼ mile grading, 4,290 feet ditching and 1 timber culvert.

Between Sections 22 and 23, 1.2 miles cut out, 1 mile stumped and grubbed, and graded, and 6,625 feet of ditching.

Township of Potts:

Between lots 2 and 3 across Concessions 1, 2 and 3, one mile graded and 660 feet ditched.

Township of Tovell:

Between Concessions 2 and 3 across parts of lots 7 and 8 and across lot 11, ¼ mile cut out 66 feet wide, 1-10 mile graded, and 300 feet ditched.

SAULT STE. MARIE DISTRICT.

Trunk Road, Sudbury to Sault Ste. Marie:

This road, two hundred miles in length was divided for maintenance purposes into three divisions, the western under J. Leacock, the central under J. E. Wright and the eastern under H. C. Halford, as foremen. A regular patrol was established in order that washouts and bad places might be promptly repaired. At the same time one-third of the entire distance was re-gravelled and other betterments made.

The section between Algoma and Cutler, 19 miles in length, on which work commenced in 1919, was completed with the exception of the surface gravelling of four miles. One 20-foot reinforced concrete bridge was built on this section. Particular care was taken on this section with grades, alignment and drainage and all swampy stretches were drained and stone filled.

Owing to shortage of labour and the necessity of finishing the above section by the middle of July, it was not possible to run the rock crushing plant to capacity. A sufficient quantity was crushed, however, to surface some of the softer portions of the roadbed. The plant was moved to the vicinity of Webbwood, where it is installed ready for operation in the ensuing season.

A fill of five thousand yards was made at the Town of Blind River to replace a condemned wooden structure leading to the bridge over the Blind River. This fill was riprapped, gravelled and railed. The following figures give a summary of

the work carried on during the season: 28.1 miles were cut out, 9.5 miles brushed, 11 miles burned, 2.17 miles stumped and grubbed, 28.41 miles graded, 14 timber and 73 iron culverts were constructed, 2 rebuilt and 2 repaired, 4 bridges repaired, 138 miles dragged, 109 miles repaired, 580 yards of crushed stone and 159,084 yards of gravel used in surfacing, 1,084 yards of stone fill, 98,615 feet of ditching and 6 miles of ditches cleaned.

Goulais Bay Road:

From Sault Ste. Marie to Goulais Bay, in the Township of Pennefather, general repairs and dragging, 2 timber and 5 iron culverts constructed, 180 feet of ditching, and 293 yards of gravel used in surfacing. The diversion at Calamity Hill affording a grade of 9 per cent. in place of one of 20 per cent. was completed, three thousand yards of earth and hardpan being moved.

Macadam road under construction.

Shaw Road, Township of Bridgeland:

One 90-foot bridge, one 35 feet and one 30 feet repaired.

Wells Road, Township of Wells:

Six miles brushed, 4 timber culverts constructed, 7,940 ft. of ditching, and 780 cu. yds. of gravel used in surfacing and repairs.

Township of Louise:

Between lots 7 and 8, Concession 5, and across lot 8, Concession 4, ¾ mile stumped and grubbed, ¼ mile graded, 250 ft. ditched, and ¼ mile repaired.

Between lots 7 and 8, Concession 5, and across northerly end of lots 8 and 9, Concession 4, 1 mile cut out, stumped, grubbed and ditched, 4 timber culverts constructed, ½ mile repaired using 50 cu. yds. of gravel.

Campement d'ours Road:

From north-east side of Camp d'ours for 70 rods south, ¼ mile of road dragged, 1,860 ft. of ditching, 2 timber and 1 iron culvert constructed, and 255 cu. yds. of gravel used in surfacing. The cut on the hill at the northerly end of this road was completed, leaving a final grade of 11 per cent.

Across Island from St. Joseph to Kensington Point, 8 timber culverts constructed, 1¾ miles dragged, 4,620 ft. of ditching, and 631 cu. yds. gravel used in surfacing and repairs.

St. Joseph Island:

In the Townships of Jocelyn, St. Joseph and Hilton, 2½ miles cut out, ½ mile graded, 3 iron, 6 wooden and 1 stone culverts constructed, 169 miles of dragging (several portions of the roads being dragged more than once) 13,233 ft. of ditching, and 507 cu. yds. of gravel used in surfacing and repairs.

Manitoulin Island:

Township of Allan:

Between Concessions 8 and 9, across lots 1 to 28 on the Gore Bay-Little Current Road, 1½ miles dragging, 1 mile grading, 1,017 cu. yds. of gravel used in surfacing and repairs, and 1 timber and stone culvert constructed.

Townships of Assiginack and Sheguindah:

Five miles of the road running northwards from Manitowaning were repaired, 480 cu. yds. of gravel used.

Township of Bidwell:

Between Concessions 10 and 11, across lots 16 to 26, on the Gore Bay-Little Current Road, ¼ mile cut out, stumped and grubbed 66 ft. wide, 2 miles graded, 1 stone and 5 wooden culverts constructed, 1½ miles dragged, 1,300 cu. yds. earth fill over flat rock as a foundation for gravel, 1,280 ft. of ditching, and 435 yds. of gravel used in surfacing and repairs.

Township of Billings:

Between Concessions 14 and 15, across lots 21 to 30, Billings, and across lots 1 to 4, Allan, on the Gore Bay-Little Current Road, 2.5 miles graded, 1 timber culvert constructed, and 210 cu. yds. gravel used in surfacing and repairs.

Between lots 21 and 22, across Concessions 9, 13 and 14 on same road, 3¾ miles dragged, 4 timber culverts constructed, and 265 cu. yds. gravel used in surfacing and repairs.

Township of Burpee:

Between Concessions 7 and 8, across lots 17 to 22 on the road from Gore Bay to Silverwater, ¼ mile cut out, stumped and grubbed, 2 miles graded, and 239 yds. gravel used in surfacing and repairs.

Township of Campbell:

Between Concessions 2 and 3, across lots 26 to 29 and between lots 25 and 26, across Concessions 3 and 4 on the road from Gore Bay to Providence Bay, 1½ miles cut out, 1¼ miles graded, 333 cu. yds. gravel used in surfacing and repairs, and ½ mile dragged.

Between Concessions 10 and 11, across lots 1 to 10 and on townline between Campbell and Carnarvon, across Concessions 11 and 14 on same road, 1¼ miles cut out, ¾ mile stumped and grubbed, 2¼ miles graded, 857 cu. yds. gravel used in surfacing and repairs, 1 stone and wood and 2 stone culverts constructed.

Township of Carnarvon:

Between Concessions 6 and 7, across lots 1 to 5 on road from Providence Bay to Mindemoya, 1¼ miles graded and 600 yds. gravel used in surfacing and repairs.

Between Concessions 6 and 7, across lots 7 to 13 on Providence-West Bay Road, and along eastern shore of Mindemoya Lake on Concessions 1, 2 and 3 and lots 16 to 23, ¼ mile graded and 124 cu. yds. gravel used in repairs.

Township of Dawson:

Along western shore of Mildrum Bay on road from Silverwater on lots 23 and 24, ½ mile graded and 150 yds. of gravel used in repairs.

Township of Gordon:

Through lots 22 and 23, Concessions 2 to 5, on road to Indian Point Bridge, 2¼ miles cut out, 1½ miles stumped, 1¼ miles graded, 823 cu. yds. gravel used in surfacing and repairs, 5 timber and 7 stone culverts constructed.

Six miles of the road from Gore Bay to Providence Bay, along townline between Gordon and Allan, northerly side of Concession A to west boundary of lot 5, Gordon, and thence north to line between Concessions 9 and 10, Gordon, were repaired.

Township of Robinson:

Between lots 3 and 4 across Concession 5, between Concessions 5 and 6 across lots 4 and 5, between lots 5 and 6 across Concession 6, and across Concession 7 on lot 6, road from Silverwater to Gore Bay, 1½ miles cut out, 1¼ miles stumped and grubbed, 1½ miles graded, 1,291 cu. yds. gravel used in surfacing and repairs, 2 timber, 3 stone and 1 timber and stone culverts constructed, and 1 mile dragged.

SUDBURY DISTRICT.

Shining Tree Road:

In the Township of Askwith, 3¼ miles cut out, 2/5 mile stumped and grubbed, ½ mile graded, 7,509 cu. yds. gravel used in surfacing and repairs, 1 mile ditching, 18 culverts constructed, and 6,030 ft. of cross-laying. In all, about 6 miles of road was sheeted and repaired.

Sudbury to Chelmsford:

In the Township of Rayside, between Murray Mine and Azilda, 68 cu. yds. of gravel and 60 cu. yds. of crushed rock were used in repairs over a distance of 3 miles.

From Chelmsford to 4 miles east of Azilda, in the Townships of Balfour and Rayside, 12 miles were re-graded and 2 iron and 3 timber culverts constructed.

Sudbury to Capreol:

In the Townships of McKim and Blezard, from Sudbury, north for 5 miles, 1,161 cu. yds. of gravel used in surfacing and repairs and 1 iron culvert constructed.

Copper Cliff to Creighton:

In the Township of Waters, from 4 miles west of Copper Cliff to 4 miles east of Creighton, this road was repaired with 360 cu. yds. of gravel.

Warren-St. Charles Road:

On the section from 3 miles south of Warren to 6 miles south of Warren 547 cu. yds. of gravel used in repairs.

From St. Charles south, a distance of 6 miles, 1,878 cu. yds. of gravel used in repairs.

Sturgeon Falls to Field:

In the Townships of Field and Springer, 4¾ miles graded, 2,186 cu. yds. of gravel used in surfacing and repairs, and 3 timber culverts constructed.

Sturgeon Falls to Smoky Falls:

In the Township of Springer, 2½ miles cut out, 3½ miles graded, 2,308 cu. yds. gravel used in surfacing and repairs, 1,820 ft. of ditching, and 5 timber culverts constructed.

THUNDER BAY DISTRICT.

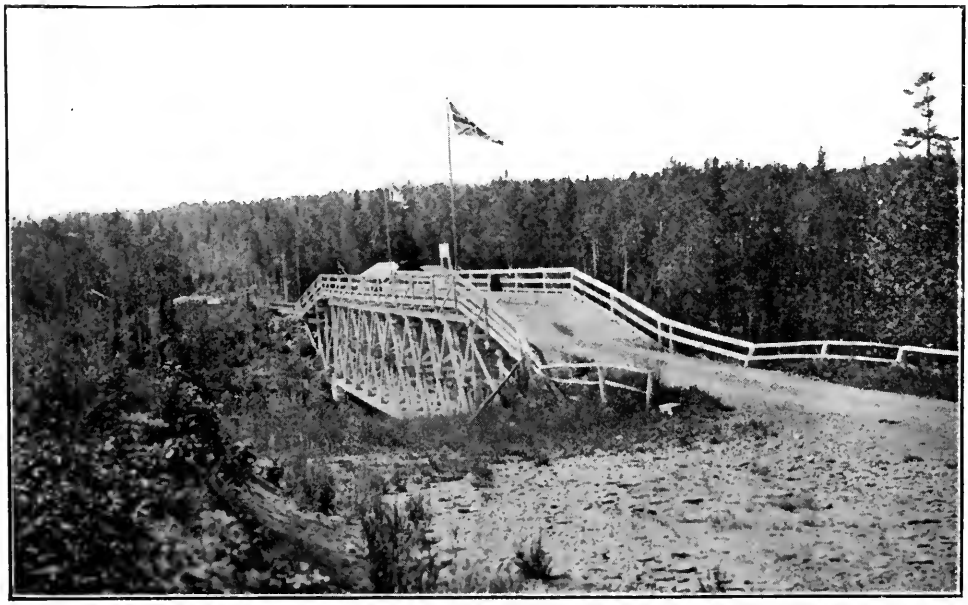
International or Scott Highway:

This highway has carried a heavy traffic from the Minnesota boundary at Pigeon River, to Fort William. Inspection of the road towards the end of the season gave evidence that the general maintenance work carried on had preserved the road surface generally and, notwithstanding the heavy traffic, it was in very fair condition for travel.

One bridge was raised 3 ft., 6,764 cu. yds. of gravel or shale were used in patching and re-surfacing, 39 timber and 6 iron culverts were constructed, and 35 miles of the road was dragged when weather conditions suited for this form of maintenance.

At one rather dangerous curve a large clay cut was made and the road widened sufficiently to minimize the danger, and to carry this out successfully necessitated the construction of high rip rap to prevent the fill sliding down the banks of the Pigeon River. At other curves the road was kept brushed out to provide as clear a view ahead as possible.

In the latter part of the season an attempt was made to establish a maintenance patrol with considerable success; the road was repaired with gravel, dragged, and ditched along the Horn Hill; 2 timber culverts were reconstructed and 300 ft. of ditches opened.



International Bridge—Pigeon River, Port Arthur-Duluth Road.

Loon Lake or Black Bay Road:

Running easterly from Port Arthur, it is intended that work on this road will be continued until it reaches Nipigon and effectually opens up the fine agricultural Townships of Dorion, Stirling and Nipigon.

The season's efforts were confined mainly to the Township of McGregor, and consisted of repairs and improvements to the existing road, and new construction along the Hydro-Electric pole line to the McKenzie River, where concrete abutments were constructed to carry a 60-ft. steel girder bridge. A small amount of new work was done east of the McKenzie but only in connection with hill cutting in making the eastern approach to the bridge.

Four miles of road were brushed out, 4.75 miles were cut, 5 miles stumped, 3 miles grubbed, 3 miles graded, and 5¼ re-graded, 4,850 cu. yds. of gravel was

used in re-surfacing, etc., 21,000 ft. linl. of ditching, 26 culverts constructed, 5 miles dragged, and 4 miles widened. These operations were carried on over about 20 miles of road.

Arthur St. Road:

This, the main road running west from Fort William through Neebing and Paipoonge Townships, was maintained in good condition. The road was dragged several times, 2½ miles cut out, 5 miles re-graded, 1 culvert constructed, 400 ft. ditching, and 2,897 cu. yds. of gravel used in re-surfacing and repairing bad spots.

Olliver Road:

In a parallel direction to the Arthur St. Road, this is the main road west from Port Arthur, through McIntyre, Olliver and other Townships. Twelve miles of dragging was done on the road and 272 cu. yds. of gravel used in surfacing a bad clay spot in Olliver Township.

Kakebeka-Hymers Road:

On the line between Concessions 6 and 7 and between lots 6 and 7, in the Township of O'Connor, 1,459 cu. yds. of gravel was used in re-surfacing and repair of this road.

Silver Mountain Road:

Through the Townships of Gillies, O'Connor and Paipoonge, this road runs in a south-westerly direction from the Arthur Street Road, and the season's work included: 3 miles of cutting, 3½ miles of stumping and grubbing, 4¼ miles of grading, 300 ft. of ditching, 13 wooden culverts and 1 stone culvert were constructed, 1,000 cu. yds. of gravel was used in re-surfacing and repair, and 2 miles were dragged.

In addition to the foregoing, an amount of $480 was spent on this road through the Township of Lybster—this is included in the report under that township.

Dawson Road:

Running north-westerly from Port Arthur through the Townships of McIntyre and Ware to Kaministiquia, this road carries a heavy traffic and will require a considerable expenditure to put it in good condition. Gravelling over the clay stretches, drainage and hill cutting are necessary, and it is the intention to proceed with this as soon as possible. This season's work consisted of 1½ miles of cutting out, brushing, stumping and grubbing, 462 ft. of ditching, the contruction of 5 wooden culverts, the repair of 3 others, and the repair of the worst spots in the road with gravel.

Township of Conmee:

Road cut, graded, ditched and 6 culverts constructed across lot 10 on south boundary. Seven and three-quarter miles were re-graded, 6 culverts built, 395 cu. yds. gravel and 93 yds. crushed stone were used in surfacing and repairing on the road across Concession 1, and thence between lots 6 and 7, lots 4 and 5, and east side of lot 1.

Township of Dorion:

On line between lots 12 and 13 from 5th Concession line to 3rd Concession line, ¾ mile was brushed 66 ft. wide, 561 cu. yds. gravel was used in surfacing, etc., and 4 timber culverts were constructed.

From lot 10, Concession 3, to lot 7, Concession 6, 1,650 ft. of ditching, 413 yds. of gravel used on surface, 9 timber culverts constructed, and 1 bridge on lot 7, Concession 6, repaired. Operations for the season were carried on over a distance of 15 miles.

Township of Gorham:

One bridge repaired and 3½ miles dragged on east boundary, north from McIntyre townline.

Four culverts constructed, 600 ft. ditched, ¼ mile graded, and 500 cu. yds. gravel used in surfacing of road between Concession 5 and Concession 6, across lot 18, and road between lots 16 and 17, across parts of Concession 3 and Concession 4.

One and a quarter miles cut out, 1 mile stumped and grubbed, ¾ mile graded, 1,370 ft. ditched, 2 stone and 2 wooden culverts constructed, and 12 miles of cross-laying on road between Concessions 3 and 4, across lots 6, 7, 8, and part of 9.

Township of Gillies:

One and a quarter miles of cutting, ¾ mile burning, 1¾ miles stumping and grubbing, 3 miles grading, 2,940 ft. ditching, 8 concrete and 9 timber culverts, 1 bridge repaired, and 1 mile dragged on the side roads between lots 8 and 9, Concessions 1, 4 and 5, between lots 6 and 7, Concessions 2 to 5 inclusive, between lots 4 and 5, Concession 1, between Concessions 1 and 2, across lots 9 and 10, between Concessions 5 and 6, across lots 8 and 9, and on lot 7, Concession 6.

Township of Lybster:

On the main road to Silver Mountain, 7 miles, road between lots 4 and 5 and between lots 8 and 9, road running north-west across lots 9 to 12, and road through lots 9 to 12 in Concession 3 to 5, there were 3¼ miles cut out, 15,840 ft. of ditches cleared, 46 timber culverts re-built, and 8 miles dragged.

Township of Marks:

One-half mile cut out, 2 miles stumped and grubbed, four miles graded, 1,400 ft. ditched, 14 timber culverts and 2 bridges constructed, ½ mile cross-layed, and 1 mile dragged on the following: line between Concessions 6 and 7, lot 1, across lot 5, Concession 3, between Concessions 1 and 2, lots 1 and 2, between lots 6 and 7, Concession 3, between lots 4 and 5, Concessions 1 and 3, between lots 2 and 3, Concessions 1 and 2, and on eastern boundary south half Concession 4.

Township of Pearson:

Six and a half miles cut out, 6 miles stumped and grubbed, 3¼ miles graded, 3,150 ft. ditched, 27 timber and 1 stone culvert constructed on line between lots 22 and 23 across Concessions 1 to 3, line between lots 20 and 21, Concession 3, line

between lots 17 and 18, Concession 2, and line between Concession 2 and 3, lots 18 to 20. On the road known as Pearson Trunk Road, situate on line between lots 6 and 7 across Concession 1 Scoble, and Concession 4 and 5 Pearson, thence along line between Concessions 3 and 4, across lots 7 to 10, south between lots 9 and 10, across Concessions 2 and 3, north-west across lot 11, Concession 4, between Concessions 4 and 5, across lot 12, and between lots 12 and 13, across Concession 5, had 1 bridge and two culverts repaired, 6 culverts constructed, and 3,035 ft. ditched.

Township of Scoble:

One mile of cutting and grading on east and west road across lots 1 to 12 on Concessions 1 and 2.

Sunday traffic—International Bridge, Pigeon River—Port Arthur and Duluth Railway.

Township of Stirling:

One mile and a half of the old Colonization Road was cut out 40 ft. wide, stumped and grubbed 20 ft. wide, cross-laid for 50 ft., and 1 culvert constructed.

Township of Strange:

Across lots 9 to 12 in Concession 2, the Trunk Road was cut out 40 ft. wide, 2 miles, and stumped and grubbed 20 ft. wide for 1½ miles.

Township of Ware:

On the line between Concessions 2 and 3 across lots 1 to 6, 3 miles were cut out, 1¾ miles burned, and 1¼ miles stumped and grubbed. On the road known as the "Old Mining Road," from Dawson Road, lot 18 to lot 13, Concessions 2 and 3 Ware, 1 mile was cut out 50 ft. wide, ½ mile stumped and grubbed, 4,370 ft. ditched 3 timber culverts constructed, and 669 yds. of gravel used on this road, and repairs on the Dawson Road.

Appendix No. 45.

STATEMENTS FOR REPORT FOR THE YEAR ENDING 31st OCTOBER, 1920

NEW LISKEARD DEMONSTRATION FARM.

Work carried on in connection with the Farm during 1920 consisted largely of land clearing and in production of an oat crop. Lack of any farm buildings made it altogether impracticable to attempt to handle a variety of grain crops or field root crops. Therefore, it was deemed advisable to sow only one grain crop, viz., oats. Sixty acres were seeded to oats, seven to O.A.C. No. 72 and the balance to O.A.C. No. 3. Of the sixty acres, forty-two were new land cropped for the first time. A very creditable crop was harvested, the quality number one—the No. 3 weighed forty pounds per measured bushel just as delivered from the threshing

O.A.C. No. 72 Oats, grown on the New Liskeard Demonstration Farm, 1920.

mill. An average yield of forty bushels was realized from the entire field, some parts of the field yielded sixty bushels per acre.

In addition to sixty acres of grain, twenty acres of hay crop was harvested, a total crop of eighty acres altogether on the farm.

Forty acres of new land was seeded down for hay for 1921. Twenty-six acres of new land were cleared during the summer and made ready for crop for next year.

The farm gave an approximate yield of:

Oats	2,500 bushels.
Hay	40 tons.
Straw	30 tons.

The most urgent need of the Farm at the present time is suitable farm buildings. The policy of growing and selling hay and grain is not in the best interests of the farm and certainly cannot be recommended to Timiskaming agriculture.

Short Course in Agriculture and Seed Fair.

As in former years a Short Course and Seed Fair was held in the Judging Pavilion on the Farm. The following is a detail report on same:

The Department, in conjunction with the Agricultural Society, held a Short Course and Seed Fair from March 23rd to 26th.

Instructors.

Prof. C. A. Zavitz, O.A.C., Guelph, Ont.
E. G. Gordon, B.S.A., Live Stock Branch, Toronto.
H. G. Bell, Toronto, Ont.
J. H. Scott, Department of Agriculture, Toronto.

List of Donations to Prize List.

International Harvester Co., O'Grady Bros., Agents	$25 00
The Massey-Harris Company, J. T. Goldthorpe, Agent	25 00
R. G. Howie, five bushels Abundance Oats, value	10 00
Hugh Carson Harness Co., Ottawa, The Edwards Agency, Agents, one club bag, value	15 00
B. F. Ackerman Harness Company, Peterboro, The Edwards Agency, Agents, set brass mounted halter bridles, value	10 00
Union Bank of Canada, New Liskeard, silver cup	
Imperial Bank of Canada, New Liskeard, silver cup	
The Fleury Plow Company, O'Grady Bros., Agents, one No. 21 Fleury Plow, value	22 00

List of prize winners as follows:

Class 1, Oats, O.A.C., No. 3—
1st, C. Thomas, Uno Park, Ont.
2nd, John Molitor, Earlton, Ont.
3rd, James Carter, New Liskeard, Ont.

Section 2, Oats, O.A.C., No. 72—
1st, G. C. Foster, Uno Park, Ont.

Section 3, Oats, Abundance—
1st, C. Thomas, Uno Park, Ont.
2nd, W. Hermiston, Uno Park, Ont.

Section 4, Oats, Any Other Variety (White)—
1st, G. C. Foster, Uno Park, Ont

Sweepstakes in Oats—C. Thomas, Uno Park, Ont

Class 2, Wheat, Marquis Spring Wheat—
1st, C. Thomas, Uno Park, Ont.
2nd, Robt. Ross, Thornloe, Ont.
3rd, J. M. Gray, New Liskeard, Ont.
4th, Geo. Walsh, New Liskeard, Ont.
5th, A. Doupe, Hanbury, Ont.

Section 2, Wheat, Fall Wheat—
1st, A. Doupe, Hanbury, Ont.

Sweepstakes in Wheat—C. Thomas, Uno Park, Ont.

Class 3, Barley, Any Six Rowed Variety—
1st, G. C. Foster, Uno Park, Ont.
2nd, Jno. Molitor, Earlton, Ont.
3rd, W. Hermiston, Uno Park, Ont.

Class 4, Peas, Large Field Pea—
1st, C. Thomas, Uno Park, Ont.
2nd, B. Irvine, Hanbury, Ont.
3rd, T. H. Nickle, Hanbury, Ont.

Section 2, Peas, Small Field Pea—
1st, A. Doupe, Hanbury, Ont.
2nd, Chas. Carter, New Liskeard, Ont.
3rd, E. David, New Liskeard, Ont.

Sweepstakes in Peas—C. Thomas, Uno Park, Ont.

Class 5, Grasses, Alsike Seed—
Section 2—
1st, J. R. Philp, R.R. No. 1, New Liskeard.
2nd, Geo. Walsh, New Liskeard, Ont.
3rd, Robt. Ross, Thornloe, Ont.

Section 3, Grasses, Timothy Seed—
1st, A. Doupe, Hanbury, Ont.

Sweepstakes in Clover—J. R. Philp, R.R. No. 1, New Liskeard.

Class 6, Flax—
1st, C. Thomas, Uno Park, Ont.

Field of O.A.C., No. 3 Oats, on the New Liskeard Demonstration Farm, 1920.

Class 7, Potatoes, Irish Cobbler Type—
1st, T. H. Nickle, Hanbury, Ont.
2nd, C. Thomas, Uno Park, Ont.

Section 2, Potatoes, Green Mountain Type—
1st, J. M. Gray, New Liskeard, Ont.
2nd, A. Doupe, Hanbury, Ont.
3rd, T. H. Nickle, Hanbury, Ont.

Sweepstakes in Potatoes—J. M. Gray, New Liskeard, Ont.

Lectures were held only in the afternoon as it was impossible for farmers to attend in the morning.

The attendance was very good although not as large as expected. This can be explained by the fact that a very large percentage of farmers and farmers' sons interested in Short Course work are always busy timbering during the winter.

The Seed Fair was excellent considering the poor harvest conditions of the previous falls.

MATHESON FARM.

The above has now been seeded down and taken over by the Agricultural Department.

All of which is respectfully submitted.

W. G. NIXON,

Acting Superintendent.

REPORT OF ONTARIO GOVERNMENT CREAMERY, NEW LISKEARD, ONTARIO.

To the Honourable the Minister of Lands and Forests:

SIR,—I beg to submit report of Creamery from November 1st, 1919, to October 31st, 1920.

As was expected on account of the very wet season in the fall of 1919, and the high price and scarcity of feed, a great many farmers disposed of a great number of their cows, and a great many that were kept over, came out of the stables in very poor condition, and it was well on in the summer before they were producing the amount of milk they otherwise would have. We also had two private Creameries in the outlying district which took a few of our patrons in the immediate vicinity of them. However, we are able to show an increase in the value of business done during the year, and the prices paid were the highest that ever were paid in the history of the Creamery business. One drawback to the dairy industry is the number of star boarders still in a number of the farmers herds; this coupled with scrub bull, is a detriment to the industry. However, we are glad to report from the number of individual cows we have under test, and the campaign on to eliminate the scrub bull, we can now look forward to greater strides in the dairy industry.

The total number of patrons for the past year was two hundred and fifteen. The Creamery is growing in favor each year on account of the work it saves the women on the farm, and the steady cash revenue on the fifteenth and thirtieth of each month.

There being a great deal more feed in the district this year and the fine open fall, we look forward to much larger production of cream this coming winter.

The following is a summary of business done since we started operations on the 18th of August, 1917, to October 31st, 1920:

Amount of cream received	838,176 lbs.
Amount of butter manufactured	267,897 lbs.
Value of butter manufactured	$141,258 85
Paid patrons for cream	126,462 52

I have the honour to be, Sir,

Your obedient servant,

A. MACLACHLAN, *Manager.*

SUMMARY OF EXPENDITURE

FOR THE SEVEN YEARS ENDING 31ST OCTOBER, 1920.

Northern and North-Western Ontario Development Fund.

Section	Summary of Expenditure, 23rd May, 1912 to 31st October, 1919	Expenditure for year ending 31st October, 1920	Total Expenditure to 31st October, 1920
	$ c.	$ c.	$ c.
Section 1 (a) Works and Improvements	2,100 00	.....	2,100 00
Section 1 (b) Roads	5,672,721 51	1,290,729 49	6,963,451 00
Section 1 (d) Farms	67,962 29	6,795 38	74,757 67
Section 1 (e) Creamery and Grain Elevators	31,362 57	7,011 97	38,374 54
Section 2 (1) Seed Grain	142,532 90	35,439 22	177,972 12
Section 2 (2) Cattle Purchase Account	18,720 61	405 45	19,126 06
Section 2 (6) Fire Protection	.....	3,773 45	3,773 45
Returned Soldiers' and Sailors' Settlement Acts, 1917 and 1920	971,173 27	202,465 24	1,173,638 51
	6,906,573 15	1,546,620 20	8,453,193 35
Settlers' Loan Act, Clause 9 (Amending Act, 1916)	485,083 81	64,317 82	549,401 63
	7,391,656 96	1,610,938 02	9,002,594 98

STATEMENT OF EXPENDITURE

UNDER NORTHERN AND NORTH-WESTERN ONTARIO DEVELOPMENT ACTS, 1912 AND 1915.

FOR THE YEAR ENDING 31ST OCTOBER, 1920.

Districts and Sections.

	Expenditure year ending 31st Oct., 1920.
1. Kenora	$107,396 18
2. Thunder Bay	116,850 73
3. Rainy River	71,062 50
4. Sault Ste. Marie	142,942 18
5. St. Joseph Island	7,077 17
6. Sudbury	129,845 13
7. Nipissing	55,567 41
8. Parry Sound	69,119 59
9. Muskoka	74,825 46
10. Simcoe	43,246 84
11. Pembroke, Mattawa, Petawawa	19,505 67
12. Manitoulin Island	33,758 64
13. Algonquin Park	7,495 30
14. Temiskaming	388,612 60
15. Farms	6,795 38
16. Creamery	7,011 97
17. Seed Grain	35,439 22
18. Cattle Purchase	405 45
19. Fire Protection (Timmins Townsite)	3,773 45
20. General Administration	23,424 09
	$1,344,154 96
21. Returned Soldiers' and Sailors Settlement Act:	
General Account $110,715 11	
Adjustment Account 91,750 13	
	202,465 24
22. Settlers' Loan Account	64,317 82
	$1,610,938 02

ARTHUR E. D. BRUCE.
Secretary and Accountant.

STATEMENT OF EXPENDITURE, YEAR ENDING 31ST OCTOBER, 1920.

Making of Roads:			
Grigg, A., Deputy Minister, salary	$400 00		
Whitson, J. F., the late, Commissioner, salary (8 mos.)	3,000 00		
Bruce, A. E. D., Secretary and Accountant, salary	3,450 00		
Beardall, F. G., Principal Clerk, salary	2,100 00		
Lawer, W. L., Senior Account Clerk, salary	1,900 00		
Dower, A. R., Clerk, salary (11 mos.)	1,374 99		
Dicker, C. L., Clerk, salary (10 mos.)	1,166 66		
Sinton, Jas., Road Engineer, salary (10 mos.)	2,015 67		
Reid, A., Map Draughtsman, salary (9 mos.)	1,125 00		
Fleming, Miss E., Junior Clerk (2 mos.)	154 78		
Carefoot, Miss O., Clerk-Stenographer (2 mos.)	147 75		
Caldwell, Miss G., Clerk-Stenographer (2 mos.)	126 64		
		$16,961 49	
Wages	702,816 38		
Contracts	137,340 76		
Supplies and equipment	433,610 86		
		1,273,768 00	
		$1,290,729 49	
Advancement of Settlement and Colonization:			
Wages	$3,906 09		
Contracts	690 00		
Supplies, stock and equipment	2,199 29		
		6,795 38	
Creamery, New Liskeard:			
Wages	$3,197 01		
Supplies, equipment, freight and expenses	3,814 96		
		7.011 97	
Seed Grain:			
Wages	$121 00		
Seed, freight and expenses	35,318 22		
		35,439 22	
Cattle Purchase Account:			
Feed, freight and expenses	.....	405 45	
Fire Protection:			
Wages	.....	3,773 45	
Returned Soldiers' and Sailors' Land Settlement Act:			
Wages	$25,163 72		
Contracts	470 56		
Material, equipment, supplies, stock and expenses	85,080 83		
	$110,715 11		
Adjustment Account	91,750 13		
		202,465 24	
			$1,546,620 20
Settlers' Loan Department:			
Dane, F., Commissioner, salary	$5,000 00		
Kennedy, W. K. P., Accountant, salary	2,500 00		
Crawford, G., Stenographer, salary	975 00		
		$8,475 00	
Net amount of loans issued	$55,130 00		
Expenses	712 82		
		55,842 82	
			64,317 82
			$1,610,938 02

November 13th, 1920.

ARTHUR E. D. BRUCE,
Secretary and Accountant.

REVENUE ACCOUNT. 1920.

The Making of Roads:		
Sale of supplies, stock and equipment, rentals and refunds	$6,743 16	
Advancement of Settlement and Colonization:		
Sale of produce, rentals	323 75	
Creamery of New Liskeard:		
Butter revenue, sale of buttermilk, coal and cans	5,571 14	
Seed Grain:		
Notes retired, cash sales and freight refunded	18,337 24	
Cattle Purchase Account:		
Notes retired and cash sales	2,096 11	
Returned Soldiers' and Sailors' Land Settlement Act:		
Sale of buildings, equipment, provisions, supplies, stock, etc., rental and school grant	59,729 98	
Special Warrant Accounts:		
Refunds	28,338 70	
		$121,140 08
Settlers' Loan Account:		
Payments on principal, interest, etc.		78,621 00
Total revenue under all heads, 1920 account		$199,761 08

RECORD OF CORRESPONDENCE.

For Year Ended 31st October, 1920

Letters received		7,745
Letters mailed	7,248	
Circulars mailed	1,578	
		8,826

ARTHUR E. D. BRUCE,
Secretary and Accountant.

Appendix No. 46.

Report of the Board of Adjustment, Appointed April 17th, 1920.

To Effect Settlements with the Colonists at the Returned Soldiers' and Sailors' Colony at Kapuskasing.

In the Report of the Commission of Enquiry appointed on February 21st, 1920, certain recommendations were made for the adjustment of the affairs of the settlers at Kapuskasing. In order to give effect to these recommendations, the Government appointed a Board of Adjustment, consisting of Brigadier-General J. A. Gunn, Professor A Leitch and A. S. Morgan, on April 17th, 1920. Later Dr. Albert H. Abbott was named as Secretary of this Board. This Board of Adjustment was empowered to effect settlements in the case of each settler, and for its guidance the following basis of adjustment was authorized by the Government.

Regulations Under Returned Soldiers' and Sailors' Land Settlement Act, 1920.

1. The adjusting officers shall be the adjusting officers appointed under the Northern and North-Western Ontario Development Act, 1912, 2 Geo. V, Chap. 2, and such adjusting officers shall be authorized to appoint such officers, employees and servants as they may require, at such wages, remuneration or salary as they may deem expedient for the purpose of carrying out the provisions of the Returned Soldiers' and Sailors' Land Settlement Amendments Act, 1920.

2. The adjusting officers shall be authorized to hold such hearings and take such evidence on oath or otherwise as they may deem necessary, and to make such awards, settlements and grants as provided in paragraphs 11 (*a*) and 11 (*b*) of the said amendments of Act, at such places and at such times as they may determine. That subject to amendments by the adjusting officers as hereinafter provided, the basis upon which any award, settlement or grant shall be made shall be as follows:

(*a*) The houses and buildings erected upon the settlers' location shall be valued, and the settlers' building account with the Northern Development Branch shall be adjusted in accordance with such valuation.

(*b*) Each settler, who has not ceased to be a member of the Colony, shall be given the privilege of electing either to remain in the Colony or to leave it.

(*c*) In the event of a settler electing to leave the Colony, in accordance with the provisions of paragraph (*b*), the value of the obligation of the Department for the ten-acre clearing ready for the plough, either done or to be done, shall be fixed at $1,000.00, and the settlers' general account with the said Branch shall be credited with that amount.

(*d*) In the event of any settler having any clearing ready for the plough beyond the Government ten acres, he shall be credited in addition to the amount mentioned in paragraph (*c*) at the rate of $50.00 per acre for not more than ten acres, and the value of any additional partial clearance by the settler shall be fixed by the adjusting officers and credited to the settler.

(*e*) Each settler being indebted for animals purchased shall return the same to the Government and be credited with the purchase price, including any cash already paid by him on account thereof.

(*f*) Credit shall be given to the settler for all saw-logs, pulpwood, railway ties, or other timber cut by him but not delivered.

(*g*) Each settler shall be entitled to free transportation for himself, his family and effects, to any point in Ontario chosen by him.

(*h*) That from the aggregate of the value of the houses and other buildings, as ascertained in accordance with paragraph (*a*), and the said sum of $1,000.00 under the provisions of paragraph (*c*), and any sums due to the settler under the provisions of paragraphs (*d*), (*e*) and (*f*), shall be deducted the indebtedness of the settler up to and including the date hereof, provided that such balance due to any settler shall be deemed to be not less than $500.00, subject to the deduction of any indebtedness incurred after the date hereof. Any such balance shall be paid to him in monthly instalments of $100.00; the first of such payments to be made on the date of the adjusting account hereinafter referred to, and such first payment to be subject to the deduction therefrom of the amount of the settler's indebtedness to the said Branch incurred after the date hereof.

(*i*) The Adjusting Officers may authorize the payment of the whole or any portion of any balance, as provided in paragraph (*e*), in a lump sum, either on the date of the adjusting account or at such time as they may deem advisable.

(*j*) In the event of a settler electing to remain in the Colony, in accordance with the provisions of paragraph (*b*), the settler shall have the privilege of receiving as a gift, a horse from amongst those at the Colony, and a half set of double harness, and the sum of $200.00, payable quarterly in advance; the first of such payments to be made upon the date of the adjusting account. Priority of selection of horses to be determined by priority of application to enter the Colony.

(*k*) If any settler does not desire to accept a horse and harness, as provided in paragraph (*j*), he shall be given $150.00 in lieu of the horse, harness and $200.00 as provided in paragraph (*j*).

(*l*) Farms left vacant by those settlers who elect to leave the Colony at Kapuskasing shall be available for transfer to those at outlying points who elect to remain. The terms of adjustment shall be settled by the Adjusting Officers.

(*m*) Seed grain necessary for seeding each settler's available land during the spring of 1920 shall be supplied free, provided that such settler furnished to the Adjusting Officers a statement of the area of such available land before..... day of.....1920, and the acreage of each crop he intends to plant. The choice shall be confined to spring wheat, oats, barley, timothy and clover seed.

(*n*) The Adjusting Officers shall provide each settler at present at the Colony with a statement of his adjusting account. The form to be used for a settler who elects to leave the Colony shall be that attached hereto, marked "Form No. 1," and the form to be used for the settler who elects to remain shall be marked "Form No. 2," and such respective forms of account, when completed and executed by the Chairman of the Adjusting Officers on behalf of those officers, and by the settler, and in the case of a married settler by his wife, shall be conclusive as to the facts stated therein, and shall be sufficient authority for payment of any monies shown therein to be due to him or on his account.

(*o*) Notwithstanding any provisions in these regulations contained, the Adjusting Officers may alter, amend, or vary the terms of these regulations as they in their absolute discretion may deem expedient or advisable.

After studying the question for some days, the Chairman of the Board drew the attention of the Prime Minister to certain matters connected with the settlements, and received for the guidance of the Committee a letter as follows:

Toronto, April 24th, 1920.

"My dear General Gunn,—

"I am writing this letter as a general instruction from myself and the Government with regard to the settlement of the affairs of the settlers at Kapuskasing.

"You are already familiar with the terms of the basis of adjustment, and these must stand. Recognizing, however, the correctness of the statement made by the Commission of Enquiry on page 12 of the printed report, we have added a paragraph which gives the Board very full discretion in the application of the general principles laid down. The Commissioners' statement is: 'They are convinced that no solution of the difficulty can be proposed which will be equally fair to all parties,' and the paragraph which we have added to the Basis of Adjustment is as follows:

"'Notwithstanding any provisions in these regulations contained, the adjusting officers may alter, amend or vary the terms in these regulations as they in their absolute discretion may deem expedient or advisable.'

"In using the discretionary power given to the Board, I would suggest that two general principles be kept in mind: (1) We wish, in the treatment of all settlers, to err on the side of generosity rather than to strive to drive a hard bargain with them; (2) We wish that those who have been successful, and who elect to remain at Kapuskasing, should be treated rather more generously than those who elect to leave the Colony.

"We have been informed that the adjustment of the alleged overcharges in the cost of the houses could be simplified by giving the settler credit for what he has paid on his house and ignoring the balance of indebtedness which stands on the books against him in the 'House' account. We wish you to consider whether this would be a fair and simple solution of the difficulty.

"While the above will apply to by far the greater number of houses, we are informed that some houses have been built which have cost the settler up to twice as much as the standard house recommended by the Government. We feel that in erecting these more expensive houses, the settlers must assume responsibility for their judgment, and we suggest that you consider limiting the value of any house to say $800.00, or at most $1,000.00. This would mean that no matter how much the settler may have actually spent on his house, he would not be allowed more for it than the maximum set.

"In dealing with those who elect to remain at Kapuskasing, we feel that one consideration has been omitted from the Basis of Adjustment. When the settlers went to Kapuskasing, under the original plan, they were promised, (1) a free grant of 100 acres of land, (2) the clearing of ten acres at the expense of the Government, (3) a grant of $150.00 toward the building of a house. In the Basis of Adjustment, no mention is made of the obligation of the Government to complete the clearing of the ten acres in cases in which that amount of land has not been cleared. We recognize our obligation in the case of those who elect to leave the colony by paying them $100.00 an acre up to ten acres whether the land has been cleared or not, and we feel that the same consideration should be given to those who elect to remain, namely, in the event of less than ten acres having been cleared, we should allow such settlers at the rate of $100.00 an acre for the balance of the ten acres. This would be in addition to the provision made in Section 4 of the Basis of Adjustment.

"Further, in Section 4 (*c*) it is provided that those who elect to remain may select the land of those who elect to leave, and 'in such cases generous terms of adjustment should be given by the Government.' I feel that no general rule can be made with regard to these terms, and therefore the Government leaves the making of these terms in each specific case wholly in the hands of the Board.

"The Government recognizes that a somewhat difficult task has been laid before you and your Board, and we wish you to feel that we have every confidence that the terms of settlement which you propose will be as equitable to each settler as they can be made. Complete fairness as between different settlers may be impossible to attain, but in that case we wish the settlers to feel that, while the settlement may be more generous to one than to another, it is intended that it should be generous to all. This applies particularly in the application of Section 3 (*d*). If the settler recognizes that what the Government wishes to do is to provide every man who leaves the colony with at least $500 to start him in his new life, it will probably be seen that it is hardly right to speak of any settlement as being unfair.

"Special mention should also be made of one class of settlers, namely, those who have spent but a few months in Kapuskasing. They went there knowing the conditions. I think all of them were connected in some way by blood ties with persons who

were already there. The Government did not assume the same obligations in their case as with the original settlers. I would suggest, therefore, that instead of feeling bound to allow them $1,000 for the clearing of ten acres, you should consider making a grant to them in no case to exceed $500. This would be done not as a recognition of a Government obligation, but in order to help them to become established in any new occupation they may take up.

"Yours very truly,

"(Signed) E. C. DRURY.

"Brigadier-General J. A. Gunn,

"Chairman, Board of Adjustors for Kapuskasing Settlers,
"Toronto, Ont."

On April 24th the Board proceeded to Kapuskasing, and arrived there in the evening of the 25th. The settlers who had elected to leave the Colony were notified that the Board would meet them in the morning of April 26th. By Thursday evening, April 29th, the Board had effected settlements with sixty-one settlers who had decided to leave the Colony. In effecting these settlements the Board was assisted by Mr. Charles Lennox, architect, who visited the houses and other buildings and placed a valuation upon them, and by Mr. G. F. Summers, O.L.S., who measured the land cleared or partly cleared. A special train was ordered for these departing settlers and their effects, and on Saturday afternoon, May 1st, the train left Kapuskasing with practically all those who had decided not to remain. This train arrived in Toronto on Monday morning, and was met by representatives of the Citizens' Repatriation League, who saw that every settler remaining in Toronto had proper accommodation until permanent quarters could be secured, and those who were taking trains out of the city were assisted in every possible way. The Board of Adjustment is greatly indebted to the Citizens' Repatriation League, not only for this service, but also for helping the settlers in many ways to become established in their new homes. Within two weeks most of the settlers were either actually established in their new surroundings, or were well on the way to becoming established. Most of the men who left Kapuskasing have either purchased farms, or have gone to work on farms during the summer months, awaiting a more favourable opportunity for purchasing in the fall. A few of them have gone into their old lines of business, and a few have taken positions in manufacturing establishments. The Board felt that it should do everything in its power to assist these men to become settled in the kind of work in which they wished to engage, and any advice it could give, or any assistance it could render, which should be placed at their disposal; consequently, it arranged with the Citizens' Repatriation League to do for these settlers what it had been doing so efficiently during the past year for returned soldiers.

In the afternoon of April 26th the settlers who had elected to remain at Kapuskasing were met, and the general basis of settlement was discussed with them. However, on account of the fact that the basis suggested did not seem adequate, the Board decided to reach settlements with these men after it had had an opportunity of talking the matter over with members of the Government. A general basis of settlement was reached immediately following the return of the Board to Toronto, and the settlers were notified of the suggested settlement by letter on May 10th. On May 29th, the secretary proceeded to Kapuskasing, and was able, on Monday, May 31st, to effect settlements with all those remaining at the Colony.

Basis of Settlement With Those who Elected to Leave the Colony.

The general basis on which the Board proceeded in effecting settlements was as follows:

1. *Houses.* As the Government was taking over the property of the settlers leaving the Colony, it did not seem important to determine whether there had been an overcharge made when the houses were built for the settlers. Consequently, the Government grant of $150 was allowed in each case where the settler had a house, and the settler was paid for any additions he had made to the house at his own expense. This avoided the necessity of entering into an intricate calculation which could only, in any case, have been roughly approximate to the actual facts. For this reason, in its basis of settlement, the Board made no reference to the value of the house, or to the house account on the Colony books, settlement being effected under two headings as follows:

1. Government grant allowed.
2. Labor and materials allowed.

2. *Buildings other than Houses.* A valuation was agreed upon between the settler and the Board, and this amount was allowed.

3. *Land.* According to the basis of adjustment, $1,000 was allowed for the ten acres which the Government had agreed to clear for the settlers under the old scheme, and due allowance was made for any clearing which the settlers had done on their own account on the basis of a maximum of $50 an acre for fully cleared land. Due allowance was also made for ploughing done, at the rate of $10 an acre, and for the cost of seed and seeding done.

4. *Wood, Cut but not Delivered.* Allowance was made the settlers for wood cut but not delivered on the following basis:

Sawlogs, approximately	$1 00 a log.
Pulpwood	4 00 a cord.
Cordwood	2 00 a cord.

Various other matters had to be adjusted, but the Board refused to attempt to make adjustment in all matters upon which accurate information was not available. This covered certain matters in dispute between the settlers and the Colony Superintendent from 1917 down. In particular, no allowance was made for work alleged to have been done in connection with contracts which had been let to the settlers, but which were later cancelled. However, it may be said that had the Board made allowance for all such work at the valuation placed upon it by the settler, a very moderate sum, not exceeding $1,000, would have been involved.

From the total due to the settler, according to the above basis, was deducted the amount standing against him in the supply account, store account and horse and cow account on the books of the Colony, and from the net balance due the settler were deducted any advances which had been made to him through Rev. H. J. King—which had, of course, already been paid.

Basis of Settlement With Those who Elected to Remain at Kapuskasing.

After meeting the settlers who intended to remain at Kapuskasing, and ascertaining from their representations that they were not satisfied with the basis of adjustment proposed by the Commission of Enquiry (namely, a grant of $450, or its equivalent), and as this agreed with the view already reached by the Adjusting Officers, we decided to recommend a new basis for the consideration of the Government. After going into the matter very thoroughly, and considering in particular what effect an allowance for the balance of the land uncleared, in the ten acres

which the Government had agreed to clear, would have, we decided to recommend a grant of $1,000 to each settler. This was accepted by the Government, and accordingly the following principles were adopted as a basis of settlement:

1. A grant of $1,000 was made to each settler, and particularly to those under the "old scheme." Those under the "new scheme" were treated according to the circumstances in each case.

2. All alleged overcharges on the house accounts were adjusted.

3. All the settler's indebtedness to the Colony was deducted from the amount allowed him.

4. Seed grain, etc., was provided free for sowing in the spring of 1920.

5. Certain of the farm machinery returned by the settlers who had left, or which was otherwise in the possession of the Colony, was given to the settlers.

6. In the case of the transfer of settlers to lots vacated by those leaving the Colony, we proceeded on the following basis:

The value of the land and buildings formerly held was compared with the value of the land and buildings on the lot desired, and approximately 25 per cent. of the difference was charged the settler for making the transfer. Several transfers were, however, made on even terms, and in the case of those on the "new scheme" a few transfers were made in lieu of the grant of $1,000, or a large part of it.

7. Settlers were allowed to apply for the reservation of lots for their sons on terms to be settled by the Government.

Attached to this Report will be found statements showing the amount of seed grain, etc., allowed each settler, and the farm machinery given to the settlers. We also attach a copy of a letter sent to each settler remaining at Kapuskasing. This letter states the views of the settlers and the replies of the Adjusting Officers, and it thus is important in connection with the settlement.

We have also made out complete statements of the settlements effected, and these are attached hereto. These statements show the following:

Eighty-three settlers, on the Colony books on May 1st, have left Kapuskasing. In the case of six of these eighty-three, addresses were not known, or for other reasons no settlement was asked for by them.

Twenty settlers elected to remain at Kapuskasing.

One hundred and three settlers, that is, all on the list as eligible for settlement, are thus accounted for, and of these, settlements were effected with ninety-seven.

Of the six with whom settlements were not made, the following may be said:

Wm. Gauthier was entered on Land Settlement Scheme on October 29th, 1919, under the new scheme. He left the Colony on November 16th, 1919. The last address known for him was Nushka, Ont. He was not regarded as meriting consideration.

Benjamin Halliwell was entered on Land Settlement Scheme on July 5th, 1918. He left the Colony on June 14th, 1919, on two weeks' sick leave, since when no information has been received of his whereabouts. As coming under the old scheme he might make a claim for the grant of $1,000 for ten acres of land, but we should not have allowed him more than $250 in any case, and believe he is actually not entitled to anything.

Arsene Huard entered on Land Settlement Scheme on September 5th, 1919, under the new scheme. He left the Colony on November 5th, 1919, expecting to return in the spring of 1920, but nothing has been heard of him, and his address is not known. He is not entitled to consideration in any case.

JOHN INNES entered on Land Settlement Scheme May 7th, 1918, and left the Colony on February 21st, 1919, requiring surgical treatment and mentally deranged. He is now in the Manitoba Provincial Hospital at Selkirk, Man. We have corresponded with the Superintendent and learn that he has no dependents, and that he is now under the care of the Department of Soldiers' Civil Re-establishment. He is apparently an incurable case. Had he been at the Colony he would have received at least a grant of $150 on his house and $1,000 on his land, but we believe no settlement is necessary.

T. T. LEWIS entered on Land Settlement Scheme on March 26th, 1918, and left the Colony for medical treatment on December 8th, 1919. He lived at Port Hope, but we have been unable to learn more of his whereabouts, and a letter addressed to the Mayor of Port Hope brought no reply. He apparently had no house at Kapuskasing, and therefore he could receive consideration only on the land grant. We believe he need not be further considered.

W. G. MOFFAT entered on Land Settlement Scheme September 25th, 1918, and left the Colony on May 4th, 1919, for three months' leave at Hamilton, Ont. The last address known for him there was 767 Barton Street. He had a house at Kapuskasing, which was valued at $729.00, as against a cost, according to his house account, of $542.31 plus $150.00—$692.31. We believe the house should be taken over and the house account cancelled, and that no attempt should be made to follow the matter further.

The settlements effected with those leaving the Colony show the following totals:

Valuation of houses	$47,572 00	
House accounts cancelled	.....	$25,526 80
Allowed settlers on houses	.....	12,868 00
Excess of valuation over accounts cancelled and amounts allowed	.....	9,177 20
	$47,572 00	$47,572 00
Valuation of barns and outbuildings	$15,708 00	
Allowed settlers on these	.....	$11,287 00
Excess of valuation over amount allowed	.....	4,421 00
	$15,708 00	$15,708 00
Total amount allowed settlers	$99,872 91	
Indebtedness	.....	$23,055 82
Amount advanced through Rev. H. J. King	.....	1,248 99
Cash paid out	.....	75,568 10
	$99,872 91	$99,872 91

The settlements effected with the twenty settlers remaining at Kapuskasing show the following totals:

Grants allowed		$17,389 60	
Overcharges on houses allowed		650 00	
Credit on books		322 35	
Total allowed		$18,361 95	
Amount charged for making transfers		.....	$1,025 00
Indebtedness		.....	13,510 67
Total credits to settlers	$4,886 59		
Total debits to settlers	1,060 31		
Amount of cash paid out	3,826 28	.....	3,826 28
		$18,361 95	$18,361 95

These statements show the following cost to the Government of this whole settlement:

House Accounts Cancelled:		
Settlers leaving Colony	$25,526 80	
Settlers remaining in Colony	5,263 07	
		$30,789 87
Supply Accounts Cancelled:		
Settlers leaving Colony	$10,799 21	
Settlers remaining in Colony	2,171 65	
		12,970 86
Store Accounts Cancelled:		
Settlers leaving Colony	$11,302 86	
Settlers remaining in Colony	1,150 07	
		12,452 93
Other Accounts Cancelled:		
Settlers leaving Colony	$953 75	
Settlers remaining in Colony	5,357 88	
Allowed through Rev. King	1,248 99	
		7,560 62
Cash Paid Out:		
To settlers leaving Colony	$75,568 10	
To settlers remaining in Colony	3,826 28	
		79,394 38
		$143,168 66

Against this the Government receives cleared land, on which no valuation can be made, and houses and out-buildings valued as follows:

Houses	$47,572 00
Barns, etc.	15,708 00
	$63,280 00

Deducting the value of the Buildings from the total cost of the settlement to the Government—transportation charges and other incidental expenses not considered—we get:

Total cost	$143,168 66
Value of buildings	63,280 00
	$79,888 66

or approximately the amount of cash paid out.

It is evident, therefore, that the Government has paid approximately $80,000 to get back the land, cleared and uncleared, set aside for the Soldiers' and Sailors' Colony at Kapuskasing, with the exception of the twenty lots held by settlers still remaining in the Colony. At this cost, it has satisfied the hundred settlers that the Government wanted to deal fairly by them. Indeed, it might be said that most of the settlers would admit that the Government had treated them generously rather than merely fairly.

Respectfully submitted by,

(Sgd.) J. A. Gunn,

Chairman.

(Sgd.) Albert H. Abbott,

Secretary.

Copy.

Farm Machinery for Yorkville Settlers.

2 discs
2 sets harrows
2 walking ploughs
1 mower
1 seeder
1 roller
1 hay rake
2 one-horse cultivators
1 double wagon
1 single wagon
2 sets sleighs.

Approved by General Gunn. (Sgd.) A. Leitch.

In addition to the above the following articles were allowed to settlers in the final settlement:

1 set sleighs
1 single wagon

Farm Machinery Sold to Settlers.

1 hillside plough
1 spring tooth harrow
1 disc harrow
1 single wagon
1 set sleighs
1 sawing machine
1 forge
1 anvil
1 grinder and bagger
2 pointers (boats).

SEED FOR 1920

Name	Red Clover	Timothy	Oats	Barley	Peas	Wheat	Potatoes	
	lbs.	lbs.	bus.	bus.	bus.	bus.	bags	
Endicott	50	35	17	4	.....	2	1	
York	75	50	10	5	5	.....	1	
Ridley	90	60	10	5	5	.....	1	
Dertinger	35	25	.....	.....	.....	.....	1	
Foran	35	25	.....	.....	.....	.....	1	
Wing	110	70	14	5	7	.....	1	
Mairs	30	80	25	.....	.....	.....	1	
Call M. W	30	80	25	.....	.....	.....	1	
LeMarier	80	55	25	.....	3	.....	1	
Nash	50	35	.....	.....	.....	.....	1	
McMinn	75	50	10	5	5	.....	1	
Poolton	30	90	.....	.....	.....	.....	1	
Ryan	90	60	15	7	5	.....	1	
Sprague	50	75	30	.....	.....	.....	1	
Currie	50	50	5	.....	.....	.....	1	
Gough	40	20	.....	.....	.....	.....	1	1 Millet 1 Buckwheat
Total	920	860	186	31	30	2	16	
Cripps, Nephew of Wing, wants	75	50	12	.....	5	.....	1	½ Millet 25 Rape
	995	910	198	31	35	2	17	
On hand	.....	250	.....	.....	30	2	.....	72 Millet 25 Rape
To Order	995	660	198	31	5	.....	17	1 bu. buckwheat

COPY OF LETTER SENT TO SETTLERS ON MAY 10TH, RE SUGGESTED SETTLEMENT.

Re the Adjustment to be made with the Settlers remaining at Kapuskasing.

DEAR SIR,—The Board of Adjustment, in accordance with the promise made to the settlers remaining at Kapuskasing, has had a conference with the Government relative to the basis of settlement with these men, and we are now able to report the general basis upon which such scheme will be effected.

In the basis approved by the Government, in accordance with the report of the Commission of Investigation, the settlers electing to remain were to receive $450 in cash or its equivalent value, and they were to have the privilege of transferring to lots left vacant by those leaving the Colony on terms which should be approved by the Government. It was also provided that seed for this spring's sowing should be supplied to these settlers free of charge.

Also, the settlers electing to remain were advised to form a school section as quickly as possible, and the Government was to pay the salary of the teachers, or teacher, for at least two years.

The settlers who wished to remain in the Colony did not think these terms as favourable as were the terms proposed to those electing to leave, and they presented to us certain suggestions, which were as follows:

1. That settlers whose ten-acre lots are not yet ready for the plough, be paid for completing stumping, or that the Government finish the job.

2. That all settlers remaining be placed on an equal footing.

3. That slashing and burning contracts to the value of $500 be given to each settler for the year 1920, and the same for 1921.

4. That settlers remaining be given their patent, and have their building loan cancelled.

5. That settlers be allowed to reserve lots for their sons.

6. That so long as horses remain on the Colony farm, settlers continue to get the use of them under the same conditions as at present.

7. That settlers be permitted to buy food at cost from the Colony farm, so long as the farm is in operation.

8. That farm implements be provided for the use of settlers.

9. That as twelve children of school age now reside in Yorkville, a school be provided for them at once.

10. That settlers have preference in all work to be done at the Colony farm.

In answer to these suggestions we stated that they would have to be taken up with the Government, and we now are able to give answer to them as follows:

1. The suggestion regarding the allowance for uncleared land would be adopted in principle, no settler to receive more than one thousand dollars for ten acres.

2. This suggestion will automatically come into effect by the abandonment of the scheme, and broadly, in the settlement now to be made those on the new scheme will be treated practically the same as those on the old.

3. The Ontario Government will not provide work for settlers, but this is not necessary, as Mr. Ballantyne, of the Dominion Government Farm, assures us that he can give employment to all those remaining, in connection with the Dominion Government Farm.

4. We could not recommend, nor would the Government consider, the granting of patents on any basis more favourable than that already provided in the settlement scheme.

5. There is no objection whatever to settlers reserving lots for their sons, but such reservations will have to be made in the regular way, and not as a special favour to be granted by our Board. The only consideration which could be allowed would be that certain terms might be arranged with regard to the work to be done on such reserved lots, which would be of more advantage, both to the settler and his sons, than would be the case were their work divided. The beginning of the clearing on the sons' lot might be delayed for a reasonable time. This, however, will be a matter of individual adjustment.

6. So long as horses remain on the Colony Farm settlers may continue to get the use of them under the old conditions, but it is understood that this can be for a limited time only, as horses will not be retained on this farm by the Government after the final settlement has been made.

7. Settlers may buy feed at cost from the Colony Farm so long as the farm is in operation and has such feed to sell.

8. It has already been provided that settlers may receive farm implements free of charge when recommended by the Board, but no indiscriminate distribution of implements is to be made.

9. While no formal settlement with regard to the location of a school in Yorkville has been made, the Government is entirely favourable to such an arrangement as the Yorkville settlers suggested to the Board, viz., the Government would supply the materials and the settlers would themselves construct the school building free of charge. Until such time as this building is constructed a house suggested by the Yorkville settlers may be used as a school building, it being understood

that any arrangement regarding the school will not be effective until the beginning of the school term next fall.

10. As the Colony Farm is not to be operated by the Government there will be no opportunity of the Government carrying this suggestion into effect.

When we came to consider a basis of adjustment, we reached the conclusion that the most equitable to the settlers as a whole would be that a grant of one thousand dollars to each settler remaining in the Colony should be made, it being understood that this amount was to be applied in the first instance to the wiping out of any indebtedness up to April 30th which there might be on the books of the Colony against these settlers, and that so far as may be considered advisable, debts incurred, under the recommendation of the Board of Adjustment, since April 30th, should be covered also; this, however, to be done in such a way that it will not unduly embarrass the settler. That is to say, each individual case will have to be considered with regard to the payment of debts incurred since April 30th. With regard to the individual settlers, always bearing in mind that debts incurred since April 30th are not here included, this would mean the following adjustments:

The Board purposes to have the secretary proceed to Kapuskasing in the near future and have the necessary agreements signed by the settlers. In the meantime it is understood that the above statement covers the settlements which the Board is willing to make, with the exception of minor adjustments which may be necessary or advisable in individual cases.

The fact of any settler acting on statements contained in this letter before he actually signs the agreement with the Government is to be taken as clear evidence that he accepts the terms herein proposed, and that he understands that the acceptance of these terms releases the Government from any obligation, real or implied, which was undertaken with the settler under the Returned Soldiers' and Sailors' Land Settlement Act. It is, of course, understood that no money is to be paid out to complete this settlement until the papers are actually signed.

(Here Follows the Settlement in the Case of the Settler Addressed).

Part of the cash balance will be withheld until you proceed to build a house. This will be adjusted with you later.

Yours faithfully,

(Sgd.) Albert H. Abbott,

Secretary, Board of Adjustment, Kapuskasing Colony.

SETTLEMENTS EFFECTED WITH SETTLERS REMAINING AT

Name; property held or transferred to; and reservations requested	Land cleared or partly cleared	Valuation of Buildings		Amount Allowed	
		House	Other bldgs.	Grant allowed	Overcharge on house a/c allowed
		$ c.	$ c.	$ c.	$ c.
Call, M. W.— Lot 9, Con. 9, O'Brien...	8 ac. cleared, 2 ac. to stump and burn	590 00	.....	1,000 00	.....
Caron, Lean— Transferred to Lot 18, Con. 13, O'Brien.....	.....	.....	.....	.....	.....
Currie, A. S.— Lot 5, Con. 16, Owens...	10 ac. slashed only	.....	.....	1,000 00	.....
Darmet, C. H.— Transferred to Lot 19, Con. 14, O'Brien.....	.....	.....	.....	200 00	.....
Dertinger, Adam— Lot 22, Con. 8, O'Brien transferred to Lot 22, Con. 9, O'Brien. Asked reservation for son-in-law but no action	.....	582 00	15 00	1,000 00	.....
Endicott, E. E.— Lot 28 Cons. 10 and 11, O'Brien. Asked reservation for son Arthur. Lot 27, Cons. 10 & 11, O'Brien, to cost $300.00.	5 ac. cleared, 5 ac. to stump and burn	not examined	.....	1,000 00	.....
Foram, David— Lot 24, Con. 8, O'Brien, transferred to Lots 25, & 26, Con. 10, O'Brien. Asked reservation for sister Bridget E. Foran. Lot 27, Cons. 9 & 10, O'Brien	.....	on old lot 150 00	147 00	1,000 00	.....
Gough, Wm.— Lot 20, Cons. 13 and 14, O'Brien. Asked reservations for son Walter, Lot 20, Con. 15, O'Brien, and for son Frank, Lot 19, Con. 15, O'Brien...	10 ac. ready for plough.....	1,384 00	756 00	1,075 12	.....
LeMarier, M.— Lot 18, Con. 8, O'Brien, Transferred to Lot 19, Con. 13, O'Brien.....	.....	on old lot 259 00	198 00	1,000 00	.....
Mairs, A. A.— Lot 8, Con. 11, O'Brien, transferred to Lot 9, Cons. 10 & 11, O'Brien.	.....	on old lot 525 00	.....	1,000 00	.....
McMinn, W.— Lot 3, Con. 16, Owens. Asked reservations for son Wm. Gordon, Lot 1, Con. 17, Owens, and for son Harry, Lot 2, Con. 17, Owens.....	3 ac. cleared, 7 ac. to stump and burn	680 00	.....	1,000 00	100 00

KAPUSKASING BY THE ADJUSTMENT BOARD, APRIL-JULY, 1920.

Cr. on books	Total Credits	Indebtedness							Net balance due to or from settler
		House a/c	Supply a/c	Store a/c	Horse or cow a/c	Indebtedness since April 30, 1920	Charge for transferring to other lot	Total indebtedness	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	1,000 00	351 03	104 57	155 55	.....	.....	.....	611 15	388 85 Cr.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1,000 00	.....	.....	83 83	.....	607 10	.....	690 93	309 07 Cr.
.....	200 00	.....	.....	.....	.....	.....	.....	.....	200 00 Cr.
.....	1,000 00	27 26	22 55	.....	.....	281 79	.....	331 60	668 40 Cr.
.....	1,000 00	251 23	153 48	105 63	290 00	207 76	.....	1,008 10	8 10 Dr.
33 35	1,033 35	.....	12 26	20 33	.....	255 31	125 00	412 90	620 45 Cr.
289 00	1,364 12	500 00	641 39	222 73	.....	450 54	.....	1,814 66	450 54 Dr.
.....	1,000 00	287 50	.....	.....	163 00	294 85	250 00	995 35	4 65 Cr.
.....	1,000 00	132 75	.....	.....	.....	.....	200 00	332 75	667 25 Cr.
.....	1,100 00	644 75	188 41	91 61	.....	204 84	.....	1,129 61	29 61 Dr.

SETTLEMENTS EFFECTED WITH SETTLERS REMAINING AT KAPUSKASING

Name; property held or transferred to; and reservations requested	Land cleared or partly cleared	Valuation of Buildings		Amount allowed	
		House	Other Buildings	Grant allowed	Overcharge on house a/c allowed
		$ c.	$ c.	$ c.	$ c.
Nash, J.— Lot 3, Con. 15, Owens...	10 ac to stump and burn	680 00	.....	1,000 90	.....
Packer, W. M.— Lot 26, Con. 14, Owens. Transferred to Lot 24 Con. 11, O'Brien.....	.....	.....	.....	.....	.....
Poolton, T.— Lot 19, Con. 12, O'Brien.	10 ac. ready for plough.....	764 00	95 00	1,000 00	100 00
Ridley, J.— Lot 2, Con. 15, Owens. Transferred to Lot 28. Con. 15, O'Brien.....	.....	on old lot 425 00	.....	1,000 00	.....
Ryan, P.— Lot 29, Con. 15, O'Brien. Transferred to Lot 16. Con. 12, O'Brien.....	.....	on old lot 360 00	75 00	1,000 00	.....
Sprague, W.— Lot 6, Con. 9, O'Brien. Transferred to Lots 7 and 8, Con. 10, O'Brien	.....	on old lot 750 00	304 00	1,114 48	.....
Straiton, H.— Lots 25 and 26, Con. 11, O'Brien.....	Not examined...	not examined	.....	1,000 00	.....
Wing, J.— Lot 1, Con. 15 & 16, Owens. Asked reservation for nephew Oliver Cripps, Lot 2, Con. 16, Owens. to cost 300.00.....	5½ cleared, 1 to burn, 3½ to stump and burn	805 00	338 00	1,000 00	250 00
York, W. H.— Lot 1, Con. 14, Owens...	3 cleared, 7 to stump and burn	693 00	305 00	1,000 00	200 00
				17,389 60	650 00

Summary—

Total amount allowed settlers.....	$18,351 95		
Total indebtedness		$14,535 67	
Total Credit balances	$4,833 59		
Total Debit balances	1,060 51		
Net Balance paid out.....		3,826 28	
	$18,361 95	$18,361 95	

BY THE ADJUSTMENT BOARD, APRIL-JULY, 1920.—Continued.

Cr. on books	Total Credits	Indebtedness							Net balance due to or from settler
		House a/c	Supply a/c	Store a/c	Horse or cow a/c	Indebtedness since April 30, 1920	Charge for transferring to other lot	Total indebtedness	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	1,000 00	562 78	6 95	35 31	.....	36 52	.....	641 56	358 44 Cr.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1,100 00	461 61	.....	.....	115 00	379 56	.....	956 17	143 83 Cr.
.....	1,000 00	.....	46 00	.....	.....	30 98	250 00	326 98	673 02 Cr.
.....	1,000 00	195 44	34 52	.....	.....	642 10	200 00	1,072 06	72 06 Dr.
.....	1,114 48	457 29	524 63	107 56	25 00	590 00	.....	1,614 48	500 00 Dr.
.....	1,000 00	421 29	.....	.....	.....	47 43	.....	468 72	531 28 Cr.
.....	1,250 00	504 68	213 84	221 11	.....	228 98	.....	1,168 61	81 39 Cr.
.....	1,200 00	465 46	223 05	106 41	.....	165 12	.....	960 04	239 96 Cr.
322 35	18,361 95	5,263 07	2,171 65	1,150 07	593 00	4,332 88	1,025 00	14,535 67	4,886 59 Cr.
							Less debit balances.....		1,060 31 Dr.
							Net balance paid out.... ...		3,826 28 Cr.

FINANCIAL REPORT ON SETTLEMENTS EFFECTED WITH THOSE LEAVING

Name and Property.	Re Buildings			Adjustments Allowed				
	Valuation on house	Valuation on other buildings	House account cancelled by taking house	On House	On other buildings	On 10 acres land	On other land cleared	On horse and cow account
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Ashcroft, Enoch, Lot 3, Con. 10, O'Brien	856 00	178 00	489 75	250 00	100 00	1,000 00	295 00	.....
Baker, William, Lot 19, Con. 11, O'Brien	774 00	249 00	789 00	150 00	200 00	1,000 00	75 00	70 50
Beamont, Robert, Lot 17, Con. 13, O'Brien.	1,008 00	468 00	482 01	350 00	400 00	1,000 00	50 00	.....
Behie, Clarence L., Lot 4, Con. 16, Owens ..	750 00	100 00	.....	700 00	85 00	.....	100 00	.....
Bould, James, Lot 8, Con. 9, O'Brien	150 00	.....	.....	.....	.....	.....	.....	.....
Boyce, Thomas C., Lot 17, Con. 12, O'Brien.	1,000 00	275 00	492 89	400 00	300 00	1,000 00	200 00	.....
Brown, Chas. W., Lot 4, Con. 10, O'Brien ...	.....	1,185 00	.....	.....	90 00	1,000 00	.....	.....
Capper, F. P., Lot 16, Con. 12, O'Brien	550 00	486 00	609 17	250 00	400 00	1,000 00	345 00	.....
Chapman, Benj., Lot 12, Con. 10, O'Brien	665 00	295 00	224 19	150 00	200 00	1,000 00	170 00	.....
Clark, John, Lot 24, Con. 14, Owens	224 00	.....	.....	75 00	.....	1,000 00	.....	.....
Clark, Robert, Lot 26, Con. 18, Owens	163 00	.....	.....	150 00	.....	1,000 00	.....	.....
Clark, Thomas, Lot 24, Con. 11, O'Brien ...	1,250 00	200 00	722 66	250 00	200 00	1,000 00	14 09	.....
Clarke, W. G., Lot 27, Cons. 9 & 10, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Convery, Robt. J., Lot 12, Con. 13, O'Brien..	.....	.....	.....	.....	.....	1,000 00	.....	.....
Darlington, F. G., Lot 21, Con. 10, O'Brien.	210 00	370 00	.....	.....	115 00	1,000 00	.....	.....
Davidson, John, Lots 10 & 10, Cons. 10 & 11, O'Brien	441 00	177 09	322 27	250 00	125 00	1,000 00	160 00	.....
Davis, J. H., Lot 18, Con. 13, O'Brien ...	1,618 00	346 00	402 46	618 00	500 00	1,000 00	100 00	.....
Dumont, Francis, Lot 27, Con. 7, O'Brien..	.....	.....	.....	.....	.....	.....	.....	.....
Durand, D. J., Lot 22, Con. 11, O'Brien	1,457 00	95 00	879 95	250 00	75 00	1,000 00	.....	.....
Durrant, E. R., Lot 24, Con. 9, O'Brien	700 00	380 00	567 62	150 00	275 00	1,000 00	10 00	.....
Dyson, G. E., Lot 6, Con. 8, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Feno, C., Lot 11, Cons. 10 and 11, O'Brien..	425 00	.....	352 97	150 00	.....	1,000 00	.....	.....
Fleming, S., Lot 23, Con. 10, O'Brien	979 00	235 00	416 55	300 00	200 00	1,000 00	100 00	.....
Fox, Albert, Lot 24, Con. 14, Owens	.....	.....	.....	.....	.....	750 00	.....	.....
Gardiner, W. J., Lot 23, Con. 11, O'Brien	1,563 00	317 00	1,038 93	400 00	300 00	1,000 00	20 00	.....
Gauthier, Wm., Lot 16, Con. 15, O'Brien ...	.....	.....	.....	.....	.....	.....	.....	.....
Gould, A. H. J., Lots 24 & 25, Con. 17, Owens	598 00	85 00	.....	150 00	50 00	1,000 00	.....	.....
Halliwell, Benj., Lot 25, Con. 16, Owens..	.....	.....	.....	.....	.....	.....	.....	.....

KAPUSKASING COLONY BY ADJUSTING OFFICERS, APRIL-JULY, 1920.

Adjustments Allowed					Indebtedness				Summary of Settlement		
On wood cut	On ploughing done	On seeding done	On sundry items	Total allowed settler	Supply account	Store account	Horse and cow account	Total indebtedness	Net balance due settler	Less advance made through Rev. H. J. King	Cash paid out
$ c.	$ c.	c c.	$ c.	c c.	$ c.	c c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	.....	.....	.....	1,645 00	142 54	239 60	.....	382 14	1,262 86	31 45	1,231 41
.....	80 00	10 00	.....	1,585 50	199 56	88 87	.....	288 43	1,297 07	30 00	1,267 07
32 00	.....	.....	271 83	2,103 83	671 41	253 58	.....	924 99	1,178 84	43 31	1,135 53
.....	.....	.....	.....	885 00	21 00	43 77	.....	64 77	820 23	.....	820 23
.....	.....	.....	527 93	527 93	.....	27 93	.....	27 93	500 00	27 59	472 41
.....	50 00	.....	300 00	2,250 00	648 88	625 27	37 50	1,311 65	938 35	69 01	869 34
.....	60 00	.....	.....	1,150 00	.....	.....	.....	.....	1,150 00	.....	1,150 00
.....	.....	40 00	.....	2,035 00	215 85	227 97	.....	443 82	1,591 18	30 00	1,561 18
.....	.....	20 00	44 00	1,584 00	348 83	296 76	145 00	790 59	793 41	60 68	732 73
.....	40 00	.....	.....	1,115 00	.....	.....	.....	.....	1,115 00	.....	1,115 00
.....	.....	.....	.....	1,150 00	42 79	.....	.....	42 79	1,107 21	.....	1,107 21
30 00	.....	21 00	.....	1,515 00	11 49	32 25	.....	43 74	1,471 26	.....	1,471 26
.....	.....	.....	500 00	500 00	.....	.....	.....	.....	500 00	.....	500 00
120 00	.....	.....	.....	1,120 00	22 20	221 30	.....	243 50	876 50	48 00	828 50
25 00	.....	.....	.....	1,140 00	.....	.....	.....	.....	1,140 00	.....	1,140 00
64 00	40 00	25 00	.....	1,664 00	224 73	163 95	.....	388 68	1,275 32	24 67	1,250 65
113 50	15 00	.....	.....	2,346 50	555 74	495 84	.....	1,051 58	1,294 92	50 00	1,244 92
.....	.....	.....	500 00	500 00	.....	.....	.....	.....	500 00	.....	500 00
.....	70 00	50 00	.....	1,445 00	.....	.....	.....	.....	1,445 00	.....	1,445 00
.....	.....	.....	.....	1,435 00	115 78	56 50	.....	172 28	1,262 72	.....	1,262 72
.....	.....	.....	845 46	845 46	74 19	271 27	.....	345 46	500 00	26 06	473 94
.....	.....	.....	17 50	1,167 50	57 79	134 38	.....	192 17	975 33	.....	975 33
100 00	10 00	.....	107 44	1,817 44	777 70	226 68	266 50	1,270 88	546 56	.....	546 56
.....	.....	.....	.....	750 00	.....	.....	.....	.....	750 00	.....	750 00
16 50	55 00	.....	.....	1,791 50	152 09	90 27	117 25	359 61	1,431 89	50 00	1,381 89
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	75 00	1,275 00	.....	225 66	.....	225 66	1,049 34	.....	1,049 34
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

FINANCIAL REPORT ON SETTLEMENTS EFFECTED WITH THOSE LEAVING

Name and Property.	Re Buildings			Adjustments Allowed				
	Valuation on house	Valuation on other buildings	House account cancelled by taking house	On House	On other buildings	On 10 acres land	On other land cleared	On horse and cow account
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Harriott, David, Lots 14 & 15, Con. 11, O'Brien	764 00	305 00	651 37	200 00	300 00	1,000 00	450 00	.....
Harrow, G. W., Lot 18, Con. 12, O'Brien ...	754 00	385 00	377 19	250 00	150 00	1,000 00	50 00	.....
Hibbard, Thos., Lot 24, Con. 10, O'Brien ...	610 00	414 00	437 17	150 00	350 00	1,000 00	75 00	.....
Hirst, Wm., Lot 6, Con. 10, O'Brien	850 00	620 00	780 67	250 00	400 00	1,000 00	225 00	47 25
Huard, Arsene	.....	.....	.....	.....	.....	.....	.....	.....
Hudson, I. F., Lot 2, Con. 16, Owens	619 00	155 00	575 11	150 00	50 00	1,000 00	120 00	.....
Ilott, Harry, Lot 1, Con. 13, Owens	.....	.....	.....	.....	.....	.....	.....	.....
Ilott, Jos., Lot 1, Con. 12, Owens	.....	.....	.....	.....	.....	.....	.....	.....
Innes, John, Lot 5, Con. 10, O'Brien	475 00	.....	495 18	.....	.....	.....	.....	.....
Joyce, Norris, Lot 24, Con. 18, Owens	945 00	313 00	.....	350 00	250 00	1,000 00	.....	80 00
Kelly, J. J., Lot 19, Con. 14, O'Brien	400 00	100 00	.....	150 00	100 00	1,000 00	.....	.....
Kelly, J. W., Lot 26, Con. 9, O'Brien	825 00	277 00	308 10	250 00	200 00	1,000 00	45 00	.....
Kirkham, W. J., Lot 20, Con. 15, O'Brien	1,080 00	187 00	299 21	350 00	150 00	1,000 00	70 00	.....
Lewis, T. T.	.....	.....	.....	.....	.....	.....	.....	.....
Lowe, D. A., Lot 25, Con. 18, Owens	840 00	90 00	.....	250 00	100 00	1,000 00	.....	.....
Makowsky, H. E., Lot 16, Con. 11, O'Brien.	290 00	.....	.....	.....	.....	.....	.....	.....
Maltby, R., Lot 22, Con. 9, O'Brien	994 00	425 00	670 00	250 00	350 00	1,000 00	.....	.....
Meaden, W. F., Lot 25, Con. 15, Owens	540 00	97 00	.....	150 00	350 00	1,000 00	.....	.....
Moffat, W. G., Lot 19, Con. 15, O'Brien	729 00	.....	542 31	.....	.....	.....	.....	.....
Morgan, A. S., Lot 20, Con. 11, O'Brien ...	1,067 00	120 00	659 24	250 00	150 00	1,000 00	.....	.....
Musklow, W. F., Lot 5, Con. 11, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Magrath, Thos., Lot 13, Con. 16, O'Brien	850 00	165 00	518 25	250 00	150 00	1,000 00	50 00	.....
McKinnon, I. C., Lot 15, Con. 12, O'Brien ...	1,152 00	116 00	556 33	250 00	75 00	1,000 00	.....	.....
McKinnon, W. N., Lot 15, Con. 13, O'Brien.	288 00	100 00	556 78	150 00	100 00	1,000 00	.....	.....
Nichols, D. C., Lot 21 Con. 11, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Nichols, D. S., Lot 20, Con. 10, O'Brien	625 00	334 00	473 07	300 00	250 00	1,000 00	.....	.....
Nichols, G. H., Lot 20, Con. 9, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Nypack, Herman, Lots 28 & 29, Con. 18, Owens	.....	.....	.....	.....	.....	.....	.....	.....
Otto, C. A., Lots 7 & 8, Con. 10, O'Brien	845 00	945 00	668 27	150 00	700 00	1,000 00	250 00	.....

KAPUSKASING COLONY BY ADJUSTING OFFICERS, APRIL-JULY, 1920.—Con.

Adjustments Allowed					Indebtedness				Summary of Settlement		
On wood cut	On ploughing done	On seeding done	On sundry items	Total allowed settler	Supply account	Store account	Horse and cow account	Total indebtedness	Net balance due settler	Less advance made through Rev. H. J. King	Cash paid out
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
79 00	110 00	.....	.....	2,139 00	529 61	520 68	.....	1,041 29	1,097 71	50 00	1,047 71
15 00	.....	.....	.....	1,465 00	144 52	253 63	25 00	423 15	1,041 85	30 00	1,011 85
.....	.....	16 00	187 09	1,778 09	292 23	584 90	.....	877 13	900 96	49 51	851 45
.....	.....	5 00	.....	1,927 25	684 93	334 61	22 50	1,042 04	885 21	50 00	835 21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	1,320 00	190 97	180 31	.....	371 28	948 72	.....	948 72
.....	.....	.....	529 89	529 89	.....	29 89	.....	29 89	500 00	.....	500 00
.....	.....	.....	300 00	300 00	.....	.....	.....	.....	300 00	.....	300 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	210 00	1,800 00	204 09	250 45	.....	454 54	1,435 46	.....	1,435 46
.....	.....	.....	.....	1,250 00	3 18	5 57	.....	8 75	1,241 25	.....	1,241 25
.....	30 00	.....	362 84	1,887 84	335 36	485 32	25 00	845 68	1,042 16	53 24	988 92
.....	.....	.....	.....	1,570 00	.....	.....	.....	.....	1,570 00	.....	1,570 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	22 00	75 00	1,447 00	.....	151 76	.....	151 76	1,295 24	.....	1,295 24
.....	.....	.....	554 26	554 26	15 22	39 04	.....	54 26	500 00	14 90	485 10
.....	.....	.....	.....	1,600 00	.....	.....	.....	.....	1,600 00	.....	1,600 00
.....	.....	.....	.....	1,500 00	.....	.....	.....	.....	1,500 00	.....	1,500 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	40 00	.....	.....	1,440 00	87 97	186 07	.....	274 04	1,165 96	39 00	1,126 96
.....	.....	.....	200 00	200 00	.....	.....	.....	.....	200 00	.....	200 00
40 00	.....	.....	.....	1,490 00	96 24	247 70	.....	343 94	1,146 06	30 00	1,116 06
.....	.....	.....	.....	1,325 00	.....	111 20	.....	111 20	1,213 80	.....	1,213 80
.....	.....	.....	.....	1,250 00	3 55	.....	.....	3 55	1,246 45	.....	1,246 45
.....	.....	.....	500 00	500 00	.....	.....	.....	.....	500 00	.....	500 00
.....	30 00	.....	.....	1,580 00	93 26	109 89	25 00	228 15	1,351 85	.....	1,351 85
.....	.....	.....	500 00	500 00	.....	.....	.....	.....	500 00	.....	500 00
.....	.....	.....	150 00	150 00	.....	.....	.....	.....	150 00	.....	150 00
.....	.....	.....	.....	2,100 00	982 63	573 05	240 00	1,800 68	299 32	36 79	262 53

FINANCIAL REPORT ON SETTLEMENTS EFFECTED WITH THOSE LEAVING

Name and Property.	Re Buildings			Adjustments Allowed				
	Valuation on house	Valuation on other buildings	House account cancelled by taking house	On House	On other buildings	On 10 acres land	On other land cleared	On horse and cow account
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Precious, D., Lot 7, Con. 9, O'Brien	810 00	664 00	668 49	250 00	400 00	1,000 00	.....	25 00
Precious, W. W., Lot 7, Con. 8, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Preston, Robt., Lots 23 & 24, Con. 17, Owens	887 00	30 00	.....	150 00	100 00	1,000 00	.....	.....
Pryce, Jas., Lot 6, Con. 11, O'Brien	780 00	200 00	714 44	150 00	200 00	1,000 00	85 00	54 75
Raynsford, John, Lot 26, Con. 8, O'Brien..	560 00	60 00	388 90	150 00	50 00	1,000 00	.....	.....
Reid, W. C., Lot 22, Con. 10, O'Brien ...	658 00	380 00	528 52	150 00	250 00	1,000 00	.....	.....
Roberts, Jos., Lot 25, Con. 15, Owens	150 00	.....	.....	.....	.....	1,000 00	.....	.....
Robinson, D. L., Lot 14, Con. 13, O'Brien	.....	.....	.....	75 00	.....	1,000 00	75 00	.....
Rodger, Robt., Lot 19, Con. 13, O'Brien	1,300 00	300 00	480 87	400 00	300 00	1,000 00	90 00	.....
Salava, J. O., Lot 29, Con. 1, Williamson..	.....	.....	.....	.....	.....	.....	.....	.....
Scarborough, E. T., Lot 24, Con. 16, Owens..	366 00	345 00	.....	.....	.....	.....	.....	.....
Scarborough, R., Lot 27, Cons. 10 & 11, O'Brien	900 00	150 00	637 70	250 00	75 00	1,000 00	60 00	.....
Selley, W. H., Lot 19, Con. 10, O'Brien	864 00	72 00	897 24	150 00	72 00	1,000 00	120 00	.....
Smith, Fred, Lot 18, Con. 10, O'Brien ...	772 00	300 00	718 56	150 00	100 00	1,000 00	100 00	.....
Smith, W. R., Lots 10 & 11, Con. 10, O'Brien.	946 00	210 00	482 18	300 00	180 00	1,000 00	50 00	.....
Souch, Wm., Lot 28, Con. 15, O'Brien	730 00	.....	344 29	150 00	75 00	1,000 00	.....	.....
Stacey, John, Lot 17, Con. 10, O'Brien	.....	.....	.....	.....	.....	.....	.....	.....
Taylor, Ernest, Lot 12, Con. 11, O'Brien	750 00	75 00	618 47	150 00	75 00	1,000 00	30 00	.....
Thornton, I. B., Lots 25 & 26, Con. 10, O'Brien	900 00	70 00	582 85	250 00	50 00	1,000 00	100 00	.....
Vice, J. H., Lot 22, Con. 8, O'Brien	600 00	95 00	423 34	150 00	75 00	1,000 00	.....	.....
Waterhouse, C. C., Lot 14, Con. 12, O'Brien.	1,652 00	180 00	563 08	200 00	450 00	1,000 00	332 00	.....
Whelan, W. G., Lot 25, Con. 1, Williamson..	756 00	105 00	.....	250 00	100 00	1,000 00	.....	.....
Wilkinson, R. W., Lot 17, Con. 11, O'Brien.	.....	.....	.....	.....	.....	.....	.....	.....
Wilkinson, Wm., Lot 18, Con. 11, O'Brien ...	825 00	270 00	550 00	150 00	145 00	1,000 00	45 00	130 00
Wilson, C. H., Lot 9, Cons. 10 & 11, O'Brien	620 00	843 00	569 20	150 00	600 00	1,000 00	360 00	.....
Titus, Mrs. Violet, Lot 13, Con. 11, O'Brien.	832 00	770 00	.....	150 00	200 00	1,000 00	62 00	.....
Totals	47,572 00	15,708 00	25,526 80	12,868 00	11,287 00	59,750 00	4,483 00	407 50

KAPUSKASING COLONY BY ADJUSTING OFFICERS, APRIL-JULY, 1920.—Concluded.

Adjustments Allowed					Indebtedness				Summary of Settlement		
On wood cut	On ploughing done	On seeding done	On sundry items	Total allowed settler	Supply account	Store account	Horse and cow account	Total indebtedness	Net balance due settler	Less advance made through Rev. H.J. King	Cash paid out
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
.....	.....	.....	.....	1,675 00	193 29	161 32	25 00	379 61	1,295 39	30 00	1,265 39
.....	.....	.....	200 00	200 00	.....	.....	.....	.....	200 00	.....	200 00
.....	.....	.....	125 00	1,375 00	145 89	72 36	.....	218 25	1,156 75	31 44	1,125 31
.....	10 00	.....	.....	1,499 75	232 23	383 06	.....	615 29	884 46	25 00	859 46
12 00	.....	.....	.....	1,212 00	.....	.....	.....	.....	1,212 00	.....	1,212 00
12 00	20 00	14 00	.....	1,446 00	264 48	346 76	.....	611 24	834 76	.....	834 76
.....	.....	.....	.....	1,000 00	.....	.....	.....	.....	1,000 00	.....	1,000 00
.....	.....	.....	.....	1,150 00	18 51	46 15	.....	64 66	1,085 34	.....	1,085 34
.....	.....	.....	213 34	2,003 34	247 05	372 03	.....	619 08	1,384 26	45 25	1,339 01
.....	.....	.....	200 00	200 00	.....	.....	.....	.....	200 00	.....	200 00
.....	.....	.....	540 21	540 21	.....	40 21	.....	40 21	500 00	.....	500 00
27 50	.....	.....	37 66	1,450 16	137 52	109 26	.....	246 78	1,203 38	.....	1,203 38
.....	100 00	.....	.....	1,442 00	126 59	294 62	.....	421 21	1,020 79	50 00	970 79
.....	.....	.....	.....	1,350 00	151 30	278 02	.....	429 32	920 68	35 00	885 68
10 00	.....	56 00	.....	1,596 00	206 22	99 36	.....	305 58	1,290 42	43 91	1,246 51
.....	70 00	25 00	.....	1,320 00	.....	.....	.....	.....	1,320 00	.....	1,320 00
.....	.....	.....	300 00	300 00	.....	.....	.....	.....	300 00	.....	300 00
.....	75 00	.....	.....	1,330 00	44 07	112 86	.....	156 93	1,173 07	30 00	1,143 07
.....	.....	.....	.....	1,400 00	130 62	.....	.....	130 62	1,269 38	.....	1,269 38
18 00	.....	.....	61 50	1,304 50	32 66	193 09	.....	225 75	1,078 75	.....	1,078 75
.....	40 00	.....	59 67	2,081 67	424 17	651 62	.....	1,075 79	1,005 88	75 00	930 88
.....	.....	.....	234 00	1,584 00	3 31	216 28	.....	219 59	1,364 41	39 18	1,325 23
.....	.....	.....	200 00	200 00	.....	.....	.....	.....	200 00	.....	200 00
30 00	.....	.....	83 79	1,583 79	226 82	134 94	.....	361 76	1,222 03	.....	1,222 03
10 00	.....	.....	.....	2,120 00	277 15	.....	25 00	302 15	1,817 85	.....	1,817 85
.....	60 00	.....	.....	1,472 00	.....	.....	.....	.....	1,472 00	.....	1,472 00
754 50	1,005 00	304 00	9,013 41	99,872 41	10,799 21	11,302 86	953 75	23,055 82	76,816 59	1,248 99	75,567 60

SUMMARY.

1. Valuation on Houses	$47,572 00	
Amount of house accounts cancelled	.....	$25,526 80
Amount allowed settlers	.....	12,868 00
Excess of valuation over house accounts and amounts allowed	.....	9,177 20
	$47,572 00	$47,572 00
2. Valuation of Barns and Outbuildings	$15,708 00	
Amount allowed settlers on these	.....	$11,287 00
Excess of valuation over amount allowed	.....	4,421 00
	$15,708 00	$15,708 00
3. Total Amount Allowed Settlers	$99,872 41	
Total indebtedness cancelled	.....	$23,055 82
Net balance due settlers	.....	76,816 59
	$99,872 41	$99,872 41
4. Net balance due settlers	$76,816 59	
Amount paid settlers through Rev. H. J. King	.....	$1,248 99
Cash paid out	.....	75,567 60
	$76,816 59	$76,816 59

Respectfully submitted on behalf of the Adjusting Officers,

J. A. GUNN,
Chairman.

ALBERT H. ABBOTT,
Secretary.

SUMMARY OF EXPENDITURE IN ADJUSTING CLAIMS OF SOLDIER SETTLERS AT KAPUSKASING COLONY.

EFFECTED BY THE ADJUSTING OFFICERS, UNDER THE CHAIRMANSHIP OF BRIGADIER-GENERAL J. A. GUNN.

Amounts awarded to settlers leaving the Colony	$76,816 59	
Amounts awarded to settlers remaining at the Colony	4,886 59	
		$81,703 18
Freight on household goods of settlers leaving the Colony	$1,282 26	
Railway fares of settlers leaving the Colony	6,239 46	
		7,521 72
Seeds provided for settlers remaining at the Colony		1,551 30
Expenses of adjusting officers and incidental expenses		973 93
Total expenditure		$91,750 13

ARTHUR E. D. BRUCE,
Secretary and Accountant.

Appendix No. 47.

SETTLERS' LOAN COMMISSIONER.

TORONTO, December 15th, 1920.

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

SIR,—I beg to herewith submit a report of the operations conducted by this Department under the Northern and North-western Ontario Development Act, Amending Acts 1916 and 1918.

Up to October 31st, 1920, a total of 2,227 applications for loans were received, asking for an amount of $874,760.00, an average of $384.61 per application. Careful consideration was given to each individual request, and loans advanced on the basis of security offered in the way of improved land, where it was clearly shown the money could be used to good advantage for the improvement of settlement duties.

A total of 1,556 loans have been made to settlers, amounting to $190,836.00, an average of $315.44, and in addition a loan of $12,000.00 has been advanced to the Sudbury Co-operative Creamery Co., Ltd., and also a loan of $8,000.00 to the Kenora Dairy Co-operative Association.

The repayment of loans has been very satisfactory, as is evidenced by the fact that over 90 per cent. of the interest payments are up-to-date, and payments of principal equal over 97 per cent. of the amount due, this being partly due to the fact that a number of loans have been paid in advance.

I beg to direct your attention to the attached memorandum giving details of operation carried on, and it is a pleasure to be able to state that settlers who have received loans through this Department have expressed their appreciation of the help the loan has been, by enabling them to stay on their own lots, and carry on the work of clearing land.

Yours very truly,

F. DANE,

Settlers' Loan Commissioner.

Memorandum of Settlers' Loans to October 31st, 1920.

Applications.

Total number of applications received	2,227
Total amount applied for	$874,760 00
Average per application	384 61
Amount applied for under approved applications	636,040 00

Loans.

Number of loans issued	1,558
Equal to 70% of applications.	
Amount granted	510,836 00
Equal to 58% of total amount applied for, and	
Equal to 80% of total amount applied for under approved applications.	
Average loan	315 44
Total acreage covered by liens	238,678
Acreage improved land—equal to 13.2% of total acreage	32,663
Average loan per acre on total acreage	2 14
Average loan per acre on acreage improved land	15 63

NOTE.—Figures, except averages, include application for, and loan of $12,000.00 to Sudbury Co-operative Creamery Co., Ltd., and $8,000.00 to the Kenora Dairy Co-operative Association, Ltd.

Repayments.

Accrued interest due	$71,789 03	
Accrued interest received	65,305 30	or 90.96%
Payments on principal due	130,197 69	
Payments on principal received	126,787 33	or 97.38%
Total payments due	201,986 72	
Total payments received	192,092 63	or 95.10%

Details of Loans Issued and Outstanding.

District	No. of Loans	Amount	Unpaid Principal and Accrued Interest
Algoma	33	$10,105 00	$8,976 26
Kenora	135	47,895 00	38,920 54
Nipissing	68	24,800 00	19,044 17
Rainy River	129	41,600 00	31,442 01
Sudbury	32	22,975 00	21,003 70
Temiskaming	691	213,740 00	152,866 39
Thunder Bay	470	149,721 00	118,279 33
Totals	1,558	$510,836 00	$390,532 40

Appendix No. 48.

REPORT OF FORESTRY BRANCH, 1920.

SIR,—The report of the work of this Branch for the year ending 31st October, 1920, is given under the sections of Forest Protection, Forest Investigation, Reforestation, and Forest Pathology.

I. FOREST PROTECTION.

(1) *Personnel.*

The average daily force was: During April, 19; May, 406; June, 910; July, 962; August, 916; September, 600; October, 28. The total number of persons employed for at least a part of the season was 1,209: of these 240 resigned after a time, and 70 were dismissed for various reasons. Such a turnover, of 25 per cent. in the field force in the short space of five months is detrimental to the organization.

(2) *Expenditure.*

The expenditure for the fiscal year was $506,107.71, classified as below, with the figures for the preceding years given for comparison. As an offset to this, protection accounts accruing for the year totalled approximately $240,000.00.

CLASSIFICATION OF EXPENDITURE

Item	1920	1919	1918
Pay roll	$398,919 61	$405,212 30	$416,500 00*
Equipment	22,287 83	22,899 02	28,350 00
Expendable property	16,589 99	13,903 06	10,700 00
Travel (inspection)	17,495 93	15,826 37	13,440 00
Improvement work	1,591 01	4,765 35	4,280 00
Extra fire fighting	41,491 24	58,863 92	1,445 00
Express, postage, etc.	5,401 02	5,646 47	5,365 00
Miscellany	2,331 08	5,955 02	6,054 78
Total	$506,107 71	$528,071 51	$486,134 78

* Figures rounded off.

(3) *Fires.*

The outstanding features of forest administration in this Province as in all Eastern Canada is the inability to control the losses from forest fires. The undertaking is so large and its bearing so important that the other phases of administrative work are comparatively minor matters. The successful working out of this problem will result in timber growth on the bulk of our cut-over lands. It is true that this growth will often not be as satisfactory as we would like, but any sort of a crop is better than barrens.

Up to the present a factor contributing largely to the difficulty of handling the situation has been the impermanency of the organization. This matter was referred to at length in last year's report. Since the close of this fire season

forest protection and the administration of timber matters have been consolidated under this Branch. This opens the way for organization of the field force on a permanent basis, with all the ensuing benefits.

But the crux of the problem of forest fire control is the slash and debris resulting from present logging methods. Year after year new large areas of slash are allowed to be created; these are most inflammable, and make extremely hot fires which are largely uncontrollable till they reach green timber. Each succeeding season large sums of money are spent to handle this situation of our own making. Until brush disposal is systematically undertaken as an integral part of the operation of logging our forests will burn.

CLASSIFICATION OF FOREST FIRES

By month					By Origin					
Month	1920	1919	1918	1917	Origin	1920		1919	1918	1917
	No.	No.	No.	No.		No.	%	%	%	%
May	422	362	294	449	Settlers	142	11.0	7.7	8.1	8.2
June	309	414	273	320	Campers	151	11.7	9.2	9.7	13.9
July	142	613	124	158	Railways	307	23.9	37.0	46.5	49.5
August	300	377	268	117	Lightning	14	1.1	3.0	3.8	2.9
September	114	14	6	66	Logging op'ns	59	4.6	2.5	4.1	4.1
					Miscellaneous	93	7.2	4.3	4.6	3.6
					Unknown	521	40.5	36.3	23.2	17.8
Totals	1,287	1,780	965	1,110		1,287	100.0	100.0	100.0	100.0

BY SIZE

Size	1920		1919	1918	1917
	No.	%	%	%	%
¼ ac. and under	298	23.2	30.5	40.5	36.3
Over ¼ to 5 ac.	379	29.4	27.7	33.7	19.5
Over 5 to 10 ac.	104	8.1	6.1	6.0	4.8
Over 10 to 100 ac.	220	17.1	16.5	13.6	9.5
Over 100 to 500 ac.	155	12.0	8.7	5.1	4.7
Over 500 ac.	.....	.....	.....	1.1	25.2
500 to 1,000	64	5.0	3.3	.....	.....
1,000 to 10,000	63	4.9	5.9	.....	.....
Over 10,000	4	0.3	1.3	.....	.....
	1,287	100.0	100.0	100.0	100.0

In the spring of 1920 the snow disappeared very early and rapidly. Very unusual weather conditions then set in and for practically two months no rain fell. During this period nearly sixty per cent. of the season's fires were recorded.

Railway Fires.—Defective locomotives and careless railway employees were responsible for 23.9 per cent. of the total number of fires from all causes. As shown in the above table the percentage of fires of railway origin has steadily decreased year by year till now it is one-half of what it was in 1917. This is due largely to the increasingly special attention given to the locomotive inspection end of our work.

The fires of railway origin were distributed as follows:

	Per cent.
Canadian National Railway (exclusive of northern line)	32.3
Canadian Pacific Railway	27.9
Canadian National Railway (northern transcontinental line only)	16.4
Timiskaming and Northern Ontario	9.9
Algoma Eastern	5.0
Algoma Central	4.4
Grand Trunk	4.1
	100.00

Other Causes.—Neglected camp fires caused 151 fires, half as many as the railways, or 11.7 per cent. of the total season's fires. The indifference and carelessness exhibited by tourists, picnickers, berrypickers, and other users of the woods, as regards this matter is incredible except by those knowing the facts. This attitude will continue until the Act provides a jail sentence for flagrant instances.

Settlers were responsible for 11.0 per cent. of all fires; nearly one-third of these were permit fires which were allowed to get beyond control.

The percentage of all fires due to carelessness of those engaged in lumbering operations this year was 4.6; this is the highest within the last four years. More co-operation on the part of this industry might be expected during the peaks of hazard.

Area Burned.—In all, 358,851 acres were reported burned over in 1920 as compared with 922,161 acres in 1919; 30,172 acres in 1918; and 384,164 acres in 1917. This acreage was classified thus:

CLASSIFICATION OF BURNED-OVER AREA

Forest Condition	1920		1919	1918	1917
	Acres	%	%	%	%
Timber land	52,858	14.7	26.8	15.8	19.1
Cut-over land (some timber left)	139,438	38.8	27.3	37.0	39.2
Young growth (below six inches)	95,730	26.7	25.3	23.5	19.5
Barren and grass land	70,825	19.8	20.6	23.7	22.2
	358,851	100.0	100.0	100.0	100.0

As shown in the table, the area of timber land burned over, fell this season to 14.7 per cent. of the whole, the lowest figure yet. As in previous years, the area lumbered over formed the setting for the bulk of the fires, being 65.5 per cent. of the total burned acreage. During the past four seasons nearly 1,000,000 acres (equal to 40 townships) of this type of land has been burned over (60 per cent. of the total area) and the existing young trees mostly killed. When it is considered that this high percentage is because of its covering of logging slash, and that this is the land upon which we are depending for the next crop of timber to furnish revenue, one is seized of the importance of dealing with the problem of slash disposal.

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1920

Ranger District	Number of fires	Timber land, mainly coniferous, i.e., soft-wood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate—										
1 Kenora District	85	2,209	55	1,725	315	1,736	2,021	9,976	5	18,042
2 Rainy River	57	20	.....	520	160	97	108	148	28	1,081
3 Thunder Bay	39	51	.....	1,217	.....	705	155	2,487	6	4,621
4 Nipigon	7	1	.....	.....	.....	194	.....	150	.....	345
5 C.G.R.—Western	16	640	.....	726	.....	183	.....	58	.....	1,607
6 C.G.R.—Central	27	100	20	15	.....	640	26	330	1	1,132
	231	3,021	75	4,203	475	3,555	2,310	13,149	40	26,828
II. Northern Inspectorate—										
1 Hearst	17	1,347	.....	1,217	32	.....	24	25	.....	2,645
2 Cochrane	113	137	.....	1,860	5	461	280	1,045	10	3,798
3 Abitibi	36	43	29	745	300	11	180	1,678	3	2,989
4 Timmins	27	11,505	200	652	450	1,002	2,201	3,160	.....	19,170
5 Matheson	61	352	7	745	.....	6,062	595	2,176	4	9,941
6 New Liskeard	18	424	.....	502	300	25	40	213	2	1,506
	272	13,808	236	5,721	1,087	7,561	3,320	8,297	19	40,049
III. Central Inspectorate—										
1 Soo	19	1,626	70	4,121	550	.....	151	76	.....	6,594
2 Webbwood	67	2,000	.....	675	.....	4,804	3,651	6,440	38	17,608
3 Sudbury	39	100	55	5,500	4,340	2,943	1,386	3,143	6	17,463
4 North Bay	61	2,425	23	5,435	458	1,020	8,742	1,443	2	19,548
5 Mississagi	7	5	.....	.....	.....	600	5,000	2	.....	5,607
6 Chapleau	53	6	.....	524	.....	1,047	3,170	5,005	1	9,753
7 Foleyet	121	8,158	1	67,921	.....	12,520	1,552	6,091	1	96,244
8 Timagami, W. & S.	44	610	152	.....	2	604	2	1,392	.....	2,762
9 Timagami, East	40	465	.....	3,650	400	7	819	17	.....	5,358
10 Timagami, North	26	1,852	.....	682	.....	3,166	200	5,316	.....	11,216
11 Algoma Central	51	71	10	9,231	1,275	2,854	52	1,844	20	15,357
	498	17,318	311	97,739	7,025	29,555	24,725	30,769	68	207,516

IV. Southern Inspectorate—										
1 Parry Sound	24	406	946	203	795	.....	17	151	10	2,528
2 Muskoka	33	200	1	1,500	5,615	305	45	26	12	7,704
3 Algonquin, North	48	2,398	2,390	.....	1,340	814	2,613	2,812	49	12,416
4 Algonquin, South	45	91	15	2,171	2,271	2,056	3,268	5,464	.....	15,336
5 Madawaska	35	707	7,145	1,921	3,848	1,705	4,215	5,390	3	24,934
6 Trent	90	590	3,150	2,854	670	1,044	3,092	1,920	511	13,831
7 Eastern Reserve	11	.....	50	.....	.....	.....	5,530	2,115	20	7,715
	286	4,392	13,697	8,649	14,539	5,924	18,780	17,878	605	84,464
Totals	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
Per Cent	.....	10.7	4.0	32.4	6.4	13.0	13.7	19.6	0.2	100.0
1919 Totals	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 Totals	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

(4) *Permits.*

Permits were issued in 123 townships this season, as compared with 136 townships the previous year. In all, 6,154 permits to burn over 22,767 acres were issued, as compared with 6,635 permits in 1919. The most of this work lies in the Cochrane, Matheson and New Liskeard districts, the three together calling for 97 per cent. of the whole number of permits issued.

STATEMENT OF PERMITS ISSUED.

Ranger District	Number of Permits			
	1920	1919	1918	1917
Cochrane	1,982	2,275	3,493	.....
Matheson	1,887	1,691	2,346	.....
New Liskeard	1,169	1,557	2,179	.....
Hearst	756	702	514	.....
Timmins	193	199	651	.....
All other districts	167	211	407	.....
Totals	6,154	6,635	9,590	3,486

	Number of Permits			
	1920	1919	1918	1917
May	1,003	1,536	2,248	.....
June	2,011	2,786	2,899	.....
July	891	496	2,050	.....
August	1,629	1,475	2,156	.....
September	629	342	237	.....
Totals	6,154	6,635	9,590	3,486

Ranger District	Aereage Burned Over Under Permit			
	1920	1919	1918	1917
Cochrane	4,984	5,437	10,267	.....
Matheson	5,427	4,769	7,371	.....
New Liskeard	9,768	13,521	17,868	.....
Hearst	1,478	1,379	1,134	.....
Timmins	424	925	1,971	.....
All other districts	686	768	1,072	.....
Totals	22,767	26,790	39,683	15,186

(5) *Equipment.*

The major equipment added this year included: 14 canoes, 50 tents, 6 portable fire fighting units, 28 railway velocipedes, 1 railway motor car, 2 sixteen-foot power boats, 150 single blankets.

The usual fire posters were sent out.

(6) *Railway Inspection Under B. R. C.*

The same organization of the work of inspection of fire protective appliances on locomotives was continued during 1920, two inspectors devoting all their time to this.

LOCOMOTIVE INSPECTION, 1920

Railway	Number Inspected — Times					Total Number Engines	Total Number Inspections				Inspections showing defects	Percentage Defective			
	1	2	3	4	5	1920	1920	1919	1918	1917	1920	1920	1919	1918	1917
C.P.R ..	142	82	57	29	13	323	660	499	448	328	111	16.8	29.9	36.4	19.5
C.N.R .	81	47	29	16	5	178	351	317	232	154	28	7.9	15.5	22.4	39.6
G.T.R ..	67	42	18	4	1	132	226	155	184	60	11	4.8	11.6	28.3	20.0
A .C.....	13	2	1	....	1	17	25	23	36	37	3	12.0	13.0	38.8	45.9
A.E.....	3	1	3	....	2	9	26	18	20	36	12	46.1	16.7	70.0	55.5
						659	1,288	1,012	920	615	165	12.8	21.8	32.1	28.3

Average cost per inspection $1.86, as compared with $2.07 in 1919, and $2.59 in 1918.

The above table shows that the work of inspecting locomotives has been gradually expanded each year. This year 1,288 inspections were made as compared with 615, 920 and 1,012 inspections in 1917, 1918, 1919, respectively. These inspections embraced 659 locomotives as compared with 531 and 571 in 1918 and 1919.

Furthermore, the cost of this work has been gradually reduced. Inspections this year cost $1.86 per inspection, as compared with $2.59 in 1918 and $2.07 in 1919.

It is satisfactory to find that the percentage of inspections revealing defects has steadily fallen. This year but 12.8 per cent. were defective as compared with 28.3, 32.1 and 21.8 per cent. in the three preceding years. In keeping with these results it is to be noted that the percentage of all fires attributed to railways has decreased regularly each year from 49.5 per cent. in 1917 to 23.9 per cent. this year.

II. Forest Investigation.

This season the first work was done in connection with a definite plan of forest reconnaissance of the Province.

This survey was of the usual nature of such work, detail being reduced in order to give speed. Maps were prepared in the field delimiting cleared (farming)

land from barrens and forest. The forest area was differentiated into hardwood, coniferous, and mixed types, with the poplar-birch type separated from the other hardwoods. The first three types were classified as to condition, namely, moderately culled, severely culled, second growth and young growth. The poplar-birch stands were thrown into two groups on the basis of whether white pine reproduction was in evidence or not.

On these maps showing forest types and conditions, there were also placed roads, trails, abandoned roads, railway lines, existing telephone lines, watershed boundaries, and good locations for lookout points for fire ranging use.

Along with this field mapping, information was compiled by townships, covering such points as present fire hazards, location and numbers of male help available for fire fighting, wood-using industries and mills in existence, nature and extent of other industries such as farming, mining, game and fish, tourist traffic, population, general suitability for agriculture, etc.

The method of work was by foot travel from a central camp with the distances computed by pacing. Camp was moved every few days. This year but one party of three men with cook was engaged in this survey from June to December. They investigated the northern parts of the Counties of Hastings, Lennox & Addington, Frontenac, and Lanark. In all, 1,720,000 acres were mapped at an average cost of one-quarter of one cent per acre.

It is expected that by the end of next season all the country south of the French River and Lake Nipissing will have been done.

Tables showing the classification of the land area which was surveyed are given below. In the case of the Townships of Cashel, Faraday, Herschel, Lake, Limerick, Tudor, and Wollaston only those portions not tributary to Trent waters were covered.

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.

	Abinger		Anglesea		Ashby		Bangor		Barrie	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	3,317	6.4	2,362	4.4	837	1.7	6,323	16.0	6,059	11.6
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	2,752	.....	.....	.....	4,750	.....	1,714	.....	2,625	.....
Severely culled	2,453	.....	2,184	.....	566	.....	3,769	.....	3,014	.....
Second growth	368	.....	53	.....	.....	.....	1,191	.....	598	.....
Young growth	429	.....	.....	.....	2,352	.....	5,315	.....	1,342	.....
	6,002	11.6	2,237	4.2	7,668	15.6	11,989	30.3	7,579	14.5
2. Coniferous:										
Virgin and moderately culled	581	.....	.....	.....	480	.....	203	.....	170	.....
Severely culled	.....	.....	214	.....	.....	.....	325	.....	301	.....
Second growth	30	.....	107	.....	168	.....	77	.....	66	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	611	1.2	321	0.6	648	1.3	605	1.5	537	1.0
3. Mixed:										
Virgin and moderately culled	1,435	.....	160	.....	5,459	.....	1,247	.....	2,469	.....
Severely culled	326	.....	480	.....	512	.....	1,422	.....	2,587	.....
Second growth	1,252	.....	230	.....	1,783	.....	1,808	.....	866	.....
Young growth	.....	.....	.....	.....	536	.....	.....	.....	322	.....
	3,013	5.8	870	1.6	8,290	16.8	4,477	11.3	6,244	12.0
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	5,946	.....	2,930	.....	952	.....	3,588	.....	4,772	.....
Saplings	6,129	.....	32,159	.....	14,910	.....	4,516	.....	24,144	.....
	12,075	23.2	35,089	65.1	15,862	32.2	8,104	20.4	28,916	55.4
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	21,478	.....	874	.....	15,956	.....	8,130	.....	2,599	.....
	21,478	41.3	874	1.6	15,956	32.4	8,130	20.5	2,599	5.0
III. Barrens	5,459	10.5	12,114	22.5	.....	.....	.....	.....	232	0.5
Land area investigated	51,955	.....	53,867	.....	49,261	.....	39,628	.....	52,166	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Continued.*

	N. Canonto		S. Canonto		Carlow		Cashel		Clarendon	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	245	1.0	2,350	7.5	10,737	22.9	749	2.6	10,852	20.1
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	6,730	.....	5,216	.....	974	.....	7,104	.....	2,613	.....
Severely culled	.....	.....	1,990	.....	1,528	.....	850	.....	2,955	.....
Second growth	.....	.....	.....	.....	1,272	.....	.....	.....	326	.....
Young growth	.....	.....	.....	.....	1,298	.....	560	.....	1,531	.....
	6,730	25.8	7,206	22.9	5,072	10.9	8,514	30.5	7,425	13.8
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	1,028	.....	341	.....	114	.....
Severely culled	.....	.....	.....	.....	167	.....	302	.....	1,856	.....
Second growth	.....	.....	.....	.....	1,183	.....	141	.....	606	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	2,378	5.1	784	2.8	2,576	4.8
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	2,286	.....	829	.....	1,142	.....
Severely culled	936	.....	221	.....	1,286	.....	80	.....	2,688	.....
Second growth	.....	.....	.....	.....	8,178	.....	1,648	.....	880	.....
Young growth	.....	.....	.....	.....	999	.....	.....	.....	.....	.....
	936	3.6	221	0.7	12,749	27.3	2,557	9.2	4,710	8.7
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	661	.....	1,222	.....	3,038	.....
Saplings	13,804	.....	18,580	.....	6,082	.....	5,150	.....	6,647	.....
	13,804	52.9	18,580	59.0	6,743	14.4	6,372	22.8	9,685	17.9
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	211	.....
Saplings	.....	.....	694	.....	8,638	.....	8,958	.....	14,341	.....
	.....	.....	694	2.3	8,638	18.5	8,958	32.1	14,552	27.0
III. Barrens	4,336	16.7	2,410	7.6	421	0.9	.....	.....	4,127	7.7
Land area investigated	26,051	.....	31,461	.....	46,738	.....	27,934	.....	53,927	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Continued.*

—	Darling		Denbigh		Dungannon		Effingham		Elzevir	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	11,797	20.0	8,338	15.8	14,767	29.0	733	1.5	16,604	24.2
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	11,086	.....	2,167	.....	2,439	.....	517	.....
Severely culled	7,895	.....	593	.....	1,632	.....	687	.....	1,613	.....
Second growth	.....	.....	1,082	.....	337	.....	.....	.....	2,131	.....
Young growth	.....	.....	7,336	.....	.....	.....	149	.....	.....	.....
	7,895	13.4	20,097	38.0	4,136	8.1	3,275	6.5	4,261	6.2
2. Coniferous:										
Virgin and moderately culled	.....	.....	522	.....	775	.....	512	.....	.....	.....
Severely culled	.....	.....	584	.....	5,362	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	574	.....	.....	.....	58	.....
Young growth	.....	.....	.....	.....	193	.....	.....	.....	.....	.....
	.....	.....	1,106	2.1	6,904	13.6	512	1.0	58	0.1
3. Mixed:										
Virgin and moderately culled	13,693	.....	2,713	.....	122	.....	18,890	.....	165	.....
Severely culled	5,955	.....	5,073	.....	2,198	.....	38	.....	786	.....
Second growth	792	.....	2,061	.....	2,097	.....	1,048	.....	1,091	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	20,440	34.7	7,847	14.9	4,417	8.7	19,976	39.8	2,042	2.9
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	6,043	.....	1,093	.....	6,228	.....	659	.....	93	.....
Saplings	12,763	.....	4,812	.....	8,716	.....	24,327	.....	20,387	.....
	18,806	31.9	5,905	11.2	14,944	29.5	24,986	49.8	20,480	29.7
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	36	.....	760	.....	.....	.....	.....	.....
Saplings	.....	.....	8,887	.....	3,715	.....	213	.....	12,909	.....
	.....	.....	8,923	16.9	4,475	8.8	213	0.4	12,909	18.7
III. Barrens	.....	.....	588	1.1	1,276	2.3	500	1.0	12,549	18.2
Land area investigated	58,938	.....	52,804	.....	50,919	.....	50,195	.....	68,903	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Continued.*

—	Faraday		Grimsthorpe		Herschel		Kaladar		Kennebec	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	6,995	23.5	173	0.3	7,789	14.6	10,383	14.9	17,873	24.7
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	5,043	.....	1,142	.....	12,867	.....	430	.....	1,128	.....
Severely culled	1,358	.....	954	.....	4,330	.....	310	.....	5,434	.....
Second growth	510	.....	2,312	.....	649	.....	55	.....	893	.....
Young growth	2,112	.....	.....	.....	6,036	.....	.....	.....	224	.....
	9,023	30.3	4,408	6.4	23,882	44.9	795	1.2	7,679	10.6
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	29	.....	206	.....	.....	.....
Severely culled	672	.....	226	.....	1,213	.....	.....	.....	437	.....
Second growth	.....	.....	.....	.....	550	.....	.....	.....	499	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	672	2.3	226	0.3	1,792	3.4	206	0.3	936	1.3
3. Mixed:										
Virgin and moderately culled	987	.....	320	.....	3,019	.....	685	.....	187	.....
Severely culled	1,920	.....	.....	.....	2,093	.....	2,111	.....	1,472	.....
Second growth	362	.....	341	.....	1,454	.....	1,345	.....	2,810	.....
Young growth	.....	.....	.....	.....	317	.....	.....	.....	.....	.....
	3,269	11.0	661	0.9	6,883	12.9	4,141	6.0	4,469	6.2
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	2,348	.....	2,088	.....	.....	.....
Saplings	2,078	.....	16,304	.....	524	.....	15,214	.....	5,622	.....
	2,078	6.9	16,304	23.7	2,872	5.3	17,302	24.9	5,622	7.8
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	623	.....	.....	.....	.....	.....
Saplings	7,728	.....	34,490	.....	9,450	.....	17,595	.....	12,658	.....
	7,728	26.0	34,490	50.3	10,073	18.9	17,595	25.3	12,658	17.5
III. Barrens	.....	.....	12,449	18.1	.....	.....	19,091	27.4	23,160	31.9
Land area investigated	29,765	.....	68,711	.....	53,291	.....	69,513	.....	72,397	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Continued.*

	Lake		Lavant		Limerick		Mayo		McClure	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	108	5.6	5,851	10.6	563	5.7	8,473	16.9	3,824	7.3
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	740	.....	992	.....	876	.....	8,307	.....	23,592	.....
Severely culled	32	.....	3,766	.....	414	.....	3,197	.....	2,805	.....
Second growth	.....	.....	1,541	.....	.....	.....	501	.....	584	.....
Young growth	.....	.....	.....	.....	.....	.....	870	.....	8,147	.....
	772	39.8	6,299	11.4	1,290	13.0	12,875	25.8	35,128	67.3
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	104	.....	.....	.....
Severely culled	440	.....	256	.....	1,912	.....	48	.....	1,576	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	294	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	440	22.7	256	0.5	1,912	19.3	152	0.4	1,870	3.6
3. Mixed:										
Virgin and moderately culled	80	.....	3,491	.....	245	.....	2,603	.....	226	.....
Severely culled	.....	.....	1,302	.....	.....	.....	5,184	.....	547	.....
Second growth	.....	.....	525	.....	1,544	.....	1,619	.....	1,504	.....
Young growth	.....	.....	.....	.....	.....	.....	90	.....	.....	.....
	80	4.1	5,318	9.6	1,789	18.1	9,496	19.1	2,277	4.3
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	.....	.....	4,293	.....	1,107	.....	3,002	.....	1,445	.....
Saplings	.....	.....	33,003	.....	.....	.....	10,990	.....	.....	.....
	.....	.....	37,296	67.9	1,107	11.2	13,992	28.1	1,445	2.8
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	83	.....	122	.....	.....	.....
Saplings	540	.....	.....	.....	2,396	.....	4,578	.....	7,651	.....
	540	27.8	.....	.....	2,479	25.1	4,700	9.4	7,651	14.7
III. Barrens	.....	.....	.....	.....	752	7.6	155	0.3	.....	.....
Land area investigated	1,940	.....	55,020	.....	9,892	.....	49,843	.....	52,195	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Continued.*

—	Miller		Monteagle		Olden		Oso		Palmerston	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,834	3.8	17,710	35.1	21,771	33.1	17,329	38.4	13,938	22.3
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	10,205	.....	8,867	.....	1,742	.....	283	.....	1,136	.....
Severely culled	48	.....	3,773	.....	4,507	.....	2,187	.....	3,744	.....
Second growth	.....	.....	2,214	.....	1,358	.....	4,736	.....	2,436	.....
Young growth	128	.....	1,198	.....	624	.....	.....	.....	608	.....
	10,381	21.6	16,052	31.8	8,231	12.5	7,206	16.0	7,924	12.7
2. Coniferous:										
Virgin and moderately culled	.....	.....	1,016	.....	.....	.....	.....	.....	710	.....
Severely culled	.....	.....	515	.....	.....	.....	432	.....	418	.....
Second growth	48	.....	240	.....	698	.....	243	.....	374	.....
Young growth	.....	.....	72	.....	.....	.....	.....	.....	.....	.....
	48	0.1	1,843	3.7	698	1.1	675	1.5	1,502	2.4
3. Mixed:										
Virgin and moderately culled	922	.....	2,490	.....	80	.....	608	.....	354	.....
Severely culled	813	.....	2,304	.....	501	.....	1,506	.....	2,365	.....
Second growth	448	.....	3,298	.....	3,669	.....	202	.....	1,626	.....
Young growth	.....	.....	779	.....	.....	.....	.....	.....	86	.....
	2,183	4.5	8,871	17.6	4,250	6.6	2,316	5.1	4,431	7.1
4. Poplar-Birch, with 10 per cent. coniferous reproduction:										
Standards and poles	2,850	.....	619	.....	1,070	.....	.....	.....	1,690	.....
Saplings	25,620	.....	374	.....	3,106	.....	614	.....	5,178	.....
	28,470	59.2	993	1.9	4,176	6.2	614	1.4	6,868	11.0
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	1,456	.....	.....	.....	579	.....	921	.....
Saplings	4,912	.....	3,560	.....	13,363	.....	14,392	.....	16,197	.....
	4,912	10.3	5,016	9.9	13,363	20.3	14,971	33.1	17,118	27.3
III. Barrens	227	0.5	.....	.....	13,326	20.2	2,051	4.5	10,782	17.2
Land area investigated	48,055	.....	50,485	.....	65,815	.....	45,162	.....	62,563	.....

EASTERN FOREST SURVEY, 1920—CLASSIFICATION OF LANDS.—*Concluded.*

—	N. Sherbrooke		S. Sherbrooke		Tudor		Wicklow		Wollaston		Totals		
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	
I. Cleared Land	5,550	34.2	30,155	47.2	3,861	10.3	5,560	11.9	184	5.8	275,994	17.1	.....
II. Forest:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,214,376	.....	(75.1)
1. Hardwood:													
Virgin and moderately culled...	2,738	.....	1,277	.....	3,472	.....	11,597	.....	1,069	.....	148,100	.....	.....
Severely culled	906	.....	1,992	.....	1,562	.....	1,019	.....	.....	.....	74,067	.....	.....
Second growth	666	.....	3,482	.....	106	.....	96	.....	19	.....	29,516	.....	.....
Young growth	.....	.....	621	.....	259	.....	1,269	.....	.....	.....	42,408	.....	.....
	4,310	26.5	7,372	11.5	5,399	14.4	13,891	29.8	1,088	34.7	294,091	18.2	(24.3)
2. Coniferous:													
Virgin and moderately culled...	.....	.....	.....	.....	1,969	.....	413	.....	53	.....	9,166	.....	.....
Severely culled	.....	.....	56	.....	2,955	.....	.....	.....	533	.....	20,800	.....	.....
Second growth	174	.....	454	.....	133	.....	2,502	.....	.....	.....	9,219	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	265	.....	.....
	174	1.1	510	0.8	4,997	13.3	2,915	6.3	586	18.7	39,450	2.4	(3.2)
3. Mixed:													
Virgin and moderately culled...	2,406	.....	280	.....	1,350	.....	3,763	.....	.....	.....	74,706	.....	.....
Severely culled	1,288	.....	2,510	.....	1,386	.....	1,163	.....	.....	.....	51,053	.....	.....
Second growth	213	.....	365	.....	234	.....	5,590	.....	496	.....	51,379	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,129	.....	.....
4. Poplar-Birch, with 10 per cent. coniferous reproduction:	3,907	24.1	3,155	4.9	2,970	8.0	10,516	22.6	496	15.8	180,267	11.2	(14.8)
Standards and poles	219	.....	.....	.....	1,574	.....	2,406	.....	.....	.....	61,936	.....	.....
Saplings	285	.....	6,491	.....	7,320	.....	672	.....	53	.....	336,574	.....	.....
5. Poplar-Birch, without coniferous reproduction:	504	3.1	6,491	10.2	8,894	23.7	3,078	6.6	53	1.7	398,510	24.6	(32.8)
Standards and poles	.....	.....	.....	.....	205	.....	256	.....	30	.....	5,282	.....	.....
Saplings	1,392	.....	16,270	.....	11,145	.....	10,366	.....	701	.....	296,776	.....	.....
	1,392	8.5	16,270	25.4	11,350	30.3	10,622	22.8	731	23.3	302,058	18.7	(24.9)
III. Barrens:	460	2.5	.....	.....	.....	.....	.....	.....	.....	.....	126,405	7.8	.....
Land area investigated	16,237	.....	63,953	.....	37,471	.....	46,582	.....	3,138	.....	1,616,775	.....	.....

(Percentage figures in parentheses denote the participation of each forest type in the total forest area.)

III. Reforestation.

At the Provincial Forest Station in Norfolk County we have the only Provincial forest nursery for the growing of planting stock to be used in the various reforestation projects.

There is at present in these nurseries the following stock:

Scotch Pine (Pinus sylvestris) seedlings	90,000
" " " " 3 to 6 inches	382,585
" " " " 6 to 9 inches	240,615
" " " " 9 to 12 inches	1,600
Jack Pine (Pinus banksiana) seedlings	180,000
White Cedar (Thuya occidentalis) "	30,000
European Larch (Larix europaea) "	30,000
Miscellaneous conifers	34,000
White Ash (Fraxinus americana)	20,525
American Elm (Ulmus americana)	10,000
Sugar Maple (Acer saccharum)	11,300
Soft Maple (Acer dasycarpum)	14,250
Manitoba Maple (Acer negundo)	11,250
Red Oak (Quercus rubra)	21,000
Black Locust (Robinia pseudacacia)	10,500
Black Walnut (Juglans nigra)	7,600
Poplar cuttings	80,000
Miscellaneous Hardwoods	15,000
Total	1,190,225

During the past season the distribution of nursery stock to private landowners throughout the Province was continued, 130,000 trees having been shipped. The reforesting done on these areas at various points in the Province will eventually show results by way of demonstration. Many of these experimental plantations are creating local interest in this work and we now have plantations in all of the older counties of the Province. During the past season an officer of the Forestry Branch has been inspecting the older plantations, and it is expected that a definite system of inspection will be inaugurated.

Additional plantations were made at the local forest station in Norfolk, the chief material used this season being white pine. We now have nearly 500 acres of plantations at this station, and a detailed report of growth studies is being prepared. The following is a summary of the rate of growth in some of the older plantations at the Norfolk Forest Station:

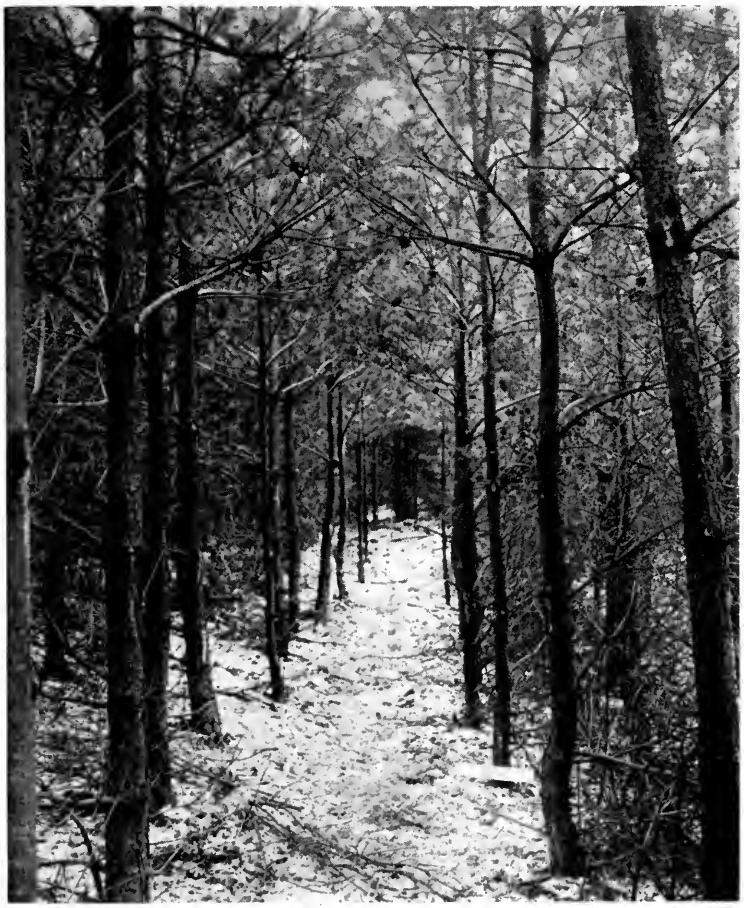
Species.	Age after Planting.	Average Height.	Average Diameter.
Jack Pine	12 years	21.15 feet	3.50 inches
Jack Pine	12 "	20.0 "	2.89 "
Jack Pine	9 "	18.4 "	2.8 "
Scotch Pine	12 "	19.61 "	2.72 "
Scotch Pine	8 "	15.3 "	....
White Pine	11 "	12.0 "	....
White Pine	11 "	10.2 "	....
Red Pine	8 "	9.42 "	....

Fundamental to all reforestation problems is the growing of adaptable nursery stock, and prior to nursery stock is the securing of suitable seed. It is generally recognized by botanists as well as foresters that seed collected from plants in one locality is best for sowing in that same locality. Consequently it has been the policy of this Department, in so far as possible, to collect seed from our native trees for planting in connection with its reforestation work.

It has been customary to collect in the neighbourhood of St. Williams, all the seed necessary for growing hardwoods at the nurseries. The securing of

coniferous seed, however, has not been so easy, owing to the fact that some of the required species do not grow in that part of the Province. Then, too, Scotch pine, not being a native of this continent, most of this seed had to be imported. But with the maturing of the Scotch pine plantations at St. Williams it will soon be possible to gather there all the seed of that species which is required.

The season of 1920 was a good seed year throughout Ontario for the following coniferous species which are needed for the work of this Department; white pine (*Pinus strobus*), jack pine (*Pinus banksiana*), white spruce (*Picea canadensis*),



Scotch pine plantation eleven years old. Planted on blow sand at Provincial Forest Station.

white cedar (*Thuya occidentalis*), balsam (*Abies balsamea*), tamarac (*Larix americana*), and hemlock (*Tsuga canadensis*). Collecting of these was done at Angus, Ontario, as well as at St. Williams. The quantities of seed of the different species collected are as follows:

	Pounds.		Pounds.
White Pine	418	White Spruce	239
Scotch Pine	70	Norway Spruce	6
Jack Pine	19	White Cedar	139
Red Pine	1	Hemlock	14

IV. Forest Pathology.

(Report of Dr. J. H. Faull for 1920.)

A greater part of the summer was spent in investigations on the diseases of the timber trees of the Temagami Forest Reserve. In addition, a short time was occupied with a study of certain hardwood diseases in Algonquin Park, the effect of sulphur fumes in the Sudbury District, and the conditions of mine timber decay and preservation in the Cobalt area. The work in the Temagami Reserve was much facilitated through the many courtesies extended by the Chief Ranger, Mr. C. E. Hindson.

Additional Notes on the Needle Blight of the White Pine.

Alarming reports regarding the discolouration of the foliage of the white pine have been received by the Department in charge of the forests of Ontario at intervals over a long period of years. The attention of the Department appears to have been called to this matter for the first time in 1905, again in 1908, in 1912, in 1913, and in 1917. In response to a report from Mr. C. E. Hindson, Chief Ranger of the Temagami Forest Reserve in August, 1912, to the effect that "a large number of pine trees in the vicinity of Temagami Lake have turned brown and appear to be dying" a scientific inquiry was promised. Specimens of the injury were submitted to an Experiment Station botanist, but nothing other was done than to venture a guess at the cause; no attempt was made to study the subject or to give any indication of the seriousness of the malady.

Following renewed calls for investigation the first observations were made in the Temagami Forest Reserve in the summer of 1918, and they have been continued during the summers of 1919 and 1920. It was soon ascertained that the injury was not a winter killing of the foliage as had been claimed, for it appeared rather suddenly on the new foliage in July, 1918, the whole forest in affected areas becoming tinted as with autumnal colouration. The same phenomena have been manifest wherever this blight has shown itself during the succeeding summers. The investigations of 1919 revealed the fact that the trouble lay in the roots and that in consequence at the time of leafing when there was a sudden demand for an increased supply of water to the crown, the damaged roots were not able to respond and so the tender new foliage succumbed to a greater or a less extent.

From a practical point of view it has been important to determine whether or not the disease is contagious and to what extent it reduces the yield of the forest. Obviously the answers to these questions must be taken into consideration in formulating a forestal policy with reference to any affected region. The first problem has been decided by direct tests and observations in the negative; the injury is physiological and not communicable. The second problem is one that cannot be solved so quickly and for the reason that we do not yet know to what extent blighting is fatal; no one has followed the history of individual blighted trees in our forests to find out what becomes of them, whether they recover or die, how long the disease may persist or in case of recovery what loss of wood growth may accrue. Such an inquiry demands an annual examination over a succession of years of a large number of marked trees growing under average typical conditions. As a first step in the solution of the problem several hundred trees were marked in the Temagami Forest Reserve in the summers of 1918 and

1919, and a few elsewhere. While the experiment is not yet complete an extensive and valuable body of information is being accumulated and some important conclusions may be drawn from the data in hand.

White pine with needle blight to right of centre; healthy white pine to left.

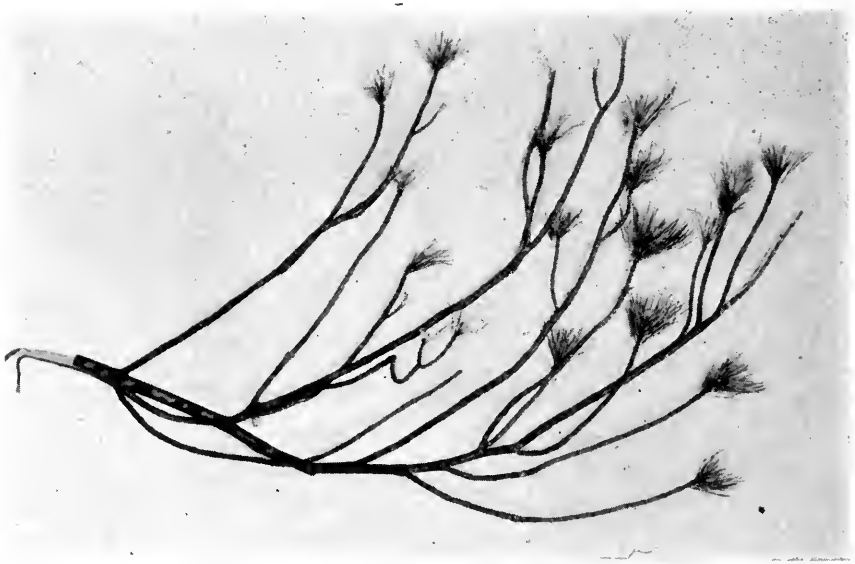
The blight was especially severe in 1918; there was a slight improvement in 1919 with few new cases; the improvement in 1920 was pronounced. Observations to date show that trees up to six inches in diameter are likely to recover with an amelioration of conditions; but the death rate in older trees is much higher,

recovery is not so certain, and is much longer delayed. The following figures drawn from the experiment in the Temagami Forest Reserve and corrected up to September, 1920, are significant, though some of them are still to be analyzed with respect to severity or lightness of attack, soil, exposure, etc.

(1) Out of 275 healthy trees of various sizes, noted in 1918 as controls, only 2 are known to have since developed blight.

(2) Out of 320 trees of all ages on a given area (most of them considerably under 6 inches in diameter, and all counted) 30 per cent. of the stand, or 96 trees showed blight in 1918; only 5⅓ per cent. of the stand, or 15 trees continued to show blight or had been killed by blight at the close of the summer of 1920.

(3) Out of 147 trees six inches in diameter or less (most of them from 2 to 6 inches) blighted in 1918, 8 or 5½ per cent. of them were dead in 1920, 39 or 26½ per cent. continued to show blight, and 100, or 68 per cent. had recovered.



An extreme stage of needle blight of white pine.

(4) Out of 211 trees more than six inches in diameter blighted in 1918, 33, or 15⅔ per cent. were dead in 1920, 156, or 76 per cent. continued to show blight (though in nearly one-half of these with diminished intensity) and 22, or 10½ per cent. had recovered.

As a check on temperature conditions a continuous tracing was made with a recording thermometer at Bear Id., L. Temagami, a blight centre, from June 24th, 1920, to September 13th, 1920. The minimum temperature for that period was 43 deg. F. on August 22nd, and the maximum 89 deg. F. on August 7th. Eighty-seven deg. F. was recorded on June 26th, July 27th, and August 26th. Forty-eight deg. F. on July 1st was the lowest reading from June 24th to August 21st, inclusive. The records of the Federal Weather Bureau at Bear Id. show that the lowest temperature for June was 42 deg. F. on June 7th, and that the last frost, 32 deg. F., was on May 19th. Evidently frost is not a factor affecting pine blight.

The new needles were just beginning to emerge from the buds on June 21st; there was no indication of blight in them until June 26th, from which date it

developed as the needles continued to elongate. That the blighting of 1920 was neither as severe nor as typical as in 1918 and 1919 is in part due to the fact that the comparatively high temperatures of June 25th and 26th were followed by almost a month of cool weather with high atmospheric humidity, conditions that enabled the developing needles to retain the otherwise insufficient amount of water supplied by deficient root-systems.

(2) Winter Browning of Coniferous Foliage in 1920.

The spring of 1920 was marked by an especially severe browning of the foliage of coniferous trees. No species escaped—white pine, red pine, jack pine, white spruce, black spruce, balsam, arbor vitae, though some fared worse than others. Probably the arbor vitae and balsam suffered most. A few trees were killed outright and many others were so badly browned as to appear dead. Frequently the twigs as well as the needles were killed and no doubt the dwarfed branches on the exposed sides of trees in this northern region owe their deformation in large part to repeated "winter-killing." There is no doubt likewise but that "winter browning" and needle blight have been confused to some extent in earlier reports on the Ontario forests.

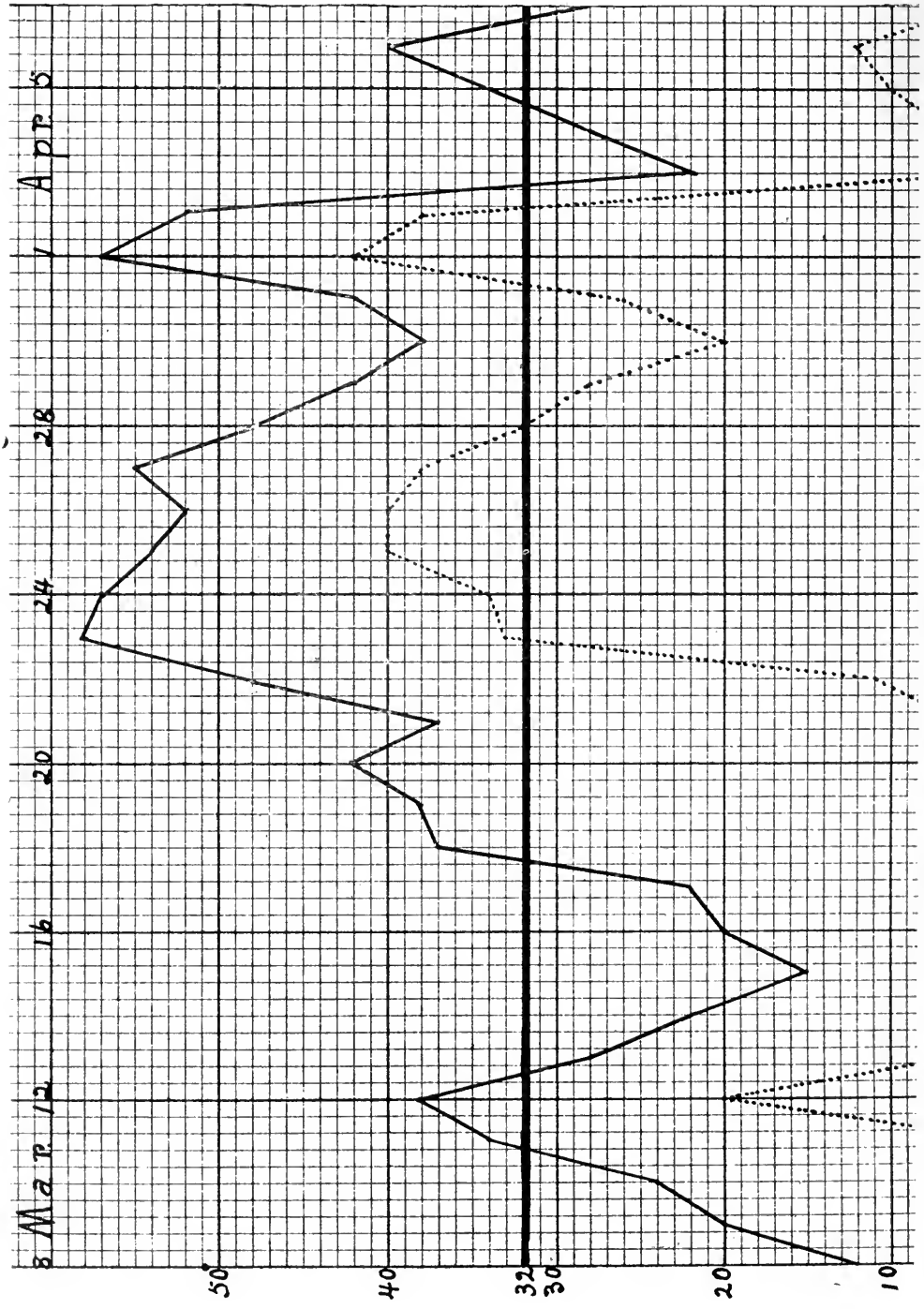
"Winter-browning" affects most severely the needles of the last season (in this instance, the growth of 1919), though the injury may extend to needles of all ages. It also occurs almost exclusively on the side of the tree exposed to the south, and especially on the lower part of the crown. Thus it is especially conspicuous on the southern aspect of trees that line the northern shores of lakes or streams, or cleared or barren areas, or the steep southern slopes of hills. Mostly it is only those needles or parts of needles that are actually exposed to the southern sun that discolour though, as already noted, the injury may involve the stems of small branches as well as the needles.

"Winter-browning" is not due to frost, but to an excessive loss of moisture from the foliage at a time when the ground is still frozen and the roots consequently inactive. It takes place, for example, under the influence of bright sunshine combined with an elevated temperature. The winter browning of 1920 is unquestionably referable to the unseasonably warm bright weather between March 22nd and April 2nd up to within a few days of which the zero weather of the winter had been practically continuous. The maximum temperature of 58 deg. F. was recorded on March 23rd. The accompanying tracing is based on the temperature records made by the Weather Bureau Station at Bear Id., L. Temagami.

(3) Some Diseases of Pulpwood Trees of the Temagami Forest Reserve.

(*a*) *"Red Branch" of Balsam.*

Balsam is numerically the commonest of the economically important trees of the Temagami Forest Reserve. It grows abundantly everywhere, it grows rapidly, and it commonly succeeds the more valuable pines as a replacement crop in pure or mixed stands. Unfortunately there is no species in the Reserve that is so subject to disease—to such an extent, indeed, that merchantable balsam is found in very limited quantities. Heart rot is the most serious malady to which it is subject, serious from the standpoint of yield, and serious with respect to the health of other associated coniferous timber trees; it will be referred to again in another connection. I wish especially to call attention here to two new or



Maximum and minimum temperatures, L. Temagami. March 8-April 7, 1920.

imperfectly understood diseases of balsam, namely "red branch" and a twig blight.

"Red branch" of balsam has frequently been noticed by foresters and lumbermen and various explanations have been offered in accounting for the phenomenon. Dead, red-needled branches located here and there throughout a balsam tree are conspicuous objects against the dark green setting of normal living foliage and could not escape observation. One of the theories most frequently advanced in explanation is snow pressure, the breaking or cracking of the bark at the base of the branch due to the weight of accumulated snow.

Aside altogether from any discussion of the part played by snow pressure elsewhere, an investigation of "red branch" of balsam in the Temagami Forest Reserve has demonstrated that its most frequent cause in that area is not snow pressure, but a combination of factors not before suggested, namely, insect-wounding and frost.

An examination of the branch at the base of the dead portion almost invariably shows a more or less extensive spot from which the bark has been removed, a ragged-edged wound at once suggesting the gnawing of some small animal. This spot is usually on the under side; it never extends more than half way around the branch and usually much less, so that the branch is not girdled. It may extend indefinitely towards the tip of the branch, commonly for not more than half an inch, but sometimes for several inches. Occasionally the leader is destroyed in the same way as the branches.

The wound in itself is not sufficient to cause the death of the branch. This was proved by similarly removing the bark with a knife from healthy branches in July of 1919. The wounds healed before the end of the season, and they showed no ill effects of their maltreatment throughout the summer of 1920. But when the wounding takes place so late in the season that there is no time left for covering the edges of the wounds with new tissues the result is different. Twenty-five branches were wounded in the same manner in October, 1919. Without exception every one of these branches died from the point of wounding outward and their foliage was red by the following May.

The cause of the wound is a large bark beetle, identified by Dr. J. M. Swaine as *Monochamus scutellatus*. This beetle occurs abundantly in the Reserve on jack pine, where it gnaws the bark in like manner, but either because of a thick covering of resin or because the wounding is earlier in the season the branches attacked are rarely killed.

A few instances of what appeared to be snow pressure came to hand, but in such cases none of the bark had been destroyed. Likewise instances of removal of the bark by rubbing, or of the pulling off of low-placed twigs on small branches in the fall or winter followed by the death of the branches are not infrequent. But the prevalent cause of the very common "red branch" in the Temagami Reserve is the combination of beetle-gnawing and frost, as described above.

(b) A Twig Blight of Balsam.

Especial attention is drawn to a twig blight of balsam that appears to have been overlooked or to have been confused with the work of the spruce bud worm. It is plainly not an insect injury though the exact cause is not yet known; an investigation of it is being undertaken. The new growth only is affected, and the injury may involve the entire twig, killing the bud as well as the needles; or the bud may escape, but all or only a few of the needles here and there may

A twig and needle blight of balsam.

5*a*. A twig and needle blight of balsam. 5*b*. Cankered trunk of the aspen.

succumb. The killed needles at first turn pale, but later they die, turn brown and curl away from their normal orientation on the branch, continuing, however, to adhere throughout the season and usually for the following year or longer. The new growth throughout the entire tree is commonly more or less involved. In some places the balsam is extensively affected, giving to the forest a browned and ragged effect. I very much question the possibility of distinguishing this blight from the work of the spruce bud worm except at close range—certainly not from a moving railway car or airplane; it merits further attention.

(*c*) *Canker of Poplar* (*Aspen*).

The aspen is subject to many diseases, some of which may be so serious as to render large stands practically worthless. Three of these are common in the Temagami district—*a leaf spot, white heart rot* and *canker;* the last is perhaps the most destructive though all three must be counted with in estimating the probable yield of a stand. The aspen canker is apparently due to a parasitic agent, possibly bacterial. Trunks of all sizes, branches and even small twigs are liable to attack, and there are indications that once established the infection may extend within the trunk from the point of the primary canker upwards and downwards giving rise to secondary cankers at other points. Infection is especially likely to occur at the bases of branches. The cankers are small at the outset, but the parasite extends the area by repeatedly breaking through zones of the surrounding bark and wound callus; the result is that eventually large open cankers up to a foot or more in length may be formed. This canker disease is under investigation.

(4) Heart Rots of Coniferous Timber Trees in the Temagami Forest Reserve—A Preliminary Note.

Preliminary investigations have been undertaken on the heart and butt rots of pines and other coniferous timbers in the Temagami Forest Reserve. It is well known that these rots are due to parasitic fungi, but as yet little is known with regard to their rate of growth, the conditions that favour infection, etc. Even the identity of some of them has not yet been determined by forest pathologists; already in our preliminary studies in Temagami at least one new form, heretofore not described, has come to light. From a practical viewpoint, investigations on the heart rots in this area are desirable for additional reasons, as follows:

1. This area is largely covered with virgin forest, much of which is falling a prey to heart rot. These appear at the present time to offer the most serious problem in formulating a policy with regard to the future of the Reserve. As most coniferous trees approach maturity they become increasingly susceptible to butt and other heart rots: a stage of maximum yield is reached after which the deterioration of the forest is greater than the annual accretion, and this deterioration is accelerated with increasing age. There are indications that such a stage has been reached in considerable areas of Temagami, and these should be carefully examined.

2. The balsam of the Temagami Reserve is especially susceptible to butt rots, to such an extent that little of it attains merchantable size. A very high percentage of the balsam of all ages is affected, probably not less than 75 per cent. The most serious features in this connection relate (*a*) to the balsam as a breeding ground for heart rot fungi that attack maturing pine and spruce; in some places

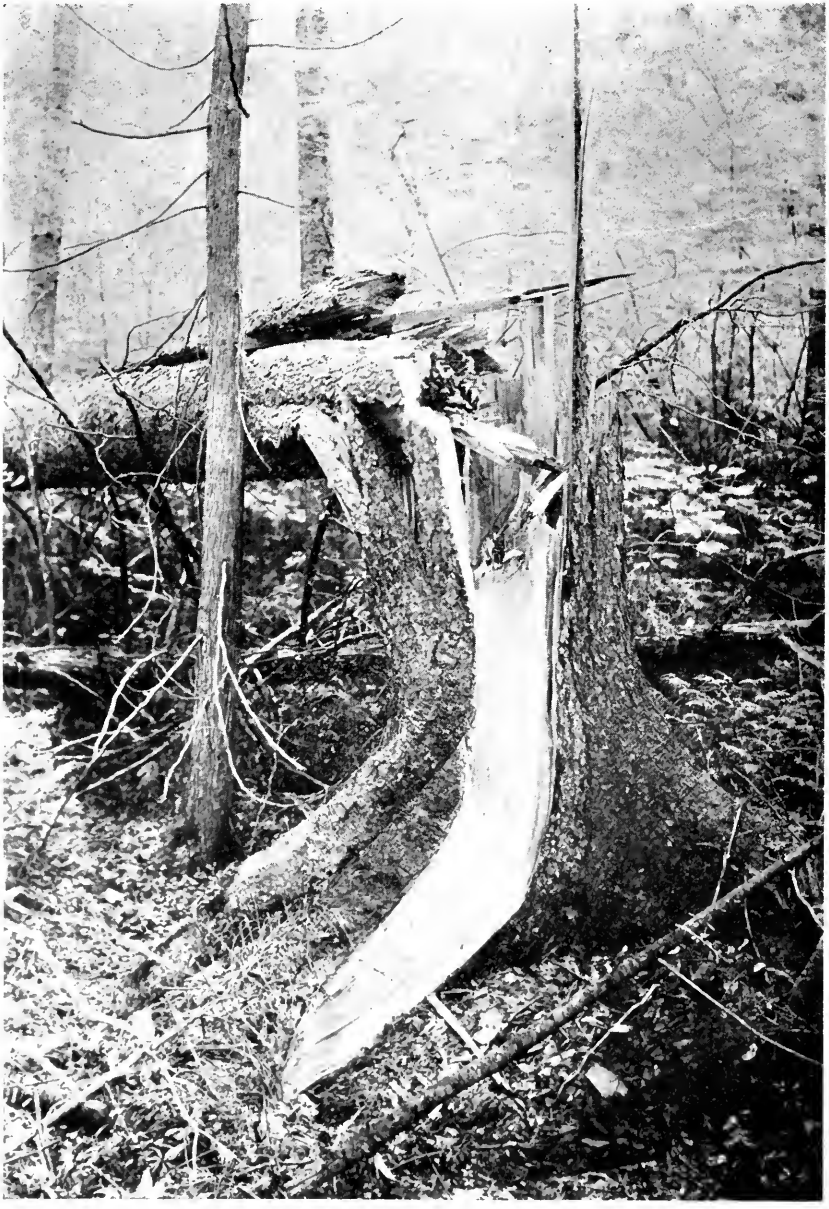
the mature pine, spruce and cedar are already largely destroyed; (*b*) to the opening up of spots in the forest through the falling of diseased balsam, etc., which give free sweep to the wind, resulting in great losses of healthy timber from windfall; (*c*) to the littering of the floor of the forest with fallen highly combustible materials which serve as fire traps. Estimates of windfall timber in the

A corner of a balsam and pine stand destroyed by butt rot.

Reserve run up to many millions of feet. Trees in advanced stages of butt rot fall over of their own weight or are easily blown over; in many places, especially where balsam predominates, there is an extensive acreage of this type. It would seem highly important that attention should be drawn to the conditions resulting from diseased balsam so prevalent in the Temagami area.

A large, white pine and small balsam in a stand of heavy timber, killed by butt rot.

A detailed study of the white pine shown in the last photograph. All of heart wood destroyed by brown rot.



A magnificent healthy white spruce, wind-fallen because of opening made in forest by butt rot.

Appendix No. 49.

Rondeau Provincial Park, Ont., October 31st, 1920.

Honourable Sir,—I beg to submit my report for the fiscal year ending October 31st, 1920.

Rondeau Provincial Park, situated as it is at the southern portion of the County of Kent, on Lake Erie, with Rondeau Bay or Harbour lying in between it and the mainland, is an ideal summer resort.

Area.

The Park covers an area of some 5,000 acres and is about eight miles in length. Its greatest asset is its timber, as it is densely wooded with all kinds of valuable trees, there being seven varieties of the oak family alone. There is also considerable pine, walnut, white wood and all other varieties of hard wood found in Western Ontario. Since it is the largest forest of its kind in Western Ontario it is a source of education and enjoyment to a great many visitors.

Roads.

We have two miles of well-built roadway, which has been clayed, then gravelled, and this has made a very satisfactory road. There are also eight miles of roads which are merely trails, which we try to keep in shape, but owing to the light, sandy soil it is not easy travelling for the motor cars, of which there are a great number, especially in the summer season. Road building is greatly handicapped here because of the distance both clay and gravel has to be drawn.

Fish and Game.

There are about 400 deer at large in the Park. Eight are kept in an enclosure. Next year they should be thinned out as they are so plentiful they are very injurious to the young growth of trees, since they brouse principally on new sprouts, etc. We have a colony of beaver which have thrived very well; some have gone to other parts of the county, one colony especially being reported in the vicinity of Clearville, where dams have been built and a regular home established. There are also black squirrels, raccoons, and great areas of muskrat grounds. Rondeau Harbour is especially noted for its wild duck, and its good fishing ground, such fish as pike, big-mouthed, black and green bass, and once in a while a muskalonge being caught. Many of our American friends come year after year to indulge in the sport of angling. There are great carp grounds in the bay, as many as 100 boxes having been lifted at one catch.

There are three fishery companies operating on the Lake Erie side of Rondeau Park, it being said to be one of the best fishing grounds in the Dominion.

Natural Bird Sanctuary.

Rondeau Park with its dense forest is a real paradise for birds, almost all varieties being found here. We are interested in the raising of wild geese, of which we have a flock of about 40, also wild turkey and wild mallard duck.

Our aviary contains about 100 pheasants, the different varieties being the Reeves, Amherst, Golden, Silver and English Ringneck, there being an especially large stock of the last mentioned; a large number of these birds have been liberated in the Park and have gone out into the outlying districts. Reports say they are doing well.

Park Work.

This last year dead and down timber to the amount of 70,000 feet has been taken out and by use of a portable mill the timber was sawn into lumber, which is now seasoning and will be ready for repairing and building for the next year.

Our dock is very badly in need of repair and I trust next year it will be repaired if possible or replaced with a new one.

Staff.

Our staff consists of the Superintendent, a gamekeeper and an assistant. The work is very heavy in the spring as all the picnic grounds have to be raked and cleaned, which takes about four weeks, and during the picnic season it takes a half of each day to clean up and keep things in order. We can keep a man busy with the mower and team during early summer as we try to keep about 100 acres mowed and in good shape. The split log drag has to be used during most of the year on the roads to keep them in shape. After the summer season the team is busy hauling gravel and repairing the roads. Through the early summer the gamekeeper's time is taken with the hatching and rearing of pheasants, along with his usual duties, of course. Full details of the general work can hardly be given as each day brings its own work of various kinds.

Cottages.

There are 35 cottages in the Park, some being on the Eau side and others on the Lake, and 18 parties have applied for leases this year with the intention of building next year. There is one restaurant which has been leased by the year, handling groceries, ice cream, etc. The Independent Order of Daughters of the Empire of Ridgetown were given permission to use the old pavilion for dances once a week, which were very popular, the society clearing $500.00 during the season. I think next year it would be advisable to make some improvements on the building and manage it ourselves.

Accommodation Requirements.

The automobile traffic in summer is enormous, coming from far and near; an ordinary Sunday there are often as many as 500 cars coming and going. The day of the Howard Councillors and U.F.O. picnic we made an estimate of about 12,500 visitors. A hotel is very much in demand as we have no accommodation for the ever-increasing number of people who desire to come for their summer vacation, etc. I am continually receiving inquiries from people at a distance who have heard of Rondeau Park, asking if they can secure accommodation.

Beach Advantages.

Our bathing beach is admitted to be one of the best, there being no banks or stones, etc., and the bay being three and one-half miles across at the widest part and seven miles long, it is excellent for boating. There could be no more ideal place for making golf links than we have on the lower end of the Park.

Yours very truly,

George Goldworthy,

Superintendent Rondeau Provincial Park.

Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ont.

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1921

PRINTED BY ORDER OF

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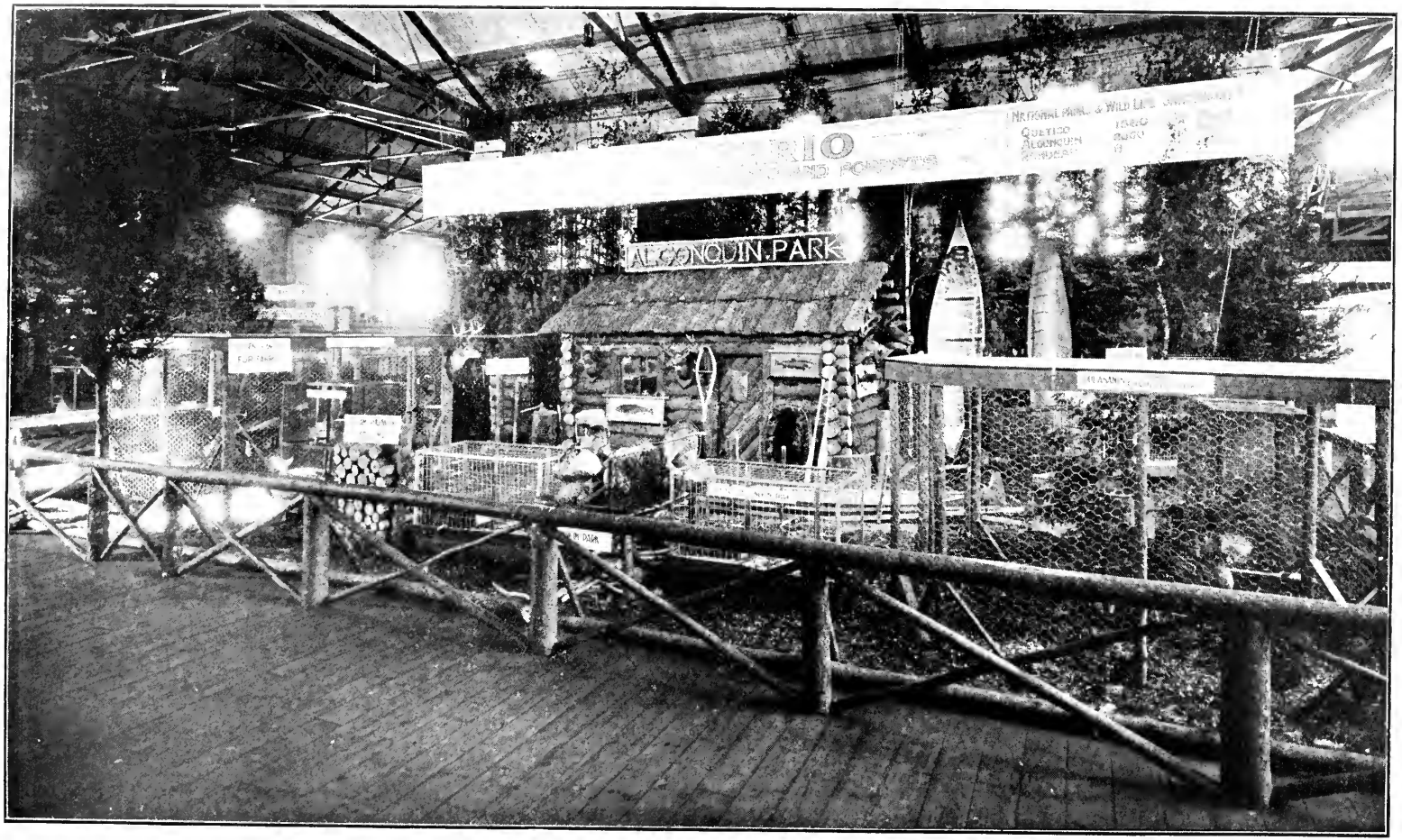

Provincial Parks' Exhibit, Toronto Exhibition, 1921

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Bridge over Blanche River, near Englehart, Timiskaming District.

Report of the Minister of Lands and Forests of the Province of Ontario

For the Year Ending 31st October, 1921.

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour, in conformity with the provisions of the Public Lands Act respecting the proceedings and transactions of the Department of Lands and Forests, to submit for the information of Your Honour and the Legislative Assembly, a report for the fiscal year ending the 31st day of October, 1921, covering the management and operations of the Department in its various branches.

The fiscal year ending 31st October, 1921, may well be regarded as the most successful in the history of the Province so far as the Department of Lands and Forests is concerned, from the viewpoint of movements in land transactions (when the war conditions and the reconstructive period subsequent thereto are considered) and in timber operations and of revenue results.

LANDS.

While the year 1919-20, the second year after the war, indicated a tendency towards a return to normal in the acquiring of lands for settlement, the past year shows a considerable increase over that of 1920, both as respects the numbers taking up Free Grant lands and those purchasing farming locations under settlement regulations. There has been an appreciable influx of settlers to the great Clay Belt of Northern Ontario, particularly that section traversed by the National Transcontinental Railway, and they are of such a class that will in all probability succeed in pioneer work. The prospects of a development at Kapuskasing, following the Spruce Falls Company acquiring the timber limit there, gave an added impetus to the demand for settlers' locations, and again it is more or less axiomatic that during any stage of labor depression, with its resultant lack of employment, an eagerness is manifested amongst a certain class to secure Crown land under the reasonable terms held out.

The revenue derived from the sale and lease of lands and rentals of water powers reached over $215,000.00, the largest in the experience of the Department within the last 20 years, except for the year 1912 (when two townships, Haggart and Kendry, were sold holus bolus for approximately $100,000.00 to a Colonization Company, the cancellation of whose agreement the Crown is now contemplating), and with the exception of a few years, the largest since Confederation.

Systematic inspections as time and staff afforded were regularly made towards checking up delinquent settlers, and as a result of such inspections

a goodly number of claims were cancelled. Over 800 settlers who proved up acquired their patents.

Particulars in respect of land transactions are hereafter detailed.

Clergy Lands.

There were sold and leased of the Clergy lands during the year 12½ acres for $31.25, and the collections on account of these and former sales of such lands amounted to $612.90. (See Appendix No. 3, page 23).

Common School Lands.

Of these lands, the collections during the year from sales and leases amounted to $3,447.80, but there were no sales. (See Appendix No. 3, page 23.)

Grammar School Lands.

The area of these lands sold during the year was 57½ acres for $28.75. The collections on account of these and former sales amounted to $529.84. (See Appendix No. 3, page 23.)

University Lands.

The number of acres of these lands sold and leased during the year were 836.38 for $418.25. The amount collected on account of these and former sales was $1,917.67. (See Appendix No. 3, page 23.)

Crown Lands.

The total area of these lands sold for agricultural and townsite purposes during the year was 139,026.86 acres for $143,059.02. The collections on account of these as well as former sales amounted to $135,862.27. This shows a marked increase in the sale of lands as compared with former years. For instance, in 1920 the number of acres sold amounted to 72,500. The collections from sales show an increase of over 50 per cent.

The total area leased was 20,524.85 acres for $2,286.50. The collections from these sales and leases amounted to $56,588.93. From this it will be seen that the area leased is double that of the previous year.

There were 21 acres leased in the Timagami Reserve and collections of previous sales amounted to $900.50. (See Appendix No. 3, page 23.)

Settlers on Purchased Lands.

As shown in the preceding paragraphs, there has been an increased demand for this class of land and from the inquiries received indications are that this influx will continue. Land in the agencies of Englehart, Matheson, Cochrane and Hearst is being largely acquired by actual and bona fide tillers of the soil.

The actual number of purchasers was 736, while permission was granted to 314 to assign their interests covering an area of 44,637 acres, which were taken up by other settlers. The purchase price in full was paid in all these cases.

There were 398 sales cancelled, as the purchasers had failed to comply with the regulations as regards actual settlement, and these lands were again placed in the market to be acquired by actual settlers.

During the year the settlement duties were completed by 307 settlers and they were granted patents for their land.

A large number of returned soldiers from the war were granted areas of 160 acres free during the year, the total number being 257. (For details see Appendix No. 13, page 40.)

Free Grants.

A continued desire of settlers to take land for Free Grant homesteading has resulted in another increase over former years, 868 parties being located for free grant lands. More productive farming of somewhat smaller areas, and more care in the selection of land suitable for that purpose, is shown by the fact that the average individual farm has decreased from 166 acres to 136 acres, the total area located being 118,637 acres.

The number of settlers who completed their requirements of clearing and actual residence has also increased to the number of 500, while 132 locatees availed themselves of the statutory privilege to purchase additional land and 10,202 acres were purchased in that way. This is an increase of over 4,000 acres from last year. (See Appendix No. 13, page 40.)

Ranching.

There is a growing demand for land for ranching and pasture purposes as a result of the policy adopted by the Department, of leasing these lands at five cents per acre per annum, easy conditions as to stocking. Farmers who have their farms practically all under grain crops are acquiring additional areas and enlarging their activities to that of sheep and cattle raising. Rough areas of land more adapted for ranching or pasture have been largely taken up for this purpose, and during the year eight licenses of occupation have been issued, covering an area of 10,435 acres.

Several inquiries have been received for marsh or low lying lands for the purpose of raising muskrats and other fur-bearing animals, which promises to be an industry which may make valuable, lands that at the present time have practically no market value.

Military Grants.

Under the Act 1, Edward VII, Cap. 6, and amendments thereto, there have been issued 13,998 certificates and although the time for receiving applications for these grants expired on the 30th September, 1908, there are still letters being received from men or their next of kin, who were entitled to this grant, who claim that they have only now become aware of the fact. These applications, therefore, could not now be accepted and no forms of applications have been sent out.

During the past year there have been located 27 of these certificates covering 4,360 acres in the townships open for veterans, making in all a total of 8,391 certificates thus located.

In two cases the certificates have been surrendered and applied in payment of lands purchased from the Crown, covering in all 160 acres, making a total of 800 that have thus been applied.

There were two certificates surrendered to the Crown for the $50.00 commutation money, making a total of 3,266 certificates surrendered in this manner.

During the year there have been issued 48 patents for lands located by veterans. and in all, 7,488 have thus been disposed of.

The total number of certificates that have therefore been disposed of is 12,505, leaving 1,493 that are still outstanding.

During the year 10 veteran locations, covering 1,590 acres, were cancelled for the non-performance of the settlement duties to which they became subject on account of being assigned before patent issued. (See Appendix No. 11, page 38.)

Collections.

The total revenue, the largest ever received, from all sources was $4,035,747.94, or over one million dollars more than the preceding year. The sale of agricultural lands and townsites, with Crown leases, including Provincial Parks, provided $217,151.76; Fees $2,020.63; Refund items $53,135.07. From Woods and Forests the revenue was $3,763,440.48, classified as follows: Bonus $1,555,770.69; Timber Dues $1,921,356.95; Ground Rent $99,245.12; Transfer Fees $5,810.00; Fire Protection $181,257.72. (See Appendix No. 4, page 24.)

Disbursements.

The total expenditure, less Civil Government, of the Department for all services (exclusive of those rendered under the Northern and North-Western Ontario Development Acts, for which see Appendices Nos. 45, 46 and 47), was $2,029,453.27. Some of the more important items were: Crown Land Agents' Salaries and Disbursements, $20,717.00; Homestead Inspectors, $25,556.58; Crown Timber Agents, $35,860.70; Fire Ranging, $547,474.47; Forest Ranging and Measurement of Timber, $339,428.11; Reforestation, $83,372.63; Algonquin Provincial Park, $40,705.81; Quetico Provincial Park, $13,606.37; Rondeau Provincial Park, $15,295.90; Surveys, $145,169.99; Colonization Roads, $506,180.80; Commissions re Sundry Investigations, $63,781.05; Special Warrants, $58,178.77; Special Survey, Ontario and Manitoba Boundary, $12,500.00; Clearing Fire Hazards and Kapuskasing Lands, $14,786.81. (Additional details are found in Appendix No. 6.)

Woods and Forests.

Timber Returns.—Revenue accruels from timber transactions amounted to $3,698,267.73, the largest in the history of the Province, as against $3,120,808.41 for last year, and indicate the extent to which operations were conducted during the fall of 1920 and the winter of 1921. The Department succeeded in collecting some $65,000 more than the ordinary accrued revenue, a follow-up system having been introduced along with the practice of continuing to insist upon payment where such would not tend to cripple an industry and the Crown was amply protected by cash deposits and guarantee bonds.

An important factor in the increased revenue was the raise in the timber dues made by the present government in April, 1920. Pine dues were raised to $2.50 per M. feet B.M.; Spruce Pulpwood to 80 cents a cord, and other Pulpwoods to 40 cents a cord, while increases in respect of other classes of timber and wood were made all along the line.

The Timber Revenue collected totalled $3,763,440.48, an increase over 1920 of $1,106,809.97.

During the past season 336,957,487 feet B.M. of sawlog, boom and square pine timber was cut, or an increase of 24 million feet over the previous year's cutting. Saw log timber, other than pine, was cut to the extent of 66,811,220 feet B.M., as against 52,729,965 feet B.M. for the season of 1919–20, or an

increase of over 14,000,000 feet B.M. Boom and dimension timber, other than pine, cut totalled 3,581,015 feet B.M. Square timber amounted to 83,066 cubic feet, while piling accounted for 48,187 lineal feet and 438,412 feet B.M.

The cut of pulpwood on Crown lands reached the unprecedented figure of 928,185 cords, or over three times the quantity taken out the previous season.

The same activity in tie production did not continue throughout the year as in the two years immediately preceding, as only 4,001,471 ties were returned; the heavy stocks the railways had carried over from their former contracts and the diminution in railway construction lessened the demand. (See Appendix No. 7, page 34.)

Lumber Industry.—The general depression existing throughout the country has had a serious effect upon the lumber market, which has not a very bright outlook for the coming year. Although I understand from certain dealers the situation is somewhat improving, there is a pessimistic tone found particularly amongst the small operators, and this will materially affect their bush business this coming year. A number of the small operators with heavy unsold stocks on hand, hesitate to put organizations in the woods because of the uncertain prospects and but few of the large firms are undertaking to conduct operations to the peak of the past year. While labour during 1920-21 was considerably high and cost of production proportionately so, the outlook for next season points to lower wages and a consequent reduction in overhead expenses. Because of cheaper and more efficient labour, larger operators are prepared to take their chances on an improvement in an unstable market.

Pulpwood.—The upward trend of pulpwood induced by the constant and sustained market during the war, continued throughout 1919, and resulted in unprecedented operations in the bush, there being no less than 928,185 cords, as above stated, cut from Crown lands during the fiscal year ending the 31st October, 1921, or 621,489 cords in excess of that taken the previous year.

A decided lull in the pulpwood business, however, set in before the large stock could be marketed, and the industry has been most adversely affected; the outlook at present for an early return to conditions approaching those af a few years ago are not the brightest.

The general declining market for Ontario pulp in the United States has been accentuated by the European importations, particularly from Germany and Scandinavian countries, the rate of exchange working to the serious disadvantage of American producers in Ontario. The restrictions thus imposed upon our pulp and paper are for the time keenly felt. The Kapuskasing limit is not being worked this year owing to the market conditions, and while during the season of 1920 the English River Concession was sold, and Nipigon, Nagagami and Long Lake were disposed of during the past year, there is apparently no prospect of an immediate development. Efforts, I understand, are being made towards bringing about legislation in the United States for a correction in the tariff laws to stablilize exchange and any measure leading to this end would benefit the producers and proportionately enhance the demand. With a gradual consumption of the somewhat abnormal stocks of pulp and paper now held will come, it is hoped, a further call for the raw material and then there will be a resumption of the industry and trade.

Pulpwood agreements, covering important areas, to the number of four, were entered into, as follows:

English River, District of Kenora, 3,046 square miles. (See Appendices Nos. 49 and 50.)

Nagagami Pulp and Timber Limit, District of Algoma, 2,300 square miles. (See Appendix No. 52.)

Long Lake Limit, District of Thunder Bay, 3,400 square miles. (See Appendix No. 53.)

Nipigon Pulp and Pine Limit, District of Thunder Bay, 1,240 square miles. (See Appendix No. 51.)

It is considered desirab e and advisable to furnish for public reference a regular list of timber berths sold each year, and while I intimated in last year's report such a list was being prepared for the present report, I have decided to collate such data under a separate publication as may be necessary to cover the timber sales and pulp concessions effected not only since the change of Government in 1919, but for a reasonable period prior to that. Dating from such separate publication, the timber sales should appear annually in the Minister's Report.

Lands under License.

The area under license at the close of the fiscal year 31st October, 1921, was 19,855½ square miles, on which a ground rent of $5.00 per square mile is charged. This was an increase of 4,960¼ square miles over the previous year.

Summary of Timber Revenue.

Bonus	$1,555,770.69
Timber Dues	1,921,356.95
Ground Rent	99,245.12
Transfer Fees	5,810.00
Fire Protection	181,257.72
	$3,763,440.48

Cullers' Examination.

Two examinations were held during the year, one at Callander and one at Kenora, on the 28th day of September, 1921.

Seven candidates successfully passed the examination and were duly granted certificates authorizing them to act as Cullers.

(For names of Cullers who passed at these examinations, see Appendix No. 10, page 38.)

(For complete list of Licensed Cullers, see Minister's Reports for 1917, 1918, 1919 and 1920.)

Timber Commission.

The Special Commission consisting of Justices W. R. Riddell and F. R. Latchford, appointed in March, 1920, to inquire into the management and disposition of the timber resources of the Province, has not yet submitted its main report, though it did hand down certain interim reports. The complete report, when made will no doubt, be duly printed. In the meantime references to its work and results are unnecessary.

Crown Surveys.

During the year surveys carried on in the northern part of the Province consisted of the running and posting of several base and meridian lines, township outlines, lake and river traverse, including the survey of islands therein.

The Inter-Provincial Boundary between the Provinces of Ontario and Manitoba north from the Winnipeg River, has also been defined on the ground for a distance of 70 miles.

Government Town Plot surveys have been made at Kapuskasing, in the District of Timiskaming, and at Hearst, in the District of Algoma, and Government Park Lots surveyed at Bala in the District of Muskoka.

Approval has been given to private town plot subdivisions on lands patented since 1910 pursuant to R.S.O. 1914, chapter 34, as follows:

Town Plot of Calvert, in the Township of Calvert, District of Timiskaming.
Town Plot of Capreol Addition, in the Township of Norman, District of Sudbury.
Kirkland Lake Extension, in the Township of Teck, District of Timiskaming.
Swastika Addition, in the Township of Teck, District of Timiskaming.
Moonbeam, in the Township of Fauquier, District of Timiskaming.

Municipal Surveys.

Pursuant to sections 15, 16 and 17 of the Surveys Act, petitions for resurveys of original road allowances have been received from the Corporations of the Municipalities of:

City of Toronto,
Township of Hinchinbrooke,
Township of Maidstone,
Township of Sandwich East,
Township of Anderson,

and the necessary instructions have been given for the required surveys.

The municipal surveys which were being performed under instructions of prior date and which were confirmed during the year were those on petition from:

(a) Township of Beverley.
(b) Township of Gloucester.

Detailed descriptions and reports of the several surveys made will be found in Appendices 19 to 40, inclusive.

Parks.

The Department, for the first time in its history, installed an exhibit at the Canadian National Exhibition, Toronto, of the Forests and Wild Life from its National Forest Reserves and wild life sanctuaries, Algonquin, Quetico and Rondeau Parks.

A picturesque log cabin representing the forest ranger's home, snugly set against a background of spruce, pine, balsam and birch trees, with wild animals and feathered creatures in the foreground proved attractive.

Included in the many and distinguished visitors who viewed the exhibit was the Governor-General, who expressed himself thus: "This is a revelation and an education to me. To see a section of our northland hastily bundled

together in quaint frontier disorder, with the aroma of the forest still clinging about it, brought down and planted on the doorstep of Toronto, affording the public an opportunity to catch a breath of the pine, the spruce and the balsam. It is wonderful."

Dr. Powell said: "Why do the teachers neglect this exhibit? Here the children can receive object lessons in one visit, which are a hundred times more impressive, more lasting and more interesting than can be derived from books in six months' study."

Part of the exhibit were live bears and beavers, a family of Canada red deer, fisher, porcupine, foxes and raccoons, together with silver and golden pheasants, Lady Amhersts, Reeves and English pheasants. There were trees of twenty inches in diameter cut down by the industrious beaver; traps used only in Algonquin Park for capturing wild animals alive without injury; great grey timber wolf skins; Indian guides making birch-bark canoes and a squaw lacing snow-shoes. Cones and pine needles were used to typify the floor of the forest.

The whole exhibit proved interesting and educative and should be reproduced annually along improved lines to impress visitors from all parts of the world and our own people with the wealth of our natural rresources.

(For the reports on the parks by the Superintendents, see Appendices 41, 42 and 43.)

Colonization Roads.

The sum of $506,180.80 was spent on this service, of which $420,467.53 was spent in organized municipalities, the balance being devoted to unorganized municipalities. The class of work covered the construction and repair of roads, and bridges, and the purchase of road machinery. The Branch carried on the work of inspecting and surveying new road sites and of mapping old roads down, the importance of which work has been minimized in the past. It is proposed to continue the surveying and mapping of roads that adequate records may be had of the roads built and reliable data as to the roads which the Branch contemplates constructing.

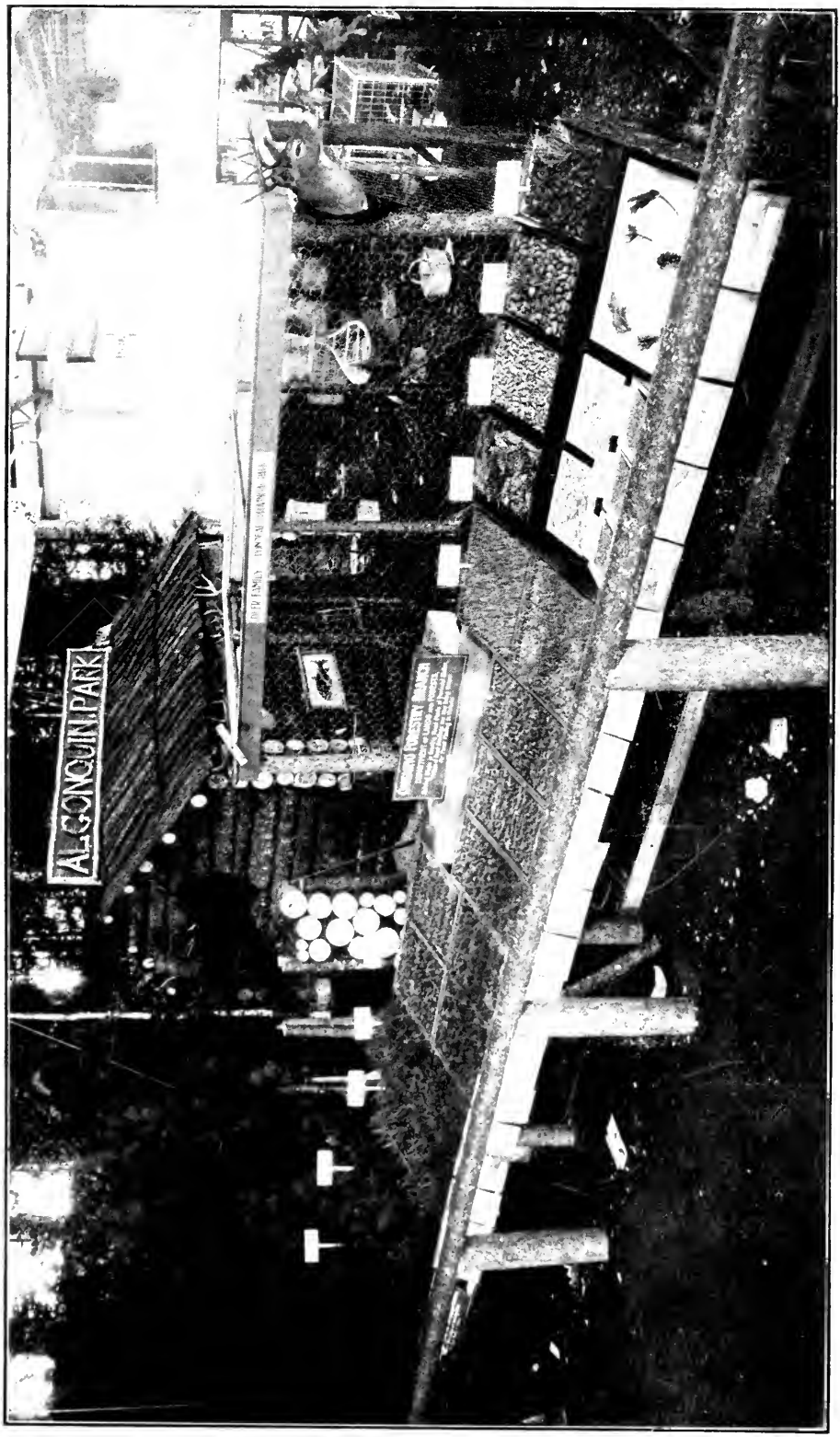
For details of the work carried on and expenditures made, see Appendix No. 44, page 129.)

Northern Development Branch.

The expenditures carried on by this Branch under statutory authority of the Northern and North-western Ontario Development Act totalled $1,612,522.37, of which over 85 per cent. was spent in the making of roads and bridges. The balance was used to carry on the advancement of settlement and colonization, under which assistance to settlers was granted in the way of purchasing hay, oats, seed grain and cattle. Creameries were assisted and advances or loans made to settlers through the Settlers' Loan Commissioner.

(For detailed information in connection with the work done see Appendices Nos. 45 and 46, pages 152—203 inclusive.)

(For full information in connection with the Settlers' Loan Accounts, see Appendix No. 47, page 204.)



Re-forestation Exhibit, Toronto Exhibition, 1921.

FORESTRY BRANCH.

Fire Protection.

This past season forest fire protection was made very difficult owing to the lack of snow during the winter and the extremely dry weather prevailing in most parts of the Province during the summer. The small amount of snow during the winter disappeared very early in the spring. In many districts very little rain fell until August, and in some districts late in September. It is interesting to note that fires of railway origin are rapidly decreasing. The following table shows the percentage of fires of railway origin:

In 1917	49.5 per cent.
In 1918	46.5 per cent.
In 1919	37.0 per cent.
In 1920	23.9 per cent.
In 1921	14.8 per cent.

It is felt that the improvement in connection with fires of railway origin is largely due to the increased protective methods applied along railway lines and largely to the increased efficiency of locomotive inspection work. During the past season 1,526 round-house inspections were made, showing a decrease in the number of defective locomotives over past years. In 1918 there were 32 per cent. of the locomotives defective; in 1921 only 8.3 per cent. were found defective.

As usual a large percentage of the area burned over by fires during the past season occurred on cut-over lands. As might be expected, these cut-over areas, with the resultant slash, are very difficult to protect.

During the past season 5,966 permits were issued for the burning of slash, which covered 23,678 acres.

The most important additions to equipment during the past season was the securing of additional portable fire fighting pumps. These pumps are supplied with 500 to 1,000 feet of hose and have more than saved their cost in saving wood products in connection with fire protection.

Forest Investigation.

During the past season the Forestry Branch has completed a survey of the southern portion of the fire district commonly known as the Huron-Ottawa region. From this survey working plan and maps are being prepared in connection with forest protection and reforestation on the old cut-over areas of this region.

Reforestation.

The outstanding feature of the work in reforestation during the past season has been enlargement of the Provincial Forest Station in Norfolk County. At this station large quantities of coniferous seeds were sown during the past spring, and a very fine stand of one year old seedlings has been obtained.

The nurseries at present have a total of some nine million plants, which should insure at least seven or eight million plants ready for final planting.

An enlarged water system has been installed with a 20,000 gallon tank, which, it is expected, will meet the requirements of the new nursery development.

The distribution of trees to private applicants was increased over the previous year. 291,769 plants were distributed for demonstration plantings by private owners.

In addition to experimental planting made at the forest station in Norfolk County, a new sub-station was opened in Prince Edward County, where some 150 acres were planted on the sand dune formations near West Lake.

The collection of tree seeds has been greatly enlarged and during the past season a fine quantity of native Norway or Red Pine was secured. The Red or Norway Pine is well suited for the planting of sandy waste lands of the Province, and we desire large quantities of nursery stock of this species.

Tree Disease.

The investigation of tree diseases was again carried on by the Forestry Branch in the Timagami Forest Reserve region. (Details of this work will be found in the Forestry Branch Report, Appendix No. 48.) It would appear that the insect and other organic enemies of our forest trees will soon prove as serious a menace as forest fires. It is hoped that some adequate solution of this problem may be found.

Officers Superannuated.

(1) J. H. Bradshaw, Clerk in Colonization Roads Branch, appointed June 10th, 1884, and superannuated January 1st, 1921.

(2) J. B. Cook, Clerk in the Woods and Forests Branch, appointed August 7th, 1894, and superannuated January 1st, 1921.

(3) Major J. A. G. Crozier, Advisory Clerk Chief, Woods and Forests Branch, appointed December 1st, 1867, and superannuated January 1st, 1921.

(4) W. F. Lewis, Clerk in the Surveys Branch, appointed March 1st, 1872, superannuated January 1st, 1921.

(5) W. Carrell, Engrossing Clerk, Lands Branch, appointed December 18th, 1899, superannuated May 1st, 1921.

(6) H. E. Johnston, Chief Clerk, Military Branch, appointed March 25th, 1905, and superannuated May 1st, 1921.

(7) C. S. Jones, Clerk of Patents, appointed May 22nd, 1896, and superannuated July 1st, 1921.

(8) D. G. Ross, Accountant, appointed April 15th, 1861, and superannuated June 1st, 1921.

(9) R. H. Hodgson, Clerk in Woods and Forests Branch, appointed October 15th, 1903, and superannuated October 31st, 1921.

(10) J. J. Murphy, Advisory Chief Clerk, Lands Branch, appointed May 1st, 1872, and superannuated October 31st, 1921.

Of the above, it is observed that Messrs. Ross, Crozier, Lewis and Murphy each served a half century or more in the service of the Crown, Mr. Ross having been appointed prior to Confederation Major Crozier having entered the Provincial service in Confederation year, and Mr. Lewis and Mr. Murphy in the early part of 1872.

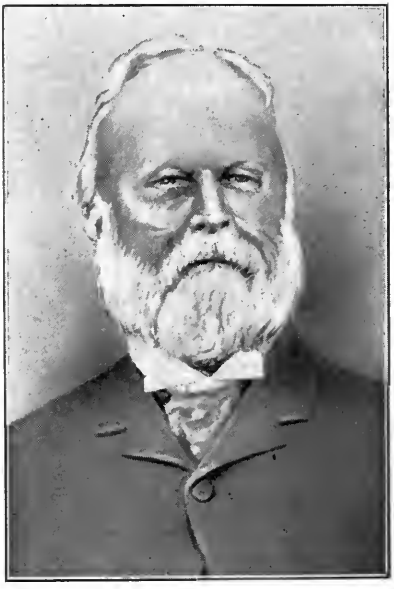
These officials faithfully served the Crown's interests all these years and ably assisted the various administrations in the numerous projects towards the development of the Crown Lands, and were responsible in no small measure for the important statutes and regulations governing the disposition of Ontario's natural resources. While their severance from the Department is keenly felt,

there is a satisfaction that they take their departure in the knowledge of duty well done. It is a pleasure to record that each of these officials under the Superannuation Act is provided with an annuity to assist in declining years and to partially compensate for the untiring efforts devoted to the interests of the Crown.

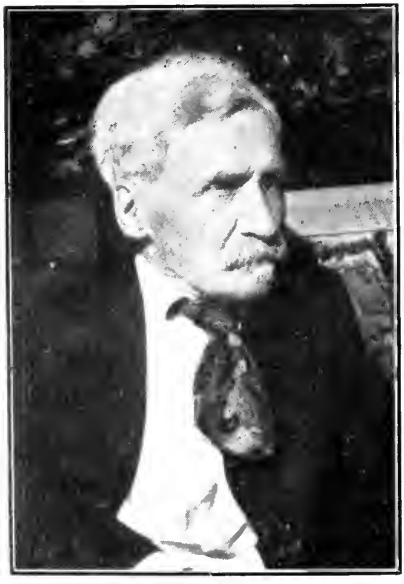
BENIAH BOWMAN,
Minister.

Department of Lands and Forests,
Toronto, October 31st, 1921.

MAJOR J. A. G. CROZIER



W. F. LEWIS



D. GEO. ROSS

J. J. MURPHY

APPENDICES

Appendix No. 1.

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1921.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
	Hon. B. Bowman	Minister	1919, Nov. 14	$6,000 00	
	Albert Grigg	Deputy Minister	1915, Oct. 18	5,100 00	Resigned September 30, 1921.
	W. C. Cain	do do	1903, Mar. 1	4,800 00	
	F. J. Niven	Minister's Secretary and Secretary to Department	1897, May 27	3,000 00	
	F. E. Titus	Law Clerk	1920, Mar. 2	3,500 00	
	W. A. Fleming	Clerk	1914, Apr. 30	1,100 00	Resigned January 31, 1921.
	M. E. Bliss	Stenographer and Filing Clerk to Deputy Minister	1909, Aug. 16	1,200 00	
	R. P. Ferguson	Clerk and Stenographer	1918, Apr. 2	1,100 00	
	B. Beley	Stenographer	1920, Jan. 5	1,050 00	Resigned June 15, 1921.
	Eva Harrison	do	1920, May 14	1,050 00	
	B. Lankin	Messenger	1921, Jan. 14	700 00	
	J. J. Murphy	Advisory Chief Clerk	1872, May 1	2,300 00	Superannuated October 31, 1921
	S. Draper	Chief Clerk	1900, May 1	2,400 00	
	H. E. Johnston	Clerk of Military Grants	1905, Mar. 25	1,900 00	Superannuated May 1, 1921.
	W. R. Ledger	Principal Clerk	1894, Feb. 15	2,200 00	
	C. E. Burns	do do	1897, July 29	2,200 00	
	W. S. Sutherland	Senior Clerk	1900, Mar. 18	1,900 00	
	J. B. Proctor	do do	1897, Jan. 15	1,800 00	
	J. E. Drinkwater	do do	1915, Oct. 19	1,700 00	
	F. A. Lucas	Clerk	1906, Dec. 18	1,600 00	
	S. A. Platt	do	1905, June 12	1,600 00	
	C. S. Jones	Clerk of Patents	1890, May 22	2,150 00	Superannuated July 1st, 1921.
Lands Branch	W. Carrell	Engrossing Clerk	1899, Dec. 18	1,600 00	Superannuated May 1st, 1921.
	A. E. Robillard	do do	1894, May 4	1,600 00	
	A. E. Roe	Clerk of Registers	1906, Oct. 16	1,700 00	
	F. W. Bindon	Clerk	1915, Jan. 26	1,600 00	
	S. Mulholland	do	1918, May 6	775 00	
	S. Ross	Stenographer	1917, July 9	1,100 00	
	M. Bengough	do	1896, Oct. 23	1,200 00	
	E. F. O'Neil	do	1902, July 7	1,100 00	
	E. G. Halliday	do	1907, Feb. 21	1,100 00	
	B. M. Benson	do	1909, May 25	1,100 00	
	E. Hills	do	1912, July 2	1,100 00	
	E. Singleton	do	1917, Apr. 16	975 00	

Surveys Branch	L. V. Rorke	Director	1909, May 1	4,200 00	
	J. Hutcheon	Surveyor and Draughtsman	1913, Apr. 1	3,150 00	
	W. F. Lewis	Clerk	1872, Mar. 1	1,400 00	Superannuated January 1, 1921.
	D. G. Boyd	Draughtsman	1896, Oct. 16	2,200 00	
	E. M. Jarvis	Clerk	1897, Apr. 25	1,650 00	
	B. Rushford	Draughtsman	1910, Jan. 24	1,700 00	
	F. E. Blanchet	do	1906, May 15	1,700 00	
	A. Leaman	do	1907, Sept. 12	1,700 00	
	H. Treeby	do	1896, June 25	1,800 00	
	J. Work	do	1909, May 18	1,900 00	
	M. H. Kirkland	Stenographer	1902, July 21	1,100 00	
	C. O'Connor	do	1907, Oct. 16	900 00	
	E. C. Armer	do	1909, Aug. 6	1,050 00	
Woods and Forests	J. A. G. Crozier	Advisory Chief Clerk	1867, Dec. 1	2,300 00	Superannuated January 1, 1921.
	J. Houser	Chief Clerk	1905, July 17	2,400 00	
	J. B. Cook	Clerk	1894, Aug. 7	1,950 00	Superannuated January 1, 1921.
	H. Gillard	do	1897, Dec. 6	1,900 00	
	W. F. Trivett	do	1900, June 25	2,000 00	
	A. H. O'Neil	do	1906, July 19	1,600 00	
	R. H. Hodgson	do	1903, Oct. 15	1,450 00	SuperannuatedNovember1,1921
	S. D. Meeking	do	1910, Feb. 8	1,400 00	
	E. H. Telfer	do	1915, Sept. 27	1,400 00	
	E. H. Squire	do	1916, Jan. 4	1,300 00	
	M. C. Rowland	Stenographer	1912, May 1	1,100 00	
	S. O. Dennis	do	1910, Mar. 2	1,100 00	
	J. McCort	do	1918, Feb. 28	975 00	
	J. Ferguson	do	1919, Aug. 4	850 00	
Accounts	D. G. Ross	Accountant	1861, Apr. 15	3,000 00	Superannuated June 1, 1921.
	H. M. Lount	do	1903, Oct. 1	2,550 00	
	C. J. Clarke	Clerk	1905, Aug. 9	1,600 00	
	R. Gordon	do	1912, July 30	1,400 00	
	W. A. Burritt	do	1907, Sept. 24	1,600 00	
	C. Bowland	Clerk and Stenographer	1908, July 9	1,100 00	
	M. A. Whyte	do do	1921, June 1	900 00	

Appendix No. 1.—Concluded.

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1921.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Records Branch	S. K. Burdin	Chief Clerk	1916, Apr. 6	2,500 00	
	C. Dies	Clerk	1905, Oct. 2	1,500 00	
	F. Samuels	do	1903, Dec. 5	1,500 00	
	C. W. St. John	do	1906, July 9	1,400 00	
	A. Ferguson	do	1915, Dec. 15	1,600 00	
	W. B. Baines	do	1912, Apr. 9	1,400 00	
	J. T. Lee	do	1917, June 25	1,400 00	
	N. Mathewson	do	1915, May 7	1,300 00	
	H. Brophy	Mailing Clerk, etc.	1898, Oct. 1	1,300 00	
Forestry	E. J. Zavitz	Provincial Forester	1912, Nov. 7	4,500 00	
	C. R. Mills	Assistant Provincial Forester	1921, Mar. 28	3,000 00	
	F. S. Newman	Forester	1913, Sept. 22	2,300 00	
	G. W. Harris	Clerk	1906, Sept. 1	1,500 00	
	N. L. Rogers	do	1911, Aug. 1	1,700 00	
	J. Bald	Stenographer	1913, June 12	1,100 00	
	V. M. Bassford	do	1920, June 1	900 00	
Colonization Roads	C. H. Fullerton	Superintendent	1915, Oct. 15	4,400 00	
	M. P. Doherty	Accountant and Chief Clerk	1898, May 1	2,100 00	
	C. H. Meader	Surveyor and Draughtsman	1912, June 14	2,400 00	
	J. H. Bradshaw	Clerk	1884, June 10	1,400 00	Superannuated January 1, 1921.
	A. Gamey	do	1915, July 19	1,200 00	
	P. Godkin	Stenographer	1917, Aug. 27	1,050 00	Resigned, December 31, 1920.

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1921.

Name.	Post Office Address.	District or County.	Date of Appointment.	Salary per annum.	Remarks.
		Land Agents.			
Anderson, T. V.	Hearst	Part District of Algoma	1913, May 9	$ 800 00	Resigned April 30, 1921.
Arthurs, E.	Espanola Mills	do do do	1915, May 7	500 00	
Baker, R. H.	Minden	Part Victoria	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard	Lake Temiskaming, District of Nipissing	1913, July 17	1,200 00	
Both, C.	Denbigh	Part of Frontenac and Addington	1905, Oct. 20	200 00	
Brown, John	Markstay	Part of District of Nipissing and Sudbury	1916, June 27	600 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28		For salary see Homestead Inspectors.
Blank F.	Wilno	Part District of Renfrew	1921, Apr. 1	500 00	
Cameron, W.	Stratton Station	do do Rainy River	1911, Apr. 27	500 00	
Campbell, I. M.	Parry Sound	do do Parry Sound	1914, Nov. 12	500 00	
Dean, Thos.	Sault Ste. Marie	do do Algoma	1920, Nov. 18	300 00	
Dempsay, S. J.	Cochrane	do do Nipissing	1911, Feb. 9	1,100 00	
Dodds, T.	Thessalon	do do Algoma	1915, May 4	500 00	
Douglas, W. J.	Maynooth	do Hastings	1912, June 12	500 00	
Ellis, H. J.	Powassan	do District of Parry Sound	1909, May 21	500 00	
Freeborn, Dr. J. S.	Magnetawan	do do do	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden	do do Rainy River	1914, Nov. 20	1,000 00	
Ginn, F. E.	Matheson	Part District of Nipissing	1912, Mar. 20	1,200 00	Resigned July 1, 1921.
Hales, W.	Aspley	do County of Peterborough	1911, July 20	250 00	
Hollands C. J.	Fort Frances	do Townplot of Alberta and District of Rainy River	1892, Oct. 12	300 00	
Holland, H. E.	Kenora	do District of Rainy River	1921, Jan. 1	600 00	Also Mining Recorder.
McFayden, A.	Emo	do do do	1905, Sept. 8	600 00	
MacLennan, J. K.	Sudbury	do do Sudbury	1905, July 3	700 00	
Mills, Jos. E.	Matheson	do do Nipissing	1921, Aug. 1	1,200 00	
O'Flaherty, T. F.	Kenora	do do Rainy River	1920, May 10	600 00	Also Mining Recorder, Resigned January 1, 1921.
O'Donnell, J. L.	Hearst	do do Algoma	1921, May 3	800 00	
Parsons, W. J.	North Bay	do do Nipissing	1908, Apr. 8	1,000 00	
Philion, J. A.	Sturgeon Falls	do do do	1907, Sept. 13	500 00	
Small, R.	Mattawa	do do do	1910, June 30	500 00	
Teasdale, R. A.	Massey	do do Sudbury	1917, July 1	600 00	
Thaw, D.	Emsdale	do do Parry Sound	1919, July 2	500 00	
Watt, F.	Pembroke	do Renfrew	1913, May 28	300 00	
Whybourne, W. E.	Marksville	do St. Joseph Island	1905, Apr. 7	300 00	

Appendix No. 2—Concluded.

List of Agents for the year ending October 31st, 1920.

Name.	Post Office Address.	District or County.	Date of Appointment.	Salary per annum.	Remarks.
Wilson, A. N.	Kinmount	Part District of Peterborough	1915, June 1	$ 175 00	
Woollings, J.	Englehart	do do Nipissing	1908, June 30	800 00	
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
		Homestead Inspectors.			
Barr, J.	Fort Frances	District of Rainy River	1906, Nov. 23	1,400 00	
Bastien, J. A.	Chelmsford	W. Part of Sudbury District	1913, May 2	1,200 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28	1,100 00	Also Crown Lands Agent.
Cragg, W. V.	New Liskeard	S. Part of Temiskaming District	1913, Mar. 27	1,400 00	
Dean, T.	Sault Ste. Marie	Algoma District	1908, July 29	900 00	Also Crown Lands Agent.
Hughes, T.	Murillo	Thunder Bay District	1908, July 20	1,300 00	
Jervis, H. F. J. W.	Callander	District of Parry Sound	1920, June 10	1,500 00	
Owens, H. B.	Cache Bay	E. Part Sudbury and W. Part Algoma Districts	1918, June 25	1,000 00	
Smith, D.	Cochrane	N. part of Temiskaming District	1912, Apr. 16	1,700 00	
Van Horn, L. E.	Monteith	Part Temiskamin, and Algoma Districts	1920, Jan. 27	1,500 00	
Watson, T. P.	Englehart	Centre part of Temiskaming District	1905, May 10	1,400 00	
Wigle, R. G.	Dryden	Kenora District	1914, May 27	1,400 00	
		Timber Agents.			
Christie, W. P.	Parry Sound	Part Parry Sound and Muskoka Districts	1903, Dec. 4	1,700 00	
Darby, E. J.	Ottawa	Part Ottawa District	1889, July 26	1,500 00	Superannuated Jan. 1, 1921.
Hawkins, S. J.	Webbwood	Part Algoma and Sudbury Districts	1905, Aug. 16	1,900 00	
Henderson, C.	Sudbury	do do do	1902, Jan. 1	2,100 00	Superannuated Jan. 1, 1921.
Huckson, A. H.	Sault Ste. Marie	Part District of Algoma	1914, Apr. 1	2,100 00	
Jones, W. M.	Fort Frances	Rainy River District	1918, Nov. 15	1,700 00	Retired from office, July 1, 1921
Larose, S. C.	Ottawa	Part Ottawa District	1890, May 8	1,800 00	
MacDonald, S C	New Liskeard	Part Temiskaming District	1907, Jan. 1	2,000 00	
Margach, W.	Kenora	Kenora District	1889, May 16	1,600 00	Superannuated Jan. 1, 1921.
McDonald, H.	Thessalon	Part District of Algoma	1905, Apr. 20	1,500 00	Superannuated Nov. 1, 1921.
McDougall, J. T.	North Bay	Nipissing and part Sudbury Districts	1908, July 8	2,100 00	
Oliver, J. A.	Port Arthur	Thunder Bay District	1905, Sept. 30	1,850 00	Resigned Oct. 31, 1921.
Spence, D.	Cochrane	Part Temiskaming and Algoma Districts	1920, Dec. 1	2,300 00	
Stevenson, A.	Peterborough	Belleville District	1905, Oct. 4	1,800 00	
Wood, W. G. A.	South Porcupine	Porcupine District	1917, Feb. 28	1,600 00	

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1921.

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
		$ c	$ c
Lands Sold:			
Agricultural and Townsites	139,026.86	143,059 02	135,862 27
Clergy Lands	12.50	31 25	612 90
Common School Lands	.....	.....	3,447 80
Grammar School Lands	57.50	28 75	529 84
University Lands	836.38	418 25	1,917 67
Lands Leased:			
Crown	20,524.85	2,286 50	56,588 93
Temagami	21.00	222 50	900 50
	160,479.09	146,046 27	199,859 91

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 4.

Statement of Revenue of the Department of Lands and Forests for the year ending October 31st, 1921.

Service.	$ c	$ c	$ c
LAND COLLECTIONS.			
Crown Lands:			
Agricultural	115,838 91		
Townsites	20,023 36		
		135,862 27	
Clergy Lands	612 90		
Common School Lands	3,447 80		
Grammar School Lands	529 84		
University Lands	1,917 67		
		6,508 21	
			142,370 48
Rent:			
Crown Leases		55,017 03	
Algonquin Provincial Park		1,450 40	
Temagami Leases		900 50	
Sand and Gravel		121 50	
			57,489 43
WOODS AND FORESTS.			
Bonus		1,555,770 69	
Timber Dues		1,921,356 95	
Ground Rent		99,245 12	
Transfer Fees		5,810 00	
Fire Protection		181,257 72	
			3,763,440 48
Parks:			
Algonquin Provincial Park		14,346 44	
Rondeau Provincial Park		1,902 20	
Quetico Provincial Park		1,043 21	
			17,291 85
Casual Fees		1,683 63	
Cullers' Fees		176 00	
Forest Reserves Guides' Fees		161 00	
			2,020 63
REFUNDS.			
Fire Ranging		12,561 46	
Forest Ranging		39,438 82	
Colonization Roads Contingencies		400 00	
Reforestation		325 00	
Agents' Salaries		200 00	
Contingencies, Lands		160 30	
Travelling Expenses, Lands		49 49	
			53,135 07
			4,035,747 94

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1921, which are considered as Special Funds.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	323 05	
Interest	289 85	
		612 90
Common School Lands.		
Principal	1,808 51	
Interest	1,639 29	
		3,447 80
Grammar School Lands.		
Principal	333 68	
Interest	196 16	
		529 84
University Lands.		
Principal	1,204 68	
Interest	712 99	
		1,917 67
		6,508 21

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands and Forests for the year ending October 31st, 1921.

Service.	$ c	$ c	$ c
AGENTS' SALARIES AND DISBURSEMENTS.			
Land, $20,717.00.			
Anderson, T. V.	400 00		
Disbursements	105 50		
		505 50	
O'Donnell, J. L.	396 89		
Disbursements	238 00		
		634 89	
Arthurs, E.		500 00	
Baker, R. H.		350 00	
Bolger, J. W.	1,200 00		
Disbursements	181 88		
		1,381 88	
Both, C.		200 00	
Brown, John	600 00		
Disbursements	28 89		
		628 89	
Blank, F.	291 67		
Disbursements	5 50		
		297 17	
Cameron, Wm.	500 00		
Disbursements	70 00		
		570 00	
Campbell, Miss I. M.	500 00		
Disbursements	101 00		
		601 00	
Dean, T.	285 69		
Disbursements	177 40		
		463 09	
Dempsay, S. J.	1,100 00		
Disbursements	269 60		
		1,369 60	
Dodds, Thos.	500 00		
Disbursements	10 00		
		510 00	
Douglas, W. J.		500 00	
Ellis, H. J.		500 00	
Freeborn, J. S.	500 00		
Disbursements	11 45		
		511 45	
Gibson, J. E.	1,000 00		
Disbursements	194 50		
		1,194 50	
Ginn, F. E.	800 00		
Mills, J. E.	300 00		
Disbursements	170 25		
		1,270 25	
Hales, W.	250 00		
Disbursements	20 00		
		270 00	
Hollands, C. J.	300 00		
Disbursements	150 00		
		450 00	
Carried forward		12,708 22	

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		12,708 22	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Land—Concluded.			
O'Flaherty, T. P.	100 00		
Holland, H. E.	500 00		
Disbursements	406 35		
		1,006 35	
McFayden, A.	600 00		
Disbursements	40 59		
		640 59	
MacLennan, J. K.	700 00		
Disbursements	31 50		
		731 50	
Oliver, J. A., Disbursements		442 25	
Parsons, W. J.	1,000 00		
Disbursements	205 50		
		1,205 50	
Philion, J. A.	500 00		
Disbursements	27 67		
		527 67	
Small, R.	500 00		
Disbursements	25 25		
		525 25	
Teasdale, R. A.	600 00		
Disbursements	24 22		
		624 22	
Thaw, D.	500 00		
Disbursements	18 95		
		518 95	
Watt, F.		300 00	
Whybourne, W. E.	300 00		
Disbursements	38 50		
		338 50	
Wilson, A. N.	175 00		
Disbursements	8 00		
		183 00	
Woolings, J.	800 00		
Disbursements	165 00		
		965 00	
Homestead Inspectors, $25,556.58.			
Barr, J. C.	1,400 00		
Disbursements	1,371 14		
		2,771 14	
Bastien, J. A.	1,200 00		
Disbursements	1,029 40		
		2,229 40	
Brown, J. B.	1,100 00		
Disbursements	638 26		
		1,738 26	
Cragg, W. V.	1,400 00		
Disbursements	455 60		
		1,855 60	
Carried forward		29,311 40	

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		29,311 40	
AGENTS' SALARIES AND DISBURSEMENTS.—*Continued.*			
Homestead Inspectors.—Concluded.			
Dean, T.	900 00		
Disbursements	267 95		
		1,167 95	
Hughes, Thos.	1,300 00		
Disbursements	963 85		
		2,263 85	
Jervis, H. F. J. W.	1,500 00		
Disbursements	916 60		
		2,416 60	
Owens, H. B.	1,000 00		
Disbursements	1,409 15		
		2,409 15	
Smith, D.	1,700 00		
Van Horn, L. E.	1,375 00		
Disbursements	1,148 71		
		4,223 71	
Watson, T. P.	1,400 00		
Disbursements	777 65		
		2,177 65	
Wigle, R. G.	1,400 00		
Disbursements	903 27		
		2,303 27	
Timber, $35,860.70.			
Christie, W. P.	1,700 00		
Disbursements	389 14		
		2,089 14	
Hawkins, S. J.	1,900 00		
Disbursements	138 40		
		2,038 40	
Henderson, C.	349 50		
Hurdman, G. C.	692 30		
MacCrindle, Miss I.	640 00		
Disbursements	651 54		
		2,333 34	
Huckson, A. H.	2,100 00		
McDougall, Miss M.	480 00		
Disbursements	1,036 32		
		3,616 32	
Jones, W. M.	1,133 33		
McDonald, A.	1,600 00		
Alexander, J. A.	632 00		
Disbursements	889 43		
		4,254 76	
MacDonald, S. C.	2,000 00		
Disbursements	237 34		
		2,237 34	
Margach, Wm.	265 34		
Legris, J.	632 68		
Brunsell, Miss E. S.	752 89		
George, Miss J. R.	49 00		
Disbursements	1,173 51		
		2,873 42	
Carried forward		65,716 30	

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		65,716 30	
AGENTS' SALARIES AND DISBURSEMENTS—*Concluded.*			
Timber.—Concluded.			
McDonald, H.	1,500 00		
Disbursements	284 47		
		1,784 47	
McDougall, J. T.	2,100 00		
Disbursements	564 63		
		2,664 63	
Oliver, J. A.	1,850 00		
Godfrey, Miss S	885 00		
Conners, Miss M.	18 75		
Disbursements	1,065 96		
		3,819 71	
Spence, D. J.	2,108 33		
Disbursements	1,237 07		
		3,345 40	
Stevenson, A.	1,800 00		
Disbursements	487 39		
		2,287 39	
Whelan, P. J., disbursements		413 37	
Wood, W. G. A.	1,600 00		
Disbursements	503 01		
		2,103 01	
Miscellaneous, $2,103.07.			
Cornwall, Fred T., services collecting rentals at Presqu'ile Point		53 00	
Green, H. P., Caretaker of Islands in Charleston Lake		50 00	
Jamieson, W. H., Caretaker of Islands in Dog and Laboria Lakes		50 00	
Stuart, Joseph, services as Supervisor of Beach at Wellington		50 00	
VanMeer, J. F. inspecting Water Lot front of Twp. Billings		17 00	
McArthur, T. A., Inspector of Agencies	900 00		
Disbursements	983 07		
		1,883 07	
			84,237 35
OTTAWA AGENCY.			
Darby, E. J., Agent		448 50	
LaRose, S. C., Clerk		1,176 31	
Rent	700 00		
Disbursements	81 79		
		781 79	
			2,406 60
CULLERS' ACT.			
McDougall, J. T., disbursements		28 25	
Milway, J. H., disbursements		11 00	
			39 25
Carried forward			86,683 20

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			86,683 20
Fire Ranging			547,474 47
Forest Ranging			339,428 11
Forest Reserves			5,277 84
Reforestation			83,372 63
Algonquin Provincial Park			40,705 81
Quetico Provincial Park			13,606 37
Rondeau Provincial Park			15,295 90
Surveys			145,169 99
Colonization Roads			506,180 80
Board of Surveyors			200 00
Grant to Canadian Forestry Association			1,000 00
Annual Membership Fees			66 69
Insurance			1,037 46
Commissions re Sunday Investigations			63,781 05
Workmen's Compensation			3,042 76
Unforeseen and Unprovided			389 45
Special Warrants.			
Legal Fees and Expenses		45,147 67	
Canadian Aero Film Company		6,499 75	
Hurdman, G. C.		5,984 75	
Toronto Exhibition		396 60	
Doherty, L. J.		150 00	
			58,178 77
Miscellaneous.			
Whitson, Mrs. A. M.....Gratuity		4,500 00	
Law Society of Upper Canada.....Fees		20 00	
			4,520 00
Refunds (Miscellaneous)			16,656 31
Special Survey, Ontario and Manitoba Boundary Line			12,500 00
Veterans' Commutation			100 00
Clearing Fire Hazards			9,744 81
Clearing Lands, Kapuskasing			5,042 00
Carried forward			1,959,454 42

Appendix No. 6.—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			1,959,454 42
CONTINGENCIES, PLANS, MAPS, ETC.			
Departmental.			
Printing and Binding	1,409 76		
Stationery	17,092 63		
		18,502 39	
Express	671 32		
Postage	2,536 61		
		3,207 93	
Telegraphing	892 01		
Car Fare	49 00		
		941 01	
Subscriptions	251 47		
Advertising	15,317 83		
		15,569 30	
Typewriter repairs and inspections		364 45	
Extra Clerks	9,597 78		
Maps	7,482 40		
Sundries	337 39		
		17,417 57	
			56,002 65
Travelling Expenses.			
Bowman, Hon. Beniah		827 65	
Grigg, A.		200 00	
Cain, W. C.		157 57	
Niven, F. J.		229 55	
Titus, F. E.		136 06	
Rorke, L. V.		846 86	
Work, J.		132 10	
Boyd, D. G.		39 45	
Hutcheon, J		621 60	
Ledger, W. R.		31 80	
Larose, S. C.		170 00	
Stevenson, A.		111 85	
			3,504 49
TYPEWRITERS AND OFFICE EQUIPMENT.			
United Typewriter Company			792 14
Forestry Contingencies.			
Printing and Binding	236 47		
Stationery	1,184 97		
		1,421 44	
Postage	386 11		
Telegraphing	204 02		
Express and Cartage	89 13		
Typewriter Inspections and Repairs	33 50		
		712 76	
Extra Clerks	1,883 66		
Supplies	135 16		
Sundries	42 50		
		2,061 32	
			4,195 52
Carried forward			2,023,949 22

Appendix No. 6.—Concluded.

Service.	$ c.	$ c.	$ c.
Brought forward			2,023,949 22
Travelling Expenses.			
Zavitz, E. J.		57 00	
Mills, C. R.		24 10	
			81 10
TYPEWRITERS, OFFICE EQUIPMENT, ETC.			
United Typewriter Company			350 00
COLONIZATION ROADS CONTINGENCIES.			
Printing and Binding	296 63		
Stationery	1,245 67		
		1,542 30	
Postage	4 40		
Express	90		
		5 30	
Telegraphing	84 57		
Subscriptions	18 53		
Typewriter repairs and inspections	69 50		
		172 60	
Extra Clerks	2,556 16		
Sundries	66 25		
		2,622 41	
			4,342 61
Travelling Expenses.			
Meader, Chas. H.			802 39
			2,029,525 32

*For particulars of expenditure of the Northern Development Branch see Appendix No. 46.

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix

WOODS AND

Statment of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				
		Pine.		Other.		
	Square Miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.
Western Timber District.....	15,401¾	9,395,767	309,648,918	1,333,596	47,626,991	45,961
Belleville Timber District.....	562¾	94,849	1,551,178	128,117	4,338,986	1,126
Ottawa Timber District.....	3,891	403,347	18,727,034	504,479	14,845,243	2,483
	19,855½	9,893,963	329,927,130	1,966,192	66,811,220	49,570

General Statement

Agencies.	Tan Bark.	Railway Ties.	Shingle Bolts.	Cedar Posts	Telegraph Poles.	Pulpwood.		
	Cords.	Pieces.	Cords.	Pieces.	Pieces.	Cords.	Transfer Fees.	Interest.
Western Timber District.....	917	3,987,812	2,503	70,650	15,618	900,845	3,345 00	32,338 24
Belleville Timber District..	16	4,224	.....	104	35	169	85 00	157 30
Ottawa Timber. District.....	1,224	9,435	.....	14,555	3,093	27,171	2,380 00	626 14
	2,157	4,001,471	2,503	85,309	18,746	928,185	5,810 00	33,121 68

JOHN HOUSER,
Chief Clerk in Charge.

No. 7.

FORESTS.

Rent and Bonus during the year ending 31st October, 1921.

DESCRIPTION OF TIMBER.

Boom and Dimension.			Square Timber.		Piling.				Cordwood.	
Pine.	Other.								Hard.	Soft.
Feet B.M.	Pieces.	Feet B.M.	Pieces.	Cubic Feet.	Pieces.	Lineal Feet.	Pieces.	Feet B.M.	Cords.	Cords.
5,621,498	26,151	2,956,905	1,425	83,066	1,645	48,187	4,448	438,412	5,103	33,461
143,334	1,717	175,899								
268,733	3,894	448,211	.....	.....	.....	.....	.....	.....	81	3,444
6,033,565	31,762	3,581,015	1,425	83,066	1,645	48,187	4,448	438,412	5,184	36,905

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber Dues.	Bonus.	Deposit Timber Sales.	Ground Rent.	Fire Protection.	Total.
$ c	$ c	$ c	$ c	$ c	$ c	$ c
66,391 32	2,057,830 24	1,466,358 10	248,150 40	73,332 00	148,495 27	4,096,240 57
677 89	10,798 49	423 90	200 00	3,055 00	3,641 80	19,039 38
2,787 21	93,000 58	.....	.....	22,420 00	29,120 65	150,334 58
69,856 42	2,161,629 31	1,466,782 00	248,350 40	98,807 00	181,257 72	4,265,614 53

W. C. CAIN,
Deputy Minister

Appendix No. 8.

PATENTS OFFICE (Lands Branch).

Statement of Patents, etc., issued from 1st November, 1920, to 31st October, 1921.

Public Lands (late Crown)	523
" " (late School)	15
" " (late Clergy Reserves)	3
" " (University)	3
Free Grant Lands (Act of 1913)	372
" " " (Act of 1901) Veterans	48
Mining Lands (Patents)	285
Mining Leases	170
Crown Leases	26
Licenses of Occupation	92
Temagami Island Leases	5
Sand and Gravel Licenses	21
Pine Patents	8
Quarry Claims	15
Orders-in-Council	1
Total	1,587

CHAS. E. BURNS,
Clerk of Patents.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 9.

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending October 31st, 1921.

Amount of Western Collections at Department	$3,612,395 59
" Belleville " " "	20,162 02
" Ottawa " " "	130,882 80
	$ 3,763,440 48

WOODS AND FORESTS.

Bonus	1,555,770 69
Timber Dues	1,921,356 95
Ground Rent	99,245 12
Transfer Fees	5,810 00
Fire Protection	181,257 72
	$ 3,763,440 48

TIMBER DUES—AMOUNTS ACCRUED—1920-21.

Western	$ 3,590,579 66
Belleville	11,900 28
Ottawa	95,787 79
	$ 3,698,267 73

WOODS AND FORESTS BRANCH REVENUE.

October 31st, 1921.

WESTERN DISTRICT—		
Timber dues	$ 1,799,838 55	
Bonus	1,306,896 13	
Ground rent	73,332 00	
Interest on dues	31,984 72	
Interest on ground rent	353 52	
Transfer fees	3,345 00	
Timber sale deposit	248,150 40	
Fire protection	148,495 27	
		$ 3,612,395 59
OTTAWA DISTRICT—		
Timber dues	76,336 01	
Ground rent	22,420 00	
Interest on dues	544 24	
Interest on ground rent	81 90	
Fire protection	29,120 65	
Transfer fees	2,380 00	
		$ 130,882 80
BELLEVILLE DISTRICT—		
Timber dues	12,498 83	
Bonus	524 16	
Ground rent	3,055 00	
Interest on dues	154 60	
Interest on ground rent	2 70	
Fire protection	3,641 80	
Transfer fees	85 00	
Timber sale deposit	200 00	
		20,162 09
		$ 3,763,440 48

H. M. LOUNT,
Accountant

J. H. HOUSER,
Chief Clerk in Charge.

W. C. CAIN,
Deputy Minister.

Appendix No. 10.

Memorandum of parties who passed the Cullers' Examination in 1921.

Barker, Gilbert G., Moore Block, Port Arthur, examined at Port Arthur on the 28th day of September, 1921, licensed November 10th, 1921.

Coghlan, John, 201 Bethune St., Fort William, examined at Port Arthur on the 28th day of September, 1921. licensed November 10th, 1921.

Gilmour, William, Braeside, examined at Callander on the 28th day of September, 1921, licensed October 7th, 1921.

King, Douglas, Cumberland Hotel, Port Arthur, examined at Port Arthur on the 28th day of September, 1921, licensed November 10th, 1921.

Kerr, John, Shanley Block, Port Arthur, examined at Port Arthur on the 28th day of September, 1921, licensed November 10th, 1921.

McKinnon, Charles J., 108 Regent St., Port Arthur, examined at Port Arthur on the 28th day of September, 1921, licensed November 10th, 1921.

Watson, Alexander, 336 Conyers St., Port Arthur, examined at Port Arthur on the 28th day of September, 1921, licensed November 10th, 1921.

JOHN HOUSER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. II.

Statement of the work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1921.

Veteran Patents issued	48
Locations under Military Certificates	27
Certificates applied in payment of lands	2
Certificates surrendered for commutation money	2

J. B. PROCTOR,
Clerk in charge.

W. C. CAIN,
Deputy Minister.

SELBY DRAPER,
Chief Clerk.

Appendix No. 12.

RECORDS BRANCH, 1920-1921.

Communications received:

From Crown Lands Agents	10,485
" Crown Timber Agents	5,370
" Mining Recorders	2,486
" Homestead Inspectors	3,558
" Superintendent Algonquin Park	297
" Superintendent Quetico Park	138
" Superintendent Rondeau Park	141
Orders-in-Council	200
Telegrams	200
Northern Development Branch (figures supplied by them)	8,753
Loan Commissioner (figures supplied by them)	5,555
Forestry Branch (figures supplied by them)	16,136
Colonization Roads (figures supplied by them)	11,678
All other sources	30,258
Total incoming (Minister's Office not included)	95,255

Communications sent out:

To Crown Lands Agents, Inspectors and Park Superintendents	23,732
" General Public	23,268
Circular Letters *re* timber sales	6,832
Maps and Blue Prints	5,475
Northern Development Branch Letters (figures supplied by them)	10,712
" " Branch, Seed Grain (figures supplied by them)	652
Loan Commissioner Letters (figures supplied by them)	8,676
Forestry Branch, Letters (figures supplied by them)	7,694
" " Parcels by post (figures supplied by them)	483
" " Calendars (figures supplied by them)	10,000
Colonization Roads, Letters (figures supplied by them)	6,311
Total outgoing (Minister's Office not included)	103,925

Postage:

Postage for the year, Records Branch	$2,403.04
" " " Loan Commissioner	300.00
" " " Forestry Branch	250.00
" " " Colonization Roads	205.00

Files:

New Files issued, General	6,163
" " " Accounts chargeable	685
" " " Accounts free	253

S. K. BURDIN,
Chief Clerk, Records Branch.

W. C. CAIN,
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 in Free Grant Townships during the year ending 31st October, 1921.

Township.	District or County.	Agent.	No. of persons located.	No. of acres located.	No. of purchasers.	No. of acres sold.	No. of persons cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Baxter	Muskoka	J. B. Brown,	....	.....	...	.....	3	28¾	6	52¾
Brunel	"	Bracebridge	2	199	...	.....	3	300	1	100
Cardwell	"	"	....	.....	...	.....	1	50	1	200
Chaffey	"	"	....	.....	...	.....	....	.....	4	402
Draper	"	"	....	.....	...	.....	....	.....	...	.....
Franklin	"	"	1	104	...	.....	1	104	2	342
Freeman	"	"	1	195	1	49	....	.....	2	49½
Macaulay	"	"	2	300	...	.....	3	404	...	.....
Medora	"	"	....	.....	2	3/5	1	200	6	108½
Monck	"	"	....	.....	...	.....	....	.....	...	.....
Morrison	"	"	2	300	...	.....	1	200	2	200
Muskoka	"	"	2	300	...	.....	3	337	....	.....
McLean	"	"	....	.....	...	.....	....	.....	1	101
Oakley	"	"	4	504	...	.....	7	863	...	.....
Ridout	"	"	2	140	...	.....	1	140	1	2¾
Ryde	"	"	1	180	...	.....	4	681	3	400
Sherborne	Haliburton	"	....	.....	...	.....	1	90	...	.....
Sinclair	Muskoka	"	1	100	...	.....	1	100	6	642¾
Stephenson	"	"	....	.....	...	.....	....	.....	...	.....
Stisted	"	"	1	77	...	.....	1	77	1	104
Watt	"	"	....	.....	...	.....	....	.....	...	.....
Wood	"	"	1	151	1	47	3	314	1	192¾
Blair	Parry Sound	Miss I. M. Camp-	....	.....	...	.....	....	.....	5	59
Burpee	"	bell, Parry Sound.	....	.....	...	.....	1	99	2	297¾
Carling	"	"	3	485	...	.....	3	386	5	415
Christie	"	"	3	384	...	.....	3	582	1	188
Conger	"	"	....	.....	...	.....	1	166	2	60½
Cowper	"	"	....	.....	...	.....	....	.....	9	69
Foley	"	"	....	.....	...	.....	....	.....	...	.....
Ferguson	"	"	1	135	...	.....	2	400	1	200
Hagerman	"	"	1	98½	...	.....	1	200	...	.....
Harrison	"	"	....	.....	1	2	....	.....	15	128
Henvey	"	"	3	400	...	.....	1	200	...	.....
Humphrey	"	"	....	.....	1	93	2	283	1	181
McConkey	"	"	4	541	...	.....	1	200	2	397
McDougall	"	"	1	100	...	.....	1	191	...	.....
McKellar	"	"	3	300	...	.....	....	.....	...	.....
McKenzie	"	"	....	.....	1	45	1	45	4	87
Monteith	"	"	2	267	...	.....	5	683	2	649
Shawanaga	"	"	....	.....	...	.....	....	.....	1	1⁹⁄₁₀₀
Wilson	"	"	6	900	...	.....	2	300	2	345
Chapman	Parry Sound	Dr. J. S. Freeborn,	2	382	1	100	3	364	2	400
Croft	"	Magnetawan	7	700	...	.....	4	500	1	100
Ferrie	"	"	1	100	...	.....	1	100	....	.....
Gurd	"	"	2	314	...	.....	....	.....	1	100
Lount	"	"	2	387	...	.....	4	589	....	.....
Machar	"	"	2	198	...	.....	1	99	1	140
Mills	"	"	7	1,296	1	25	1	290	2	107
Pringle	"	"	7	880	...	.....	4	582	1	200
Ryerson	"	"	2	300	...	.....	2	300	1	200
Spence	"	"	7	853	1	50½	6	703	2	400
Strong	"	"	1	100	...	.....	....	.....	...	.....

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 pers1ns cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Armour	Parry Sound	David Thaw,	1	100	...	.....	1	103	2	193
Bethune	"	Emsdale	2	200	...	.....	3	594	1	58
Joly	"	"	15	2,127	...	.....	7	1,004	5	722
McMurrich	"	"	1	103	...	.....	3	404	....	.....
Perry	"	"	....	.....	...	.....	....	.....	....	.....
Proudfoot	"	"	....	.....	...	.....	....	.....	1	113
Hardy	Parry Sound	H. J. Ellis,	9	1,732	1	2	2	300	1	200
Himsworth	"	Powassan	5	599	...	.....	6	600	1	32
Laurier	"	"	3	254	1	5	1	100	3	296 28/100
Nipissing	"	"	1	100	...	.....	1	200	2	200
Patterson	"	"	....	.....	...	.....	....	.....	2	6
Bonfield	Nipissing	W. J. Parsons,	13	1,822	2	24½	7	797	3	402½
Boulter	"	North Bay	4	504	1	2	....	.....	1	201
Chisholm	"	"	4	581	...	.....	1	203	3	394
Ferris	"	"	4	400	1	50	7	686	6	599
Anson	Haliburton	R. H. Baker,	1	96	...	.....	1	96	1	100
Glamorgan	"	Minden	2	167	1	90	1	99	1	3
Hindon	"	"	....	.....	...	.....	....	.....	....	.....
Lutterworth	"	"	....	.....	...	.....	....	.....	1	85
Minden	"	"	....	.....	...	.....	1	88	3	294
Snowdon	"	"	1	136	...	.....	1	100	3	486
Stanhope	"	"	1	98	...	.....	1	20	2	200
Anstruther	Peterborough	William Hales,	1	137	...	.....	3	507	....	.....
Burleigh, N.D.	"	Apsley	3	298	...	.....	....	.....	....	.....
" S.D.	"	"	....	.....	...	.....	....	.....	....	.....
Chandos	"	"	3	307	...	.....	2	200	2	60/100
Methuen	"	"	....	.....	...	.....	1	125	....	.....
Cardiff	Haliburton	A. N. Wilson,	1	200	...	.....	2	371	2	105
Cavendish	Peterborough	Kinmount	2	190	1	4	1	88	4	119 30/100
Galway	"	"	5	572	...	.....	5	533	2	203
Monmouth	Haliburton	"	3	292	...	.....	5	586	4	497
Bangor	Hastings	W. J. Douglas,	2	230	...	.....	3	294	1	101
Carlow	"	Maynooth	1	88	...	.....	....	.....	3	448
Cashel	"	"	....	.....	...	.....	....	.....	1	100
Dungannon	"	"	....	.....	...	.....	2	286	2	312
Faraday	"	"	7	879	...	.....	7	782	3	396½
Herschel	"	"	6	650	...	.....	6	750	1	100
Limerick	"	"	....	.....	1	59	1	95	....	.....
Mayo	"	"	5	369	...	.....	2	249	1	194
Monteagle	"	"	1	52	2	101	....	.....	2	251½
McClure	"	"	....	.....	...	.....	....	.....	3	222½
Wicklow	"	"	2	100	...	.....	1	95	3	571
Wollaston	"	"	2	200	...	.....	....	.....	1	100
Algona, S.	Renfrew	Frank Blank,	....	.....	...	.....	1	100	1	100
Brougham	"	Wilno	....	.....	...	.....	1	91	....	.....
Brudenell	"	"	....	.....	...	.....	2	228	3	287
Burns	"	"	....	.....	...	.....	1	100	1	182
Grattan	"	"	....	.....	...	.....	....	.....	2	402
Griffith	"	"	....	.....	...	.....	....	.....	1	100
Hagarty	"	"	1	79	...	.....	1	100	....	.....
Jones	"	"	4	346½	...	.....	1	182	1	49
Lyell	"	"	2	100	...	.....	1	200	1	7
Lyndoch	"	"	6	607	...	.....	1	50½	6	798½

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patanted
Matawatchan	Parry Sound	Frank Blank, Wilno	3	313	...	.....	2	230	5	1,766
Radcliffe	"	"	6	932	...	.....	5	671	1	100
Raglan	"	"	5	598	1	48	2	251	4	380
Richards	"	"	6	555	...	.....	6	663	2	67
Sebastopol	"	"	...	.....	...	.....	...	.....	3	381
Sherwood	"	"	7	892	1	100	7	765	2	250
Algona, N.	Renfrew	Finlay Watt,	2	309	...	.....	1	100	2	309½
Alice	"	Pembroke	...	.....	...	.....	...	.....	3	186
Buchanan	"	"	2	331	...	.....	2	368	9	1,490
Clara	"	"	2	257	...	.....	1	257	1	181
Fraser	"	"	1	100	...	.....	...	.....	...	.....
Head	"	"	...	.....	...	.....	...	.....	1	100
Maria	"	"	...	.....	...	.....	...	.....	...	.....
McKay	"	"	...	.....	...	.....	...	.....	...	.....
Petawawa	"	"	...	.....	...	.....	...	.....	2	148¾
Rolph	"	"	...	.....	...	.....	...	.....	1	56
Wilberforce	"	"	...	.....	1	100	1	100	1	100
Wylie (pt.)	"	"	...	.....	...	.....	...	.....	1	98¾
Calvin	Nipissing	Robert Small,	1	100	...	.....	1	100	1	200
Cameron (pt.)	"	Mattawa	6	602	...	.....	2	202	1	135
Lauder	"	"	3	520	...	.....	2	310	1	2
Mattawan	"	"	8	978	...	.....	4	487	1	101
Papineau	"	"	11	1,250	...	.....	7	800	1	100
Korah	Algoma	Thos. Dean,	1	80	...	.....	...	.....	1	80
Parke	"	Sault Ste. Marie	...	.....	...	.....	...	.....	...	.....
Prince	"	"	...	.....	...	.....	1	160	3	480
Aberdeen	Algoma	Thos. Dodds,	...	.....	1	161	1	163¾	3	329½
" ad	"	Thessalon	3	319½	...	.....	2	320	...	.....
Galbraith	"	"	2	305½	...	.....	2	305½	2	198
Lefroy	"	"	...	.....	1	33	...	.....	...	.....
Plummer	"	"	...	.....	...	.....	...	.....	...	.....
" ad	"	"	...	.....	...	.....	...	.....	...	.....
St. Joseph Is'd.	Algoma	W. E. Whybourne,	8	778	...	.....	7	778	1	99
St. Joseph Channel Is'd.	"	Marksville	...	.....	1	10	...	.....	1	10
Baldwin	Sudbury	Edward Arthurs,	6	964½	...	.....	6	971½	...	.....
Merritt	"	Espanola	13	1,747½	...	.....	2	322	6	310½
Blake	Thunder Bay	J. A. Oliver (acting)	10	1,600	...	.....	10	1,546	2	240
Conmee	"	Port Arthur	5	503	1	1	12	1,612½	11	1,655¼
Crooks	"	"	2	318	...	.....	5	763½	10	1,381
Dawson Road	"	"	6	562	1	1	15	1,688	4	167½
Dorion	"	"	1	160	...	.....	2	277¾	3	487½
Gillies	"	"	1	79	...	.....	2	159¾	2	241½
Gorham	"	"	8	1,312½	3	255	7	1,109½	18	2,770¼
Lybster	"	"	3	240	1	166	1	160½	7	837½
Marks	"	"	4	624½	...	.....	2	300	2	317½
McGregor	"	"	3	482	...	.....	6	1,079	4	838
McIntyre	"	"	...	.....	...	.....	...	.....	...	.....
O'Connor	"	"	2	323	...	.....	1	161	4	740½
Oliver	"	"	2	318	...	.....	4	640	2	267½
Paipoonge, N.R.	"	"	...	.....	...	.....	...	.....	1	90
" S.R.	"	"	...	.....	...	.....	...	.....	1	100
Pardee	"	"	3	502	1	39¼	3	400	...	.....
Pearson	"	"	9	1,365½	...	.....	24	3,745½	5	821½

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Scoble	Thunder Bay.	J.A.Oliver, (acting)	9	1,447½	1	77½	17	2,607½	5	771
Stirling	"	Port Arthur	24	3,246¼	4	381¼	17	2,279	2	231¾
Strange	"	"	1	163	1	149	1	159	2	320½
Ware	"	"	11	1,588	4	447¼	10	1,398	17	2,499½
Atwood	Rainy River	Wm. Cameron,	....	.....	...	.....	....	.....	....	.....
Blue	"	Stratton	10	1,087½	...	.....	10	1,334	3	366½
Curran	"	"	2	322	...	.....	2	322	....	.....
Dewart	"	"	15	2,098¾	...	.....	10	1,567½	....	.....
Dilke	"	"	1	80	...	.....	1	80	2	320
Morley	"	"	2	244½	1	4	3	324½	....	.....
Morson	"	"	11	1,564½	4	352	19	2,865½	....	.....
McCrosson	"	"	6	597¾	1	80	7	989½	....	.....
Nelles	"	"	10	1,419½	...	.....	17	2,261½	2	162
Patullo	"	"	11	1,527	1	2	13	1,694	4	566
Pratt	"	"	2	283	...	.....	2	339½	2	339½
Roseberry	"	"	....	.....	...	.....	....	.....	....	.....
Shenston	"	"	1	160	...	.....	2	241	1	127
Sifton	"	"	10	1,556½	2	160	9	1,574	3	319½
Spohn	"	"	6	785	...	.....	11	1,427½	2	158½
Sutherland	"	"	14	2,188¾	1	39¾	12	1,878½	2	248½
Tait	"	"	6	629	3	243	7	881	4	545
Tovell	"	"	4	657	2	199	3	480	1	78¼
Worthington	"	"	....	.....	...	.....	....	.....	....	.....
Aylesworth	Rainy River	Alex. McFayden,	....	.....	...	.....	1	81	....	.....
Barwick	"	Emo	....	.....	...	.....	....	.....	....	.....
Burriss	"	"	1	200½	...	.....	1	200½	4	670½
Carpenter	"	"	3	534	...	.....	4	555½	2	318½
Crozier	"	"	1	40½	...	.....	3	362½	....	.....
Dance	"	"	4	676	...	.....	3	515	1	159½
Devlin	"	"	1	162	...	.....	1	164	3	368½
Dobie	"	"	3	409½	...	.....	1	160½	4	580
Fleming	"	"	2	320½	...	.....	1	160	....	.....
Kingsford	"	"	9	1,380½	...	.....	11	1,673	4	583
Lash	"	"	3	285	...	.....	2	204	1	160
Mather	"	"	3	414¼	...	.....	1	159	4	664
Miscampbell	"	"	....	.....	...	.....	....	.....	1	159½
Potts	"	"	4	596	...	.....	5	757½	1	120
Richardson	"	"	1	160½	1	88	2	356	2	367
Roddick	"	"	....	.....	...	.....	....	.....	....	.....
Woodyatt	"	"	....	.....	...	.....	....	.....	5	704
Aubrey	Kenora	J. E. Gibson,	21	2,888½	...	.....	10	1,341½	5	537¼
Britton	"	Dryden	7	1,023	...	.....	2	225	1	160
Eton	"	"	25	3,907½	1	80	7	989½	1	157
Langton	"	"	1	160	...	.....	3	485	1	3
Melgund	"	"	12	1,750½	1	167½	7	836	2	312½
Mutrie	"	"	4	541½	...	.....	4	603	....	.....
Redvers	"	"	2	283½	...	.....	3	437	2	429¾
Rowell	"	"	2	195	...	.....	....	.....	1	120
Rugby	"	"	16	2,559	...	.....	6	880	....	.....
Sanford	"	"	27	4,184¼	...	.....	9	1,435½	7	1,039½
Southworth	"	"	8	1,200	...	.....	2	293	....	.....
Temple	"	"	5	704	...	.....	3	444	1	160
Van Horne	"	"	....	.....	...	.....	1	116	3	543¼
Wabigoon	"	"	18	2,482¾	...	.....	9	1,385	1	67½
Wainwright	"	"	8	1,037½	1	27	4	554¾	3	272
Zealand	"	"	19	2,461¼	1	76	20	3,019	1	162

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 persons cancelled	No. of acres resumed	No. of potents issued	No. of acres patented
Melick	Kenora	H. E. Holland,	24	3,859	1	80	5	824	1	70
Pellatt	"	Kenora	6	964	...	...	4	481½	4	479
Balfour	Sudbury	J. K. MacLennan,	...	...	...	...	...	...	...	...
Blezard	"	Sudbury	2	323	...	...	...	...	2	154¾
Broder	"	"	...	...	...	...	1	149	...	...
Capreol	"	"	3	394¾	...	...	6	794¾	1	40
Chapleau	"	"	...	...	...	...	...	...	1	685
Dill	"	"	3	471½	...	...	2	293	2	235½
Garson	"	"	...	...	...	...	1	150	1	162
Hanmer	"	"	5	624¾	...	...	4	598¾	...	...
Lumsden	"	"	2	319½	...	...	1	160	1	80
Morgan	"	"	1	74½	...	...	...	...	2	154¾
Neelon	"	"	...	...	...	...	...	...	2	180 5/100
Rayside	"	"	1	160	...	...	1	160	1	160
Appelby	Sudbury	John Brown,	12	1,789½	...	...	5	721	3	404
Casimir	"	Markstay	5	738	...	...	2	318½	1	159½
Dunnet	"	"	4	641	...	...	1	160	4	606½
Hagar	"	"	24	3,713½	...	...	13	1,989	...	...
Jennings	"	"	5	717	...	...	2	315	1	161½
Kirkpatrick	"	"	1	157½	...	...	...	...	2	234½
Ratter	"	"	5	789	...	...	3	448½	1	105
Caldwell	Nipissing	J. A. Philion,	2	424½	...	...	3	637	4	544½
Cosby	"	Sturgeon Falls	4	593	...	...	...	...	1	160
Grant	"	"	3	396½	...	...	1	76½	...	...
Macpherson	"	"	3	454	...	...	1	160	...	...
Martland	"	"	5	663	...	...	4	597½	5	716½
Springer	"	"	1	160	...	...	2	406	3	275
Abinger	Lennox and Addington	Charles Both,	2	176	...	...	3	400	...	...
Canonto, S.	Frontenac	Denbigh	1	73	...	...	...	...	...	...
" N.	"	"	1	40	...	...	...	...	...	...
Clarendon	"	"	...	...	...	...	1	105	1	100
Denbigh	Lennox and Addington	"	2	189	...	...	...	...	...	...
Miller (pt.)	"	"	2	184	...	...	...	...	1	100
Palmerston	"	"	...	...	...	...	...	...	2	317
McClintock	Haliburton	Unattached	...	...	...	...	...	...	...	...
Airy	Nipissing	"	4	398	...	...	1	92	2	507½
Finlayson	"	"	...	...	1	48	...	...	2	48½
Murchison	"	"	1	46	...	...	...	...	1	267
Sabine	"	"	2	194	...	...	1	100	5	692
O'Brien	Temiskaming	"	...	...	52	4,652	54	4,865	...	...
Owens	"	"	...	...	14	1,185	4	290	...	...
Williamson	"	"	...	...	...	...	...	...	...	...
			868	118,637¾	132	10202 1/10	761	102,913¼	500	60,180⅖

No. of lots assigned ..... 253 No. of acres assigned 33,324¼

List showing number of locations by Returned Soldiers in Sale and Free Grant Territory, respectively, and number where arrears due Crown were remitted.

District.	Agency.	Number locations.	No. of arrears remitted.	Total
	In Sale Territory.			
Algoma	Hearst	58	1	
"	Unattached	1	..	
Temiskaming	Englehart	21	8	
"	Cochrane	107	..	
"	Elk Lake	1	..	
"	Haileybury	1	..	
"	Matheson	34	..	
"	New Liskeard	3	..	
"	Hearst	2	..	
"	Unattached	5	..	
Sudbury	Massey	10	1	
"	Unattached	1	..	
Nipissing	North Bay	3	..	
		247	10	257
	In Free Grant Territory.			
Sudbury	Unattached	52		
Temiskaming	"	2		
Algoma	Marksville	1		
		55		55

Statement showing number of lots resumed for non-performance of settlement duties by, or on behalf of Returned Soldiers.

		No. of lots	Total
	In Sale Territory.		
Temiskaming	Unattached	3	
"	Cochrane	11	
"	New Liskeard	1	
"	Englehart	2	
"	Matheson	2	
Algoma	Hearst	11	
Thunder Bay	Unattached	1	
			31
	In Free Grant Territory.		
Temiskaming	Unattached	3	
Rainy River	Stratton	2	
Thunder Bay	Port Arthur	1	
			6
		37	37

Appendix No. 13—Continued

ISLANDS SOLD.

Part or Parcel.	Township.	District or County	Agent.	No. of Acres Sold.
B 278	Conger	Parry Sound	Miss I. M. Campbell	4.30
Pt. 30a	Harrison	"	"	12.
Pt. 358a	"	"	"	.30
Pt. 265c	Carling	"	"	.50
Pt. B 715	Cowper	"	"	11.
75a	Shawanaga	"	"	.12
B 503	Cowper	"	"	1.
B 477	"	"	"	41.
B 501a	"	"	"	1.1
Bob Island	Medora	Muskoka	J. B. Brown	.10
Eleanor Island	"	"	"	.12
Pt. 300c	Carling	Parry Sound	Miss I. M. Campbell	14.
Leslie Island	Medora	Muskoka	J. B. Brown	.29
Island B	Cowper	Parry Sound	Miss I. M. Campbell	4.20
Bedford Island	St. Joseph's Channel	Algoma	W. E. Whybourne	10.
Pt. No. 133	Patterson	Parry Sound	H. J. Ellis	5.
Pt. No. 133	"	"	"	1.
Pt. B 509	Cowper	"	Miss I. M. Campbell	.50
Pt. B 369	Conger	"	"	56.
Pt. C 270	Carling	"	"	.66
Wright Island	Finlayson	Nipissing	Unattached	.29
Pt. 15a	Harrison	Parry Sound	Miss I. M. Campbell	6.6
Pt. 782a	"	"	"	5.45
Pt. 11a	"	"	"	6.
Island B	Cowper	"	"	1.1
Big Island	Chandos	Peterboro	Wm. Hales	.37
Hawk Island	"	"	"	.23
B 485	Cowper	Parry Sound	Miss I. M. Campbell	3.1
Pt. Island 27a	Harrison	"	"	21.
Pt. Island 22	Langton	Kenora	J. E. Gibson	3.1
				209.55

Appendix No. 13—Concluded

ISLANDS PATENTED.

Part or Parcel.	Township.	District or County.	Agent and P.O. Address.	No. of Acres Patented.
Island opp. Lot 20, Con. 7	Baxter	Muskoka	J. B. Brown, Bracebridge	5.
Island 358a	Harrison	Parry Sound	Miss I. M. Campbell, Parry Sound	.30
Island B 715	Cowper	"	Miss I. M. Campbell, Parry Sound	11.
Island 75a	Shawanaga	"	Miss I. M. Campbell, Parry Sound	.12
Miller Island	Mowat (in front of)	"	Miss I. M. Campbell, Parry Sound	18.
Pt. Franklin Isld.	Carling	"	Miss I. M. Campbell, Parry Sound	14.
Lister Island	Medora	Muskoka	J. B. Brown, Bracebridge	.29
Island B 404	Cowper	Parry Sound	Miss I. M. Campbell,	4.20
Island 17	St. Joseph Channel	Algoma	W. E. Whybourne, Marksville	10.
Island B	Cowper	Parry Sound	Miss I. M. Campbell, Parry Sound	.50
Island 270	Carling	"	Miss I. M. Campbell, Parry Sound	.5
Wright Island	Finlayson	Nipissing	Unattached	.29
Island opp. Lot 20 in 2	Cavendish	Peterboro	A. N. Wilson, Kinmount	5.6
Island 782a	Harrison	Parry Sound	Miss I. M. Campbell, Parry Sound	5.45
Island, Parcel of 11a	"	"	Miss I. M. Campbell, Parry Sound	6.
Island B 474	Cowper	"	Miss I. M. Campbell, Parry Sound	1.1
Hawk Island	Chandos	Peterboro	Wm. Hales, Apsley	.23
Big Island	"	"	" "	.37
B 485	Cowper	Parry Sound	Miss I. M. Campbell, Parry Sound	3.1
Pt. of 26a	Harrison	"	Miss I. M. Campbell, Parry Sound	6.
Parcel 5 of Isld. A	"	"	Miss I. M. Campbell, Parry Sound	21.
Island in Lake	Minden	Haliburton	R. H. Baker, Minden	7.4
Island 22 in Eagle Lake	Langton	Kenora	J. E. Gibson, Kenora	3.1
Island B	Merritt	Sudbury	E. Arthurs, Espanola	7.
Island opp. Lot 1 in 12, Medora	Freeman and Medora	Muskoka	J. B. Brown, Bracebridge	.66
Island A	Merritt	Sudbury	E. Arthurs, Espanola	1.
Island 347a	Harrison	Parry Sound	Miss I. M. Campbell, Parry Sound	20.
Island 34a	"	"	Miss I. M. Campbell, Parry Sound	.62
Island W.S. 86	Pickerel River	"	Miss I. M. Campbell, Parry Sound	3.66
Island W.D. in McLeod's Bay	Springer	Nipissing	J. A. Philion, Sturgeon Falls	.5
				154.92

W. R. LEDGER,
Free Grants Clerk.
SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. 14.

Statement showing the number of purchasers, acres sold, sales cancelled, acres resumed, patents issued, and acres patented in Townships other than Free Grant during the year ending 31st October, 1921.

Township	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Machin	Temiskaming	S. J. Dempsay, Cochrane	6,014.	43	1	150.	....	.....
Blount	"	"	402.	3	4	553.	....	.....
Shackleton	"	"	7,854.	55	3	478.	....	.....
Brower	"	"	1,084.50	7	18	2,822.	....	.....
Pyne	"	"	1,456.	9	3	481.50	....	.....
Newmarket	"	"	3,039.	19	7	1,053.50	1	157.
Fauquier	"	"	2,864.	20	5	700.	3	319.
Fox	"	"	4,872.	31	11	1,765.	....	.....
Clute	"	"	2,664.	18	20	2,996.	7	1,049.
Kennedy	"	"	1,182.	8	12	1,790.	....	.....
Calder	"	"	4,935.	33	11	1,633.	1	150.
Glackmeyer	"	"	846.	6	16	2,402.	4	439.
Fournier	"	"	1,075.50	7	8	1,229.50	1	148.
Leitch	"	"	1.589.	11	5	744.	3	111.
Colquhoun	"	"	.....	.....	.....	.....	.....	.....
Lamarche	"	"	481.	3	8	1,286.50	4	641.
Bayley	Temiskaming	Jos. Woollings, Englehart	.....	.....	.....	.....	.....	.....
Blain	"	"	162.50	1	.....	.....	.....	.....
Catharine	"	"	.....	.....	2	320.	4	398.50
Chamberlain	"	"	.....	.....	1	160.	1	93.
Dack	"	"	159.	1	.....	.....	3	369.
Davidson	"	"	.....	.....	.....	.....	.....	.....
Eby	"	"	164.04	2	.....	.....	6	164.50
Evanturel	"	"	.....	.....	1	160.	2	318.50
Gross	"	"	446.50	3	1	127.50	2	74.50
Ingram	"	"	160.	1	3	481.	1	161.
Marter	"	"	160.	1	4	641.50	2	319.50
Marquis	"	"	629.	4	2	318.50	2	319.
Otto	"	"	318.50	2	1	155.	1	40.
Pacaud	"	"	160.	1	4	640.	3	381.75
Pense	"	"	159.	1	2	318.	....	.....
Robillard	"	"	160.	1	2	320.	4	640.
Savard	"	"	320.50	2	7	1,120.50	3	479.
Sharpe	"	"	128.	1	1	128.	2	261.
Truax	"	"	158.50	1	.....	.....	....	.....
Smyth	Temiskaming	Mark Morgan, Elk Lake	.....	.....	.....	.....	....	.....
Lorrain	Temiskaming	Neil J. McAulay Haileybury	160.	1	.....	.....	6	713.
Beatty	Temiskaming	J. E. Mills, Matheson	160.	1	2	321.	2	324.50
Benoit	"	"	1,125.	7	8	1,175.25	10	432¼
Bond	"	"	1,443.	10	8	1,259.	1	154.
Bowman	"	"	154.	1	1	154.	1	159.50
Calvert	"	"	318.	2	2	319.	3	357.25
Carr	"	"	.....	.....	.....	.....	4	632.
Clergue	"	"	642.	4	4	640.	....	.....
Currie	"	"	796.50	5	8	1,282.	....	.....
Dundonald	"	"	1,187.	7	6	823.	....	.....

Appendix No. 14—Continued

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Evelyn	Temiskaming	J. E. Mills,	.....	.....	.....	.....	.....	.....
German	"	Matheson	.....	.....	.....	.....	1	136.
Hislop	"	"	1,025.	7	4	797.50	3	476.
Matheson	"	"	1,440.50	9	11	1,760.	2	172.
Mountjoy	"	"	1,119.	8	8	1,240.	1	.88
McCart	"	"	793.	5	5	798.	1	160.
Playfair	"	"	794.50	5	1	159.50	5	550
Stock	"	"	789.	5	11	1,741.50	.....	.....
Taylor	"	"	647.50	4	4	646.	5	800.72
Walker	"	"	137.	1	1	137.	1	156.
Armstrong	"	J. W. Bolger, New Liskeard	80.	1	.....	.....	4	640.50
Auld	"	"	.....	.....	2	315.50	3	79.75
Beauchamp	"	"	317.	2	2	319.	1	160.
Brethour	"	"	261.50	2	3	480.50	3	440.50
Bryce	"	"	479.	3	3	479.50	1	160.
Bucke	"	"	.....	.....	.....	.....	.....	.....
Cane	"	"	154.	1	2	326.	7	639.50
Casey	"	"	.....	.....	.....	.....	5	735.75
Dymond	"	"	.....	.....	.....	.....	1	80.
Firstbrook	"	"	162.50	1	3	475.50	2	322.
Harley	"	"	.....	.....	.....	.....	5	590.
Harris	"	"	.....	.....	.....	.....	3	243.
Henwood	"	"	.....	.....	1	162.50	2	316.50
Hilliard	"	"	323.	2	.....	.....	5	715.50
Hudson	"	"	293.	2	4	530.	1	162.50
Kerns	"	"	.....	.....	.....	.....	2	380.
Lundy	"	"	.....	.....	1	160.	.....	.....
Tudhope	"	"	.....	.....	2	322.	4	155.
Casgrain	Algoma	J. L. O'Donnell, Hearst	3,850.	26	17	2,606.	1	151.
Eilber	"	"	5,507.	36	12	1,787.	.....	.....
Hanlan	"	"	8,981.	60	30	4,499.	1	167.
Kendall	"	"	8,654.	58	26	3,842.	2	232.
Lowther	"	"	10,084.	68	19	2,791.	.....	.....
Forbes	Thunder Bay	J. A. Oliver, (acting) Port Arthur	1,455.50	9	3	508.	2	264.
Lyon	"	"	426.	3	1	161.	4	580.30
Nepigon	"	"	160.	1	.....	.....	3	459.78
Mason	Nipissing	J. A. Philion, Sturgeon Falls	.....	.....	.....	.....	3	315.90
Scollard	"	"	83.	1	.....	.....	2	2.44
Hugel	Nipissing	John Brown, Markstay	320.	2	.....	.....	3	335.25
Widdifield	Nipissing	W. J. Parsons, North Bay	1,282.	8	7	1,119.50	8	754.
Badgerow	Nipissing	Unattached	326.	2	.....	.....	4	594.
Crerar	"	"	469.	3	.....	.....	3	466.50
Falconer	"	"	.....	.....	.....	.....	1	169.
Field	"	"	160.50	1	.....	.....	2	135.
Gibbons	"	"	.....	.....	.....	.....	7	866.50
Loudon	"	"	161.50	1	.....	.....	1	161.50

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of purchasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Awrey	Sudbury	R. A. Teasdale, Massey	160.	1				
Hallam	"	"	124.50	1			1	170.50
Harrow	"	"	421.	3			1	137.
May	"	"	459.50	3			2	238.50
Salter	"	"						
Shedden	"	"					1	160.
Victoria	"	"						
Dowling	Sudbury	J. K. McLennan Sudbury	167.50	1			1	138.21
McKim	"	"	160.	1			3	129.23
Loughrin	"	"	177.	1				
Cody	Temiskaming	Unattached	159.50	1			4	2.70
Maisonville	"	"					19	720.50
Owens	"	"	100.	1				
O'Brien	"	"	1,592.	17	2	213.		
Gough	Sudbury	Unattached	85.50	2				
Bigwood	"	"	803.	5				
Burwash	"	"						
Creighton	"	"					5	199.
Delamere	"	"						
Dennison	"	"						
Drury	"	"						
Dryden	"	"						
Falconbridge	"	"						
Foleyet	"	"					2	409.23
Graham	"	"	.70	1			2	1.06
Lorne	"	"	315.50	2			2	80.84
Louise	"	"	364.	3			5	523.
McKinnon	"	"						
MacLennan	"	"					2	42.20
Shakespeare	"	"	244.	2			2	61.50
Snider	"	"					2	10.74
Waters	"	"	177.	1			2	120.
Drayton	Kenora	S. H. Holland, Kenora	144.	1				
Dummer	Peterborough	Unattached			1	100.		
Bright	Algoma	Thos. Dodds, Thessalon	160.	1				
Bright Ad.	"	"						
Day	"	"						
Gladstone	"	"					4	501.
Gould	"	"						
Haughton	"	"						
Johnson	"	"	160.50	1			2	40.
Kirkwood	"	"						
Parkinson	"	"	80.	1	1	160.	2	318.50
Patton	"	"			1	157.50	1	158.
Rose	"	"					1	160.
Striker	"	"			1	160.		
Thompson	"	"						
Wells	"	"						
Aweres	Algoma	Thos. Dean, Sault Ste. Marie					1	153.

Appendix No. 14—Continued

Township	District or County	Agent.	No. of acres sold	No. of purchasers	No. of sales cancelled	No. of acres resumed	No. of patrnts issued	No. of acres patented
Tarentorus	"	Thos. Dean					1	160.
Vankoughnet	"	Sault St. Marie	302.	2				
Jaffray	Kenora	Unattached					1	60.50
Malachi	"	"						
Umbach	"	"	160.	1				
Matchedash	Simcoe	Unattached	14.	2	1	60.	5	33.84
Rama	Ontario	Unattached	50.	1			1	50.
Carden	Victoria	Unattached						
Digby	"	"	104.	1				
Laxton	"	"						
Somerville	"	"	167.	2	1	159.	1	100.
Ashby	Lennox and Addington	Unattached	100.	1			4	222.
Denbigh	"	"						
Sheffield	"	"					3	482.50
Admaston	Renfrew	Unattached	200.	2			4	400.
Bagot	"	"	285.	2	1	100.	2	200.
Blithfield	"	"					3	363.
Bromley	"	"			1	100.	4	295.
Horton	"	"					2	202.
McNabb	"	"			1	100.	1	100.
Westmeath	"	"					1	80.
Tudor	Hastings	Unattached			1	99.		
Beckwith	Lanark	Unattached						
Dalhousie	"	"	100.	1			2	290.
Darling	"	"					2	130.
Pakenham	"	"						
Lanark	"	"						
Sherbrooke N.	"	"						
Malden	Essex, S.	Unattached	13.42	1	1	6.	1	14.55
			107,914.03	736	398	60,525.25	307	31,390.87

Appendix No. 14—Concluded.

Statement showing the number of purchasers, acres sold and of patents issued in Townsites during the year ending 31st October, 1921.

Townsite.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of patents issued.	No. of acres patented.
Capreol	Sudbury	Unattached	2.20	16	2	.27
Gogama	"	"	1.27	12	....	.....
Frederickhouse	"	"	.10	1	3	.21
Alexander	Temiskaming	Unattached	1.50	5	2	.50
Kirkland Lake	"	"	1.10	11	5	.33
Hearst	Algoma	Unattached	6.25	25	3	.75
Missinabie	"	"	3.57	20	....	.....
Macfarlane	Kenora	Unattached	.76	2	2	.93
Minaki	"	"	.23	1	....	.....
Petawawa	Renfrew	Unattached	11.03	1	3	22.40
Trenton	Hastings	Unattached	.66	1	1	.66
Shrewsbury	Kent	Unattached	20.	1	3	22
Grant	Thunder Bay	Unattached	1.02	6	6	1.20
			49.69	120	30	49.25
ISLANDS SOLD.						
Cody	Temiskaming	Unattached	.....	....	....	.....
H 2 in Night Hawk Lake	"	"	.10	1	1	.10
H 3 " " "	"	"	.10	1	1	.10
H16 " " "	"	"	1.50	1	2	2.50
X South Crosby	Leeds	"	.05	1	2	.85
Allen Island (42)	Sudbury	"	31.50	1	1	31.50
		Total	33.5	5	7	33¼

Number of lots assigned..... 314 Number of acres assigned..... 44,637

SELBY DRAPER, Chief Clerk.
J. E. DRINKWATER, Clerk of Sales.

W. C. CAIN,
Deputy Minister.

Appendix No. 15.

HONOURABLE BENIAH BOWMAN,
Minister of Lands and Forests,

REPORT ON CROWN SURVEYS.

SIR,—The nature and extent of the surveys carried on during the past year under instructions from this Department may be briefly described as follows:

BASE AND MERIDIAN LINES.

Phillips and Benner, Ontario Land Surveyors, of Port Arthur, and K. G. Ross, Ontario Land Surveyor, of Sault Ste. Marie, were charged with the running of certain base and meridian lines in the territory lying west of the Nepigon Forest Reserve, District of Thunder Bay. The extent of this work is approximately 200 miles, and the reports will disclose the physical features of the large unexplored area to the east of the Lake Superior Branch and south of the Transcontinental line of the Canadian National Railway. A meridian line is run through this territory along or near to the divide between Lake Nepigon and Sturgeon Lake waters and intersects the Canadian National Railway near Allanwater.

Ontario Land Surveyors Sutcliffe and Neelands were instructed to perform a survey of a similar nature in the District of Timiskaming lying between the Abitibi and Mattagami Rivers and north of Niven's base line, in latitude 49 degrees, 35 minutes, 30 seconds north. The extent of this work was over 100 miles, and within this area is included the Great Falls on both rivers mentioned. Owing to the early extension of the Temiskaming and Northern Ontario Railway north from Cochrane, the blocking out of this area will be of great advantage in locating the railway line, also timber and land areas therein.

TOWNSHIP BOUNDARIES.

The blocking out of townships was continued in the Districts of Sudbury and Algoma in the country lying between the Canadian Pacific Railway and the Canadian Northern line of the Canadian National Railways, the extent of lines being approximately 525 miles.

H. J. Beatty, Ontario Land Surveyor, established the boundaries of several nine-mile townships in the country east of the Algoma Central and Hudson Bay Railway and north of Missinaibi Lake, in the District of Algoma.

J. W. Fitzgerald, Ontario Land Surveyor, and Speight & Van Nostrand, Ontario Land Surveyors, completed the blocking out of the six-mile townships in the north-west part of the District of Sudbury.

C. V. Gallagher, Ontario Land Surveyor, and McAuslan and Anderson, Ontario Land Surveyors, were engaged in similar work north of the Canadian Pacific Railway between Spanish Forks and Woman River Stations.

INTERPROVINCIAL BOUNDARY BETWEEN ONTARIO AND MANITOBA.

Owing to the prospecting and mining activity in the district north of the Winnipeg River, in the Province of Manitoba, and that mining claims might be staked over the interprovincial boundary line at any time, in order to prevent

possible complications it seemed advisable to provide for an early defining of the said line north from where it was terminated by the survey in 1898 at the Winnipeg River.

An Act of Parliament of Canada assented to 1st April, 1912, describes the first stretch of this interprovincial boundary as follows:

"Commencing at the most northerly point of the westerly boundary of the Province of Ontario as determined by "The Canada (Ontario Boundary) Act 1889; thence due north along the same meridian to the intersection thereof with the centre of the road allowance on the 12th base line of the system of Dominion Land Surveys."

An Order in Council approved by His Honour the Lieutenant-Governor dated 9th day of February, 1921, appointed the Director of Surveys Interprovincial Boundary Commissioner for the Province of Ontario. An order in council approved by His Excellency the Governor-General dated 26th day of February, 1921, appointed the Surveyor General Interprovincial Boundary Commissioner for the Dominion. These Orders in Council authorized the said Commissioners to take the necessary steps for proceeding with the survey.

J. W. Pierce, Ontario and Dominion Land Surveyor, of Ottawa, was instructed to take charge of the field operations and actual survey work on the ground commenced about 1st June, 1921, and continued until the middle of October.

The character of the work may best be understood by quoting some extracts from Surveyor Pierce's interim report, as follows:

"About 70 miles of line was opened out, along which 52 monuments were erected. Of these, 11 were concrete monuments, while the rest were rock bolts cemented in holes in the rock alongside of a rock pyramid 5 feet square at the base and 3 feet high. These pyramids were solidly built of suitable stone, which was roughly hewn so that they present a finished appearance. The line itself was so opened that it has a 12 foot clear sky line, and its centre on the ground was cleared as far as possible of all obstructions to careful chaining.

"The main chainage was obtained by suspending a chain between two tripods on one of which a transit was mounted for purposes of alignment and measurement of slope. A uniform tension was obtained by the use of a spring balance while temperature corrections were applied throughout. The chain used in the field was obtained at intervals with a standard which had previously been tested here in Ottawa.

"A further chainage, independent of this semi-precise method, was carried on by the use of a 300 foot chain, chainage pins, plumbobs and clinometers as a check, for the purpose of detecting errors. Distances across water were obtained by the mean of two independent triangles with apex angles of 30 degrees. After the first couple of weeks, the entire chainage, both main and check, was carried on by two chainmen, one of whom was a Land Surveyor.

"In addition to the topography obtained along the line, traverses were made as far as possible, of all the lakes that could be found within a mile of the line. That part of the work is shown on the accompanying plots and will be greatly extended by the addition of the information obtained by the geologists.

"The line passed through a well wooded country, which, except through a part south of Snowshoe Lake, has not been touched by fire. Some timber

of commercial value was encountered, although the greater portion is not large enough for that purpose. Jackpine, of course, predominates. The surface is extremely rough and irregular, with a prevailing direction of ridge and valley nearly at right angles to the line. Except in the vicinity of the mining district, there has been no summer travel here for years, so that our transportation problem was one of the most difficult of our operations. As we had little advance knowledge of the district, I endeavored to make use of Indian guides, but with only indifferent success, as these had a knowledge limited to an area they had hunted through. When once past that area, they were useless in locating new routes. We found that we had to depend on ourselves to hunt up the water areas and open out portages for the use of the transport. On account of not getting our caches properly distributed last spring, this required a great deal of labour during the summer, which at times interfered with the progress of the line clearing. Much of this may be avoided next season by having the caches placed earlier in the winter and I am hoping that this may be attended to during January and February."

Lake and River Traverse.

The traverse surveys performed by the several survey parties were as follows:

(1) Continuation of traverse of islands and shores of Lake St. Joseph, together with certain township lines adjoining in the District of Thunder Bay, by James S. Dobie, Ontario Land Surveyor.

(2) Traverse of islands and shores of French and Pickerel Rivers extending from the Canadian Pacific Railway crossing to Georgian Bay, by T. J. Patten, Ontario Land Surveyor.

(3) Continuation of traverse of Missinaibi River, by C. R. Kenny, Ontario Land Surveyor.

(4) Traverse of Kenogami River, District of Thunder Bay, by R. S. Kirkup, Ontario Land Surveyor.

(5) Survey of islands at the southern end of Lake of the Woods, by D. J. Gillon, Ontario Land Surveyor.

(6) Traverse of lakes in the Timagami Forest Reserve, districts of Timiskaming and Nipissing, by T. G. Code, Ontario Land Surveyor.

(7) Traverse of certain lakes and rivers in the townships of Wallbridge and Harrison, District of Parry Sound, by J. T. Coltham, Ontario Land Surveyor.

Timber Limit Surveys.

The centre lines dividing into east and west halves Townships Nos. 41 and 44 along the line of the Canadian Pacific Railway, in the District of Sudbury, were run under instructions from this Department by Lincoln Mooney, Ontario Land Surveyor, for the purpose of defining certain timber areas.

Timber areas in the District of Kenora, south of the Canadian Pacific Railway, near Ignace, were defined by Phillips and Benner, Ontario Land Surveyors.

A timber line was also run in the township of Penhorwood, in the District of Sudbury, by Lincoln Mooney, Ontario Land Surveyor.

Miscellaneous Surveys.

(1) The subdivision of part of the Town Site of Kapuskasing was completed by G. F. Summers, Ontario Land Surveyor. The subdivided area comprises 850 town lots with streets, boulevards and park areas.
(2) An addition to the Town Site of Hearst, consisting of blocks lettered A to U, including an extension of the several streets; this area lies south of the already subdivided portion and north of the Mattawishquia River. Survey performed by John Lanning, Ontario Land Surveyor.
(3) Resurvey of certain lines in the northern part of the township of Pardee was made as directed by Ontario Land Surveyors Bingham and Kirkup.
(4) R. M. Anderson, Ontario Land Surveyor, was instructed to establish the boundaries of Long Point Park on Lake Erie, having due regard to lands already granted by letters patent.
(5) C. E. Fitton, Ontario Land Surveyor, was instructed to make a survey of certain park lots on lots 28 and 29, concession 8, township of Wood, and prepare plan for registration.
(6) Sutcliffe and Neelands, Ontario Land Surveyors, made a survey of the line between lots 11 and 12, concession 4, township of Firstbrook, District of Timiskaming.

Inspection.

The reports by Inspector C. E. Fitton on the field work show that with one or two exceptions, the work has been well and carefully performed, and it is satisfactory to know that the placing of standard iron posts and construction of mounds and pits have received proper attention.

Detailed reports of the several surveys for which returns have been made during the year will be found in Appendices 15A to 40 inclusive.

L. V. Rorke,
Director of Surveys.

Toronto, October 31st, 1921.

Appendix No. 15-a.

Statement of Municipal Surveys confirmed during the twelve months ending October 31st., 1921.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under R. S. O. 1914, Chapter 156, Secs. 10-15, inclusive.
1	James J. MacKay.	723	April 9, 1920.	To survey the original road allowance between the 2nd and 3rd concessions of the Township of Beverley, extending from the westerly side of lot No. 31 to the easterly side of lot No. 36, and to plant stone or other durable monuments to mark the said road allowance.....	Nov. 2,1920.
2	Edward J. Raimboth.....	724	Aug. 17, 1920	To survey the concession road allowance between the 4th and 5th concessions, Ottawa front, lying between the westerly side of the side road between lots 5 and 6 and the easterly side of the side road between lots 15 and 16 on said concession road allowance, in the Township of Gloucester, and that stone or other durable monuments be placed to mark the boundary of the said road allowance.	Jan. 27, 1921.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister Lands and Forests.

Appendix No. 16.

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1921.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	Speight and vanNostrand....	726	Aug. 18, 1921	To survey the limits of Durie Street in the City of Toronto, in the County of York, and to plant stone or other durable monuments to define the limits of said street.
2	F. F. Miller.....	727	April 12, 1921	To survey the road allowance along the 8th and 9th concessions of the Township of Hinchinbrooke from the south boundary of said Township northerly to lot No. 3, and that stone or other durable monuments be placed to mark the said road allowance.
3	J. J. Newman.....	728	May 5, 1921.	To survey and mark with permanent monuments the limits of the Tecumseh Road in the County of Essex, as follows: (a) The original road allowance along the front of lots adjoining Lake St. Clair in the Township of Maidstone extending from the BelleRiver westerly to where the said Tecumseh Road leaves the allowance for road laid out in the original survey of the said Township and is not intended to follow the same. (b) Survey of the original road allowance between concessions 1 and 2 from the westerly limit of Township lot 129 to the easterly limit of the Town of Walkerville in the Township of Sandwich East. (c) Survey of the original road allowance across the Township of Anderdon through and in front of lots fronting on the Detroit River.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister Lands and Forests.

Appendix No. 17.

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1921.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
				$ c.
1	Oct. 3, 1921.	R. M. Anderson....	Retracing and establishing the boundaries of land lying between Long Point and Walsingham Township.....	200.00
2	April 15, 1921.	H. J. Beatty.....	Survey certain township outlines in the District of Algoma.....	7,650.00
3	May 16, 1921.	Jas. T. Coltham....	To traverse certain Lakes and Rivers in the Township of Wallbridge and Harrison.....	2,100.00
4	May 2, 1921.	T. G. Code.....	Traverse certain Lakes and Streams in The Timagami Forest Reserve, District of Timiskaming and Nipissing...	4,950.00
5	April 15, 1921.	James S. Dobie....	Traverse the Islands and shores of Lake St. Joseph and run certain Base and Meridian Lines in Thunder Bay District.....	7,650.00
6	May 17, 1921.	C. E. Fitton.....	Inspection of Surveys, 1921.....	2,700.00
7	April 15, 1921.	J. W. Fitzgerald....	Survey certain Township Outlines north of C. P. R. in Districts of Sudbury and Algoma.....	7,290.00
8	May 18, 1921.	D. J. Gillon.....	Survey Islands and shore lines in part of Lake of the Woods, in the Districts of Rainy River and Kenora.....	4,800.00
9	May 5, 1921.	Chas. V. Gallagher .	Survey certain Township Outlines north of the C. P. R. in the District of Sudbury.....	5,250.00
10	May 2, 1921.	Roy S. Kirkup.....	Traverse the Kenogami River and its expansions in the Districts of Thunder Bay and Algoma.....	2,550.00
11	April 22, 1921.	Carmen R. Kenny..	To continue traverse of Missinaibi River in Districts of Algoma and Timiskaming.....	3,800.00
12	Oct. 3, 1921.	L. Mooney.....	Survey a Meridian, Township 44, along C. P. R., District of Sudbury.....	300.00
13	May 6, 1921 .	McAuslan and Anderson.....	Survey certain Township Outlines north of C. P. R., District of Sudbury.....	5,900.00
14	May 16, 1921.	T. J. Patten.....	Survey Traverse Islands in French River, Districts of Parry Sound and Sudbury	3,100.00
15	April 15 ,1921.	Phillips and Benner.	Survey certain Base and Meridian Lines in District of Thunder Bay.....	7,470.00
16	Aug. 22, 1921.	Phillips and Benner.	Survey Outlines Timber Berth south of Ignace, District of Kenora.....	1,000.00
17	Mar. 7, 1921.	J. W. Pierce.....	Survey of portion of Interprovincial Boundary between Ontario and Manitoba.....	12,500.00

Appendix No. 17.—Concluded.

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1921.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
18	April 15, 1921.	K. G. Ross.....	Survey of Base and Meridian Line, District of Thunder Bay.....	6,800.00
19	April 15, 1921.	Speight and Van Nostrand.....	Survey certain Township Outlines at head waters of Missinabie River, Districts of Sudbury and Algoma.....	8,415.00
20	Nov. 4, 1920.	Bingham and Kirkup.....	Re-survey certain lines in Township of Pardee, District of Thunder Bay....	3,450.00
21	May 27, 1920.	G. F. Summers.....	To survey a townplot and other lands in the vicinity of Kapuskasing, Township of O'Brien, District of Timiskaming..	3,550.00
				$101,425.00

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 18.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1921.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
				$ c.
1	May 11, 1920.	Chas. V. Gallagher.	To survey certain Township Outlines north of C. P. R., District of Sudbury.	5,916.79
2	May 12, 1920.	M. E. Crouch.....	To survey certain Township Outlines north of C. P. R., District of Thunder Bay.....	1,760.90
3	May 18, 1920.	Phillips and Benner.	To survey Meridian Lines forming west boundary of the Nepigon Forest Reserve, District of Thunder Bay.....	2,158.75
4	May 21, 1920.	Speight and Van Nostrand.....	To survey certain Township Outlines north of C. P. R., District of Sudbury.	2,003.92
5	May 21, 1920.	J. W. Fitzgerald....	To survey certain Township Outlines north of C. P. R., District of Sudbury.	1,921,78.
6	May 12, 1920.	H. J. Beatty.....	To survey certain Township Outlines, District of Sudbury.....	1,967.53
7	May 4, 1920.	C. R. Kenny.....	To continue traverse of Missinabi Lake and River, Districts of Algoma and Sudbury.....	1,869.55
8	May 4, 1920.	T. J. Patten.....	To traverse Lake Penage Islands and other lakes and outlets in District of Sudbury.....	2,484.93
9	Aug. 24, 1920.	Sutcliffe and Neelands.....	To traverse part of the Montreal River, District of Timiskaming.....	2,147.80
10	May 17, 1920.	K. G. Ross.....	To survey a Meridian and Base Line in in the District of Patricia.....	4,215.75
11	May 4, 1920.	T. G. Code.....	To continue traverse of certain Lakes and Rivers, Districts of Sudbury and Timiskaming.....	2,250.84
12	May 5, 1920.	Bingham and Kirkup.....	Traverse certain Lakes and Rivers, District of Algoma.....	2,159.63
13	May 15, 1920.	J. S. Dobie.....	To traverse the shores of Lake St. Joseph and run certain Base and Meridian Lines in the District of Patricia.....	2,872.82
14	May 12, 1920.	A. C. Young.....	To survey certain Township Outlines north of C. P. R. District of Sudbury.	1,895.15
15	May 11, 1920.	McAuslan and Anderson.....	To survey certain Township Outlines north of C. P. R., District of Sudbury.	1,359.38
16	May 27, 1921.	John Lanning.....	Survey additional Townplot Hearst.....	867.80
17	May 6, 1921.	Sutcliffe and Neelands.....	Survey certain Meridian and Base Lines, District of Timiskaming.....	10,076.30

Appendix No. 18.—Concluded.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1921.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid
18	Aug. 24, 1921.	L. Mooney.....	Survey Meridian Line in Township No. 41 along C. P. R., District of Sudbury.	602.80
19	Nov. 14, 1920.	C. E. Fitton.....	Inspection of Surveys for 1920.....	2,003.71
20	Feb. 28, 1920.	J. S. Dobie.....	To survey Kaskaweogama Lake and Island Lake.....	1,072.75
21	May 1, 1919.	G. L. Ramsay.....	To survey Base and Meridian Lines, District of Thunder Bay.....	2,056.50
22	Dec. 16, 1920.	Sutcliffe and Neelands.....	Survey in Township of Firstbrook between lots 11 and 12 in the 4th concession.....	41.25
23	Dec. 16, 1920.	L. Mooney.....	To run a line in Township of Penhorwood, District of Sudbury.....	1,184.10
24		C. E. Fitton.....	Survey of lots 28 and 29, concession 8, Township of Wood.....	446.10
25	.....	.....	Reid and Brown—Surveyors' Posts.....	908.16
				$56,244.99

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister Lands and Forests.

Appendix No. 19.

SAULT STE. MARIE, ONT., October 31st, 1920.

SIR,—I beg herewith to submit the following report of the survey of a meridian line and a base line run during the summer of 1920 under instructions from the Department of Lands and Forests, dated May 17th, 1920.

I left Franz Station on the Canadian Pacific Railway on May 28th, 1920, with a party of twenty men, and travelled to Hudson Station by way of the Algoma Central & Hudson Bay, and Canadian National Railways. We were obliged to wait over for one day in Hearst. Hudson Station is situated on an arm of Lac Seul called Lost Lake, and consists of a small Hudson Bay Post. I was met by the Transportation Agent of the Company for that district and received the courteous assistance for which the Company is noted. We detrained at 11 o'clock in the morning of May 28th, and left the next morning at 7.30 o'clock in a York boat towed by the Hudson Bay Company freighting launch, "Ripple." We camped over night at Lac Seul Post and arrived at our point of commencement the next day at noon. My supplies had previously been taken to Pine Ridge Post 20 miles farther down the lake. The men for the freighting canoes went on to this post. The next morning the Ripple brought us back enough provisions for two weeks. We commenced work on the 30th of May and finished the 6th of September, having run 160 miles of line.

Our place of beginning was the 33rd mile post of O. L. S. Patten's meridian line of 1919, which was run north astronomically from the north-west corner of the township of Rowell. This point is on the north shore of Lac Seul. From there we ran north astronomically 87 miles to the 120th mile post of the said meridian. We then ran west astronomically 73 miles on 6 mile chords of the parallel of latitude. The first twenty miles of our meridian, namely, as far as Wenassagay River, was through green timber, the remaining 67 miles was almost entirely through a brule from eight to ten years old where fallen timber was piled three to six feet high. Our base line was also through brule for its whole length.

The freighting canoes went first up the Wenassagay River to Bluffy Lake and left a cache on an island there. They then returned to Pine Ridge Post and started out with the bulk of the supplies to Goose Lake by way of the English River, Trout Lake River, Woman River, Shabumeni (Gooseberry) Lake and Berens River. We first met them a few miles below Woman Lake. From this point to Goose Lake they brought supplies in to us from their main canoe route approximately every fifteen miles until we reached Goose Lake. From Goose Lake to Pekangekum (Dirty Water Narrows) I was able to provision the party every four or five days as the Berens River paralleled the line through this distance. The general direction of the Berens River below Pekangekum is northwesterly, and I anticipated difficulties in keeping touch with the freighting canoes. The Indian Chief came to my rescue at the last moment and acted as guide, with the result that I was able to get all my canoes to a point on the lline eight miles from the end.

The party consisted of twenty-five in all, made up as follows:

1 Surveyor,
1 Assistant,
2 Chainmen,
1 Cook,

7 Axemen,
7 Packers on line,
6 Packers with Canoes.

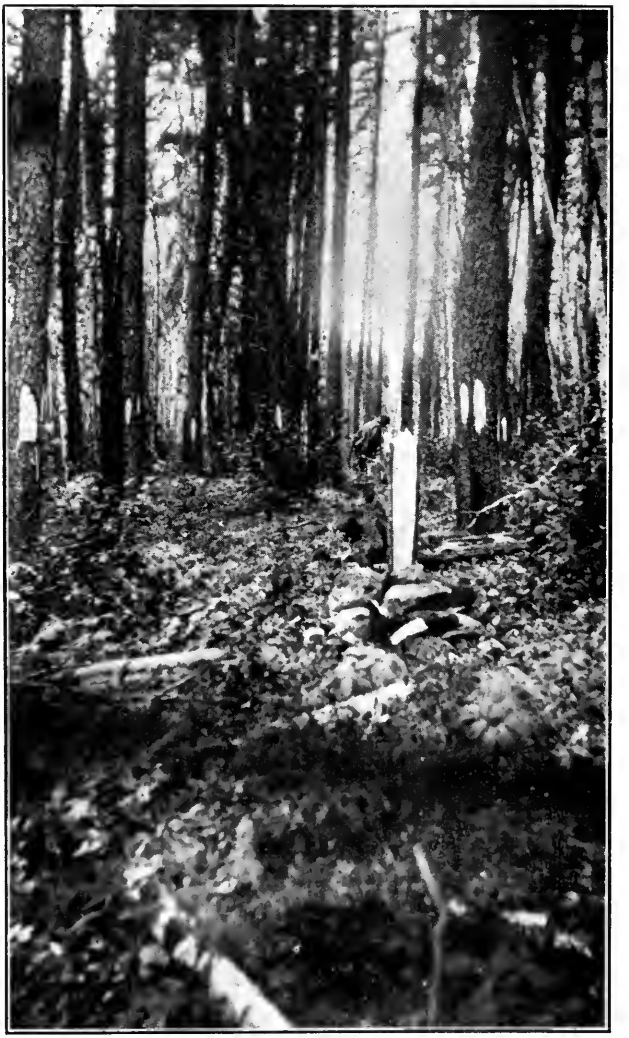
This distribution varied considerably as the work progressed. Three of these men were Indians from Pine Ridge Post, and left me at Goose Lake. In going out they took two canoes and some provisions to cache for me at Pekangekum. I took on two new men at this point. From Goose Lake onwards I kept only three men with the canoes. In fact, after the first twenty miles of my work, I managed to keep at least seven men chopping on the line.

I feel that I should mention the splendid quality of the provisions which I obtained from the Wholesale Department of the Hudson Bay Company at Winnipeg, and the excellent way in which they were packed for survey work. We did not lose an ounce of provisions from any cause during the whole course of the survey.

The Indians in the Pekangekum Indian Reserve were very much disturbed by the fact that the line was heading for their lands and protested vehemently. Their Chief, in company with all the older men of the tribe, met us ten miles east of the Reserve and stayed with the party until we reached their property. We struck the southern end of it so I agreed to offset the line to avoid it. The Chief of the Tribe then acted as guide for our freighting canoes to the end of the work and sent two Indians to guide us out to Lac Seul, a trip of nine days. This was a very great help as the line was not near any main waterway and the country totally unmapped. This band of Indians is about four hundred in number and they are very primitive in their mode of living. They trade at a Hudson Bay Outpost managed by an Indian who does not speak a word of English, nor have any of the tribe any knowledge of English. They do not use money at all and gauge time by the height of the sun above the horizon; distance by the progress of the sun during a journey. This made it very difficult to obtain any information sufficiently definite to work on. In all other parts of Ontario known to myself, the Indians refer to the King as "Kitchi Ogemah," The Big Chief. At Pekangekum he is called "Wemitickiji," The Frenchman. Although they have undoubtedly been visited by missionaries, Christianity has not the slightest foothold among them, and they still hold to their native superstitions and ceremonies, such as "Wabinca," (Day Light Dance), etc. There was no evidence of tuberculosis or other disease among them. In many cases four generations were living in the same camp.

It was my intention to go out by the Berens River to Lake Winnipeg and there to take the Hudson Bay steamer to Selkirk. There is a good waterway from the end of our line to Little Grand Rapids, Hudson Bay Post on the Berens River. My ignorance of the schedule of the steamer and the danger from fifty-five unknown rapids below us on the Berens River influenced me to double back to Pekangekum and strike for Lac Seul from there. The Indian Chief supplied me with two guides to Red Lake where there is an outpost of the Hudson Bay Company, and from there we were able to follow the Dominion Government Geological map to our first destination at Hudson. I was five days in getting to my work and twelve days in getting back to Sault Ste. Marie after its completion. The expense in wages, railway fares and board in taking a large party such a distance was great. The Indians of that locality, however, work in the summer only as a pastime and could not be depended on for more than three weeks' steady work, so that this expense was inevitable.

The new system of monumenting each third mile entailed a good deal of extra work, but it is undoubtedly an excellent method of ensuring permanent record of lines in the field. I did not find the new iron posts much more difficult to handle than the old type as we were only supplied with sufficient for ninety miles, but had we taken enough for all our work, it would have necessitated employing another man with the freighting canoes. Fifty per cent. of the iron posts planted were witness posts and many of them a considerable distance



Surveyed line in Patricia.

from the true mile post, due to solid rock, muskeg, etc. We experienced considerable difficulty digging pits in the first few miles owing to frozen ground.

Soil.

The only section which presents any possibilities as farming land is along the Berens River from mile 16 on the base line to mile 45. This is

fairly level land and is of good clay loam, about 250 square miles in extent. Elsewhere there are pockets of arable land but not of sufficient extent to be worthy of note. For the most part it is solid rock and swamp or muskeg. Where there is soil of any kind it is as a rule very light sand. The occasional pockets of clay loam are so thickly sprinkled with boulders as to be of no use. West of Pekangekum the country is consistently solid rock. We ran a line around two sides of a rectangle and travelled the other two by canoe. The freighting canoes went across the south half of this rectangle. From information obtained in this way and from questioning the Indians, I am practically certain that there is no land of farming value in this area except that above mentioned, with the possible exception of a narrow strip on each side of the English River from the junction of Red Lake River to Lac Seul.

Timber.

The area between Wenasagay River and Lac Seul is well timbered with spruce and jack pine, averaging about four cords to the acre each, taking the section as a whole. There is a considerable quantity of balsam here and lesser stands of birch and poplar. The north shore of Lac Seul seems to be the northern limit of white pine, red pine and cedar. There are a few scattered trees of each of these along the lake shore. North of the Wenasagay River and over all of the country included in the rectangle above described, fire has swept about eight or ten years ago. On this huge area a second growth of banksian pine is springing up in most places. Here and there a few square miles of the original stand have escaped the fire, more particularly on the clay belt referred to along the Berens River. In this section there are some small stands of large aspen and spruce, but the quantity is too small to be of commercial value. Previous to these fires the entire country has been very thickly wooded with spruce of commercial size.

Minerals

With the exception of two small areas we encountered only barren laurentian formation. Two miles north of the Wenasagay River we first encountered Huronian schists and greenstones and ran through this for twenty miles. We found nothing of value in place, but found float of mahnetite, pyrites and Galena. On our trip out we again encountered Huronian formation in the neighborhood of Red Lake.

Water Power.

There are no water powers of outstanding value on any of the rivers which we encountered. Those falls which might be mentioned are as follows:

1. Twin Falls, on the Wenasagay River immediately below Bluffy Lake. The upper falls could be flooded out by a dam at the lower one to give a natural head of about 50 feet. This could not be materially increased. The low water flow is about 200 c.f.s. The drainage area is about 5,000 square miles. Storage possibilities as known are poor.

2. Woman Falls, on the Berens River. The natural head is about 15 feet, and could not be increased. Low water is about 250 c.f.s. Drainage area about 600 square miles. Storage possibilities as known are poor.

3. White Dog Falls, on the Berens River. The natural head is about 18 feet. It could be increased to 28 feet. The low water flow is about 250 c.f.s. The drainage area about 600 square miles. Storage possibilities as known are poor.

4. Otter Falls, on the Berens River. The natural head is about 15 feet. It could be increased to 35 feet. Low water is about 350 c.f.s. The drainage area about 900 square miles. Storage possibilities as known are poor.

5. Mickkaiame Falls, on the Berens River. The natural head is about 30 feet. It could not be increased. Low water flow is about 500 c.f.s. Storage possibilities are poor. Drainage area about 1,000 square miles.

6. Big Falls, on Trout Lake River. Natural head, 60 feet. Could be increased to 70 feet. Low water flow 200 c.f.s. The drainage area is about 900 square miles. Good storage in Trout Lake and Woman Lake.

Moose in Patricia Forest.

GAME.

The entire area abounds in moose, red deer and bear. Near Lac Seul and in the neighborhood of the west end of the base line there are large numbers of caribou. The Indians report a few elk. There are wolves everywhere, but

not in great numbers. The devastation by fire has reduced fur-bearing animals to a minimum. The scarcity of beaver is particularly noticeable. Partridge and ducks are plentiful.

FISH.

Pickerel, pike, maskinonge, whitefish and suckers are in abundance in all the lakes. Whitefish are particularly plentiful in the expansions of the Berens River below the Mickkaiame Falls. Sturgeon are also plentiful in these waters. As far as I was able to learn there are neither brook trout or lake trout in the country.

This is my report.

I have the honour to be, Sir,

Your obedient servant,

K. G. Ross,

Ontario Land Surveyor.

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

Appendix No. 20.

SURVEY OF BASE AND MERIDIAN LINES IN THE DISTRICT OF THUNDER BAY.

SAULT STE. MARIE, ONT, September 15th, 1921.

SIR,—I beg to submit the following report on the survey of base and meridian lines in the District of Thunder Bay, run by me during the summer of 1921, under instructions from the Department of Lands and Forests dated May 17th, 1921.

I left Sault Ste. Marie by boat on May 27th, with nine Indians from Garden River and was joined by eight Indians from Chapleau at Fort William. We took the C.N. Railway to Quorn Station and were there joined by three local Indians. On May 30th, we commenced cutting line with a party of twenty-four and proceeded with the work without interruption until its completion on July 23rd. During this time we lost eight hours on account of rain.

Our place of beginning was the 72 Mile Post on O.L.S. Niven's meridian line between the districts of Thunder Bay and Kenora. From there we ran our base line east astronomically thirty-six (36) miles, and from this 36 mile post we ran our meridian north astronomically sixty (60) miles and thirty-three (33) chains to its intersection with the main line of the Canadian National Railway about two (2) miles west of Allan Water Station.

Our freighting canoes were unable to provision the party until we had run thirty miles of the base line, but from this point to the end of the work we were in close touch with them all the time, with one exception. On this occasion the party were entirely out of provisions and lived for two days on game. At

the conclusion of the work we stored our canoes with the Hudson Bay Company at Allan Water and entrained for home.

The party consisted of twenty-four in all, made up as follows:

1 Surveyor,
1 Assistant,
3 Chainmen,
1 Cook,
1 Cookee,
6 Axemen,
7 Packers on line,
4 Packers with freighting canoes.

This distribution was maintained throughout the whole course of the survey, except that where possible two or three packers were put on the line to chop.

Soil.

There are no areas in the country traversed by these lines suitable for agriculture. The country is, in the main, solid rock on the surface and such soil as occurs is glacial sand and gravel covered lightly with decayed vegetable matter.

Minerals.

We found no traces of valuable minerals. The formation encountered was laurentian throughout.

Timber.

From our starting point to the twenty-third mile on the base line the country has been burnt of all timber by several fires. No seeding trees have been left alive and it is covered for the most part with scrubby bushes. There is a little small spruce in some of the swamps. From this point to the end of the base line and through the first fifty miles of the meridian, the country is heavily timbered with large spruce, birch and poplar. In my opinion it extends about ten miles on each side of the meridian and forms a very valuable stand.

Water Powers.

Some rapids and falls were encountered by the freighting canoes on the water way known as Allan Water, but they were a long distance from our line and I have no data on them. The flow of water is not great but the storage possibilities are almost limitless and several of these powers might be jointly harnessed and a commercial amount of power thus carried to the railway by a comparatively short transmission line.

Game.

The timbered country abounds in moose and fur-bearing animals. There are also a few red deer and caribou. Beaver are particularly plentiful. Ducks and partridge appeared to be in great numbers everywhere.

FISH.

Pickerel, pike, whitefish, lake trout and suckers are to be found in abundance in all the lakes.

This is my report.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) K. G. Ross,

Ontario Land Surveyor

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

Appendix No. 21.

SURVEY OF BASE AND MERIDIAN LINES IN VICINITY OF ABITIBI AND MATTAGAMI RIVERS, DISTRICT OF TIMISKAMING.

NEW LISKEARD, ONT., August 30th, 1921.

SIR,—Under instructions from the Director of Surveys, dated May 6th, 1921, our Mr. Sutcliffe and party proceeded to Smooth Rock Falls from whence they followed the Mattagami River to where same is crossed by O.L.S. Niven's base line, which was cut out in the year 1900. There was no difficulty finding this line or in reaching the 27 mile post at which our work began.

As instructed we ran a meridian line due north from O. L. S. Niven's 27 mile post for a distance of 54 miles and 12 links to intersect O.L.S. Speight's base line ran in 1911. From the 18 mile post on our meridian line we ran our first base line west 17 miles 73.50 chains to intersect O.L.S. Speight's meridian line, ran 1911, and east 5 miles 69 chains to the Abitibi River. From the 27 mile post we ran our second base line east 6 miles 48 chains to the Abitibi River. From the 36 mile post we ran our third base line west 17 miles 67.05 chains to intersect O.L.S. Speight's meridian line and east 3 miles 25 chains to the Abitibi River. From the 45 mile post we ran our fourth base line east 42.34 chains to the Abitibi River.

No serious obstacles were met with on the journey in or during the work and outside of having two canoes upset we were fortunate in not having any serious accidents to either our men or equipment. As instructed, 9 mile chords were run on the base lines, and in our field notes we have shown the true astronomic bearing for each mile as run on the ground, and while there are very slight differences from the theoretic bearings and distances, we believe that you will be well satisfied with the accuracy of the work, and we are pleased to report close checking when closing in on O.L.S. Speight's work, done in 1911.

Instrument Work.

Light Mountain Gurley and Ainsworth transits were used. Stellar observations were taken as frequently as possible. Our observations were all calculated, and as a check we used curves previously plotted in our office for the proper latitude and longitude of the work. These curves, without calculation, give the bearing of the Pole Star at any time to the nearest minute. Time corrections were frequently made by observation.

Chainage.

400 link chains were used and slope distances taken when necessary and corrected with the use of a clinometer and slope tables. The tapes were properly tested and the chainers were duly sworn.

Posts and Bearing Trees.

The most durable wood obtainable was selected for posts. With only a few exceptions, no great difficulty was experienced in planting the iron posts. When possible, small trees were marked for Bearing trees. The trees were chosen as nearly opposite one another as possible.

Blazing of Lines

One man on the party was made responsible for the blazing of the line and the results obtained were satisfactory.

Timber and Soil.

It will be observed on the maps that the Abitibi and Mattagami Rivers drop several hundred feet in a short distance. The country lying between these rivers drops in much the same manner. This feature naturally affects the timber conditions. Above and below this drop the country is comparatively level. The upper level is a fairly good clay and mostly covered by spruce forest. In places there are areas from which good pulp wood cuts could be taken, and there are other areas on which the timber is yet too small to be of present value. The width of the area over the drop is about 15 miles. The soil here is sandy and the timber, where not touched by fire, though sometimes scattered, is large. The timber in this area consists of spruce, birch, poplar and balsam.

On the lower level the timber is also small, but we believe there are some fairly good pulp wood areas. Most of this part of the country seen by us had just recently been burned, however. We are unable to state definitely as to the exact area burned, but an approximate estimate would be between 30 and 40 square miles. We are informed that the fire commenced about June 25th and it lasted until extinguished by heavy rains on July 20th. The soil on this area is clay, with a tendency to be slightly sandy in spots, but on the whole is good. Along the most northerly portion of our meridian line the ground was very swampy and the timber, which was chiefly tamarac, small.

East of the Mattagami River there appears to be a large area that was burned years ago, which has since grown up with poplar. West of the Mattagami in the vicinity of our first base line the timber is spruce and very good.

Watercourses.

There are no streams of importance between the Abitibi and Mattagami Rivers in this vicinity. There are a few creeks which could be made navigable for canoes but our lines being so far apart we were not able to get much information concerning same. There apparently are very few lakes.

Rock Formation.

It is only along the rivers in vicinity of water falls and across the country where the drop, before referred to, takes place, that there are rock outcroppings. Along our third base line several low rock ridges were crossed and for the most part the formation is granite. Some porphyry dykes were observed. A ridge of gabro and disbase was also crossed in the vicinity of the 11 mile post on the third base line. Quartz veins seemed very numerous in the granite but no mineral was seen.

Agriculture.

This area is within the clay belt so often spoken of. The soil is suitable for agriculture, but not before the country is burned over or the timber growth cleared away. The moss is so heavy in places that the frost remains in the ground nearly all summer. When the moss and vegetable growth are removed we have no doubt that conditions will be just as favorable for agriculture as in the more southerly portion of Timiskaming District.

Animal Life.

We are informed by the Indians and those who have trapped in this area that fur-bearing animals are plentiful. Among the large animals, moose and bears are plentiful. There are also a few red deer but they are not numerous. Fish are plentiful in the large streams, the principal being sturgeon, pickerel and pike.

Accompanying this report are a general plan on mounted paper, a timber plan on tracing linen and field notes of the survey on the usual forms.

I have the honour to be, Sir.

Your obedient servants,

(Sgd.) Sutcliffe & Neelands,
Ontario Land Surveyors.

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

Appendix No. 22.

Survey of Township Outlines in the District of Thunder Bay.

Sault Ste. Marie, February 6th, 1920.

Sir,—I beg to submit herewith the following report in connection with the survey of certain base and meridian lines made by me in the District of Thunder Bay, under instructions from your Department dated May 1st, 1919.

I commenced my survey on May 17th, having left Sault Ste. Marie on Wednesday, May 14th, with my party of thirteen men. I ran west from the 58th mile post of O.L.S. Niven's on the district line between Algoma and Thunder Bay. This starting point was about four and a half miles north of the Canadian Northern Railway. Owing to an error in my instrument the first nineteen miles of this survey were not run astronomically west. The true bearings, however, are shown on the plan and notes, these having been obtained by observations since the survey was completed. I finished my survey on July 19th.

Durable posts were firmly planted and scribed on the south side at every mile of the survey. For each post two bearing trees were carved. At every three miles on the line iron posts were planted similarly carved to the wooden ones. The other conditions laid down in your instructions were carried out in every respect.

Timber.

The country between the district line and the White Otter River is sparsely timbered. Just west of Hillsport on the Canadian Northern Railway we ran through about four miles of brule. West of the White Otter River the country is heavily timbered with spruce, balsam, birch, poplar and scattered plains of jack pine. Spruce is the predominating timber and grows to a considerable size, running as high as two feet in diameter. On some of the ridges there are good growths of poplar and birch. Cedar is found in the swamps and along the banks of the rivers. Just before leaving this district a fire swept through, and no doubt destroyed a quantity of timber. This fire I understand began near the C.P.R. and burned through to the C.N.R., crossing this railroad at White Otter Station.

Soil.

Most of the area passed over is unsuited for agricultural purposes. The soil is a whitish sand loam. The western part of the district traversed by us was quite rough and rolling. The rock outcrops were not numerous. These were gneiss on the eastern part of the base line, but on the meridian line north of the 18 mile post, a few outcrops of diabase were noticed. One of these occurs at Taradale Station on the C.N.R. No mineral was found on this survey.

Game.

Moose are quite plentiful in the district and occasionally a caribou is seen. Beaver, mink and other fur-bearing animals are numerous. Pike and pickerel abound in the lakes and streams.

The average magnetic variation was 3 degrees west of north.

The length of our base line from the district boundary to the Pic River was thirty-nine miles sixty-four chains and forty-five links. Meridian lines were run nine (9) miles north and nine (9) miles south from the 18 mile post and nine (9) miles south from the 36 mile post and eleven (11) miles and twenty-eight (28) chains north from this post to the southerly limit of the Canadian Northern Railway right-of-way, which was according to the instructions issued by the Department.

Herewith I enclose a general plan of survey, timber plan, field notes, etc. All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) G. L. Ramsey,
Ontario Land Surveyor

Appendix No. 23.

Nipigon, Ont., August 1st, 1920.

Sir,—I beg to submit herewith a detailed report on the survey of certain Township Outlines in the District of Thunder Bay, said townships lying north of the Canadian Pacific Railway and adjoining the boundary line between the Districts of Thunder Bay and Algoma, said survey having been performed by me under instructions dated Toronto, May 12th, 1920.

Pursuant to instructions, I commenced my survey at an iron post planted by O.L.S. Stewart on the line between townships 70 and 71, at the north-west angle of township 70, said point being also the north-east angle of township 71, and being 126 chains 47.9 links north of the centre line of the Canadian Pacific Railway. The meridian and base lines were run pursuant to instructions with the exception of the section of the first base line which forms the boundary between the townships of Atikameg and Bryant, which line was run from east to west, due to the position of White Lake (see plan).

The several lines were well cut out and well blazed, one man devoting his entire time to the blazing. All posts, iron and wooden, were correctly marked and planted, and the bearing trees taken wherever possible. Few cairns of stones were planted about posts, as the country was for the most part sandy, and few stones could be found for this purpose. Particular care was given to the correct marking and planting of the iron posts, the digging of pits and making of mounds.

Frequent astronomical observations were taken, the notes of which accompany the field notes. I personally took the notes on the timber and soil, the chainmen doing the actual chaining only. While on the survey I personally covered a considerable area on either side of each surveyed line to ascertain the size and extent of the timber, being particularly impressed with the large areas of spruce and banksian pine in the townships.

I beg to state that your instructions were closely adhered to in every respect. Before taking up in detail the timber, soil, etc., I may advise you that I have been informed by reliable parties that the country to the north and to the west of these townships is well timbered, that the areas of spruce and banksian pine extend in these directions, particularly to the north, and that good water routes exist whereby such timber may be driven and brought out. If it is the intention of the Department to lay out additional townships for the sale of the timber therein, may I suggest that this territory be investigated before doing so?

Timber.

Throughout the six townships excellent spruce was found, running from 4 to 10 inches in diameter. There are large areas that will yield from 25 to 30 cords to the acre. It is impossible to note here the location of these areas; they exist throughout the entire six townships. Reference to the field notes and timber plan will give the locations of the best of this spruce. The townships McGill, Atikameg and Mikano are the best for spruce timber.

Banksian pine is found throughout all six townships in large amounts, excellent tie timber size. The Austin Nicholson Company, of Chapleau, under permit in previous years, has taken tie timber out from the townships of Atikameg, Bryant and Flood, but not to any considerable extent. They have merely touched the fringe of it. They have camps at present on the meridian line between the townships of Bryant and Flood. Last winter through a subcontractor, this Company cut 87,000 ties, but were unable to get their drive out. They are at present erecting a new dam in an endeavor to get their ties out this summer. No attempt has been made to burn or dispose of the slash, and there is grave fire menace through the several townships on this account, especially as there are Indians, trappers and tourists continually passing through and camping in this area. Two rather serious fires were burning in this area during the progress of the survey, fires which I personally investigated and found not to have been started near or caused by my survey camps.

No adequate and complete report is possible on the extent of the banksian pine in these townships without a careful cruise being made. The townships are all exceptionally well timbered with banksian pine running from 6 to 18 inches in diameter. I was particularly impressed with the possibilities for a sawmill to be located near the north-east angle of the township of Bryant. Excellent roads could be made, several are actually in existence out to the Canadian Pacific Railway siding at Bremner. In view of the scarcity of, and high prices for, lumber in this district, I beg to suggest that if these townships are put up for tender, a clause be included compelling the erection and operation of such a mill.

Aside from the spruce and banksian pine, there is very little other timber in the townships. There is some large poplar and a little cedar, but not in amounts to be of commercial value. Very little balsam was found and the birch, although frequently mentioned in my field notes, was in areas small in extent and of little value.

Soil.

The soil throughout the six townships was sandy with occasional rocky areas and frequent small areas of muskeg. The areas near the Shabotik River and in some other places near lakes or rivers were exceptionally good, but these townships cannot be considered as good for agriculture, certainly not for settlement purposes. The value is to be found in the timber and in the timber alone.

Game.

The country is overrun with moose, and in the southerly two townships red deer, partridge were exceptionally plentiful. Pike found in all of the large lakes. Fishing operations under permit are now being carried on in White Lake, the main catch being whitefish.

Roads.

The only roads through the township are tote roads leading from the Canadian Pacific Railway to the several tie camps and connecting the said camps. These roads are shown on the field notes. The entire country is very level, with the exception of the southerly part of the township of Flood. Roads can easily and cheaply be built for logging operations in almost any part of the areas covered by this survey.

Minerals.

There are no minerals at all to be found on this survey. The rock where it was encountered was granite.

Lakes and Rivers.

As shown on the plan, White Lake and its connecting chain of lakes, form a water boundary to the west of the townships of Bryant, Atikameg and McGill. This is a well travelled route, portages being short and well cut out. There are many lakes throughout the township, all of clear, excellent water, with sandy shores. White Lake has rocky shores for the most part. This lake extends to Mobert and the Hudson Bay Company Post at that point on the Canadian Pacific Railway.

The Shabotik River crosses the townships of Shabotik, Mikano and Atikameg in a general south-westerly direction. This is a wide, well-travelled river, although Gum Creek, one of its tributaries, shown to be a well-travelled river on existing maps, is impassable by canoes, being filled with log jams. For the information of cruisers or others wishing to investigate these townships, I would suggest starting from Mobert and paddling up White Lake to the line between Atikameg and Bryant. The townships of Bryant and Atikameg could be covered in that way. McGill could be covered by following the chain of lakes on to the north of White Lake. Shabotik and Mikano can best be covered by paddling up the Shabotik River on its north and south branches respectively. Flood could be reached by paddling up White River from the old, not the present, station of Bremner, or by taking one of the two existing tote roads that come out to the Canadian Pacific Railway near mile 18 on that railway. Should more detailed information be desired re the several routes for reaching the townships, I will be glad to supply same.

In conclusion I beg to state that your instructions have been carefully followed in respect to the survey of these townships. I have put special attention upon the notes of the timber. I was particularly impressed with the great value of the spruce and banksian pine. I beg to inclose herewith plan and field notes, timber plan, astronomical observations, etc., etc., covering the entire work.

Trusting that my work and this report upon the same will be found to be satisfactory, I beg to remain,

Your obedient servant,

M. E. Crouch,
Ontario Land Surveyor.

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

Appendix No. 24.

South Porcupine, Ont., December 1st, 1920

Sir,—I have the honour, in accordance with your instructions to me dated May 11th, 1920, to submit the following report on the survey of certain township outlines, north of the Canadian Pacific Railway in the District of Sudbury.

On August the 19th, my party arrived at the Woman River Station on the Canadian Pacific Railway, and the following morning proceeded down the river an approximate distance of four miles to the point where it intersects the meridian run by O.L.S. Speight in 1909. From this point part of the party proceeded north along this meridian to the 12 mile post, the starting point of the survey, the other members of the party proceeded down the river with supplies to be cached at, or near, the place where the first base line would cross the river.

The survey, which commenced on August 26th, was conducted throughout in strict accordance with your instructions. The base lines were run as chords of parallels of latitude, passing through the township corners. The east limits and west limits of townships were run north astronomically. Frequent observations were taken on Polaris, the notes of which accompany the other returns. In chaining, a clinometer was used at all times, and horizontal distances deduced from the measured slope. Distances across obstructions were measured by offset or triangulation. Many magnetic observations were taken, and the results thereof are shown in the field notes. The lines were well cut out and blazed, and posts of the specified varieties of wood were planted where required. Iron posts of the standard pattern shipped by you to Woman River Station, were planted, and the necessary pits, mounds and trenches constructed as called for in your instructions.

Unusually low water in the streams this season made transportation difficult, but this was more than offset by the ideal weather conditions.

Soil.

The country through the lines passed is mostly rough and hilly, but in small tracts undulating, and can hardly be classed as agricultural. The soil, except in the swamps and valleys, consists of a few inches of leafy loam and 12 to 18 inches of sand or clay on bed rock, as a rule. The swamps, like all others of Northern Ontario, have varying depths of moss and muskeg.

Timber.

Approximately the western half of Dore and Garnet appears to have been burnt over six years ago, and the ground is now covered with semi-decayed fallen timber, and a new growth of small poplars and birches. The remaining portion of the territory, except in small strips along streams and lakes, apparently had been burnt over about 30 years ago, and is now covered with a thick growth of healthy timber, large areas of which are pulpwood size. A few white and red pines, survived the fires, and are now thriving apparently. The varieties of timber are spruce, balsam, white birch, poplar and banksian pine on the high lands, and cedar, small tamarac and black ash on the low lands.

Minerals.

The greater part of the rock throughout the country is granite and greenstone. Many small stringers of quartz were observed, but no large veins. Small

stringers of hematite were noted in several places along the line between Heenan and Fenton townships, but are not likely of any economic importance.

Water Powers.

There are three small water powers on the Ridout River within the limits of the land surveyed, and one larger power, but in a dry season like this, the amount of power that could be developed would be almost negligible.

The water in all lakes and streams is clear and pure.

Game.

Large and small fur-bearing animals were numerous. Beaver work was seen in or along nearly all lakes and streams, and there were many indications of timber wolves, fox, lynx, fisher, otter and bear. Moose were very plentiful, and a few indications of red deer were observed. Partridge of different varieties were very plentiful also. The lakes and streams contain pike, pickerel, trout and whitefish.

I am submitting with this report a general township plan, a timber plan, field notes, account in triplicate and the required affidavits.

I have the honour to be, Sir,

Your obedient servant.

(Sgd.) Chas. V. Gallagher,
Ontario Land Surveyor.

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

Appendix No. 25.

Peterborough, Ont., December 10th, 1920.

Sir,—I have the honour to submit the following report on the survey of township outlines in the district of Sudbury performed by me during the past season, agreeable with your instructions of May 21st, 1920.

According to your instructions, I commenced the survey at the north-west angle of the township of Strathearn, from this point I ran due north astronomically twelve miles, this line being the west boundaries of the townships of Hill and Ramsden. From the north-west angle of the township of Hill I ran the south boundary of the township of Buckland due west astronomically to the north-east angle of township number thirty-seven, and from this point I ran the line between the townships of Buckland and Delmage north astronomically six miles. From the latter point I ran west astronomically six miles to the north-west angle of the township of Delmage. I then returned to the north-east angle of Delmage and ran the north boundaries of Buckland and Ramsden due east astronomically twelve miles. I then proceeded to the north-west angle

of the township of Hill, and ran the north boundaries of Hill and Marshall and the east boundary of Ramsden. I then ran the east boundary of Mageau north six miles. From this point I returned to the north-west angle of the township of Mageau, and ran the north boundaries of Mageau and Racine. After completing this line, I ran to the south-west angle of Mageau township. From this point I ran the east boundary of Hill south six miles and picking up the northern boundary of Strathearn I ran east to the north-west angle of the township of Cochrane, thus completing the survey allotted to me.

As to the general character of the country through which these various township outlines pass, I may say that it is evident that all this section was swept clean by fire about the year 1865, and it is also evident that since that date other fires, evidently not so destructive, have swept through this particular section. All this country is now grown up with poplar, white birch, banksian pine and spruce, running up to eight and ten inches in diameter, and generally speaking, very thick underbrush of various kinds.

This country is very rolling and rocky, made up practically of a continued series of high hills and deep valleys, making the work of cutting lines very slow and laborious indeed. Along the north boundaries of the townships of Buckland, Ramsden, Mageau and Racine, and extending from one to three miles southerly, the country is more of an undulating character, with larger timber, consisting of spruce up to ten and twelve inches, poplar, yellow birch, white birch, balsam and banksian pine up to fifteen inches and a few scattered white pine up to thirty-five inches. All the country passed over by me is very rocky and I am sorry to report totally useless from an agricultural standpoint. An exceptionally large number of lakes of various sizes were met with, interfering greatly with the progress of the work. The shores of these lakes are, generally speaking, high and rocky, and the water pure and good. The fishing, however, was not found to be even fair. I found the deflection of the magnetic needle to average five degrees west of the astronomic north and although fluctuating considerably at many points, no mineral deposits were seen or found.

The only game noticeable in this country are moose, which are fairly plentiful throughout this entire section. Astronomical observations for the purpose of verifying the courses of the lines were taken whenever practicable, returns of which will be found on the proper pages of the field notes. The iron posts supplied by the Department were placed and the pits and mounds made at the exact points or as near the exact points as possible.

Accompanying this report I also beg to submit the field notes, a general plan showing the topography of the country. Also timber plan, etc., all of which I trust will be found complete and satisfactory to the Department.

I have the honour to be, Sir,

Your obedient servant,

J. W. Fitzgerald,
Ontario Land Surveyor.

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

Appendix No. 26.

North Bay, Ont., June 8th, 1921.

Sir,—In accordance with your instructions dated May 11th, 1920, we have made a survey of certain township outlines in the District of Sudbury, and beg to submit the following report.

The starting point for this survey was at the fourth mile post between the townships of Cavell and Carew. From this point we ran our first meridian two miles north astronomically, where a wooden and iron posts were planted to indicate a corner of Cavell, Carew, Fingal and Edith townships. We continued this meridian north astronomically six miles, one chain and fifty and one-half links for the west boundary of the township of Fingal.

From the iron post planted to indicate the south-east angle of Edith township, we ran our first base line west astronomically on a six mile chord a distance of six miles and twenty-two links to intersect the east boundary of Township 16. This intersection is two chains and ninety links south of the north-east angle of said Township 16.

From the iron post planted to indicate the south-west angle of Fingal township, we ran our second base line east astronomically on six mile chords a distance of twelve miles to form the south boundary of Fingal and Arbutus townships.

From the sixth mile post on this second base line we ran our second meridian north astronomically, twelve miles and ninety-nine links to intersect base line run by C. V. Gallagher, O.L.S., during the season of 1920. The posts at this intersection were planted by him as we had arrived at this point some time previously.

From the sixth mile post on this meridian number two, we ran our three base line east astronomically on a six mile chord a distance of six miles, one chain and forty-one links to its intersection with meridian number three, which was then run from the twelfth mile post on base line number two. This meridian number three was run eleven miles sixty-four chains and thirty-one links to intersect the south boundary of the township of Frater. This intersection was made twenty chains, seven and seven-tenths links east of the first mile post on the south boundary of said township.

We then ran our base line number four from the sixth mile on meridian number two west astronomically on six mile chord, a distance of six miles, one chain and forty-seven links to its intersection with meridian number one.

General Characteristics.

The area embraced by this survey is rolling land with a large percentage of the acreage in spruce, tamarac and cedar swamps, and a few open, marshy areas. Almost the entire area was fire swept, which probably occurred during the construction of the Canadian Pacific Railway.

Through the townships of Arbutus and Huffman are several lakes and streams, which have been and are being used as canoe routes northerly from Biscotasing.

Soil.

The soil is sandy throughout the area. The swamps have moss and mulch overlying the sand.

TIMBER.

The timber is small, due to being fire swept. A few scattered areas have timber of commercial size, but a fine harvest of lumber is growing, which will be a valuable asset in fifteen or twenty years.

ROCK.

Very few outcrops of rock were encountered. No contacts were observed nor economic mineral discovered.

GAME.

Large game is plentiful. Tracks of moose, red deer, and bear, were seen daily. Small fur is also there, and from reports, trapping has been carried on extensively.

Accompanying this report are plan, field notes, accounts, etc., all of which are respectfully submitted for your approval.

We have the honour to be, Sir,

Your obedient servants,

McCAUSLAN & ANDERSON,
Ontario Land Surveyors.

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

Appendix No. 27.

TORONTO, January 20th, 1921.

SIR,—We have the honour to submit the following report on the survey of certain township outlines north of the Canadian Pacific Railway in the District of Sudbury, made by us during the past summer, under instructions from your Department dated 21st May, 1920.

Upon the receipt of the instructions, arrangements were made for the organization and equipment of the necessary party, and on the 15th of June a party was assembled at Dalton, on the Canadian Pacific Railway. The following day a search was made for the iron post planted in 1893 by O.L.S. Stewart, to mark the intersection of the line between townships 42 and 43 with the northerly boundary of the Canadian Pacific Railway. This post has disappeared but a post planted at that time by Mr. Stewart to the south of the Canadian Pacific Railway right of way was found in position, and by measuring northward a small mound of stones was found around what had been the site of the post sought for. A substantial wooden post was planted by us, in lieu of the missing monument, and a cairn of stones built around it.

An observation for azimuth having been obtained, the survey was commenced the next day by extending northward the line between townships 42

and 43. At a distance of 57 chains and 69 links from the point of commencement, an iron post was planted to mark the chainage of three miles from the south boundaries of the townships. Standard pits were dug to the north and south and a wooden post was planted as required by your instructions. From this post we continued north on the line between townships 42 and 43 to the line run by O.L.S. Stewart delimiting the north boundary of township 43. The iron post planted by him was found 8 links west of our line. A standard iron post with pits and mounds, was planted at the intersection and the old post was removed. From this corner we ran east along the south boundary of township 44. The party then returned to the south-west corner of township 44 and ran the line between townships 44 and 45 north, to the intersection with the north boundary of township 45 as defined by O.L.S. Stewart. Mr. Stewart's post was found 7 links west of our line. It was removed, and one of the standard posts was planted at the intersection.

Dog Lake intersects the west boundary of the township of Stover about one mile north of the south-west corner of the township, and the boundary line was carried across the lake before we proceeded to run the boundary between the township of Stover and township 44. We ran east a distance of six miles to the township corner, which lay in a small lake, locally known as Ruby Lake. The iron post, properly marked and monumented, was planted three chains south of the true corner of the line between township 44 and the township of Lang. Wooden posts were planted at the intersection of the township lines with the north, east and west shores of the lake. From this corner we ran the line between the townships of Stover and Brackin north to Crooked Lake and the boundary between the township of Brackin and Lang east to Missinaibi Lake. We then proceeded south along the boundary between township 44 and the township of Lang to intersect the south boundary of township 44, run by us. The south boundary of the township of Lang was then run easterly six miles. Returning we picked up the north boundary of the township of Lang on the west shore of Missinaibi Lake and continued it east to chainage six miles.

We then ran south to intersect our south boundary of the township of Lang. As the intersection came on bare rock, the corner was marked by a cross chiselled in the granite and the iron post was planted on the south boundary of the township of Lang three chains west of the true corner.

Returning to the north east corner of the township of Lang, we ran north, delimiting the east boundary of the township of Brackin. The south shore of Missinaibi Lake was reached at a chainage of about two miles and a quarter, and with the exception of the crossing of the island of Reva and another small island, the rest of this boundary lies in Missinaibi Lake. The chainage was carried forward by a triangulation based on the west shore. Having established the line on the north shore of the lake, we proceeded via Crooked Lake and Dog Lake to the west boundary of the township of Stover on our way running the remainder of the line between the townships of Stover and Brackin. The west boundary of the township of Stover was carried northward to the corner of the township and the line continued northward along the west boundary of the township of Rennie to O.L.S. Niven's base line of 1900. We then returned to the south-west corner of the township of Rennie and ran east between the townships of Rennie and Stover to the east boundary of the township of Stover. From the intersection the boundary between the townships of Rennie and Leeson was run north to O.L.S. Niven's line and the boundary between the townships of Leeson and Brackin east to Missinaibi Lake and the east boundaries

of these townships. The east boundary of the township of Leeson was then continued from the point established on the north shore of the lake to O.L.S. Niven's base line, thus on the 3rd of September completing the survey.

All the east and west lines were run as chords of the parallels of latitude, passing through the corners of the respective townships. Frequent observations were taken on Polaris throughout the survey. The notes of a number of these accompany the field notes.

All lines were well opened out and carefully blazed. Where possible, cairns of stones were built about the posts planted and, except in a few instances where recent fires had laid bare the country, each post was referenced to two bearing trees. Wooden posts were selected from the most durable material available in the vicinity of each mile post and the posts themselves firmly planted. Great care was taken to plant the iron posts in the most workmanlike manner possible, and every effort was made to so dig the trenches and pits that they would comply fully with your instructions and be permanent witnesses as to the positions of the posts.

General Features.

The area embraced in these townships lies mostly to the north-east of the height of land, but township 44 and parts of the townships of Lang and Stover drain southward to Lake Superior. The other townships are drained by the head waters of the Missinaibi River, Dog Lake, Crooked Lake and Missinaibi Lake form an excellent canoe route across the centre townships and numerous other small lakes crossed by our lines.

The surface is hilly throughout, and the township of Lang and the south-west part of township 44 are decidedly rough.

In the northerly two townships, considerable areas of cedar swamp were encountered. We are not in a position to say, however, whether the length of the swamps where crossed by our lines is really indicative of their extent throughout the townships. These swamps represent the only possibilities of the land from an agricultural standpoint, as elsewhere the country is a succession of rock and granite ridges, absolutely unsuited to agriculture.

Timber.

Part of the forest south and west of the height of land has recently been lumbered. Messrs. Austin and Nicholson have a tie camp in operation near mile 5 on the south boundary of the township of Lang, and some thousands of ties had also been taken out during last winter from the country adjacent to Dog Lake.

Between Crooked Lake and Missinaibi Lake, in the townships of Lang and Brackin, there is apparently a very considerable area of good jack pine and spruce and various other smaller stands were crossed by our lines. Probably not more than 35 per cent. of the area of the townships surveyed has escaped fire within the last fifty years. About 40 per cent. of the township of Lang was burnt over, apparently about twenty years ago, and an extensive area north of Crooked Lake suffered about the same time. Both these areas are now largely covered by a dense growth of young jack pine.

The rapid strides now being made in the development of the air ship and aeroplane suggest that in the near future it may be possible to supplement the information gained from a township outline suvery by air photographs of the

interiors of the townships. This should give a good general idea of the actual value or otherwise of the timber within the area covered, besides furnishing data for the charting of waterways, etc.

Water Power.

As the height of land runs through these townships, the streams are insignificant, and there are no water powers capable of development within the area surveyed.

Minerals.

A considerable variety of rock was met with, especially in the southerly townships, and while no precious or economic minerals were seen, thorough prospecting may reveal deposits of value. During the summer, nickel was reported south of Dalton, but the extent or value of the find is unknown.

Game.

Moose were seen at various times, and signs of bear and beaver noted. Pike and pickerel were plentiful in the streams and lakes. Lake trout are said to be present in Ash Lake. In general, however, the game is not so plentiful as in some other districts of Northern Ontario, owing probably to persistent hunting and trapping by Indians and others from Missinaibi.

We have the honour to be, Sir,

Your obedient servants,

Speight and vanNostrand,
Ontario Land Surveyors.

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

Appendix No. 28.

Pembroke, Ont., February 7th, 1921.

Sir,—I have the honour to submit the following report of the survey of certain township outlines in the District of Sudbury, made by me under instructions from your department, dated May 12th, 1920.

I left the Canadian National Railway at Foleyet Station with my party, using wagons to move my outfit about seven miles over a good portage road to the north end of Ivanhoe Lake, and proceeded up the lake to the meridian run by T. B. Speight, O.L.S., in 1909, and finding witness post planted by him at forty-two miles plus ten chains, I chained south on his meridian and estabished the corner of Carty and Pinogami Townships, then from observations I ran my first base line west astronomically a distance of five miles and seventy-nine

chains and sixteen links, and planted iron and wooden posts with mounds and pits, establishing the corner of Evans, Warren, Carty and Pinogami townships. From this corner I continued my first base line west, establishing the line between Warren and Evans townships, and then, returning to township corner above referred to, I ran my first meridian north to intersect base line by O.L.S. Speight, and south astronomically a distance of six miles, establishing the corner of Evans, Pinogami, Biggs and Hellyer townships, from which I ran my second base line east to Speight's meridian and west astronomically a distance of six miles, establishing the corner of Sandy, Murdock, Evans and Hellyer townships, this being the starting point of my first meridian, and continued west on my second base line to intersection with the east boundary of the township of Chewitt. I then returned to my second meridian and ran north to intersection with my first base line and continued to intersection with the south boundary of the township of Paul, then returning to my second base line, I ran south on my second meridian between Sandy and Hellyer townships. Returning to my first meridian, I ran south astronomically between Hellyer and Biggs townships a distance of six miles, establishing the point of commencement of my third base line, and continued south between the townships of Raney and Rollo to intersection with base line run by O.L.S. Young, 1920, I then returned to point of commencement with my third base line, and ran east astronomically to Speight's meridian, and west to intersection with my second meridian, and continued west to intersection with the east boundary of the township of Gamey. I then returned to my second meridian and produced it south to intersection with O.L.S. Young's base line already referred to, establishing the boundary between Crockett and Raney. Base lines were all run on chords of latitude and frequent observations for azimuth were taken and recorded in field notes. Wooden posts were planted at every mile and iron posts, pits and mounds planted, and bearing trees taken where specified in instructions. Where posts and monuments could not be established at exact chainage, witness posts and monuments were established as shown in the field notes.

Soil.

We did not encounter any land suitable for agricultural purposes; the soil is either sandy or gravel with boulders, and occasional outcrops of rock. The surface is generally rolling, with comparatively small level areas of swampy land.

Timber.

Forest fires have destroyed the timber over a large portion of area covered by this survey. All of the townships of Crockett, Raney, Rollo and all of Biggs excepting a small triangle in north-west corner of the township; that portion of Hellyer lying south of a line drawn from fourth mile post in west boundary to the second mile post on east boundary, and being now covered by dense growth of jack pine, poplar and white birch from two to six inches in diameter. This old brule also extends into south-east corner of Pinogami. A considerable quantity of jack pine and spruce of commercial value is to be found in the north-west portion of Hellyer, the south-east half of Evans, that portion of Pinogami north-west of Ivanhoe Lake and a strip from one to one and one-half miles in depth along south-east side of the lake, and the south and east part of Carty township; a few scattered areas of white and red pine were seen along banks of Ivanhoe Lake in Pinogami township. In the townships of Sandy, Murdock and

Warren, the north-west portions of Evans and Carty, there are scattered areas of jack pine and spruce, but timber is usually too small at present for commercial purposes.

Minerals.

No indications of economic minerals were found.

Streams and Lakes, Etc.

What was known as the Pishkanogama Route from Ridout Station on C.P.R. passes through south-east corner of Crockett township to south end of lake formerly known as Pishkanogama Lake, now called Ivanhoe. This lake is navigable through townships of Hellyer and Pinogama, but is now about fifteen feet lower than its original level, due to a washout at north end of lake, but I understand surveys are being made to build a dam which will restore lake to within about five feet of its original level. On both sides of this lake the hills rise to a height of from one hundred and fifty to two hundred feet, with a thick growth of timber in Pinogami township.

There are a number of inland lakes of considerable size in townships of Raney, Rollo, Warren and Carty. There is a canoe route from Ivanhoe Lake through Hellyer and Sandy townships to Trout River, but stream is shallow and not much used.

There are no water powers capable of development. Ivanhoe Lake can be used for storage purposes.

Game

Moose and game are plentiful, and there are many beaver colonies throughout the whole area. Speckled trout up to one and one-half pounds were taken in Raven River, Township of Murdock, and I understand are found in lake in south-west corner of Warren township.

Generally speaking, the area covered by this survey is valuable only for its timber reserves and will be of considerable value as a source of pulpwood if fire is kept out and young timber allowed to mature.

Accompanying this report are a plan, field notes, timber plan, with usual affidavits and accounts in triplicate.

I have the honour to be, Sir,

Your obedient servant,

Herbert J. Beatty,

Ontario Land Surveyor.

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

Appendix No. 29.

PEMBROKE, ONT., February 18th, 1921.

SIR,—In accordance with instructions from your Department, dated the 12th of May, 1920, I have surveyed certain township outlines in the District of Sudbury, and have the honour to report thereon as follows:

I proceeded to Ridout Station on the Canadian Pacific Railway arriving on the 13th of June, and spent a few days hiring men from various points, finally on the 15th of June, with two O.L.S. assistants and a full party, I was ready to proceed with the survey.

The post from which I was instructed to commence my survey had become obliterated, but after considerable searching I located the iron post in a cairn of stone, planted by O.L.S. John McAree in 1902, on the south side of the Canadian Pacific Railway right of way, marked "R" on the north side; XXII on the east side, and XXIII on the west side. At this point I took an astronomical observation from azimuth, and upon measuring north from this point one chain and fifty-six and two-tenths links (1 ch. 56 2/10 lks.), the distance shown in McAree's field notes, across the Canadian Pacific Railway right of way, I located a cairn of stone, but no post. At this point I planted a spruce post and then ran my first meridian north astronomically between townships XXII and XXIII, a distance of three miles, fifty-eight chains and twenty-six and six-tenths links (3 m. 58 ch. 26 6/10 lks.), where I planted an iron post in the prescribed manner establishing the corner of townships of Tooms and Greenlaw, being the point of commencement of my first base line, which I ran west between townships XXIII and Tooms to the intersection of the northerly production of the line run by Ontario Land Surveyor McAree in 1902 between townships XXIII and XXIV, thus establishing the north-west angle of township XXIII and the south-west angle of township of Tooms. From this point I ran north astronomically between the townships of Tooms and XXIV to the intersection of the south boundary of the township of Lackner. My first meridian was continued north between townships of Tooms and Greenlaw, and my first base line was run east along south boundary of Greenlaw a distance of six miles, where I established the corner of Greenlaw, Cunningham, number XXI and number XXII, being the point of commencement of my second meridian, and I continued my base line along south boundary of Cunningham to intersection with Speight and van-Nostrand's meridian at a point three chains and fifty-two links (3 ch. 52 lks.) north of his XII M.P. Returning to point of commencement of second meridian, I ran north astronomically a distance of six miles, establishing corner of Greenlaw, Denyes, Swayze and Cunningham, the point of commencement of my second base line, and continued this meridian north between townships of Denyes and Swayze. Returning to the second base line, I ran east astronomically between the townships of Swayze and Cunningham to intersection with Speight and vanNostrand's meridian at a point six chains and fifteen links (6 ch. 15 lks.) north of his XVIII M.P. I then ran west astronomically on my second base line between the townships of Denyes and Greenlaw to intersection with my first meridian, and continued west astronomically between the townships of Halcrow and Tooms to intersection with the west boundary of the township of Lackner. I then returned to my first meridian and produced it north between the townships of Halcrow and Denyes to a point distant twelve miles from my first base line, establishing the north-east angle of Halcrow and the north-west

angle of Denyes, the point of commencement of my third base line, from which I ran west astronomically along the north boundary of Halcrow to the east boundary of the township of Gamey. Returning to my first meridian, I ran east astronomically along the north boundary of Denyes township to intersection with my second meridian, and continued east astronomically along the north boundary of Swayze to Ontario Land Surveyors Speight and vanNostrand's meridian, completing the field work of my survey.

All lines were run with the transit as true meridians or chords of latitude, passing through the township corners. Frequent astronomic observations were taken and recorded in my field notes. The measurements were taken with a two chain type and on sloping ground the clinometer was used. The lines were posted in accordance with instructions and iron posts of the new style were planted and witnessed by pits and mounds in the prescribed manner.

Physical Features.

The entire area covered by the survey is undulating or hilly country, with many rock outcrops. The Ridout River, a sluggish stream from twenty-five to fifty links wide, flows north-easterly from Ridout Station on Canadian Pacific Railway in township XXIII, across the north-west corner of township XXII, and is joined by the Wakami River, a larger stream about one chain in width in the township of Greenlaw, and continues north-east through the north-west corner of the township of Cunningham and the south-east corner of Swayze. This river is navigable with a canoe, but is very crooked, and there are five short portages between south boundary of Greenlaw and junction with Wakami River. From the junction north the stream is from a chain to two chains wide, with a fair current and two short portages in the township of Cunningham. There is another small river flowing northerly through the township of Tooms, Halcrow and the north-west corner of Denyes; this river is also navigable with a canoe, but is quite shallow. The lakes are very numerous, some of which are of considerable size, as shown on my plan.

Timber.

The only timber of commercial value met with is in a small area comprising the north-west quarter of Greenlaw, the north-west quarter of Tooms and a small portion in the south-east quarter of Halcrow and part of the south-west quarter of Denyes. In this area there is some very good jack pine from six to fourteen inches in diameter, with spruce, birch, poplar and balsam of good size. With the exception of a few swamps in which there is green timber of spruce and cedar, from six to twelve inches, the balance of the area covered by the survey is an old brule, densely grown up with small jack pine, birch and poplar, ranging from two to five inches in diameter, which, if the fire is kept out, will make a valuable forest in the future.

Soil.

I am convinced that there is no agricultural land within the whole area. The soil is of a light sandy nature, strewn with stones and boulders. In the swamps there is generally about a foot or two of black muck covering boulders.

Minerals.

No economic minerals were seen though on the line between Swayze and Cunningham, in the first mile and in the fifth mile, as shown in my field notes, I intersected mining claim lines.

Game and Fish.

Moose are very plentiful and an occasional red deer was seen. Most of the lakes and streams are inhabited with beaver. Small game is said to be numerous and trapping in this country is quite profitable. The only fish caught were pike and pickerel of a fair size; they seem to be quite plentiful in all the streams and lakes of any size.

Water Power.

In the northerly part of the township of Cunningham, there is a falls on the Ridout River of about twenty feet, but the shores of the river are low and storage would be poor. There is another falls of about thirty feet in the township of Halcrow, but owing to the low water, flow being small in volume, neither of these are of value without storage, and an estimate of horse power available could only be made after a careful survey to ascertain drainage area, etc.

Accompanying this report are a general plan, a timber plan, field notes of the entire survey and the usual affidavits and accounts in triplicate.

I have the honour to be, Sir,

Your obedient servant,

A. C. Young,
Ontario Land Surveyor.

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

Appendix No. 30.

Survey of Township Outlines Along the Wagamacie River, District of Timiskaming.

Ottawa, October 14th, 1921.

Sir,—In accordance with your instructions dated May 12th, 1920, I proceeded to run certain township outlines west of the Ground Hog River, and south of the National Transcontinental Railway.

My assistant, Mr. Fred Webster, left Ottawa on June 3rd, and had our party in readiness for me when I arrived in Fauquier on June 10th. On June 11th, we started up the Ground Hog River, later entering the Wagamacie River. The latter river is for the most part quite shallow and very rapid at that time of the year, and it was with considerable difficulty that we were

enabled to reach Wagamacie Lake. This lake is about three miles long, and one and one-half miles wide. We followed the river southerly till we came to Sutcliffe and Neeland's meridian, run in 1919, and followed this line northerly till we came to the thirty-three mile post on the Seaton-Griffin meridian. We continued this line northerly three miles to the township corners. We then ran the Seaton-Fenton chord and the Slack-Griffin chord, after which we continued the Fenton-Slack meridian.

After seeing the Griffin-Slack Chord well started, I had to return to Ottawa, as I had received on the day of my departure, a subpoena to appear as Engineer in a case which was coming up for trial shortly. On my arrival in Ottawa I immediately secured the services of J. E. Lyon, O.L. Surveyor, and sent him up to my party, and reported the proceedings to the Department. Just after I left I sent in another man for the party, and he brought tales of fabulous wages being paid for men, with the result that half the party left. My assistant, Mr. Webster, came out and replaced these, and the work went on.

Arriving at the Fenton-Staples, Casselman-Slack corner, the party ran east to the Wagamacie River, where we had our main cache. This cache was then moved west to the township corners, and after dividing the party, Mr. Lyon ran west on the Fenton-Staples chord, and Mr. Webster ran north on the Staples-Casselman meridian.

After going some distance, they sent back for more provisions, and found that our cache had been completely cleaned out by bears. Mr. Webster then ran as far as he could on the available grub, i.e., one and three-quarter miles west on the Staples-Sulman chord. He then returned and ran east of the Wagamacie River a day's run, to the six mile post and came out.

Mr. Lyon got as far as Lake Saganash, and after losing considerable time trying to get suitable triangulation points, returned when his grub gave out, and came to Fauquier about August 20th. As it was impossible to get any men to return, they came to Ottawa.

After it froze up in November, I sent a small party in, but they were unable to finish the work. In June, 1921, we again went in, finishing our contract on July 17th, 1921, by completing the Fenton-Staples Chord, the Slack-Casselman Chord, the Staples-Sulman Chord, and the Shanly-Staples Meridian.

The country traversed, with the exception of the northerly boundary Staples, is low, wet country, covered with mixed timber of fair quality, about thirty per cent. of which is over eight inches in diameter, and suitable for lumbering, while the remainder is fair pulp wood.

The north boundary of Staples is high, undulating land, and has been burnt over at one time. At present it is covered with small, second growth timber of little value. This brule covers part of the Staples-Casselman Meridian, but the timber is poor. The brule also extends along the Shanly-Staples Meridian, where the timber is somewhat better on the first and seventh miles, the remainder being of little or no commercial value.

The soil is mostly clay or clay loam subsoil, covered with decayed vegetable matter, and moss.

No economic minerals whatever were encountered.

During 1920 the country was absolutely infested with bees and wasps, as many as forty-four nests in six miles on the Fenton-Seaton chord having to be removed from the line. This was our chief factor in holding up the work.

Frequent observations were taken during progress of the work, in fact, every time it was possible to do so, one was taken.

Plans and field notes of the work are being forwarded.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) N. B. MacRostie,
Ontario Land Surveyor.

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

Appendix No. 31.

Survey of Township Outlines in the Districts of Sudbury and Algoma.

Peterborough, December 2nd, 1921.

Sir,—I have the honour to submit the following report on the survey of township outlines in the Districts of Sudbury and Algoma, performed by me during the past season under instruction from your Department, dated April 15th, 1921.

I commenced the survey at the one hundred and eight mile post on Ontario Land Surveyor Alexander Niven's base line, surveyed during the seasons of 1899 and 1900, which point is about 15 miles south-west of Peterbell Station, on the Canadian Northern Railway. After taking the necessary observations for latitude and azimuth, I ran due south astronomically twenty-four miles to the north boundary of the Township of Mageau, surveyed by me during the season of 1920. All this line passes over a very rough and rocky country, heavily timbered with spruce, poplar, banksian pine, white birch and cedar. The land along this line is totally unfit for cultivation. The country traversed over is, however, very valuable and contains an immense quantity of pulpwood.

Having completed the above meridian line, I proceeded to the north-west angle of the township of Pattinson, and produced the west boundary of that township due north astronomically six miles, being the boundary line between the townships of Floranna and Sadler. The country passed over on this line is very similar to that already described, i.e., rough and rocky, and heavily timbered with spruce, poplar, banksian pine, white birch and cedar, with alder and willow scrub, and a large quantity of windfall.

On the completion of this line I moved to the south-east angle of the township of Sadler, from which point I ran north astronomically six miles, being the boundary line between the townships of Sadler and Alcorn. The country along this line is rough and rocky, and is timbered with spruce, banksian pine, balm of Gilead, balsam, white birch and cedar, the spruce, cedar and balm of Gilead running up to sixteen and eighteen inches in diameter. There is very little of what is usually termed agricultural land along this line.

After completing this line, I proceeded to the south-west angle of the township of Lincoln, from which point I ran due west astronomically on nine mile chords along the line between the townships of Copperfield and Lipsett on the north, and Floranna, Sadler and Alcorn on the south, a distance of about twenty-one miles, where I intersected my first meridian line. The character of the country along this line is very similar to that already reported upon—rough and rocky, and very heavily timbered.

Having completed the above line, I came east to the south-east angle of the township of Lipsett, and south-west angle of the township of Copperfield, and ran the boundary line between these two townships north astronomically to the south-west angle of the township of Bonar, from which point I ran the line between the townships of Lloyd and Lipsett due west astronomically to intersect Ontario Land Surveyor Speight's meridian line surveyed during the past season. The country along the north and west boundaries of Lipsett is much the same as that already reported upon—all rough, and with the same varieties of timber.

Having completed the lower part of the work, I moved my camp and outfit to the iron post planted by Ontario Land Surveyor Speight on his meridian line six miles north of Ontario Land Surveyor Niven's base line, from which point I ran due west astronomically on nine mile chords along the south boundaries of the townships of Conking, Nebotik, Makawa and Moorehouse. In all a distance of thirty-six miles, where I intersected the east boundary of the township of Simpson, three chains and eighty-three links north of the south-easterly angle of said township. All the country traversed by this line is rough and rocky, and is of little or no agricultural value. The easterly twenty-five miles is heavily timbered with spruce, banksian pine, white birch, balm of Gilead, poplar, balsam and cedar, running up to eighteen and twenty inches in diameter, and in some places with a dense undergrowth of alder and willow. Along this part of the line there are also a few scattered red and white pine, running up to thirty inches in diameter. The westerly eleven miles of the line is through a country that has been frequently swept over by fire, and commonly called "brule country." This tract is covered with the usual small scrub which follows a fire, white birch, poplar, banksian pine, etc., up to four and six inches in diameter, with alder and willow underbrush.

Observations for latitude and azimuth were taken very frequently, all the work closing very satisfactorily. Wooden posts were planted at the end of each mile and iron posts every three miles, according to instructions. All the pits and mounds were made very carefully and where it was not possible to construct these properly, which was quite frequently the case, owing to the rocky nature of the country, a witness post was planted and witness mound, etc., constructed according to instructions. The lakes, rivers and streams, which are all numerous in this country and crossed by the various lines, contain good pure water and an abundance of the usual kinds of fish. Game appears to be very plentiful, particularly moose, which could be seen almost daily, and in spite of centuries of trapping, the beaver, otter, fisher and mink are still very numerous. Nearly all the country passed over by me this season is very rich in pulpwood, but I am very sorry to say, very poor from an agricultural standpoint. The variation of the magnetic needle averages from three to five degrees west of north, but it is a very uncertain quantity.

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

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) J. W. FITZGERALD,
Ontario Land Surveyor.

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

Appendix No. 32.

LITTLE CURRENT, ONT., January 31st, 1921.

SIR,—I have the honour to submit to you the following report on the survey of Lake Penage and part of the Whitefish River, including Walker Lake, Bear Lake and Long Lake, to the east limit of the Whitefish River Indian Reserve, according to instructions from your Department dated Toronto, May 4th, 1920.

Having proceeded from Little Current by train on 1st July, and canoe, from Willisville, situated on the first lake up the Whitefish River, I arrived at the east limit of the Whitefish River Indian Reserve on Long Lake on Saturday evening, July 3rd.

Commencing at the said east limit of Whitefish River Indian Reserve, the work was continued with very little interruption and completed on the 9th of September. We arrived back at Little Current on the 11th of September.

With only one or two exceptions, all posts planted were of cedar, not less than 4 inches square; in most cases they are 5 inches, some are six inches, and properly marked. Every post, with only one or two exceptions, is mounded up with stones, forming a cairn, which at nearly every post has a base of five feet, and about two feet high. Where a post was merely driven, it is noted in the traverse. All posts were also planted well above the flood water, caused by damming the lakes in river driving.

On Lake Penage a careful triangulation was made throughout from several bases, which were measured and remeasured with a steel tape. Stadia readings were made on several of the triangulated distances, a table of which I have shown in the notes, with the resultant difference. In plotting my work across Berths 90 and 91, I was obliged to apply this difference in order to close reasonably with the recorded measurement of the line between those Berths.

In several places, where no other check was available, the measurements were carefully duplicated and compared.

Posts were planted on all islands, except on small, bare rocks where no loose stones were available to mound them, and properly marked and their

position is shown approximately on the traverse sheet. There were planted also posts about a mile apart on the shores and numbers cut thereon as shown in red on the traverse sheet.

I have the honour to be, Sir,

Your obedient servant,

T. J. PATTEN,
Ontario Land Surveyor.

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

Appendix No. 33.

SURVEY OF THE SOUTHERLY PARTS OF THE GROUND HOG AND KAPUSKASING RIVERS AND TRIBUTARY STREAMS AND LAKES, DISTRICTS OF SUDBURY AND ALGOMA.

COBALT, ONT., February 1st, 1921.

SIR,—In obedience to your instructions dated May 2nd, 1919, and further instructions of May, 1920, to traverse certain lakes and rivers in the Districts of Sudbury and Algoma, I have continued the work, and beg to report as follows:

1.—ROUTINE OF WORK.

On May 14th, I left Cobalt with my party for Kukatush, on the Canadian National Railway at the Ground Hog River Crossing. After caching part of my supplies at McLeod's store, I moved the party to Kasaswaychin Lake and commenced the survey of a chain of lakes which give a short route to Sahkatawichtah and Rice Lakes.

We finished survey of Kasaswaychin Lake on May 28th and moved camp to Katagi, the next lake, on May 29th. The survey of Katagi and Atekepemeska was finished June 10th and Arbeesee Lake commenced on the same day. Arbeesee Lake was completed on June 12th and camp moved to Sahkatawichtah Lake on June 13th. On June 16th, we had completed a portion of Sahkatawichtah which I was compelled by bad weather to leave unfinished in 1919, and camp was moved to the first portage en route to Rice Lake. On the morning of June 17th, when I called on the party to carry on up to Rice Lake, two of the men, Wilfred McLeod and J. J. McDonald, refused to go on, saying the wages were too small and the work too hard. Charles Sheppard, Howard Johnston and Robert McLeod remained. Leaving Sheppard and Johnston to guard the supplies, I left with Robert McLeod for Kukatush. I employed E. B. Bourke as assistant and James White as cook, both of North Bay, and arrived back with them at Sahkatawichtah Lake on the night of June 23rd.

On June 24th I moved the party to Rice Lake and completed the survey

of it on July 6th. From here we moved to Opeepeesway Lake, finishing this survey on July 15th.

On July 16th, we moved camp about half-way to Kukatush and arrived there on July 17th.

On July 19th, we commenced the survey of Ground Hog River. Having more trouble with men, I sent Bourke to North Bay for others. Bourke was unable to get men, but I finally got two in Sudbury. We finished survey of the Ground Hog River on August 17th.

The party was then moved by train to Trout River, which was finished on September 4th. Camp was then moved to the north boundary of Kapuskasing township and the survey of Kapuskasing River commenced. This was the final survey of the year, and was completed and the last men paid off on September 30th.

The following is the mileage of the traverse:

	Miles
Kasaswaychin, Katagi, Atekepemeska and Arbeesee Lakes	60.0
Rice Lake	44.0
Opeepeesway Lake	39.0
Sahkatawichtah Lake	4.0
Ground Hog River	87.0
Trout and Kapuskasing Rivers	97.0
Total	331.0

2.—Method of Survey.

(a) Instruments Used.—The traverse was made throughout by transit and stadia. Azimuth angles were used and also the angle to the right was measured between stations. The stadia rods used, read direct to tenths of links. The targets were about two feet long by about six inches wide, one being firmly placed at the top of the rod, and the other moved to the correct position by the rodman. A supply of white linen was carried and the targets newly covered from time to time.

The accuracy of readings was checked from time to time by readings on chained lines and also on the sides of triangles calculated from chained base measurements. They were found to be very accurate.

(b) Field Notes.—One form of field notes was kept throughout the course of work. The notes were transcribed in ink and carefully checked. They show: station, azimuth, distance, angle right, bearing and, under Remarks, the point on which the reading was taken.

(c) Observations were taken frequently on Polaris for azimuth. The results are shown in the field notes.

(d) Posts and Blazed Trees.—Along the banks of the rivers and around the shores of the lakes, trees were blazed at intervals of about one mile and were marked: 1 M., 2 M., 3 M., etc. Records of these are shown on the plans and in the field notes.

On islands stump posts were made. A good sound tree was felled and the stump squared and marked with a letter, "A," "B," "C," etc., except in some cases when the island was very small, when a tree was blazed. The bearings shown to posts and trees are measured with the transit and are astronomic.

(*e*) Survey Lines, Township Boundaries.—In all cases where survey lines were found, they were tied in and are shown on the plans. Posts were planted

one chain from the shore on each side of the river or lake, where this had not been done in the original survey.

3.—Descriptions of Lakes and Rivers.

(*a*) *Kasaswaychin, Katagi, Atekepemeska and Arbeesee Lakes:*

Shores.—The shores of all these lakes are very similar, being mostly high and rocky. Back from the water's edge, the rock is covered with a sandy clay and boulder overburden. From different rock exposures I saw, I should say the formation was nearly all granite.

Timber.—Except for a brule near the C.N. Railway and one or two small brules, the timber is of good quality; jack pine, red pine, spruce and birch, averaging about twelve inches in diameter, with some cedar. Logs are at present being driven down a creek from Katagi to Kasaswaychin Lake, and may be driven from as far west as the west end of Atekepemeska Lake. From Arbeesee Lake the water flows south-westerly towards Sahkatawichtah Lake. The creeks could be driven in high water, if well cleaned out.

These lakes, together with a lake about two miles long in McOwen Township, form a very good canoe route to Sahkatawichtah Lake. The only portage not shown on the plan is one of four chains over a small falls at the foot of the lake in McOwen.

(*b*) *Rice Lake.*

Shores.—Except at the north end of Rice Lake, the shores are high and rocky. The formation is nearly all granite.

Timber.—Nearly all the west side and south end of the lake has been burned over and is covered with small birch and poplar. The north end is a spruce and cedar swamp. On the east side of the lake, north of the Narrows, the timber is good, being red pine from twelve to twenty inches in diameter, jack pine, birch and poplar, up to twelve inches.

Islands.—There are about forty islands in the portion of the lake west of Frater township, the largest, containing 37 3/5 acres, six others from 10 to 20 acres, the remainder very small. With the exception of a few of the smaller islands, all are well timbered with red pine from twelve to twenty inches, and jack pine up to twelve inches, with some spruce and cedar.

(*c*) *Opeepeesway Lake.*

Shores.—The shores of this lake are very similar to Rice Lake, being nearly all high and rocky.

Timber.—The timber on the shores of nearly the whole of the lake has been burned and small birch and poplar have grown up. There is, however, at the south-east of the lake, some white pine of from nine to sixteen inches in diameter.

Islands.—There are about twenty-one islands in the lake, all being small, the largest containing not more than five and three-fifths acres. They are nearly all well-timbered, mostly with red pine.

(*d*) *Ground Hog River.*—The survey of the Ground Hog River was commenced at Ground Hog Lake and continued through the townships of Keith, Penhorwood, Reeves, Melrose, Parke, Strachen, Montcalm, Poulett, Hicks, Stringer and into McVicar.

Ground Hog River has a width of from three and one-half chains, just north of the C.N. Railway, increasing to a width of from eight to nine chains in Stringer Township. The banks are, generally speaking, fairly high and well wooded, except where the timber has been burned. Brules and the kind of timber are shown on the plans.

The river was very low in August, when the survey was made, which made the work much easier. In high water, the flow would be very rapid. There are numerous rapids and a few falls. The most important rapids are the Five and One-Half Mile rapids, in the townships of Strachan and Montcalm, and the Ten Mile rapid, from Station 17 in the township of Hicks, through Stringer, to Station 13, township of McVicar. The total fall of the first is eighty-five feet, and that of the latter about the same, the Ten Mile rapids being much flatter. Canoes can be poled or tracked nearly all the way up both rapids, there being three lift-overs in each.

The Pishkanogami River flows into the Groundhog from the west, between Stations 23 and 24, in the township of Montcalm. At its mouth it is only about one and one-half chains wide. The banks are very steep and densely timbered. Cedar grows very thickly and overhanging the stream.

The Natt River empties into the Groundhog at Station 17 in Poulett township. It runs parallel and can be used for a canoe route when the Groundhog is high, to overcome the Five and One-Half Mile Rapids. Its width is from one to one and one-half chains.

Waterpowers on Groundhog River.—There are two powers which can be developed without extremely long penstocks for dams. The first is at Station 11 in Reeves Township and has a fall of eighteen feet. The flow measurement was made on August 22nd, 1920, but is away below average for the year, and is not a fair estimate. At this time it was 832.4 cubic feet per second.

The second power is somewhat better, having a fall of twenty-seven feet. It is located between Stations 6 and 8 in Melrose township. I did not measure the flow here, but would say 900 cubic feet per second, or practically 10 per cent. greater than the first falls would be about right for conditions at that time.

In both cases, the present head can be raised from five to ten feet without serious damage to lands upstream.

(*c*) *Kapuskasing River.*—The survey of the Kapuskasing River was commenced at the north boundary of Kapuskasing township and continued through the townships of Amundsen, Davin, Buchan, Clouston, Allenby, Maude, Concobar and Shaney.

Kapuskasing River has a width of about three and one-half chains at the north boundary of Kapuskasing township, and carries this width through to slightly north of the north boundary of Allenby. Through Concobar and Shaney the width increases to almost seven chains on the north boundary of Shaney.

The banks, with the exception of where rapids are shown, and at one or two points, are low, with a width of from ten to twenty chains where the ground rises to the average height of the country, say probably, one hundred and fifty feet above the river.

Timber.—The river is practically free from brules and the timber is nearly the same through the whole length surveyed, being cedar up to ten inches, poplar up to twelve, spruce from four to twelve, with some small balsam. There is the odd jack pine, but none of any great importance.

Waterpowers.—The most important power on the portion of the Kapuskasing surveyed is just north of the line between Buchan and Davin townships, between Stations 3 and 6. The falls itself measures 16 feet, but the total fall, including the rapids, is 33 feet.

The next is a falls of 10 feet in the township of Shaney, at Station 17. There are no others of importance.

(*f*) *Trout River.*—The banks of Trout River are very flat and covered with grass in most places for about ten chains. The country is very low and level.

Timber.—The timber consists of jack pine from four to eight inches, poplar, birch, small spruce and dead tamarac.

There are no waterpowers of importance.

Accompanying this report are:

Plans—	*Sheets*
Kasaswaychin, Katagi, Atekepemeska, Arbeesee Lakes	1
Rice Lake	1
Opeepeesway Lake	1
Sahkatawichtah Lake	1
Groundhog River	8
Trout River	2
Kapuskasing River	5

Field Notes.—Two field books containing notes of all surveys.

The above is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) T. G. CODE,
Ontario Land Surveyor.

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

Appendix No. 34.

FORT WILLIAM, ONT., February 2nd, 1921.

SIR,—We have the honour to report that in accordance with instructions of 6th May, 1920, in regard to traverse of certain rivers and lakes in the District of Algoma, we started out on May 27th, having secured the necessary supplies via C.N. Railway, and by special arrangement were dropped right at Nagagami Crossing, about 5 o'clock in the afternoon, giving us ample time to get our camp up and supplies under cover for the night. I was also enabled to get an observation on Polaris.

The next morning we started the traverse of the Obakamiga River. It took us one week to traverse this stretch of river until it flows into the Nagagami Lake. The land in the near vicinity is barren of timber with the exception of spruce and cedar (mainly) which grow densely along the river banks, in places hanging over the river and intertwining themselves in trees on the other side. This necessitated clearing out before any progress was made. In addition, the river overflowed its banks in many places, and here hubs had to be driven and a lot of clearing out and cutting before sights could be obtained.

Lake Nagagami was rather easy going except when we struck the islands, and here the mainland was so cut up that it made progress slow. There were

also some days when we were unable to go out on account of heavy seas, the lake being shallow and squally.

On the 14th of June, Mr. Kirkup had to return to town to procure two more canoemen, as our Indians had left on short notice. He rejoined the party on the 17th June with two men, and continued down the river.

The country tributary to the Nagagami River is in a general way low, level, clay country, covered with about two feet of moss and a small dense growth of spruce. Along the bank of the river the timber grows a little heavier but is scattered. As we neared the south boundary of McMillan township, we struck better country. Banksian pine and poplar ridges with sandy loam, and within the township of McMillan we found it to be rather heavily timbered with spruce. We tied into the Hudson Bay Company's Post on the Nagagami Lake, but it was deserted, and from appearances has not been used for several years.

The party arrived at the Transcontinental Railway on the 6th July and spent three days there repairing our outfit and getting everything ready for the next stretch of river. Mr. Kirkup had to go to Hearst to secure supplies and also one canoe as the other freight canoe had been ruined on the first part of the trip. He was also fortunate in securing the services of two good French-Canadians for freighting, who stayed with him throughout the job.

On the 9th July, the party started out again and packed supplies, etc., from the track to the north limit of McMillan township. From here they started to traverse once more and continued down the Nagagami and Kenogami Rivers to the south boundary of the Indian Reserve on the last mentioned river, tying in to the Hudson Bay Company's post at Mamawimattawa.

There is some good spruce timber in the township of McMillan, but north of there, through the townships of Fintry and Auden, it is scattered and scrubby, the soil being clay loam, very rocky. Just north of the last-mentioned township we struck a big brule about twenty years old, which, it is said, extends from the C.P.R. to the Hudson Bay. At any rate, it follows the river as far north as we travelled. It is clay country and, speaking to the Hudson Bay Company's factor, he said it was very productive and will grow almost anything. Mr. Kirkup also personally saw two or three good fields of potatoes at the Hudson Bay Company's post.

Fur-bearing animals are very scarce north of the Transcontinental Railway, and the Indians had very poor luck last year. Fish are also rather scarce.

On the 31st July, the party started back up the Kenogami River and made fair progress with the traverse, as the river is wide practically all the way. It is swift, shallow and rapid. There are no falls or heavy rapids and with six inches to a foot more water it could be called fairly navigable. There are high clay banks nearly all the way, covered with red shale. The country on either side has all been burnt and is now covered with second-growth poplar and a dense growth of willows. The moss has been burnt off and dried up, leaving a light clay loam covered in places with one or two feet of black muck and moss. This would make really good farm land. It is swampy in places.

The Pagwachuan River we found very dry, making our moves difficult. The river appeared to be in shelves or terraces, in some places seven or twelve feet deep, and suddenly so dry that we would have to drag our canoes. We ran rather short of supplies before we reached the Transcontinental on the 26th August. Here more supplies were secured and the party proceeded upstream and travelled to the boundary between the Districts of Algoma and Thunder

Bay, returning to the Transcontinental Railway grade on the 6th of September and entraining the next day for Fort William.

Timber.

In a general way there is no timber of economic value with the exception of the east side of Lower Nagagami Lake, the township of McMillan and in the near vicinity, and the northern part of the township of Bicknell. Outside of this there is nothing but old brule covered with second-growth poplar, and in some cases banksian pine and open swamps, with small spruce.

Game.

South of the Transcontinental Railway, speckled trout and pike abound in both the Nagagami and Pagwachuan Rivers. As regards the fur-bearing animals, they are also plentiful. We saw many moose and bear and signs of beaver and muskrat. North of the Transcontinental Railway we saw several moose, but no fur-bearing animals, nor any sign of their having been there. In conclusion we would say that we can only cover the territory in a general way in our report. However, the notes of timber and soil have been put on the plan in detail. We found in the course of preparation of the plan that owing to the small scale we could not show all our intermediate readings as so many bearings and lines made too much confusion. It will also be found that on some islands there are no trees marked or posts planted. These were omitted because there was no growth on these islands with the exception of long grass, and they are no doubt swept in the spring by the heavy flow of water.

Water Power.

Several waterfalls of various natures were met with in the course of the traverse. These were all of a small nature, with two exceptions, one at Gull Rock Portage, on the Nagagami River, and one in the township of Clavet; the former, according to information obtained, could develop 5,904 horsepower, and the later, 413. The heads of these falls were noted in the traverse and are shown in the field notes, together with a cross section of the river at these points.

Soil.

The soil in general is red and white clay, with clay loam in places and sandy loam on the ridges. It is generally speaking, good soil for agricultural purposes. It is rather rocky on the west side of Lake Nagagami and through the townships of Fintry and Auden, and north to the Three Portages on the Nagagami. North of this there are little or no rocky outcroppings.

During the months of June and July we experienced very heavy cold rains, but lost very little time as it generally happened that we moved on those days. The months of August and September were exceedingly dry as regards rainfall. There were no serious accidents or losses throughout the whole trip, although it was rather hard on the canoes, the four of which we used being practically done for, as they had to be dragged over the river bed so many times on account of the low water. This we did to expedite the work, as carrying the canoes would have slowed up the work very much, especially as there were no portages at these points. The waters of these streams seem to rise very rapidly, with a slight rainfall, but they drop even quicker.

Mr. Kirkup met Dr. Williams of the Geological Staff on the Kenogami River. He had taken exactly one week to come down to the mouth of the Pagwachuan River from Pagwa with two canoes. This trip is usually made in one day and a half. This will give some idea of what had to be contended with, especially going upstream.

The plots of traverse of the Nagagami, Kenogami and Pagwachuan Rivers are now completed and are being forwarded to you, with observations, accounts and vouchers in triplicate.

We trust all will be found in order.

We have the honour to be, Sir,

Your obedient servants,

BINGHAM & KIRKUP,
Ontario Land Surveyors

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

Appendix No. 35.

SAULT STE. MARIE, Ont., February 12th, 1921.

SIR,—Under instructions from you dated May 4th, 1920, to continue Missinaibi Lake and River surveys in the Districts of Algoma and Sudbury, I commenced organizing for this work on May 18th, 1920. I left Sault Ste. Marie with complete survey equipment and four men, for Missinaibi Station on main line of Canadian Pacific Railway. From Missinaibi Station I travelled by canoe on Dog, Crooked and Missinaibi lakes, and reached the point of commencement on this year's operations at Missinaibi Lake on May 26th.

For description of Missinaibi Lake please see my report of last year, as there was only a small portion of the work on this lake to complete.

The system of survey was carried out similarly to last year's work. Clearly marked bench marks were established at all the possible places for water power development. Levels based on Canadian Pacific Railway elevations at Dog Lake were carried through and checked out on the Canadian National Railway bench mark on Missinaibi River bridge near Peterbell Station to within one foot. This was checked again at the railway bridge crossing the Greenhill River three miles west of Argolis Station, and levels carried up Greenhill River to Greenhill Lake, where a bench mark was established.

MISSINAIBI RIVER, TOWNSHIP OF LERWICK.

The outlet of Missinaibi Lake is in the Indian Reserve about twenty chains west of the west boundary of the township of Lerwick, about five and one-half miles south of the north-west angle of the township. At the outlet the banks and bottom are of clay soil with no indication of rock. The last available site for a dam is, in my opinion, at the head of the rapids, forty chains east of

the west boundary of Lerwick, where solid rock outcrops on both sides and with elevation about 1,039 at the river crossing. I did not study topography with particular attention to construction of dams, but I consider that a dam of possibly fifteen hundred feet in length could be constructed to raise the level of the lake about fifteen feet. Apparently there are no better locations down the river.

Township of Coderre.

From this point the river runs south-easterly, north-easterly and northerly and crosses the north boundary of the township of Lerwick at 47.65 chains west of Mile $4\frac{1}{2}$, the total fall to this point is forty feet, comprised in about five different rapids. The banks of the river are of clay soil, with occasional outcrops of rock. The timber is principally poplar, jack pine, spruce and balsam, indications of the river being that a fair yield of pulpwood could be taken off. At high water this wood could be floated to the Canadian National Railway, and there is opportunity for ponding this about a mile below the railway crossing.

The river runs almost due north through the township of Coderre, then turns west along the northerly boundary and runs southwest to westerly boundary. The Canadian National Railway crosses the river by a deck plate girder bridge half a mile east of Peterbell Station. The river is of easy slope from the south boundary to within a mile and a half of the north boundary. From this point to a crossing of the westerly boundary there is a total fall of twenty-eight feet distributed through this distance in many small rapids. The timber is of little value as seen from the river. The soil is of clay land along the shores.

Township of Hayward.

The river enters the township of Hayward about a mile and a half north from the south-easterly angle of the township, then flows generally parallel to the easterly boundary, crossing it and recrossing it at 21.25 chains and 50 chains north of the south-west corner of township of Champlain; thence westerly about a mile and a half to where the Greenhill River enters, and thence in a general northerly direction to the north boundary of the township, crossing boundary at 52.80 chains west of north-east angle of township. Above junction with the Greenhill River, there is a rapids about three-quarters of a mile long with a drop of thirty-three feet, which can be passed by a portage about fifty chains long. Up stream from this to the township of Coderre, there is a very slight fall in the river. Below the junction of the Greenhill River to the head of Split Rock Falls, there is a drop of twenty feet distributed in several rapids. At Split Rock Falls there is a drop of 15.6 feet, the watershed area at this point being approximately 2,300 square miles. There is a good site for a dam at the head of the Falls, with rock outcropping on both sides. The fall could be increased to thirty-five feet by the construction of a dam and flooding back would combine with regulation with Lake Missinaibi and make a probable development of five thousand horse power. (See Appendix No. 1).

The soil is typical clay land with areas of sand and outcrops of rock, including gneiss.

This township is included in the limit assigned to the Hayward Lumber Company. They are chiefly getting out jack pine timber for ties. There are considerable pulp areas distributed through this township.

Township of Champlain.

From the north boundary of the township of Hayward, the Missinaibi River runs north-easterly through unsurveyed lands and enters the township of Champlain at the west boundary about two and one-half miles south of the north-west corner of the township, and then flows north-easterly to the northerly boundary, crossing this three miles east of the north-west angle. This is easy navigation the entire distance, except at Mary Falls, about one mile south of the north boundary, where there is a drop of twenty-four feet in a very short distance. There is a good outcrop of bed rock on both sides of the river, and it is my opinion that a dam could be erected here to flood back the water almost to Greenhill River junction, but this would have to be determined by contour survey. Water at head of Mary Falls is four feet below water at foot of Split Rock Falls. (See Appendix No. 2).

The timber and soil are similar to the township of Coderre.

Township of Ericson.

The Missinaibi River enters this township at the southerly boundary three miles east of the south-west corner of the township and flows in a general north-easterly direction through the township. Very easy current the entire distance, velocity being about twenty chains per hour. About two miles from the southerly boundary of the township the Fire River enters. This river has not been surveyed and is larger than the Greenhill River. A portion of Brunswick Lake is included in this township and can be reached by a fifty chain portage from Missinaibi River.

The timber consists principally of spruce, poplar, balsam, birch and cedar. The north centre portion of the township is principally brule. The soil is of clay with outcroppings of rock, particularly in north-west portion of the township.

Township of Cromlech.

The Missinaibi River enters this township at the south boundary near the 2 mile post and runs in a northerly direction, with very little fall to the north boundary of the township. Half a mile south of south boundary a portage runs eastward connecting to Opazatika Lake through a string of small lakes. The main portion of Brunswick Lake is included in this township within the westerly three miles.

The portion adjoining the river is excellent clay land, timbered with second growth poplar and birch, with fringe of spruce, balsam, poplar and cedar.

Township of Abbott.

The river runs through this township in a general course north, north-west, with very little fall; it is joined by the Brunswick River, which flows almost due north, at a point about two miles south of the north boundary of the township, there being a drop of about twenty-five feet between Brunswick Lake and Missinaibi River. Please refer to separate report on this matter.

The land in this township in the vicinity of the rivers is good clay soil, with occasional outcroppings of rock, timbered with spruce, balsam, poplar, birch and cedar.

Township of Rykett.

The river enters this township about a mile and a half east of south-westerly angle of the township and flows north-east for about three miles, then north for about four and one-half miles, and north-east for about a mile and a half, then north to the northerly boundary at about one and one-quarter miles east of north-west angle. From this point, the river skirts the northerly boundary to within thirty chains of the north-west corner. About a mile and a half downstream from the southerly boundary, there is a rapids with a seven-foot fall; and about three and one-half miles from the southerly boundary, there is a fall (Pond Falls) with a head of seventeen feet. The rock outcrop at head of

Wissanabie River, Township of Rykert.

falls indicates that a dam of about six hundred feet could be built to flood back possibly ten miles and create a head of twenty-five to thirty feet, which might be further increased by excavating a portion of rock outcrop at Devil Cap Falls, about thirty chains downstream. The watershed tributary at this point is approximately two thousand eight hundred square miles in area; if a head of thirty feet were obtained, and Brunswick and Missinaibi Lakes regulated, a development of five thousand horse-power would be possible. The distance from present railway communication is considerable, and it does not appear that this site will be developed in the near future. Through the balance of the township, the fall amounts to about twenty feet, principally in the next two or three miles.

The soil is of clay, timbered with poplar, spruce, balsam and cedar.

Township of Magladery.

The river runs through the south-west corner of the township, being at no point very far from the corner. The current is easy, and soil and timber conditions the same as in the township of Rykert.

Greenhill River or Conking River.

Pursuant to your instructions, I made a survey of this river from the Missinaibi River to Greenhill Lake, a distance of about thirty-five miles. In the first two miles of the river, from Missinaibi to the Canadian Railway crossing, the river falls thirty feet in a succession of rapids, a portage over a mile long being necessary. For about fifteen miles upstream from the Canadian National Railway crossing, the river has a very slight current, and is easily navigable for loaded launches, there being a depth of from ten to twenty feet at low water

Poplar Forest, in Township of Stanton, Missanabie River.

stage. Above this the river is easily navigable for canoe at ordinary stage. About seventeen miles upstream, Reva Falls has a drop of 32.7 feet, and three miles above this, Biron Falls and rapids has a drop of 30.8 feet. Above this, there is an aggregate fall from Greenhill Lake of about thirty-two feet, distributed through about a dozen small rapids. Greenhill Lake is merely an enlargement of the river, only about two hundred feet at its widest point. The watershed area above the two falls is very small, so that power development is out of the question.

The soil consists of clay, with outcroppings of rock at the falls and rapids.

The timber consists of spruce and a moderate quantity of poplar, balsam, and birch—a good deal of it below merchantable size—and scattered areas of jack-pine, large enough for timber. The spruce timber alone would warrant pulpwood operations.

BRUNSWICK LAKE AND RIVER AND FOSTER LAKE.

The survey was made in connection with Missinaibi River survey in 1920, pursuant to your instructions.

Traverse survey was carried up Brunswick River to outlet at end of lake, and the larger part of the lake was traversed by triangulation, with detail filled in by stadia readings.

The lake is of moderate depth and could be easily navigated with small launches; the shores, in general, slope gently upward, but in some places, particularly towards the south end, they are high, rocky and steep. I consider the surface elevation could be easily increased fifteen feet, which would include Foster Lake and spruce swamp at its southerly end, with the exception of the swamps. Flooded area for such increase would probably not exceed one thousand acres. Foster Lake is shallow throughout, with mud bottom; and its elevation is practically the same as Brunswick Lake.

Apparently, there is a favorable site for an impounding dam about two and one-half miles below north end of lake on Brunswick River, where there are small rapids with rock outcrops on both shores. The river is easily navigable for canoes only for the entire length downstream; but upstream it is necessary to resort to trekking.

The soil adjacent to the lake and river is of clay, with frequent outcroppings of rock, interspersed with swamps, as is evidenced by the number of small creeks tributary to the river.

The timber consists principally of poplar, spruce, and balsam, in quantities sufficient to make a fair pulp proposition.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) C. R. KENNY,
Ontario Land Surveyor.

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

Appendix No. 36.

SURVEY OF PART OF MONTREAL RIVER AND EAST BOUNDARY OF TIMAGAMI FOREST RESERVE, DISTRICT OF TIMISKAMING.

NEW LISKEARD, ONT., February 12th, 1921.

SIR,—Under instructions from the Director of Surveys, dated August 24th, 1920, we proceeded to Elk Lake on August 30th, 1921, and thence up the Montreal River to the location of the work. Owing to the extremely low water in the river and the rate at which it was falling, it was considered necessary to at once push forward to the head of Long Rapids, and start the traverse there. Even at this time, there was barely enough water in places to float

the heavily loaded canoes. At this point an observation was taken and the traverse carried forward, permanent stations being left so that the work could be picked up coming back.

Considerable time was spent trying to locate the line between the townships of Kimberley and Cairo, where it first crosses the river. At this point, the country has been burned over several times, the last time being in the early part of the summer of 1920. For a mile or more, either side of the river, what little timber there is standing, is so badly charred that it was impossible to find any blazes. Close to the river, one tree was found having three blazes on it that looked to be an old line. For purposes of closing off the traverse, this was accepted as being the line, and was afterwards found to be nearly correct when the traverse was figured to the second crossing. On account of not being able to accurately locate the line without considerable time and work, no posts were planted and no blazing done.

On the first section of the river in Cairo Township, all mining claims were ocated and tied to the traverse, excepting H.F. 11, 14 and 13. The fire at this point has swept the country bare, and completely destroyed the posts belonging to these three claims.

At the second and third crossings of the line between Kimberley and Cairo, the traverse was tied in and the line cleaned out, re-blazed and posted. In figuring latitudes and departures of the traverse between the second and third crossings of the line, the departures did not balance within approximately seven and one-half chains. The first mile of the township line was then chained and found to be in error nearly the same amount.

On the second section of the river in Cairo Township, all mining claims were located and tied in, excepting E.B. 2 and E.B. 9. Here, too, fire had destroyed all signs of lines and posts.

From here to the north end of the work, no difficulty was experienced in locating lines and posts of mining claims or townships. These were cleaned out and reblazed and posted where necessary. There was some trouble in finding the portages between the lakes north of Trout Lake, but these were well opened out and blazed when the traverse was run between the lakes.

In figuring the latitudes and departures for the townships of Robertson and Michie, the departures taken separately did not balance within approximately fifteen chains. On figuring the traverse between the south boundary of Robertson and the north boundary of Michie, it balanced very closely, thus showing the error to be on the line between Robertson and Michie.

The traverse was finished on the north end of the work on September 28th, 1920, and the party were down to the head of Long Rapids in Kimberley Township and at work in the afternoon of September 30th, 1920. In this section, all township, concession and lot lines were located and re-blazed and posted where necessary. All the original posts were found, excepting that on the line between lots 4 and 5 in the first concession of the township of Willison. This line was chained to the post on the first concession line for the necessary tie.

Instrument Work.

A Gurley Light Mountain transit with adjustable stadia hairs, was used on this work. Frequent tests of the stadia were made during the progress of the work, but at no time was it found necessary to change the adjustment of the hairs. The high degree of accuracy attained may be judged from the

attached latitude and departure sheets, when balanced against the chained distances on the township lines. The rod used was a sliding stadia rod with a total length of thirteen feet, equipped with a fixed foot target and a sliding vernier target. The rodman, in the front canoe, read the rod and noted the reading. In a few cases, where it was impossible, owing to heavily wooded shore line, to get stations within stadia shot, triangulations of the distances were made by laying off a right angle base of fifty or one hundred feet and reading the angle subtended by this base, and solving for the distance equal to the base by cotangent of the angle. Observations on Polaris were taken as often as possible, and the calculations of these are attached to this report. In some cases, owing to the extremely low water, it was possible to get instrument stations on sand and gravel bars in the centre of the river, and materially added to the speed of the work.

Timber.

Notes on the timber met with during the progress of the work, will be found on the accompanying plan. Much of the country, from the beginning of the work to the west boundary of the Township of Cairo, has been burned over, some of it for the second and third time. There are two fine areas of timber along this route: one of white and red pine, along the shores of Upper Matachewan Lake, and another of jack pine, around the small lakes in the centre of the Township of Robertson.

Water Powers.

Most of the falls and rapids met with on this work, are on the Montreal River in the townships of Kimberley and Cairo, and are shown on the accompanying plan. No good site for a dam exists at the Long Rapids, that would make it feasible to utilize the total drop in this section of the river. In the township of Baden, the traverse was tied to the Power Reserve of Big Bend Falls, which is a short distance upstream on the west branch of the Montreal River from Upper Matachewan Lake. As the falls did not come within the limits of the traverse, no further data was taken.

Buildings and Improvements.

The buildings along the river are of the usual log construction, and are, in most cases, in good repair. There is one frame building at the Matachewan post of the Hudson Bay Company. There are no dams along this route, the only improvement in the river itself being the dock of the Matachewan Gold Mines, a short distance above Fox Rapids, in the township of Cairo.

Islands.

All islands were given a designating letter, which was marked on a tree or post set in a prominent position. A sufficient number of readings were taken to give an accurate outline of the island, and if a closed traverse was, at any time required, it could be figured from the position of the different readings. No attempt was made to run a closed survey of each island, as in many cases it would have necessitated probably half a day's chopping for the entire party, on account of the amount of timber and brush overhanging the shore line.

The groups of islands along the south-west side of the township of Willison were numbered and lettered as shown on the plan of the original survey of this township.

Most of the islands, from the beginning of the work to Lower Matachewan Lake, have been formed from deposits of silt, etc., at the foot of rapids and at the junction with other streams, and are, in many cases, low and swampy and heavily covered with brush, with some large timber growing on a few of the higher parts. Many of them probably change their shape from year to year, owing to the action of the current during high water.

PLAN.

Accompanying this report is a plan, on tracing linen on a scale of twenty chains to the inch, showing all traverse run, together with the information collected on the work. In some cases, such as survey of island, ties to buildings and portages, where a large amount of detail was taken, it was found necessary to insert a plan of the area, on a scale of four chains to the inch, in order that all the information might be clearly shown. In each township, the numbering was kept separate, and for purposes of calculation was considered a separate traverse. On the plan every fifth station was numbered, to assist in locating any particular point. On the traverse sheets attached, the latitude and departure in inches for a scale of twenty chains to the inch, is given for each station, to facilitate the plotting of the traverse.

We have the honour to be, Sir,

Your obedient servants,

(Sgd.) SUTCLIFFE & NEELANDS,
Ontario Land Surveyors.

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

Appendix No. 37.

THESSALON, ONT., March 23rd, 1921.

SIR,—In accordance with your instructions, dated May 20th, 1920, I have made a survey of certain base and meridian lines near Lake St. Joseph, in the districts of Kenora and Patricia, and have also made a traverse survey of the portion of Lake St. Joseph which lies west of the meridian line run by myself in 1919, and beg to submit the following report.

The route to Lake St. Joseph is a fairly easy one. Leaving Hudson Station on the Canadian Government Railway, one can go by gasoline boat, via Lost Lake, English River, and Lac Seul, as far as Perch Ripple, the first portage on Root River, which flows into the north-east end of Lac Seul. This portage is about seventy miles from Hudson. The canoe route up Root River is good. There are ten portages, the longest one being over the height of land into Lake

St. Joseph. This portage is about half a mile long, and is much the longest of the ten. The portages are all in good condition, as this route is extensively used by the Hudson's Bay Company for transporting supplies to their posts at Osnaburgh and Cat Lake. The starting point of the survey was about twenty-five miles by the route travelled down Lake St. Joseph from the end of the lake.

The first base line was started at Mile 60 on the meridian line run by myself in 1919, being the boundary between the districts of Kenora and Thunder Bay. This base line was run west, astronomically, for a distance of 18 miles. The second base line was started at Mile 66 on the same meridian line, and was also run west a distance of approximately 18 miles. From the 6, 12, and 18 Mile on the first base line, meridian lines were run north, astronomically, a distance of approximately 6 miles, to intersect the second base line. These meridians are known as the first, second and third lines, respectively.

Each base line was run as a series of six-mile chords of a parallel of lati-

On Root River, Patricia.

tude. The meridian lines were run north-east. These lines were all well cut out and blazed. A substantial wooden post, of the best green timber available, was planted at the end of each mile, except when this point fell in a lake or stream, and was surrounded by a mound of stones wherever possible. Bearing trees were marked with the letters, "B T," after being blazed in a prominent manner, at every post where possible, and the bearings and distances of these trees from the various posts recorded in the field notes. The number of the mile was marked with a scribing iron on the side of the post facing the point from which the line started. Where the end of a mile came in a lake or stream, the post was planted on the nearest shore, and the chainage from the nearest mile was marked on the post with a scribing iron.

At the end of every third mile, wherever possible, a standard iron post, of the type recently adopted by your department, was planted. At these iron posts, pits were dug and the earth from these was formed into two square pyramidal mounds, in the manner described in the general instructions relating

thereto. In some cases, it was impossible, on account of the end of the mile coming in water or on unsuitable ground, to plant standard iron posts and dig pits and erect mounds. In each of such cases, a standard iron post, surrounded by a witness trench and accompanied by a conical mound, was planted at the nearest even chain where suitable ground could be found, from the correct position of the point to be established. These witness posts, trenches and mounds were planted to indicate the following points:

On first base line, 9 mile and 18 mile.

Preparing mounds and pits.

On first meridian line, III mile.

On second meridian line, III mile.

Frequent observations were taken to determine the bearings of the lines run. The greatest variation from the theoretical bearing, found in the survey of the lines, was 2 minutes. The bearing of the first meridian line is north 0 degrees 2 minutes east, astronomically. This was discovered after the line was run nearly all the way through, and it was continued to the end on this bearing.

The traverse of Lake St. Joseph was started at a point on the south side of the narrows of the lake, 59.00 chains north of the 61 mile post on the meridian run by myself in 1919. The whole of Lake St. Joseph, lying west of this meridian, was traversed during the season. Included in this are 470 islands, ranging in size from small bare rocks to several hundred acres in area.

In the traverse, all angles were measured with a transit, and the distances were obtained by stadia and micrometer. The traverse was checked carefully by astronomical observations taken as often as possible, and also by ties to the base and meridian lines run during the season, which intersected the shores of the lake a number of times. Every night the traverse work of the day was plotted on cross-section paper, on a scale of twenty chains to an inch, and by this means any error in the traverse was at once located and corrected. The closing errors in the traverse were remarkably small during the whole survey.

At intervals of about a mile on the shore, prominent trees were blazed on four sides, and marked on the side next the water with the letter "P," followed by the number of the tree, thus, "P. No....." Similarly, the islands were marked by having the letter "I," followed by the number of the island. Each of the trees thus marked was tied to the nearest transit station, the bearing and distance from the station to the tree being recorded in the field notes.

The details of the traverse, showing all measurements, all posts, trees, and other monuments, and all information necessary for the proper interpretation of the survey, have been plotted on a scale of ten chains to an inch, and tracings of these have already been sent to your department. A plan on a scale of one mile to an inch has also been prepared on drawing paper mounted on cotton. This plan shows the base and meridian lines, and their relation to the surrounding country. The shore line of Lake St. Joseph and of all islands within the limits of the survey, have been reduced by a pantograph and plotted on this plan. This plan accompanies this report.

The country around this part of Lake St. Joseph is rolling and rocky. South of the lake, the country is hilly, with ridges of rock and deposits of sand and gravel arising in places, to form rounded hills. The valleys are occupied by deposits of muskeg, and in places by stones and boulders. The easterly part of the country north of Lake St. Joseph, is more level, the first eight miles of the second base line being mostly in swampy country and crossing only a few low ridges. West of this, the country becomes more broken, conditions being very similar to those south of the lake.

There are no areas of any consequence fit for agriculture. Areas of sandy loam, suitable for garden purposes, exist here and there, but the total area of these, in comparison with that of the country as a whole, is insignificant.

The whole country has suffered extensively from fire. Practically the whole of the south side of the lake has been burnt over at different times, and the timber is second-growth of various ages, depending upon the date of the fire. Much of the country has been burnt over more than once. There are a few isolated areas of fairly good spruce in some of the valleys, which have escaped the fires, but these are rather small in comparison with the total area.

North of Lake St. Joseph there is a fairly extensive area which has not been burnt over, and on which there is a good growth of spruce. The second base line enters this area about half a mile west of the starting point, on the meridian of 1919, and continues in it for six miles, to where the line first crosses the northerly bay of Lake St. Joseph, which runs up to the easterly outlet of

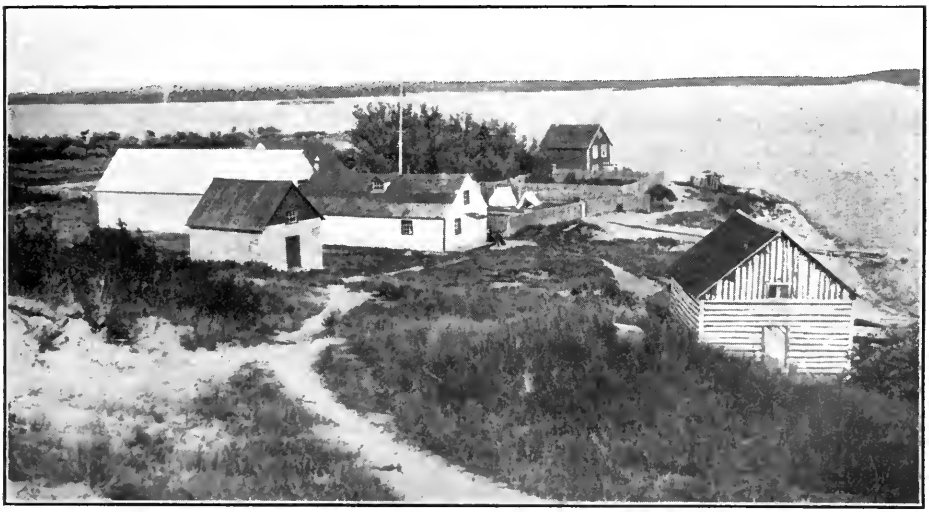
Cat River. This is a fairly level swampy area, with low rock ridges, and contains the largest quantity of timber seen during the survey.

The remainder of the second base line and the three meridian lines run almost entirely through burnt country, with second growth of varying ages.

There is a small grove of red pine on the north shore of the bay lying northeast of Island No. 49, near the east end of the part of Lake St. Joseph included in this survey. There would be probably fifty thousand feet of red pine in this grove, and it is the only red pine seen during the survey. There is no white pine whatever, the last white pine tree seen during the season being on an island in Lac Seul.

The second growth timber consists almost entirely of poplar, birch, jack pine and spruce. Along the shores of Lake St. Joseph there is considerable scrubby cedar, but it does not appear to extend inland, as very few cedar trees were observed along the lines.

Many of the islands have also suffered extensively from fire, although



H. B. Co. Post, Osnaburgh, District of Patricia.

some of them are fairly well timbered with spruce, jack-pine, white birch, and poplar of fair size. Information as to this is given in the detailed description of each island which accompanies this report.

The greater part of the portion of Lake St. Joseph surveyed during the season, lies between the first and second base line. The south shore of Lake St. Joseph, from the meridian of 1919 to the first meridian of 1920, is fairly straight and rocky, with occasional sand beaches. The ground rises quite rapidly from the lake, in places reaching an elevation of from 100 to 150 feet above the lake a comparatively short distance back. The north shore in this section, on the contrary, is low and flat, with many broad, deep bays, ending in fairly extensive marshes. Very little rock is exposed in this section, the shores being composed mostly of sand and boulders, excepting in the marshes, and these appear to be shallow, resting on a sandy sub-soil.

West of the first meridian the south shore becomes very much indented. There are many large islands with narrow channels between, these channels

extending back into the mainland in the form of narrow bays, and generally ending in marshes. The north shore is also considerably indented, but the islands are not so large. West of the second meridian, the main portion of the lake narrows down to a channel about four miles long, nearly straight, and from twenty to thirty chains wide. West of this the lake again spreads out into a number of irregular bays, one extending to the south-west for about five miles beyond the first base line, as far as Root Portage, which forms the height of land between the watersheds of the Albany and English Rivers. Another long bay extends for several miles to the north-east, dividing into two branches. The westerly outlet of Cat River enters the northerly one of these branches, at the extremity of which there is a short rapids with a fall of about three feet. The survey was discontinued at this point. Another outlet of Cat River enters a bay which runs north of the second base line a short distance west of the first meridian. Between these two outlets of Cat River lies Blackstone Lake, which is really an expansion of Cat River. This lake is a considerable body of water, with an exceedingly indented shore line crossed in places by the second base line and the second meridian. The second base line crosses a large island which lies between Lake St. Joseph and Blackstone Lakes, the two outlets of Cat River, of which Blackstone Lake is an expansion, forming the remaining boundaries of this island. No number was given to this island, it being treated as part of the mainland as far as the survey of Lake St. Joseph is concerned.

The geological formations in the area surveyed are of great interest. The rocks exposed along the first base line are mostly all granites, excepting near the extreme west end of the line, where it strikes the lake. Along the south shore of Lake St. Joseph the rocks are schists of Keewatin age, the contact between the schists and the granites lying between the first base line and the lake. The granites occur again on the north side of the lake, and on the islands adjacent to the north shore, while the Keewatin series, referred to above, runs along the southern portion of the main body of the lake, outcropping on many of the islands. The schists occur on both sides of the long channel west of the second meridian line, which is referred to above, the contact running along the southern part of the large island which lies between Lake St. Joseph and Blackstone Lake.

Associated with the Keewatin rocks which lie along the southern shore of Lake St. Joseph, there is an iron range, the strike of which follows the general direction of the lake, and which can be traced for many miles. Low grade iron ore outcrops in many places, mostly on the islands along the south shore of the lake, and for a distance of about three miles both east and west of the first meridian. The exposures are numerous and some of them are fairly large. The largest exposures occur in a laminated form, carrying about 35 per cent. of metallic iron, consisting of a mixture of magnetite and hematite. The best sample which could be considered as representing an exposure of any magnitude, contained 44 per cent. iron. No attempt was made to explore this range beyond what was actually necessary for the carrying on of the survey, and such samples as were secured were picked up as the survey progressed. It is by no means improbable that systematic exploration will uncover deposits of merchantable ore.

Traces of this iron range in the form of narrow bands of magnetite, occur at the west end of Lake St. Joseph, south-east of the first mile on the third mer-

idian, and similar outcrops were seen along the strike of the range, at intervals between the outcrops mentioned above.

In the year 1911 I surveyed an Indian Reserve near the east end of Lake St. Joseph, about thirty miles east of the present survey, and observed traces of an iron range which appears to be an easterly extension of this same range. In travelling through the easterly portion of Lake St. Joseph, I have noticed, at several points along the south shore of the lake, very strong magnetic attraction which appears to be spread over a large area. This iron range, from my observation, appears to be about fifty miles long, and the indications are of such a nature, and cover so much ground that I would take the liberty of suggesting that a detailed geological survey be made of this area.

Throughout the greater part of the Keewatin area, the compass needle was extremely erratic. The amount of local attraction was recorded in the field notes wherever it varied from the normal; but in many cases the vertical

Packing Survey Posts.

component of the attraction was so strong that the needle would drag on the frame of the compass or on the glass cover, and no reading could be obtained. These readings are shown on the detail plans of the traverse, of which tracings have already been sent to your department. The points at which exposures of iron ore were observed are also shown on these tracings.

There are no water-powers within the limits of the survey; but as stated in my report of last year, there are some falls on the Albany River, east of Lake St. Joseph, where power could be developed.

Lake St. Joseph is well supplied with fish of the varieties common to this north country. Pike and pickerel are very plentiful, and are easily taken with a troll, while whitefish and some lake trout are also taken in nets by the local Indians. Moose are very plentiful, and red deer appear to be coming into this section in increasing numbers. Partridge or grouse, of both the ruffed and Canada varieties, are fairly plentiful, and the number appears to be increasing in the last year or two. Some prairie chicken were also seen; but the

rabbits have almost disappeared. The local Indians report fairly good catches of the ordinary furs during the winter months.

Accompanying this report is a mounted plan on a scale of one mile to an inch, as previously mentioned; also my accounts in triplicate, which I trust that you will find correct. The field notes of the survey and the tracings, showing the details of the traverse, were forwarded to your Department some time ago.

I have the honour to be, Sir,

Your obedient servant,

JAMES S. DOBIE,
Ontario Land Surveyor.

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

Appendix No. 38.

PARRY SOUND, October 4th, 1921.

SIR,—I have the honour to report that, in compliance with instructions, dated the 16th of May, 1921, I proceeded to make a traverse survey of certain lakes and rivers in the townships of Harrison and Wallbridge in the District of Parry Sound.

Along with my party, I left Parry Sound on the afternoon of May 30th, by way of the Canadian Pacific Railway, arriving at Naiscoot Station the same evening, where we pitched camp. The following day, after making the usual tests of our instruments, I commenced the traverse of the Nescodaong River. This river, averaging about one and one-half chains in width, has its headwaters in the lake bearing the same name. For the greater part of its way, the Nescodaong River, on its travels to the Georgian Bay, flows through a flat, extending six to ten chains wide. The country then rises into a granite rock. Level stretches, extending a few chains back, are also found along the Big River, sometimes called Giroux Creek. But for a part of the way this river from its headwaters flows through a large marsh of varying widths, where at times the river bed is practically lost. The greater portion of the small rivers are navigable to light craft, but apparently this depends to a great extent upon the character of the year. Owing to the excessive rainfall last spring, and the nature of the ground at that time, the rush of water could only find an outlet in the river basins; consequently many of the old dams were swept away, thus lowering the level of these rivers considerably.

For the most part, the lakes and rivers are lying between high and rocky shores, ranging from ten to twenty-five feet high, some of them even higher, as in the case of the Still River near the Canadian National Railway crossing, where its bank rises into bluff rock, sixty to seventy feet high.

The South Maganetawan River is a fine water route, even by motor boat, for about eight miles west from the Canadian National Railway. The route

from the South Maganetawan to the north branch of the same name, must be made by the portage, as the rapids are too wild in high water, and after the freshets have abated, it leaves the river bed practically dry in many places. Coming into the North Maganetawan, we find a river in most cases several chains wide, with numerous small falls and rapids, at the foot of which the black bass lurk.

Timber.

As these two townships have long been under timber license, very little of the original forests remain. The axe of the mighty woodsman has laid these giants low, leaving in their wake the fuel for the fire to complete the destruction. So, today, outside of certain small areas of maple, birch and hemlock that this fiery monster was not able to devour, very little remains but the charred skeletons of the past. As if to hide this blackened pall, small birch, poplar, balsam, banksian, and white and red pine sprang up. While this pine is still small, a few more decades of protection would make it a valuable asset. Between Nescodaong Lake and Gordon's Lake some very good white and red pine, ranging between six and twenty inches in diameter, was met with. This extends some distance east of what is known locally as One Tree Lake. Areas of varying dimensions of maple, birch, and hemlock decorated the country around Horseshoe Lake, Pike Lake, and along the portage between North and South Maganetawan Rivers. As a rule, the shores of the larger lakes are nearly depleted of timber. This is, no doubt, due to the fact of its presence near these waters, the natural artery of transportation. The stretches along the river flats were clothed with large-sized elm and ash, intermingled with scattered spruce and cedar.

Soil.

Agricultural land, for the most part, is wanting in this country. Along the Still River, extending from Byng Inlet for about three miles upstream, was the only farming settlement met with. The land along this river, in the township of Henvey, is a clay loam, and appears very productive. Small areas along Big River were free of rock, but the country here is too sandy. There are a few scattered beaver meadows producing hay, but these are limited. With the exception of the river flats and numerous small swamps, the townships of Wallbridge and Harrison are rough, hilly, rocky country, unsuitable for agricultural purposes.

Minerals.

As the rock formation here is granite of the Huronic era, no minerals of any consequence have been found. Some very good dykes of feldspar lays along the Nescodaong River in the township of Harrison.

Fish and Game.

Although numerous tourists visit this section of the country, the many lakes and rivers still abound with black bass, pickerel and pike. Red deer grazed in the meadows and several bears were seen, and the wolf made his presence known by his nightly howls.

Water Powers.

No water falls of any importance are to be found in these townships. There are two small falls just east of the Canadian Northern Railway, four to six feet high, also two west of the railway, ten to twelve feet high, on the North Maganetawan River in the township of Wallbridge. At the foot of the falls there is a rapid with a fall, in about a mile, of thirty-eight feet, where a few hundred horse-power could be developed. While there are not large natural water powers to be found, there are places on the Still River where the banks are high and the river valley so narrow that dams could be easily built, making great heads of water.

While farming is out of the question, many of the shores and islands could afford a resting place for tourists. Nescodaong Lake has several suitable tourist's lots, and two beautiful islands, clothed with pine. South Maganetawan, with a fine water route from the Canadian National Railway, has some lovely points with sandy beaches. For those who wished farther to be removed, there is Gordon's Lake and several lakes to the east of it, all connected by good portages.

The township of Harrison was surveyed in 1876 by Thomas Byrne, and the township of Wallbridge by David Beatty, O.L.S., some few years later. Since that time, these two townships have been lumbered over several times, and coupled with the fact that the fires came to devour the remains, the original survey in many cases is nearly obliterated. True it is that many old pine stubs are still standing; but these are mostly burned so badly that blazes cannot be recognized. Along the banks of the larger lakes and rivers, nearly everything was cut, as it was easily taken to the water route, thus leaving not a trace of the former survey. In many cases, and by far the majority, where any traces of the original survey could be found, the marks were on fallen timber that, in a few more years, must readily succumb to the elements, thus obliterating entirely the original survey, as only those lot corners, where an old post has been perpetuated, can any landmark be found.

In reference to our surveys, you will notice that, north-east of Nescodaong and around One Tree Lake, in the township of Harrison, we have added several lakes that were not shown on the original plan as previously laid down. Nescodaong Lake and the lakes to the east of it are considerably higher—no doubt due to the presence of the dam on the Nescodaong River—thus making a motor boat route from the Canadian Pacific Railway to the east boundary of Harrison. These differences are general throughout. In the township of Wallbridge, you will also notice changes. Our plan of traverse will fully explain them. I am enclosing with the report, observations, descriptions of islands met with and area of same, and the bearing of the courses from station to station.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

J. T. Coltham,
Ontario Land Surveyor.

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

Appendix No. 39.

SURVEY OF THE EXTENSION OF THE TOWNSITE OF HEARST, TOWNSHIP OF KENDALL, DISTRICT OF ALGOMA.

COCHRANE, ONT., July 26th, 1921.

SIR,—I have the honour to report that I have completed the survey of Blocks "A" to "U," inclusive, and Lots 506 to 529 inclusive, between the subdivided portions of the townsite of Hearst, as outlined in your instructions to me under date May 27th, 1921, and I herewith enclose certified copy of field notes of said survey; also full expense accounts and other returns necessary for your department.

Under separate cover, I am forwarding by registered mail a plan on tracing linen, giving the measurements and bearings of the south and west limits of of Blocks "A" to "U," and the measurements along the front of each of the town lots 506 to 529 inclusive, said plan being on a scale of three chains to an inch, and duly signed and certified to by me, as required under the Survey Act.

Owing to the change in direction of the East and West streets, which occurs between 7th and 8th Streets, it has been necessary to re-survey lots 500 to 503 inclusive, and slightly alter the frontage of said lots in order to have the new survey conform with the previous subdivision, the axis of the change of direction running somewhat diagonally from the north-east angle of lot 503 to near the south-west angle of lot 500.

I have placed iron posts at the several corners of the Blocks, and also at the front angles of the lots 506 to 529 inclusive, as outlined on the plan which accompanied your instructions, with the following exceptions:

North-east corner Block "S."
South-east corner Block "J."
South-east corner Block "F."

Wooden posts, 2" x 2" were placed at the above three corners, as the number of iron posts expressed to me was not sufficient to post all the corners shown on plan.

All iron posts were marked with a cold chisel, as directed, by placing the letter "R" on the side of the post adjoining the road, and the block number letter on the side adjacent to the block.

The numbers 506 to 529, inclusive, were marked on the lot angle posts planted.

I accepted, as a basis for the above survey, the line between two iron posts in the north limit of George Street, one being at the south-east angle of lot 226 and a second at the south-east angle of lot 210.

Owing to the almost complete disappearance of all original posts of the ormer subdivision, no definite check could be made at the junction of the new survey with the old, as only a few isolated posts are visible on the ground within the settled area of the town, and those are by no means to be relied on as evidence.

The total expense of the survey, as certified by the accompanying accounts, amounts to $875.30, out of which sum I have received advances amounting to $555.00, leaving a balance to the credit of my account of $320.30.

I trust the accompanying plan, field notes, and accounts will meet with your approval, and that you will find the survey has been performed with efficiency and economy.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) J. LANNING,
Ontario Land Surveyor.

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

Appendix No. 40.

FORT WILLIAM, ONT., July 13th, 1921.

SIR,—We have the honour to report that, in accordance with your instructions of date 4th November, 1920, in regard to resurvey of the north three concessions of the township of Pardee, we started out with party on November 15th, and reached there late in the evening, making camp.

We made inquiries from many of the old settlers, who had been in both Pearson and Pardee a number of years, as to any evidence that they had found as to blazes and old lines, and in no case had old blazes or posts been seen.

We, therefore, retraced the south boundary of Pearson township, starting in accordance with your instructions, at the post planted by O.L.S. MacDougall, between lots 4 and 5, Pearson, assuming it to be the east limit of Pardee township, planting posts for Pardee, and renewing the Pearson posts wherever necessary.

We found no trace of the original line, and MacDougall's line was fairly obliterated, most of the way.

We ran south between sections 9 and 10, Pardee, and at the end of the first mile, finding that the topography did not work out with the old field notes, we ran east, crossing the Pine River. Here in the spruce swamp we found sufficient evidence to throw a shortage of 16 chains in the first concession.

This led us to be suspicious that the Pearson south boundary was not the north boundary of Pardee.

We afterwards looked north on this same line as finally located, and found the old original blazes extending for 12 chains into the township of Pearson. We found no posts or bearing tree.

We referred to the Director of Surveys the question of accepting the south boundary of Pearson for purpose of resurvey, or of endeavoring to locate the original north boundary of Pardee as run by Hugh Wilson in 1870, and under his instructions, accepted the south boundary of Pearson as marked by O.L.S. MacDougall, and planted all posts on this line.

On the east boundary of Pardee we found two old bearing trees, one at the line between concessions 1 and 2 and the other between concessions 2 and 3, also several old blazes which lined up fairly well.

This constituted all our evidence on the east boundary, which produced to intersect the south boundary of Pearson, making a jog of some ten chains west from the post, between lots 4 and 5, Pearson, which the Department believed to be on the line between townships of Crooks and Pardee.

On the south boundary between concessions 3 and 4, sufficient old blazes were found to establish the direction of the line; one old bearing tree between sections 11 and 12; an original cedar post and bearing trees in the swamp at the south-west corner, still in a well-preserved condition, were also found.

For the west boundary we ran in a northerly direction, following the blazes which occurred in the first fifty chains, and produced north to intersect the south boundary of Pearson, no further trace being found of the old lines.

It was very rocky, and had been burned over four or five times. This was found to leave a net distance of 320 chains across sections 10 to 13 inclusive.

Timber.

As is well known, this part of the country was stripped of its pine timber several years ago, and fires have ravaged it to a great extent, so that there is really no timber of economical value to be had. What is left of the spruce is being taken out by settlers for pulpwood.

Soil.

The soil in general is clay and clay loam, though badly broken by high hills.

With the building of roads to the settlers, they are satisfied that they can make a success of their operations.

We lost only three days through rain and snow during the months of November and December, 1920, and returned to Fort William on December 23rd. Conditions then became sufficiently bad for resurvey work that, in accordance with your instructions, we decided to suspend operations until spring.

We returned to Pardee in May 3rd, 1921, and completed the running of the lines.

In plan and field notes, we have shown cleatings made by settlers on the north half of concession 1, Pardee. As will be seen according to the lines as fixed by resurvey, part of Mr. Flood's clearing falls on the east half of section 11, located by Auld, and part of Auld's clearing falls on the west half of section 10, located by Gardner.

There is a clearing on the west half of section 7 made by Mr. Pitt, but we have been unable to ascertain whether Pitt has located on this lot on the east half of section 8.

We trust that you will be able to arrange some method of protecting these settlers in regard to the clearings in the issue of patents.

We returned from the field on June 4th, leaving two chainmen to re-post the north boundary, in accordance with the changed circumstances.

This they did, but unfortunately made an error in chainage, which Mr. Kirkup and one man had to go back to correct on January 22nd.

The plan of Pardee and the field notes are now completed, and are being forwarded to you, with observations, accounts, transports and stationery vouchers in triplicate.

We trust all will be found in order.

We have the honour to be, Sir,

Your obedient servants,

BINGHAM & KIRKUP.
Ontario Land Surveyors.

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

Appendix No. 41.

QUETICO PROVINCIAL PARK, November 2nd, 1921.

HONOURABLE SIR,—I beg to submit my report for the fiscal year ending October 31st, 1921.

We have had an average staff of ten rangers during the year whose duty was to patrol, repair and build cabins, cut trails, roads, etc. The rangers work in twos and the cabins are built so that at the end of their respective sections every alternate cabin serves the rangers of two or more sections.

We have built two cabins this year, one on Windogoostan Lake, near the eastern boundary, and one on Baptism Lake, also on the eastern boundary. The road to Kawene from Eva Lake was very much improved by the blasting of rocks, for which purpose a box of 60 per cent. dynamite was used, but owing to the unseasonable weather, the drainage was not completed this year. A road for fall and spring use was cut around Eva Lake on the west side, a distance of about ten miles to connect with the road from Eva Lake on the one end and with the road from French to Eva Lake on the other. This road is over a very rough country, but will serve its purpose during the opening and closing season of the water and ice routes, and was particularly needed in case of serious sickness or accident.

I would respectfully draw your attention to the number of tourists who enter the Park from the American side compared with what enters from the Canadian side. Of the angling permits sold, over one-fourth entered from the American side, and of the guides, nine out of thirteen were engaged on the American side. This is owing partly to the access to the Park from the American side, but principally because the Canadian National Railway through trains were not scheduled to stop at Kawene, the chief point of entrance on this side. The result is that the moneys spent by these tourists is spent with American merchants instead of Canadians, as we would desire. I would respectfully recommend that every inducement and convenience be offered to intending tourists to enter the Park from the Canadian side, so that their provisions and outfits might be purchased in Canada, and also that Canadians might be access-

ible as guides to those who require them. I had a barge built on Eva Lake for the purpose of getting in supplies, but the boat with which we tow it is not at all satisfactory. It is equipped with a 5 horsepower twin-cylinder Waterman engine, two of which were purchased three years ago. The hull of both boats are in good condition, and I would recommend that heavier power be purchased for each boat.

Moose and deer are very plentiful, and also fur-bearing animals, particularly beaver, which are increasing very fast. Partridge are so numerous I have counted thirty-eight in the door-yard on one occasion.

I have the honour to be, Sir,

Your obedient servant,

HUGH MCDONALD.

The Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.

Appendix No. 42.

ALGONQUIN PROVINCIAL PARK OF ONTARIO.

HONOURABLE SIR,—I beg to hand you my annual report for the fiscal year ending October 31st, 1921.

Our staff for the past year has been composed of thirty-five rangers, housekeeper and superintendent. Three of the old staff were retired, having reached the age set by the Act, and three new men appointed to replace them.

During the hunting and trapping season these men have been constantly travelling their sections, and owing to the lack of employment generally, they have been kept constantly on the move, the temptation to do some illegal trapping being too great for men who, if otherwise employed, would not do so. No doubt some parties have succeeded in getting away with furs, which, considering the vast area and the many means of entrance into the Park, is not to be wondered at. However, I feel our men have done their best and have kept the Park comparatively clear of poachers. Several have been routed out and their traps and supplies taken, and some have been brought in to stand their trials. Fines have been imposed to the amount of $110, and all traps, etc., taken.

Game of all kinds has very much increased, especially the deer, which are to be seen in numbers wherever you go in the Park. Partridge (ruffled grouse) too are more plentiful than they have been for many years, the past winter having been most favourable both to deer and grouse. Beaver, mink, marten, fisher and otter are also abundant everywhere. Even the sections, such as Joe Lake, where so many were taken out for years, have filled up again. No trapping has been done by the rangers this year in accordance with instructions, and no live animals of any kind shipped from the park. Wolves are numerous in some sections despite the fact that the rangers wage constant warfare upon them, and a great many deer are destroyed by these brutes. Our men have poison

out for them wherever advisable and several have been taken. They come in from north of the Ottawa River every fall, owing to the abundance of deer in the park, and the ease in obtaining food. It is seldom the rangers get a chance to shoot them, but a few are taken in that way. Poison, however, is the main, and in fact the only successful way of getting them.

As a health resort, the Park is becoming very popular, and this year we have had hundreds of visitors all through the season from all over Canada and the United States, also many from abroad. The hotels have been filled to overflowing all through the season. Fishing has been exceedingly good in all sections, some very fine specimens of salmon trout and speckled trout having been taken. The small-mouthed bass introduced into these waters by the Department have proven a great addition and afford splendid sport to the angler.

Apart from the revenue derived from fishing licenses, which this year amounted to $1,919.00, there is a very large amount spent in the province by the parties who visit the park, principally for the fishing, and I would strongly recommend keeeping the lakes along the Grand Trunk Railway well stocked each year so that there may be good angling for parties who cannot go far afield.

While the primary object in setting aside this vast territory was the preservation of our Ontario fur-bearing animals, and I think this should always be kept in mind in dealing with all subjects pertaining to the park, it has become so popular with, not only the people of the province but with the whole of America, that it is evident provision must be made to meet this growing desire of the people to get close to Nature and become acquainted with the wood folk of our Canadian woods. This is a healthy desire and I think well worth encouraging. I would therefore recommend opening up the lakes adjacent to the railway for leasing. Cache Lake is pretty well taken up, but there are the following lakes that could be opened up: Rainy, Brule, Potter, Joe, Source, Lake of Two Rivers and Whitefish. The Grand Trunk Railway touches all these lakes and the timber has all been cut adjacent to them. This would meet the need for many years to come.

We have a number of Boys' School Camps on different lakes, all of which were well patronized this season. The Girls' School Camp, too, under the management of Miss F. L. Case, of Rochester, located on Cache Lake, had some seventy-five inmates for the summer.

Several new leases were applied for on Cache, Rock, Canoe and Joe Lakes, and several cottages were erected.

Rents to the amount of $1,124.00 were collected here. This does not include rents paid by the Grand Trunk and others direct to Toronto.

Regarding bush fires, we have been very fortunate. A number were started along the railway but in all cases they were gotten under control before any damage was done. In the north section they were not so fortunate, but most of the portion burnt over had been cut out and fire had been over it before. The fire tank here has been a great advantage, and I consider one should be stationed at Brent, on the Canadian National Railway, under competent men. This would very much minimize the danger from fires started along the right-of-way, and it is from such fires we have suffered in the past. We seldom have fires started by tourists and it is very gratifying to note the increased interest taken by the people along these lines. The telephone system too has been a great advantage in this and many other ways.

Our staff during the summer months, when there is no danger from trappers, act as fire rangers on their respective beats, cut out portages, repair and built shelter-houses and see that the park regulations are observed in every way.

Some startling reports reach the Department from time to time regarding laxity of the park staff and the large quantity of furs illegally taken out of the park. This has especially been the case with each change of government, but they will, as they have in the past, prove mostly untrue. I have no hesitation in saying that the rangers do their work to the best of their ability and are respected by all who have not a mean desire to make trouble. A great deal of time has been spent in the past in running down such reports, generally to find them either a matter of spite and wholly untrue, or cases of hearsay.

Considerable work was done on the Minnising Road, making it fit for a car to travel, which was highly appreciated by the visitors who had to travel it to Minnising Camp.

I, myself, reach the age set for retiring before the end of the coming year, and while I feel quite competent to continue the work as I have for the past twenty-three years, I am quite willing to retire or remain as the Government may direct. I have given the best of my life to this work, and I assure you, whether I am retired or not, I shall always take the deepest interest in Algonquin Park. The people of Canada are only beginning to realize what a boon it is to them not only as a game preserve and pleasure ground, but as the preserver of the water supply of a large portion of the province, no less than five rivers taking their head here.

The bass supplied from the Government hatcheries were this year planted in Cache, Pollies and Lindies Lakes, and I would strongly recommend a like number being sent next season, also some salmon and speckled trout for adjacent lakes.

I have the honour to be, Sir,

Your obedient servant,

(Sgd.) G. W. Bartlett,
Park Superintendent.

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

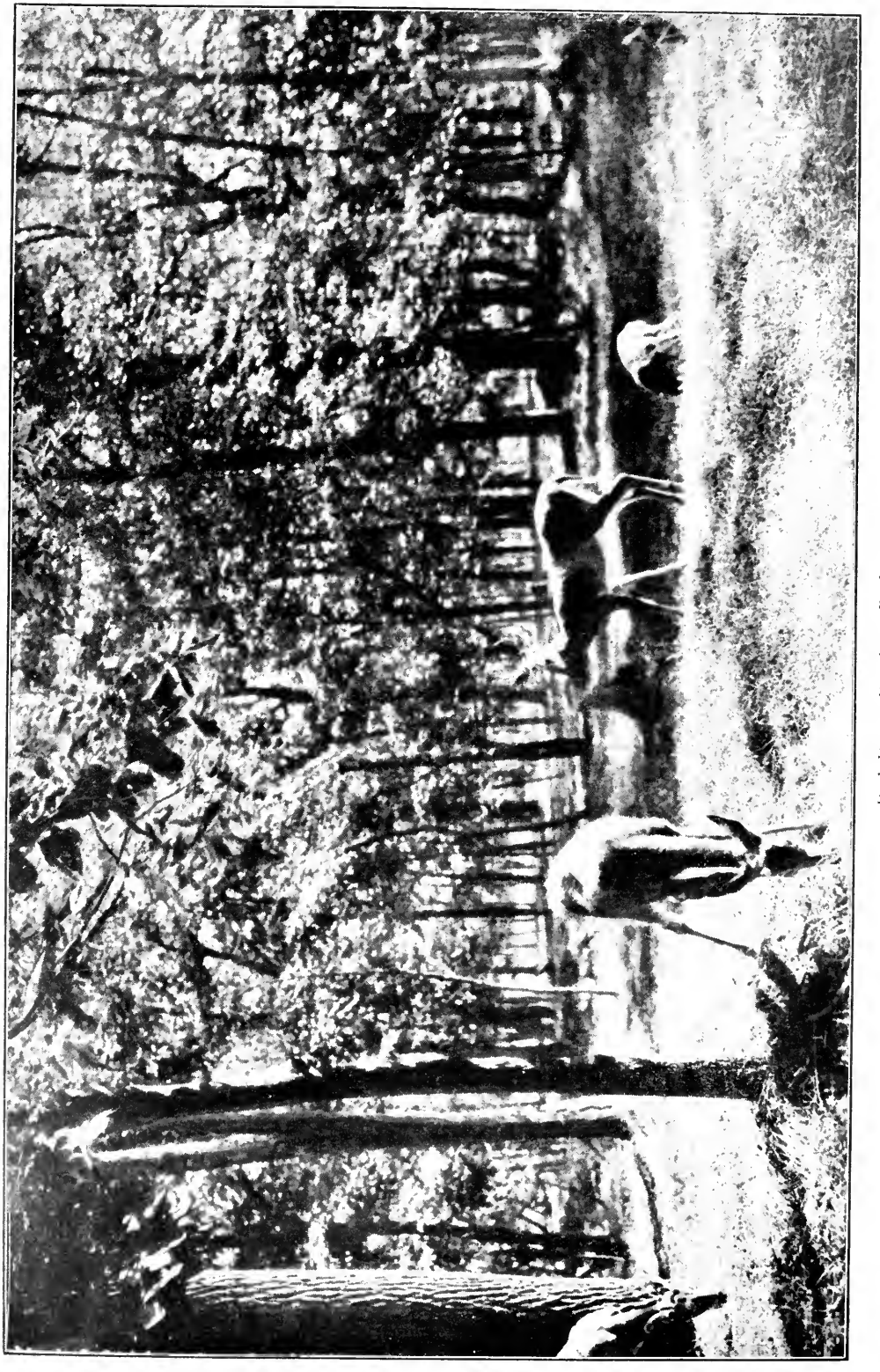
Appendix No. 43.

Rondeau Provincial Park.

Morpeth P.O., Ont., October 31st, 1921.

Honourable Sir,—I beg to submit my report for the fiscal year ending October 31st, 1921.

Rondeau Provincial Park, as a summer resort, is becoming more popular each year, situated as it is at the extreme end of the town line between Harwich and Howard Townships, about four miles south of the Talbot Road Provincial



Red Deer—Rondeau Park

Highway. Many tourists avail themselves of the opportunity of visiting our beautiful park, and as it covers an area of about 5,000 acres and is thickly wooded with all kinds of timber, it affords a great deal of interest and pleasure to lovers of nature.

Both the Eau side and the Lake side are equally popular for the building of cottages, and the surveyed lots on both sides are nearly all taken. Lots have been in steady demand this last summer. Twenty-two new cottages have been erected and twenty-six or more are to be built next season. There are now between fifty and sixty cottages in the park.

Last summer a large number of people availed themselves of the tenting privileges of the park, and many white tents were pitched in the shade of the wide-spreading oaks, while some were up among the "Pines," about a mile up the lake shore.

A certain amount of lumbering was done last winter by taking out dead and deteriorated timber, which was sawn up into different grades of lumber, and will be used for building and repairing whatever may be necessary in the park. As we purchased a planer, this year we are able to put all our own material in shape for building, as otherwise we would have to draw it a distance of 12 miles to get it sized and dressed for use.

This providing of lumber ready to use made it possible for us to reconstruct and repair the old pavilion into a new and up-to-date one, and it is now in good condition for the use of the public in holding public gatherings or for convenient shelter when needed.

One thing that was needed very much was the supplying of hot and cold water to the public. A new building was therefore erected in which a hot water system was installed. This has proved a great boon to the large picnics which come here from great distances, as it has supplied all demands so far, being equal to the occasion in the case of one of the largest picnics ever held here—that of the Howard Councillors and U.F.O., which was held on the 26th of August—the crowd being estimated at around 30,000. A large number of new tables and benches were also made this year and placed in the picnic grounds for the convenience of the public.

As the park has been so well patronized this year, the public store and restaurant did a thriving business, the largest of any previous year.

Last winter several hundred loads of gravel were drawn down the beach, a distance of some four miles, to be used as needed for cement work and repairing of roads. The roads are sandy and they need quite a lot of attention, as holes are very easily worn in them by the constant traffic.

One feature which was an additional attraction to the park this year, was the introduction of a good, well-equipped launch, built by a private party, and used for excursions on Rondeau Bay, and also for running excursions to Erieau and Erie Beach, as well as to other summer resorts to the west of Rondeau Park. This is something that has been needed for some time, and it has proved very popular.

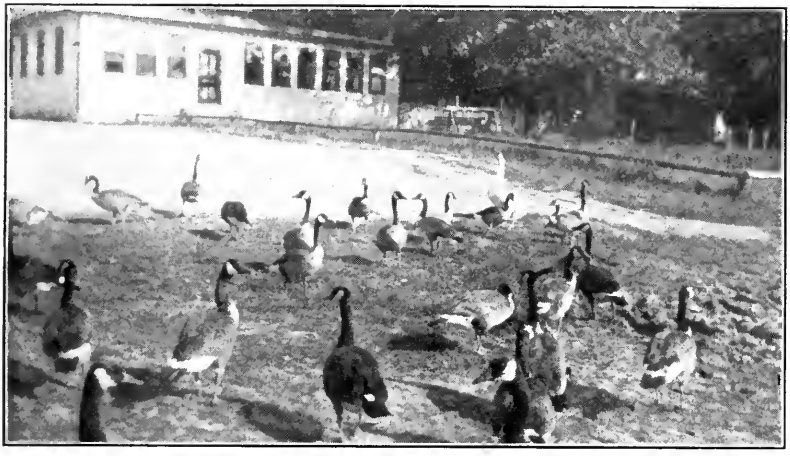
We have had a fairly successful year in rearing pheasants and we have supplied many eggs to people outside the park for propagation purposes.

The wild geese and wild turkeys do not increase in numbers very rapidly as there are too many enemies to permit of the young birds coming to maturity.

Deer are very plentiful and are of considerable interest to the visitors. The marshes contain great quantities of muskrat. Some trapping of these rats is done from year to year.

Pavilion and Café, Rondeau Park

Intersection, Rondeau Park.



Wild geese at home,—Rondeau Park.

Domesticated Wild Turkeys,—Rondeau Park.

The colony of beaver is thriving, although it is impossible to give an estimate of their number. Some new colonies are reported outside the park.

The wild duck season has been one of the best in years for lovers of that sport, the ducks coming here by the thousand.

As Rondeau Park is so interesting in every way, those who have visited it once wish to come again, and many communications are received every season asking for accommodation. We can only assist a limited number, however, by securing cottages from private parties who are willing to rent. But there are a great number who wish hotel conveniences and there is nothing provided for as yet in that line. We hope in the near future to see a modern summer hotel erected which will provide ample accommodation and thus make Rondeau Park a most popular and favorite resort.

Yours very truly,

(Sgd.) GEO. GOLDWORTHY,
Superintendent Rondeau Provincial Park.

Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.

Appendix No. 44.

TORONTO, ONT., October 31st, 1921.

HONOURABLE BENIAH BOWMAN,
Minister of Lands and Forests, Ontario.

SIR,—I have the honour to present the annual report of the work done by the Colonization Roads Branch during the fiscal year ending October 31st, 1921, which in schedule form gives the details of each portion of work undertaken and its cost.

Construction and repair of roads and bridges was carried out as has been the case since the year 1909, first, by the direct expenditure of money by this Branch, and second, by making grants to Municipalities passing Colonization Roads By-laws authorizing expenditures upon certain of their roads. Grants were also made to Municipalities passing by-laws for the purchase of road machinery and for the salaries of Township Road Overseers.

Our total expenditure for the year was $506,180.80. Of this the sum of $293,540.26 was expended directly by the Government on roads and bridges. $176,154.04 was granted towards Colonization Roads By-laws, $2,553.52 towards Machinery By-laws and $552.40 towards the salaries of Township Road Overseers. A further sum of $33,380.58 was expended on inspection of the work, engineering, surveying and locating roads and other miscellaneous items.

The work carried on by direct expenditure through our Branch, embraced 75.29 miles of new road construction and 540 miles of old road improved, making a total of 615.29 miles. 257.4 miles were surfaced and 62 bridges and 1,284 culverts were constructed. With the assistance of the grants towards the Colonization

Drain in swamp constructed entirely by means of blasting powder.

Pioneer road through rock cut, Muskoka District.

Roads By-laws, 42.01 miles of new road were constructed and 605.75 miles of old road repaired or improved, 334.9 miles of this were surfaced and 61 bridges and 1,260 culverts were built.

During the year several trunk and main roads were surveyed, and are now being mapped. This work is very important and should be continued so that we may have adequate records as to the location of the roads we have built

Wolf Lake, Shore Road, Frontenac County.

and reliable data as to the roads upon which we are contemplating construction in the immediate future.

The labour situation during the latter part of the season approached the normal conditions which existed before the war, and there is every indication that so far as our work is concerned, normal conditions have arrived.

C. H. FULLERTON,
Superintendent Colonization Roads.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
1	Aberdeen Township roads								40
2	Admaston Township roads								
3	Addington road, Kaladar and Denbigh								400
4	Albermarle Township roads								
5	Algona North Township roads								
6	Algona South Township roads								
7	Allan Township roads	280	36	280	30				
8	Alice and Fraser Township roads	75	30	75	18	gravel	90	8	
9	Airy Township roads								
10	Anson and Hindon Township roads								2
11	Anstruther Township roads								
12	Appleby Township roads	120	16	91	14				
13	Armour Township roads	160	40	160	18	gravel	60	6	
14	Armstrong Township roads	260	50	245	30				
15	Assiginack Township roads								30
16	Badgerow Township roads								
17	Bagot and Blythfield Township roads								
18	Baxter Township roads								200
19	Baldwin Township roads	20	30	150	18	earth	20	8	180
20	Balfour Township roads	40	40	25	30	clay	40	6	20
21	Bangor, Wicklow and McClure Tp. rds.								820
22	Barber Township roads	91	20	87	20				
23	Barrie Township roads								200
24	Barrie Island Township roads								
25	Bedford Township roads								
26	Bedford Tp. Richardson Mine road	320	66	140	22	stone	100	18	280
27	Beauchamp Township roads	100	30	320	22	gravel	10	6	200
28	Bethune Township roads								
29	Bexley Township roads								
30	Bidwell Township roads								15
31	Bigwood Township roads								
32	Billings Townships road	10	30	80	20	gravel	80	8	30
33	Blezard Township roads								100
34	Bonfield Township roads	335	40	175	16				
35	Boulter Township roads	315	40	435	18				
36	Bracebridge-Baysville road	40	30	40	18	gravel	40	5	
37	Brethour Township roads	30	40	570	40	clay	40	6	412
38	Bright Township roads								15
39	Broder Township roads	1,028	30	750	20	gravel	78	6	1,840
40	Bromley Township roads								
41	Brougham Township roads								
42	Brudenell and Lyndoch Tp. roads	40	60	40	30				320
43	Brunel Township roads			60	20	gravel	60	5	
44	Buchanan Township roads								
45	Bucke Township roads								
46	Burleigh Township roads								
47	Burpee Township roads								15
48	Burwash Township roads								34
49	Caldwell Township roads								
50	Calvin Township roads								
51	Campbell Township roads								
52	Camden Township roads								

COLONIZATION ROADS BRANCH.

MENT, 1920-1921.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	2	wood	earth	969	.....	..	400	20	gravel	800	6	3.00	$ 1,477.34	1
..	...	.....	.....	.....	rock	250	.....	..	250	18	gravel	225	10	.80	323.25	2
..	...	.....	18	cedar	rock	1,560	.....	..	1,040	16	gravel	1,820	9	6.00	4,900.00	3
..	...	.....	.....	.....	stone	20	.....	..	.....	..	gravel	220	5	.75	502.56	4
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	gravel	300	8	.94	200.00	5
..	...	.....	4	cedar	.....	.....	400	20	1,570	18	gravel	450	10	5.00	1,509.93	6
..	...	.....	1	wood	stone	4	20	12	410	24	gravel	630	5	2.88	1,499.70	7
..	...	.....	2	tile	.....	.....	.....	..	970	18	gravel	1,475	8	5.50	1,671.80	8
..	...	.....	11	cedar	.....	.....	.....	..	710	18	gravel	70	8	2.25	1,120.99	9
..	...	.....	3	stone	stone	61	.....	..	273	18	gravel	198	6	.85	615.35	10
..	...	.....	.....	.....	stone	40	55	20	310	15	gravel	358	6	5.00	300.00	11
2	15	cedar	9	wood	.....	.....	.....	..	546	12	.....	.....	..	2.20	801.51	12
..	...	.....	.....	.....	stone	60	10	20	320	18	gravel	320	6	1.50	999.57	13
1	22	tamarac	13	cedar	clay	5,418	160	15	260	20	gravel	290	6	2.75	2,965.93	14
..	...	.....	1	wood	earth	40	50	12	80	24	gravel	780	8	2.50	1,310.02	15
1	16	tamarac	3	spruce	.....	.....	180	18	453	14	gravel	235	6	1.50	725.52	16
..	...	.....	1	metal	.....	.....	100	20	425	20	gravel	1,225	8	4.50	1,010.95	17
..	...	.....	4	cedar	.....	.....	200	30	175	18	earth	240	4	.75	500.00	18
..	...	.....	7	wood	earth	275	80	8	60	24	gravel	90	7	1.00	711.87	19
..	...	.....	2	cedar	clay	200	.....	..	200	12	.....	.....	..	.75	402.12	20
..	...	.....	11	cedar	earth	676	51	10	437	19	gravel	220	5	3.50	1,175.37	21
..	...	.....	1	t'm'r'c	.....	.....	160	24	280	24	.....	.....	..	1.15	758.45	22
..	...	.....	10	cedar	rock	20	53	10	68	14	gravel	427	8	1.50	513.40	23
1	12	wood	5	wood	earth	20	20	10	190	24	gravel	569	7	1.80	1,300.79	24
..	...	.....	1	tile	earth	460	.....	..	165	14	gravel	298	8	1.00	851.69	25
..	...	.....	3	stone	rock	7,000	.....	..	.....	..	.....	.....	..	1.00	4,825.17	26
..	...	.....	11	cedar	clay	2,310	.....	..	460	30	gravel	217	6	3.25	1,599.56	27
..	...	.....	10	cedar	.....	.....	435	25	1,120	18	gravel	330	8	3.50	1,051.05	28
1	Re	p. wood	1	stone	stone	260	25	22	555	20	gravel	418	6	2.60	1,024.19	29
..	...	.....	3	stone	earth	120	180	24	330	24	gravel	353	7	1.50	1,102.50	30
..	...	.....	2	wood	stone	30	21	14	260	14	.....	.....	..	.80	499.94	31
..	...	.....	10	wood	earth	272	25	12	120	24	gravel	345	7	1.50	1,409.21	32
..	...	.....	.....	.....	stone	274	650	4	311	40	clay	311	30	2.10	500.00	33
..	...	.....	19	cedar	gravel	674	.....	..	635	16	gravel	532	18	4.10	2,623.87	34
..	...	.....	9	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.50	809.07	35
..	...	.....	.....	.....	stone	260	.....	..	90	20	gravel	96	5	.50	1,501.15	36
1	52	wood	2	cedar	clay	2,256	80	20	360	20	gravel	256	6	3.25	2,858.00	37
..	...	.....	6	wood	earth	265	200	20	30	12	gravel	740	6	2.50	1,407.72	38
..	...	.....	39	wood	clay	30	240	5	1,743	12	gravel	725	7	11.50	2,492.90	39
..	...	.....	2	stone	.....	.....	300	20	638	18	gravel	500	10	3.50	767.68	40
..	...	.....	.....	.....	.....	.....	.....	..	450	12	gravel	100	10	1.25	500.00	41
..	...	.....	2	cedar	.....	.....	200	20	1,620	18	.....	.....	..	6.25	1,689.20	42
..	...	.....	7	cedar	rock	7	80	20	250	20	gravel	150	7	1.20	950.01	43
..	...	.....	.....	.....	.....	.....	250	15	300	15	.....	.....	..	1.00	252.10	44
..	...	.....	8	cedar	clay	1,847	.....	..	1,230	20	gravel	669	6	5.00	3,125.00	45
..	...	.....	2	stone	.....	.....	410	20	320	20	stone	686	6	2.75	1,478.00	46
..	...	.....	9	wood	stone	63	90	12	60	24	gravel	570	7	2.00	1,298.07	47
2	16	cedar	5	pine	.....	.....	.....	..	273	12	gravel	26	6	1.00	700.10	48
..	...	.....	4	cedar	.....	.....	.....	..	372	14	gravel	836	6	2.75	1,507.03	49
..	...	.....	9	cedar	.....	.....	60	40	507	18	gravel	187	10	2.25	1,017.25	50
..	...	.....	6	wood	.....	.....	260	12	800	24	gravel	1,686	7	6.00	2,927.65	51
..	...	.....	.....	.....	.....	.....	165	15	165	14	gravel	225	8	.75	300.70	52

DEPARTMENT OF LANDS AND FORESTS ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
53	Cameron Township roads	367	40	207	18	gravel	20	6	
54	Cane Township roads	440	30	185	24				30
55	Capreol Township roads	40	35	360	20	stone	40	18	530
56	Carden Township roads								30
57	Cardiff Township roads	40	66	45	20	gravel	30	8	
58	Cardwell Township roads	30	10	80	18				
59	Carling Township roads	80	40	240	16	gravel	300	7	140
60	Carlow Township roads								
61	Carnarvon Township roads	80	24	80	24	gravel	60	8	61
62	Cartier Township roads	160	10	160	10	earth	640	10	200
63	Casey Township roads	760	30	560	26	gravel	160	10	120
64	Casimir Township roads	455	16	455	14				
65	Cavendish Township roads								
66	Chaffey Township roads	80	40	156	20				
67	Chandos Township roads								250
68	Chapleau Township roads	150	20	600	20	sand	220	6	35
69	Chapman Township roads	30	18	160	15	gravel	240	6	85
70	Chisholm Township roads	520	40	170	16				40
71	Christie Township roads								340
72	Clarendon and Miller Township roads	90	40	80	16				312
73	Cockburn Island Township roads								40
74	Cosby Township roads								
75	Creighton Township roads								
76	Crerar Township roads								
77	Croft Township roads								
78	Dalhousie Township roads								
79	Dalton Township roads								260
80	Darling Township roads								
81	Dawson Township roads	80	30	200	24	gravel	90	7	30
82	Denbigh Township roads								
83	Digby Township roads								
84	Dill Township roads	113	50	328	18	earth	20	15	209
85	Dowling Township roads								20
86	Draper Township roads								
	Draper and Macaulay T. L.								
87	Dryden Township roads	80	33	160	33				115
88	Dungannon Township roads								
89	Dunnet Township roads								
90	Dymond Township roads								
91	Eastnor Township roads	126	66	126	28				
92	Elzevir Township roads								
93	Falconbridge Township roads	240	35	500	25				320
94	Falconer Township roads								10
95	Fairbank Township roads								160
96	Faraday Township roads								100
97	Fenwick Township roads	28	40	442	20	gravel	22	7	68
98	Ferguson Township roads								
99	Ferris Township roads	230	40	205	18				
100	Field Township roads								
101	Firstbrooke Township roads								
102	Foley Township roads								
103	Franklin Township roads	500	30	400	18				

COLONIZATION ROADS BRANCH.

MENT, 1920-1921.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
			8	cedar					130	18				1.75	1,017.21	53
1	22	tamarac	4	t'm'r'c	clay	440	240	30	345	24	gravel	130	6	3.00	2,892.41	54
			3	stone	stone	900			640	16				3.15	742.43	55
			3	tile	rock	71	220	18	2,228	18	gravel	393	6	8.00	1,204.25	56
			6	wood			85	30	225	18	gravel	55	5	4.00	600.23	57
			9	wood	earth	100	200	21	370	20	gravel	225	5	1.50	1,200.70	58
			5	cedar	sand	300								1.00	949.49	59
			5	cedar	earth	84			82	18				.27	300.53	60
			1	wood	stone	976	100	12	100	26	gravel	345	8	1.50	1,312.61	61
			1	wood										2.00	200.50	62
					clay	100			720	24	gravel	1,036	6	9.00	5,288.03	63
			2	cedar							gravel	122	6	1.80	578.20	64
1	Rp	'd cedar	2	cedar			1,240	15	350	12	gravel	93	7	4.00	290.25	65
			4	cedar										.50	500.01	66
			8	cedar	stone	100	326	12	306	14	gravel	271	7	2.50	1,014.05	67
					clay	215								2.00	1,000.00	68
2	14	cedar	21	wood	rock	205	660	12	640	16	gravel	480	7	3.50	1,940.39	69
			14	cedar	stone	38			565	18	gravel	550	10	4.50	2,971.66	70
1	10	cedar	13	cedar	earth	20	1,200	14	880	8	gravel	880	6	4.50	1,300.25	71
			3	wood	stone	625	56	20	236	16	gravel	180	5	2.00	901.02	72
							760	12			gravel	225	8	2.50	500.27	73
1	12	wood	11	wood			545	16	728	14	gravel	285	6	3.50	1,198.99	74
1	18	cedar	2	cedar	sand	225			200	12	clay	545	12	2.00	385.33	75
4	11	cedar	5	cedar					286	14	gravel	1,440	6	4.50	1,104.78	76
			3	cedar			60	18	160	14	gravel	160	6	.50	400.35	77
									500	18	gravel	200	10	1.57	302.50	78
			9	wood	rock	10	750	8	2,240	18	gravel	481	6	9.00	1,000.70	79
									100	25	gravel	370	8	1.40	302.81	80
			3	wood	stone	10								.62	549.97	81
					earth	280					gravel	25	7	.25	200.00	82
					earth	40	10	8	47	20	gravel	135	5	.50	301.15	83
														1.40	455.00	84
			2	wood					320	15				1.00	103.25	85
			6	stone	rock	10	200	30	125	18	gravel	625	5	2.00	1,301.20	86
			9	cedar	rock	400	480	20	500	18	gravel	325	5	2.00	2,499.07	
2	16	cedar	3	cedar					20	12				.75	354.90	87
			5	cedar	stone	1,126	125	20	579	18	gravel	229	7	2.25	1,401.84	88
			4	cedar					403	12				1.26	203.41	89
			1	metal	clay	3,264	130	20	660	24	gravel	1,538	6	5.75	5,110.03	90
2	19	cedar												.40	498.09	91
			2	metal					368	20	gravel	108	5	1.10	208.80	92
			4	cedar										1.57	614.85	93
1	10	cedar	2	cedar					275	12				.80	400.00	94
			7	wood			320	26	720	20				2.75	306.25	95
1	Rp	'd wood	3	cedar	rock	20			320	18	gravel	355	6	2.00	995.13	96
1	20	cedar	2	cedar	sand	861	500	30	640	16	gravel	466	7	3.50	3,208.84	97
			6	cedar	rock	45	400	30	480	14	gravel	240	6	1.50	497.77	98
			30	cedar					1,210	18	gravel	355	10	5.00	2,773.39	99
			6	cedar					1,260	12	gravel	679	6	4.75	1,899.03	100
									480	24	gravel	393	6	1.50	1,497.76	101
1	12	pine	6	cedar			640	24	160	16	gravel	560	7	2.00	548.75	102
			9	wood										1.55	500.60	103

DEPARTMENT OF LANDS AND FORESTS ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Graded		Graded and Shaped					
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
104	Freeman Township roads								
105	Frontenac Trunk road								1,166
106	Galbraith Township roads								260
107	Galway Township roads								
108	Garson Township roads								20
109	Gladstone Township roads	560	50	390	20	gravel	70	6	
110	Glamorgan Township roads								
111	Gordon Township roads								30
112	Gould Township roads	30	66	70	22				
113	Grattan Township roads								
114	Griffith and Matawatchan Twp. roads								
115	Gurd Township roads								
116	Hagar and Loughrin Township roads	289	30	440	14	gravel	160	9	403
117	Hagarty and Richards Township roads	30	60	125	28				
118	Hallam Township roads	170	28	184	22				50
119	Hanmer Township roads	600	33	145	20	sand	300	20	40
120	Harvey Township roads	160	40	610	28				
121	Harris Township roads								424
122	Harvey Township roads								
123	Head, Clara and Maria Township roads								
124	Henwood Township roads								78
125	Hilliard Township roads	320	40						1,105
126	Hilton Township roads								320
127	Himsworth North Township roads	120	30	120	16	gravel	35	7	537
128	Himsworth South Township roads	80	40	80	16	earth	50	6	
129	Hinchinbrooke Township roads								
130	Hodgins and Gaudette Township roads	1,506	40	1,506	24	gravel	35	5	18
131	Horton Township roads								
132	Howe Island Township roads								
133	Hudson Township roads								
134	Hugel Township roads	728	16	300	12				400
135	Humphrey Township roads								30
136	Hungerford Township roads								
137	Huntingdon Township roads								
138	Johnson Township roads								20
139	Kennebec Township roads								40
140	Kearns Township roads								20
141	Kirkpatrick Township roads								
142	Kirkpatrick and McPherson Tp. roads								
143	Korah Township roads	5	30	5	20				129
144	Laird Township roads								
145	L'Amable to Maynooth Trunk road								
146	Laurier Township roads	62	24	132	20				4
147	Lavant Township roads	40	25	40	25				30
148	Laxton Township roads								100
149	Lefroy Township roads								153
150	Limerick Township roads								
151	Lindsay Township roads								50
152	Lorne Township roads	1,283	30	1,300	16				102
153	Loughboro Township roads								100
154	Louise Township roads	40	24	120	20	gravel	80	7	120
155	Lount Township roads								49

COLONIZATION ROADS BRANCH—*Continued*.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Nnmber	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	10	metal	.....	.....	.....	..	250	18	gravel	300	5	1.00	500.07	104
1	12	cedar	17	metal	stone	1,457	48	20	928	18	gravel	783	9	3.00	4,900.00	105
1	10	wood	1	wood	.....	.....	320	10	145	20	gravel	390	6	2.25	962.99	106
..	...	.....	3	cedar	.....	.....	110	10	741	16	gravel	341	7	5.00	606.70	107
1	12	cedar	3	cedar	clay	130	75	30	75	12	.....	.....	..	.25	150.25	108
..	...	.....	.....	.....	.....	.....	.....	..	80	20	gravel	260	6	2.75	1,102.49	109
..	...	.....	13	stone	stone	125	970	16	710	16	gravel	113	7	4.00	905.10	110
..	...	.....	.....	.....	.....	.....	80	16	130	28	gravel	728	7	3.00	1,505.76	111
..	...	.....	.....	.....	rock	150	.....	..	.....	..	.....	.....	..	.25	403.50	112
1	10	cedar	4	cedar	stone	50	30	14	1,120	18	gravel	300	9	3.50	1,006.85	113
..	...	.....	17	cedar	.....	.....	600	25	2,300	12	gravel	320	8	8.00	1,200.00	114
..	...	.....	10	cedar	rock	30	.....	..	126	16	gravel	60	7	.50	300.00	115
..	...	.....	9	cedar	gravel	1,932	640	30	668	12	gravel	375	5	5.50	1,454.43	116
..	...	.....	7	cedar	.....	.....	650	20	1,180	20	gravel	900	8	5.50	2,217.13	117
1	12	wood	3	wood	earth	583	.....	..	150	24	gravel	140	6	1.20	800.91	118
..	...	.....	4	cedar	.....	.....	.....	..	.....	..	.....	.....	..	2.00	199.75	119
..	...	.....	2	stone	gravel	2,481	.....	..	180	24	gravel	587	6	4.00	3,593.60	120
..	...	.....	7	cedar	stone	209	160	18	30	28	gravel	1,012	6	4.00	4,609.53	121
..	...	.....	2	metal	stone	25	80	6	1,241	18	gravel	854	6	4.50	1,102.25	122
..	...	.....	2	cedar	.....	.....	.....	..	205	18	gravel	20	10	.61	457.75	123
..	...	.....	4	cedar	clay	890	30	12	990	20	gravel	774	6	4.00	2,679.16	124
..	...	.....	6	cedar	clay	4,000	180	12	480	24	gravel	419	7	5.00	4,115.54	125
..	...	.....	.....	.....	.....	.....	.....	..	200	20	gravel	70	5	1.00	349.79	126
..	...	.....	4	cedar	.....	.....	480	20	70	16	gravel	740	7	3.50	1,651.73	127
..	...	.....	6	cedar	.....	.....	300	35	100	18	.....	.....	..	1.25	655.98	128
..	...	.....	7	cedar	.....	.....	.....	..	52	16	gravel	957	8	3.00	931.89	129
2	25	cedar	10	wood	earth	8,890	.....	..	.....	..	.....	.....	..	6.00	4,506.19	130
..	...	.....	1	cem'nt	.....	.....	75	35	100	30	gravel	75	12	.50	300.00	131
..	...	.....	.....	.....	stone	10	.....	..	121	6	g.stone	130	8	.40	302.20	132
..	...	.....	4	cedar	clay	853	.....	..	2,380	26	gravel	730	6	9.00	2,707.99	133
1	14	pine	19	cedar	earth	50	.....	..	1,243	14	gravel	605	6	9.00	2,547.41	134
..	...	.....	10	stone	stone	240	280	20	375	18	gravel	341	7	1.25	934.60	135
..	...	.....	.....	.....	stone	104	.....	..	301	16	gravel	367	6	1.15	851.93	136
..	...	.....	1	tile	.....	.....	.....	..	170	20	gravel	211	14	.75	495.61	137
..	...	.....	.....	.....	stone	125	320	50	120	24	gravel	120	6	1.30	453.33	138
..	...	.....	4	metal	earth	200	.....	..	170	18	gravel	766	8	3.00	904.76	139
1	12	tamarac	6	cedar	clay	3,141	.....	..	1,950	24	gravel	1,541	6	9.00	5,778.14	140
2	10	wood	23	wood	stone	52	.....	..	880	16	gravel	330	6	3.50	2,320.83	141
..	...	.....	7	wood	.....	.....	.....	..	584	14	gravel	1,285	6	6.75	1,836.95	142
..	...	.....	.....	.....	earth	730	.....	..	.....	..	.....	.....	..	.10	510.90	143
..	...	.....	1	wood	.....	.....	30	20	190	22	gravel	420	6	1.31	800.40	144
..	...	.....	9	cedar	earth	2,988	100	20	1,649	18	gravel	794	7	6.25	3,014.29	145
1	10	cedar	2	stone	earth	560	.....	..	.....	..	.....	.....	..	.50	597.02	146
..	...	.....	8	cedar	rock	10	30	30	1,350	20	gravel	650	8	4.50	1,409.99	147
..	...	.....	2	stone	stone	183	100	16	1,960	18	gravel	633	6	7.00	1,582.14	148
..	...	.....	3	tile	stone	84	.....	..	120	28	gravel	475	6	1.50	949.23	149
..	...	.....	.....	.....	.....	.....	.....	..	103	16	gravel	62	9	.32	299.15	150
..	...	.....	.....	.....	.....	.....	.....	..	10	18	gravel	450	5	1.40	775.20	151
..	...	.....	29	wood	earth	356	30	12	60	24	gravel	80	8	4.27	1,300.77	152
..	...	.....	7	stone	stone	50	5	24	46	18	gravel	212	9	1.75	853.25	153
1	Rp.	'd wood	4	wood	.....	.....	.....	..	.....	..	.....	.....	..	.40	698.69	154
..	...	.....	6	cedar	earth	40	591	25	369	16	gravel	105	5	1.85	552.15	155

DEPARTMENT OF LANDS AND FORESTS ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIP	NEW CONSTRUCTION							DITCHED
		Cleared and Graded		Graded and Shaped		SURFACED			
		Length, rods	Width feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
156	Lumsden Township roads	210	30	310	9				210
157	Lutterworth Township roads								
158	Lyell Township roads								
159	Macaulay Township roads								
160	Machar Township roads								
161	Madoc Township roads								
162	Mara Township roads								
163	Martland Township roads								
164	Martland and Scollard Township roads								15
165	Mason Township roads								
166	Mattawan Township roads								
167	May Township roads								
168	May and Harrow Township road								
169	Mayo Township roads								
170	McDougall Township roads								
171	McDonald Township roads								
172	McKellar Township roads								
173	McKenzie Township roads								
174	McKim Township roads								360
175	McLean Township roads								
176	McMurrick Township roads	280	45	127	15	gravel	100	6	100
177	McNabb Township roads								
178	McPherson Township roads	300	16	130	14				
179	Medonte Township roads			89	20				53
180	Medora Township roads								
181	Meredith Township roads								
182	Methuen Township roads								
183	Merritt Township roads	60	32	160	20				
184	Mills Township roads (Manitoulin)								20
185	Mills Township Roads (Parry Sound)	499	60	400	30				
186	Minden Township roads								
187	Monmouth Township roads								
188	Monteith Township roads	960	40	640	16				
189	Monteagle and Herschel Township roads	180	30	180	16				
190	Morgan Township roads			255	20				40
191	Morrison Township roads								
192	Murchison Township roads								
193	Muskoka Township roads								
194	Nairn Township roads					gravel	30	7	
195	Nipissing Township roads	280	24	280	14				
196	Oakley Township roads								
197	Olden Township roads								
198	Orillia Township roads								
198	*a* Orillia and Matchedash T. L.								
199	Oro Township roads								26
200	Pakenham Township roads								
201	Palmerston Township roads	70	40	30	16	gravel	10	8	
202	Papineau Township roads								
203	Parkinson Township roads								
204	Patterson Township roads								
205	Patton Township roads								40
206	Pembroke Township roads								

COLONIZATION ROADS BRANCH.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUR AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
..	...	.....	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.00	102.00	156
..	...	.....	7	stone	stone	118	23	20	258	20	gravel	183	6	2.00	658.90	157
..	...	.....	3	cedar	.....	.....	.....	..	270	18	gravel	50	12	.85	504.10	158
..	...	.....	1	stone	earth	270	.....	..	.....	..	gravel	4	5	.02	200.00	159
..	...	.....	8	cedar	stone	5	424	24	567	14	gravel	330	6	2.00	1,524.99	160
..	...	.....	2	steel	.....	.....	.....	..	120	18	gravel	108	7	.37	248.90	161
..	...	.....	.....	.....	stone	1,409	.....	..	51	22	.....	.....	..	.20	997.55	162
..	...	.....	4	wood	.....	.....	.....	..	182	12	gravel	390	6	1.80	799.91	163
..	...	.....	5	wood	.....	.....	.....	..	20	14	gravel	35	6	.12	611.71	164
..	...	.....	7	cedar	.....	.....	101	16	260	12	.....	.....	..	.82	703.85	165
..	...	.....	13	cedar	.....	.....	.....	..	285	18	gravel	85	10	.90	800.40	166
..	...	.....	.....	.....	earth	444	.....	..	120	20	gravel	250	6	.80	801.25	167
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	gravel	270	6	.85	300.45	168
..	...	.....	.....	9	cedar	.....	.....	..	178	20	gravel	138	6	.57	500.26	169
..	...	.....	7	cedar	stone	50	560	24	80	14	gravel	80	7	1.75	303.11	170
1	12	cedar	.....	.....	earth	75	.....	..	80	24	gravel	205	5	.63	451.93	171
..	...	.....	7	cedar	rock	25	.....	..	106	16	gravel	480	7	1.50	800.00	172
..	...	.....	3	cedar	.....	.....	160	16	400	16	gravel	320	6	1.25	499.75	173
..	...	.....	10	conc'te	.....	.....	150	11	360	22	clay	150	7	1.13	450.88	174
..	...	.....	5	cedar	rock	85	.....	..	125	20	gravel	250	5	.80	850.00	175
..	...	.....	5	cedar	sand	600	.....	..	.....	..	.....	.....	..	.90	500.00	176
..	...	.....	.....	.....	.....	.....	.....	..	400	18	.....	.....	..	1.25	307.25	177
3	12	cedar	25	cedar	.....	.....	150	16	3,088	12	gravel	240	6	12.00	4,008.68	178
..	...	.....	7	metal	earth	886	.....	..	197	18	c.stone	258	6	1.40	1,504.15	179
..	...	.....	1	stone	stone	300	.....	..	45	20	gravel	45	5	.12	402.50	180
..	...	.....	2	wood	.....	.....	.....	..	100	24	gravel	140	6	.50	299.90	181
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	c.stone	135	6	.41	300.00	182
1	18	wood	15	metal	earth	300	295	12	320	20	gravel	250	7	1.50	1,009.07	183
..	...	.....	3	metal	stone	800	40	14	30	24	gravel	415	9	1.35	1,401.59	184
..	...	.....	3	cedar	earth	60	84	30	160	16	.....	.....	..	1.75	749.30	185
..	...	.....	3	wood	stone	40	40	19	650	18	gravel	45	6	2 25	301.35	186
..	...	.....	6	stone	stone	38	45	30	380	18	gravel	57	6	1.25	503.83	187
2	22	cedar	12	cedar	earth	1,000	.....	..	.....	..	.....	.....	..	3.00	2,969.62	188
..	...	.....	5	cedar	stone	422	.....	..	197	20	gravel	199	6	1.20	896.05	189
..	...	.....	2	cedar	stone	250	.....	..	.....	..	gravel	90	16	1.08	303.75	190
..	...	.....	.....	.....	.....	.....	.....	..	500	20	gravel	500	5	1.57	500.15	191
..	...	.....	5	cedar	.....	.....	.....	..	320	18	.....	.....	..	1.00	505.90	192
..	...	.....	11	cedar	rock	14	550	40	380	18	gravel	140	5	1.75	1,000.00	193
..	...	.....	5	wood	stone	220	200	12	140	16	.....	.....	..	.75	396.70	194
..	...	.....	6	cedar	stone	380	30	20	160	16	gravel	250	7	2.10	1,554.21	195
..	...	.....	.....	.....	stone	380	.....	..	.....	..	.....	.....	..	.10	500.00	196
..	...	.....	1	stone	stone	198	15	15	24	16	gravel	160	9	.50	300.65	197
..	...	.....	1	conc'te	.....	.....	.....	..	290	18	c.stone	245	7	1.00	601.60	198
..	...	.....	.....	.....	stone	122	.....	..	97	18	gravel	101	7	.50	504.25	198a
..	...	.....	1	wood	stone	434	.....	..	125	18	gravel	329	7	1.25	904.62	199
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	gravel	160	8	.50	100.00	200
..	...	.....	1	stone	stone	1,037	.....	..	.....	..	gravel	753	10	2.50	1,426.15	201
..	...	.....	11	cedar	.....	.....	.....	..	1,117	18	gravel	130	6	4.00	1,545.04	202
1	16	wood	2	wood	earth	1,348	.....	..	300	20	gravel	444	6	1.60	1,399.90	203
..	...	.....	3	stone	stone	600	30	20	20	18	.....	.....	..	.20	294.63	204
1	12	wood	6	wood	earth	360	100	30	250	22	gravel	304	6	1.25	999.61	205
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	gravel	405	10	1.41	407.11	206

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	27
207	Petewawa Township roads								
208	Plummer and Plummer Add'l Twp. rds.	200	60	230	20	gravel	60	6	60
209	Pr nce Township roads								80
210	Radcliffe Township roads								
211	Raglan Township roads								
212	Rama Township roads								
213	Ramsay Township roads								
214	Ratter Township roads								
215	Rayside Township roads								320
216	Robinson Township roads	320	28	270	20	gravel	60	7	80
217	Rolph Township roads								
218	Rose Township roads	160	66	120	30				
219	Ross Township roads			150	25				
220	Ryde Township roads								
221	Ryerson Township roads								
222	Sabine Township roads								
223	Salter Township roads	160	20	320	20				
224	Sandfield Township roads								
225	Sebastopol Township roads								
226	Shakespeare Township roads								
227	Shedden Township roads	380	60	210	22				
228	Sheffield Township roads								
229	Sheguiandah Township roads								35
230	Sherbrooke Township roads								
231	Sherwood, Jones and Burns Twp. roads								
232	Scollard Township roads								
233	Sinclair Township roads	195	30	58	18				
234	Snowdon Township roads								40
235	Somerville Township roads								
236	Spence Township roads	25	40	30	14	gravel	130	7	50
237	Springer Township roads								
238	Stafford Township roads								
239	Stanhope Township roads	80	66	80	18	gravel	80	6	160
240	Stephenson Township roads								
241	St. Edmunds Township roads			15	24	gravel	73	7	
242	Stisted Township roads								
243	Storrington Township roads								
244	Striker Township roads	320	20	175	18	gravel	40	6	50
245	Strong Township roads	260	40	180	16	gravel	60	6	50
246	Sunnidale Township roads								25
247	Tarbutt and Tarbutt Add'l Twp. roads								180
248	Tarentorus Township roads	73	20	149	10	gravel	118	6	
249	Tay Township roads								151
250	Tehkummah Township roads	50	40	50	26				
251	Thessalon Township roads								80
252	Thompson Township roads	80	60	80	20	gravel	20	6	85
253	Tiny Township roads								286
254	Tudor and Cashel Township roads								
255	VanKoughnet Township roads	886	30	850	21				60
256	Verulam Township roads								
257	Vespra Township roads								
258	Victoria Township roads								40

COLONIZATION ROADS—*Continued.*

MENT, 1920-1921.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	.....	.....	stone	900	.....	..	275	18	gravel	270	8	1.10	409.75	207
..	...	.....	6	wood	earth	30	.....	..	120	24	gravel	169	5	1.25	1,000.00	208
..	...	.....	1	cedar	sand	2,003	35	15	36	24	gravel	57	7	.25	499.74	209
..	...	.....	10	cedar	.....	.....	200	45	1,600	14	.....	.....	..	5.00	1,020.90	210
..	...	.....	2	cedar	.....	.....	175	15	1,645	16	gravel	300	12	5.25	1,052.12	211
..	...	.....	1	steel	sand	274	.....	..	179	24	gravel	294	6	1.00	1,500.17	212
..	...	.....	.....	.....	.....	.....	.....	..	700	18	gravel	600	8	2.75	800.40	213
..	...	.....	3	cedar	.....	.....	.....	..	1,242	14	gravel	463	6	4.00	1,400.80	214
..	...	.....	5	wood	.....	.....	320	30	310	12	.....	.....	..	1.00	500.18	215
2	11	wood	2	wood	stone	125	.....	..	.....	..	gravel	140	7	2.25	1,573.82	216
..	...	.....	.....	.....	.....	.....	150	10	300	14	.....	.....	..	1.00	200.30	217
..	...	.....	2	wood	.....	.....	.....	..	.....	..	.....	.....	..	.50	303.63	218
..	...	.....	1	cedar	earth	1,400	.....	..	.....	..	.....	.....	..	1.40	837.37	219
..	...	.....	4	cedar	.....	.....	1,100	40	450	18	gravel	465	5	3.40	809.81	220
1	14	wood	13	cedar	.....	.....	.....	..	160	14	gravel	160	6	.50	300.00	221
..	...	.....	5	cedar	.....	.....	.....	..	300	18	gravel	20	10	1.00	518.50	222
1	12	timber	2	wood	stone	510	.....	..	80	24	.....	.....	..	1.25	600.20	223
..	...	.....	3	stone	stone	1,560	460	24	270	24	gravel	395	7	2.00	1,447.50	224
..	...	.....	5	cedar	.....	.....	75	14	1,270	12	.....	.....	..	4.00	839.75	225
..	...	.....	2	wood	earth	280	.....	..	80	22	gravel	310	6	1.00	700.50	226
..	...	.....	5	wood	earth	350	.....	..	.....	..	.....	.....	..	1.25	600.00	227
..	...	.....	1	metal	earth	125	.....	..	10	14	gravel	18	8	1.00	100.00	228
..	...	.....	1	wood	stone	230	80	12	150	20	gravel	305	7	1.00	800.55	229
..	...	.....	9	cedar	.....	.....	300	40	350	18	.....	.....	..	1.10	421.11	230
..	...	.....	.....	.....	.....	.....	820	14	1,215	14	.....	.....	..	4.00	1,303.90	231
..	...	.....	3	wood	.....	.....	.....	..	234	12	gravel	120	6	.75	400.01	232
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	.....	.....	..	.60	500.00	233
..	...	.....	2	wood	rock	44	80	20	270	16	gravel	128	6	2.00	500.00	234
..	...	.....	.....	.....	.....	.....	65	20	130	20	gravel	306	5	1.00	500.00	235
1	12	tamarac	5	cedar	stone	6	80	40	.....	..	gravel	640	6	2.50	618.00	236
..	...	.....	8	cedar	stone	240	595	16	330	14	gravel	460	6	5.00	3,103.25	237
..	...	.....	2	cedar	earth	200	.....	..	198	30	gravel	228	8	1.00	595.46	238
..	...	.....	6	stone	rock	25	.....	..	75	18	gravel	95	6	2.25	527.82	239
..	...	.....	2	cedar	.....	.....	.....	..	150	20	gravel	300	5	1.00	499.75	240
..	...	.....	.....	.....	stone	235	.....	..	.....	..	.....	.....	..	.25	698.75	241
..	...	.....	2	stone	stone	1,100	.....	..	60	18	gravel	65	5	.25	750.92	242
..	...	.....	5	metal	rock	20	.....	..	8	16	gravel	326	8	1.10	750.10	243
..	...	.....	6	wood	earth	400	.....	..	.....	..	.....	.....	..	2.00	710.95	244
..	...	.....	9	cedar	rock	80	.....	..	.....	..	.....	.....	..	1.10	745.31	245
..	...	.....	.....	.....	clay	2,500	.....	..	.....	..	gravel	272	7	1.00	400.10	246
..	...	.....	7	tile	.....	.....	250	20	.....	..	gravel	50	5	.80	351.25	247
..	...	.....	.....	.....	stone	117	.....	..	.....	..	.....	.....	..	.40	300.00	248
..	...	.....	1	wood	clay	3,142	.....	..	.....	..	.....	.....	..	.40	1,010.00	249
1	12	wood	5	wood	earth	230	580	12	200	24	gravel	545	7	2.50	1,204.24	250
..	...	.....	.....	.....	stone	80	.....	..	295	22	gravel	205	6	1.00	498.57	251
..	...	.....	.....	.....	earth	100	.....	..	620	20	gravel	340	5	2.25	1,011.08	252
..	...	.....	1	metal	rock	86	.....	..	42	10	gravel	348	7	1.25	734.30	253
..	...	.....	5	cedar	stone	240	1,280	30	30	14	gravel	250	6	4.00	641.95	254
1	32	R'pd	8	cedar	earth	1,955	.....	..	.....	..	gravel	309	7	4.50	2,960.24	255
..	...	.....	.....	.....	stone	615	28	12	12	20	.....	.....	..	.25	300.20	256
..	...	.....	1	conc'te	clay	680	.....	..	59	16	gravel	118	7	.50	511.10	257
1	Rp'd	wood	7	wood	earth	35	.....	..	550	20	gravel	280	6	1.75	550.37	258

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIP	NEW CONSTRUCTION							DITCHED
		Cleared and Graded		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
259	Wallbridge Township roads			440	18				24
260	Waters Township roads								12
261	Watt Township roads	200	20	200	16				
262	Wells Township roads	80	40	80	22	gravel	60	6	
263	Westmeath Township roads								
264	Widdifield Township roads	1,000	40	170	18	gravel	30	10	
265	Wilberforce Township roads								220
266	Wilson Township roads								80
267	Wollaston Township roads								
268	Wylie Township roads								
	Total	21,314		21,647			4,061		17,488

COLONIZATION ROADS BRANCH.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2	12	cedar	13	cedar	stone	380	.....	..	.....	..	.....	.....	..	1.50	942.12	259
1	125	cedar	2	cedar	clay	225	6	33	.....	..	gravel	420	9	1.50	550.50	260
..	...	.....	4	stone	stone	400	.....	..	.....	..	.....	.....	..	.62	499.99	261
..	...	.....	5	wood	gravel	20	.....	..	.....	..	gravel	80	5	.50	754.57	262
..	...	.....	2	cem'nt	.....	.....	.....	..	.....	..	gravel	800	10	2.50	800.04	263
..	...	.....	21	cedar	.....	.....	110	20	1,364	18	gravel	615	..	9.00	3,227.85	264
..	...	.....	6	cedar	rock	417	600	20	1,680	14	gravel	1,200	8	7.50	2,196.12	265
1	40	cedar	1	cedar	rock	3	168	30	280	16	gravel	48	6	1.00	505.77	266
..	...	.....	1	cedar	.....	.....	.....	..	.....	..	c.stone	127	7	.40	299.50	267
..	...	.....	.....	.....	.....	.....	500	16	700	14	.....	.....	..	2.20	501.05	268
62	.....	.....	1,284	.....	.....	100,566	31,825	..	100,263	..	.....	78,316	..	615.29	$293,540.26	

10 L.F.

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
1	Admaston By-law No. 249	.....	...	950	20	gravel	1,300	8
2	Albermarle By-law No. 590	20	12	.....	...	gravel	780	5
3	Alberton By-law No. "H"	235	35	182	40	gravel	466	5
4	Armstrong By-law No. 8	.....	...	1,220	28	gravel	255	6
5	Assiginack By-law No. 440	240	24	1,180	24	gravel	840	7
6	Atwood By-law No. 112	645	66	196	30	gravel	497	5
7	Bagot and Blythfield By-law No. 339	300	30	1,075	15	gravel	1,150	8
8	Balfour By-law No. 67	470	15	1,710	12	gravel	4,735	12
9	Belmont and Methuen By-law No. 622	.....	...	50	14	c.stone	796	6
10	Blue By-law No. 55	490	66	600	28	gravel	160	8
11	Billings By-law No. 258	.....	...	430	24	gravel	530	7
12	Brethour By-law No. 19	.....	...	800	26	gravel	1,654	6
13	Brougham By-law No. 717	.....	...	1,125	14	gravel	170	8
14	Brudenell and Lyndoch By-law No. 268	700	14	1,870	14	gravel	130	8
15	Bucke By-law No. 240	.....	...	.....	...	gravel	350	6
16	Burleigh and Anstruther By-law No. 1	.....	...	100	14	gravel	288	6
17	Caldwell By-law No. 291	247	16	507	14	gravel	1,469	6
18	Calvert By-law No. 27	1,813	66	4,825	24	cinders	804	12
19	Calvert By-law No. 12	72	24	127	24	cinders	127	8
20	Carling By-law No. 128	40	35	65	16	gravel	720	7
21	Carlow By-law No. 126	.....	...	1,463	14	gravel	312	7
22	Carnarvon By-law No. 343	.....	...	495	24	gravel	604	7
23	Carnarvon By-law No. 333	.....	...	460	24	gravel	850	7
24	Casey By-law No. 62	360	40	3,000	36	gravel	280	6
25	Casimir, Jennings and Appleby By-law No. 93	364	16	2,535	12	gravel	2,161	6
26	Chamberlain By-law No. 72	.....	...	92	16	gravel	302	8
27	Chandos By-law No. 45	39	20	807	14	gravel	480	7
28	Chandos By-law No. 58	.....	...	1,240	14	gravel	330	6
29	Chapman By-law No. 8	.....	...	184	16	gravel	649	6
30	Chapple By-law No. 280	2,469	66	1,540	28	gravel	2,484	5
31	Chisholm By-law No. 111	.....	...	95	18	gravel	20	10
32	Coleman By-law No. 276	.....	...	.....	...	gravel	180	6
33	Dilke By-law No. 100	40	20	448	28	gravel	356	5
34	Draper By-law No. 401	100	30	1,700	18	gravel	584	5
35	Drury, Denison and Graham By-law No. 200	660	10	3,225	14	gravel	3,765	7
36	Dymond By-law No. 206	100	30	1,475	22	gravel	1,336	6
37	Dysart By-law No. 648	2,215	16	3,171	20	gravel	3,828	8
38	Dungannon By-law No. 91	80	10	215	18	gravel	40	5
39	Eastnor By-law No. 44	.....	...	70	15	gravel	1,003	5
40	Eldon By-law No. 520	35	10	1,297	20	gravel	1,214	6
41	Elzevir By-law No. 55A	.....	...	107	14	gravel	395	6
42	Emo By-law No. 250	260	40	381	28	gravel	2,226	5
43	Faraday By-law No. 121	.....	...	60	20	gravel	438	6
44	Ferris By-law No. 108	.....	...	880	16	gravel	300	8
45	Front of Leeds and Lansdowne By-law No. 762	.....	...	920	18	c.stone	2,380	8
46	Glackmeyer By-law No. 13	304	25	6,877	24	clay	3,375	8
47	Gillies By-law No. 1	1,420	40	1,390	18	gravel	345	7
48	Gordon and Allan By-law No. 167	80	12	320	24	gravel	1,318	8
49	Grattan By-law No. 284	100	20	2,420	15	gravel	930	8
50	Hagarty and Richards By-law No. 116	475	25	1,900	14	gravel	850	7
51	Hanmer By-law No. 107	.....	...	2,880	16	.....	.....	...
52	Harley By-law No. 271	.....	...	3,370	24	gravel	788	16
53	Harvey By-law No. 367	730	20	1,461	24	gravel	1,175	7
54	Hilliard By-law No. 129	80	20	420	25	gravel	2,116	6
55	Hilton By-law No. 411	110	16	.....	...	gravel	656	6

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1921.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
										$ c.	
.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	999.87	1
.....	rock	10	.....	.....	.....	.....	.....	.....	2.50	687.32	2
.....	earth	108	1	12	plank	4	metal	.25	2.00	1,078.79	3
.....	.....	.....	.....	.....	.....	5	cedar	.....	4.25	500.00	4
155	earth	360	1	repa	ired	7	wood	.....	4.00	1,500,00	5
.....	clay	264	.....	.....	.....	2	metal	1.50	2.00	1,277.50	6
.....	.....	.....	.....	.....	.....	7	metal	.....	4.00	924.20	7
2,273	.....	.....	4	re-fl	oored	58	cedar	.....	14.50	1,909.45	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	598.92	9
136	earth	318	.....	.....	.....	6	wood	1.25	1.00	1,132.50	10
30	earth	37	1	re-fl	oored	7	wood	.....	2.00	700.00	11
.....	clay	600	1	re-fl	oored	7	tamarac	.....	7.00	2,216.67	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	500.00	13
.....	.....	.....	.....	.....	.....	11	cedar	.06	6.00	1,000.00	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.10	499.68	15
.....	stone	13	.....	.....	.....	1	cedar	.....	1.00	250.00	16
156	.....	.....	.....	.....	.....	14	plank	.....	5.00	1,495.29	17
840	clay	10,209	1	14	wood	19	wood	9.00	11.50	7,421.25	18
68	.....	.....	.....	.....	.....	6	wood	.....	.50	953.00	19
.....	.....	.....	.....	.....	.....	2	concrete	.38	1.60	500.00	20
.....	.....	.....	.....	.....	.....	14	cedar	.....	5.00	750.00	21
.....	stone	45	2	re-fl	oored	5	metal	.....	3.00	700.00	22
.....	earth	415	.....	.....	.....	2	wood	.....	3.00	700.00	23
380	clay	180	2	16	Rep.	5	tamarac	1.75	8.50	1,058.95	24
5,102	.....	.....	.....	.....	.....	46	wood	.25	10.00	1,700.00	25
40	clay	379	2	25	wood	32	M.& W.	.....	1.00	527.42	26
116	stone	134	.....	.....	.....	1	cedar	.12	4.00	650.00	27
180	earth	6	.....	.....	.....	4	cedar	.....	8.00	400.00	28
.....	.....	.....	.....	.....	.....	10	cedar	.....	2.50	500.00	29
400	clay	1,711	1	11	wood	36	wood	7.00	8.00	7,500.00	30
50	.....	.....	.....	.....	.....	2	cedar	.....	.30	200.00	31
.....	clay	50	.....	.....	.....	1	cedar	.....	.60	271.21	32
110	clay	30	.....	.....	.....	3	cedar	.....	2.00	552.67	33
.....	stone	161	.....	.....	.....	52	cedar	.....	6.00	1,000.00	34
1,890	clay	265	2	16	cedar	15	cedar	.....	12.50	2,359.46	35
40	clay	720	.....	.....	.....	10	cedar	.....	8.00	2,494.30	36
240	clay	950	.....	.....	.....	32	wood	.75	22.00	4,999.69	37
.....	stone	132	.....	.....	.....	3	cedar	.....	1.00	300.00	38
.....	.....	.....	1	22	cedar	12	cedar	.....	3.50	1,000.00	39
.....	rock	27	.....	.....	.....	6	tile	.....	7.00	1,994.12	40
35	.....	.....	.....	.....	.....	.....	.....	.....	1.40	500.00	41
180	clay	170	.....	.....	.....	7	wood	.....	8.00	3,024.57	42
.....	stone	943	.....	.....	.....	1	concrete	.....	1.50	450.00	43
40	.....	.....	.....	.....	.....	19	cedar	.....	3.00	1,000.00	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	7.05	1,320.00	45
589	clay	494	3	12	wood	23	wood	1.00	22.00	9,984 52	46
290	clay	1,730	.....	.....	.....	37	wood	1.25	5.00	1,000.00	47
.....	.....	.....	.....	.....	.....	3	metal	.....	4.50	1,240.14	48
.....	.....	.....	.....	.....	.....	11	tile	.....	8.00	1,500.00	49
.....	.....	.....	.....	.....	.....	4	cedar	.....	7.00	1,000.00	50
.....	.....	.....	.....	.....	.....	2	cedar	.....	9.00	722.95	51
.....	stone	20	.....	.....	.....	14	cedar	.....	11.75	1,484.70	52
.....	stone	166	.....	.....	.....	5	concrete	.....	8.00	1,000.00	53
180	clay	1,395	.....	.....	.....	12	cedar	.....	7.75	2,745.51	54
130	stone	90	2	repa	ired	4	wood	.....	2.25	675.00	55

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION

Number	TOWNSHIP	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
56	Himsworth South By-law No. 71B	.....	...	320	18	gravel	180	6
57	Howland By-law No. 169	40	12	320	24	gravel	815	7
58	Hudson By-law No. 84	.....	...	800	24	gravel	230	6
59	Hungerford By-law No. 247	.....	...	87	14	gravel	521	6
60	Humphrey By-law No. 371	160	20	160	18	gravel	160	7
61	Humphrey By-law No. 361	.....	...	40	16	gravel	70	7
62	Huntingdon By-law No. 430	.....	...	382	14	gravel	450	7
63	Jocelyn By-law No. 310	170	8	.....	...	gravel	595	6
64	Johnson By-law No. A105	80	20	240	30	gravel	470	6
65	Kerns By-law No. 182	.....	...	60	20	gravel	1,540	6
66	Korah By-law No. 213	666	16	4,210	24	gravel	3,008	7
67	Korah By-law No. 194	341	16	2,000	20	slag	898	7
68	Laird By-law No. 133	.....	...	350	24	gravel	1,055	5
69	Lavalle By-law No. 216	1,277	66	1,555	20	gravel	1,358	5
70	Limerick By-law No. 3	.....	...	105	16	gravel	309	5
71	Lindsay By-law No. 322	150	12	.....	...	gravel	1,055	5
72	Macaulay By-law No. 80	50	20	730	20	gravel	380	5
73	Machar By-law No. 574	260	20	255	20	gravel	233	1
74	Madoc By-law No. 50	.....	...	476	18	gravel	775	7
75	Mara By-law No. 580	98	7	943	26	c.stone	757	6
76	Marmora and Lake By-law No. 552	.....	...	172	18	gravel	408	7
77	Martland By-law No. 145	653	8	729	12	gravel	695	6
78	Matchedash By-law No. 209	.....	...	386	16	gravel	545	7
79	Mayo By-law No. 345	.....	...	208	18	gravel	133	7
80	McDonald, Meredith and Aberdeen Additional By-law No. 152	.....	...	.....	...	gravel	1,055	6
81	McDougall By-law No. 176	20	40	4,332	15	gravel	2,268	8
82	McLean By-law No. 456	.....	...	70	20	gravel	70	5
83	Medora and Wood By-law No. 354	900	10	980	18	gravel	196	5
84	Monck By-law No. 476	.....	...	2,200	18	gravel	687	5
85	Monteagle and Herschel By-law No. 506	.....	...	504	20	gravel	305	7
86	Morley By-law No. 218	1,360	66	854	30	gravel	970	5
87	Muskoka By-law No. 296	30	30	2,060	18	gravel	625	5
88	Nairn By-law No. 120	40	12	60	24	gravel	185	7
89	Neebing By-law No. 395	1,235	40	1,800	24	shale	740	7
90	Neelon and Garson By-law No. 148	.....	...	100	24	gravel	868	8
91	O'Connor By-law No. 84	1,419	40	1,654	24	gravel	172	7
92	Olden By-law No. 60B	75	8	2,318	16	gravel	830	8
93	Oliver By-law No. 192	740	15	910	24	shale	910	7
94	Oro By-law No. 459	.....	...	172	18	gravel	845	6
95	Paipoonge By-law No. 176	2,400	20	2,920	20	gravel	2,520	7
96	Perry By-law No. 159	110	40	150	20	gravel	130	7
97	Perry By-law No. 152	.....	...	155	15	gravel	155	6
98	Plummer Additional By-law No. 171	40	8	440	20	gravel	1,548	6
99	Prince By-law No. 84	92	10	400	20	gravel	190	7
100	Rama By-law No. 390	.....	...	236	24	gravel	388	6
101	Rear of Yonge and Escott By-law No. 596	.....	...	300	16	stone	285	9
102	Ryerson By-law No. 457	40	33	640	20	gravel	80	7
103	Sandfield By-law No. 251	.....	...	510	24	gravel	255	7
104	Sebastopol By-law No. 303	150	15	600	12	.....	.....	...
105	Sheffield By-law No. 659	.....	...	275	16	gravel	1,341	8
106	Sherwood Jones and By-law No. 20	1,800	12	2,525	18	.....	.....	...
107	Shuniah By-law No. 456	1,440	20	7,610	18	gravel	2,221	7
108	Somerville By-law No. 730	98	20	538	18	gravel	1,058	6
109	South Crosby By-law No. 884	.....	...	275	20	stone	775	8

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1921.—*Continued.*

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cubic yards	Number	Span, feet	Material	Number	Mrterial				
10	11	12	13	14	15	16	16				
.....	.....	.....	.....	.....	.....	4	cedar	.....	1.00	250.00	56
34	stone	270	.....	.....	.....	7	wood	.....	2.75	1,100.00	57
70	stone	40	.....	.....	.....	10	cedar	.....	3.40	600.00	58
.....	.....	.....	.....	.....	.....	2	cedar	.....	2.00	696.65	59
.....	earth	140	.....	.....	.....	2	cedar	.....	.50	500.00	60
.....	rock	2	.....	.....	.....	.....	.....	.....	.25	225.00	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.75	300.00	62
114	earth	200	2	15	wood	.....	.....	.....	2.00	600.00	63
100	stone	30	.....	.....	.....	5	wood	.....	1.50	449.81	64
.....	clay	740	4	33	cedar	11	cedar	.....	5.00	2,393.61	65
1,115	earth	2,390	3	repaired		11	metal	.25	15.00	3,707.50	66
35	rock	3	2	repaired		2	cedar	.....	13.00	3,471.93	67
.....	stone	100	.....	.....	.....	.....	.....	.....	3.50	1,147.77	68
217	clay	1,127	.....	.....	.....	14	wood	2.25	6.00	3,112.50	69
.....	earth	135	.....	.....	.....	1	concrete	.....	1.00	400.00	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.50	1,250.00	71
.....	earth	375	.....	.....	.....	30	cedar	.....	2.50	750.00	72
.....	stone	135	.....	.....	.....	5	cedar	.30	1.00	499.75	73
.....	earth	569	.....	.....	.....	12	metal	.....	2.50	786.05	74
.....	.....	.....	1	20	concrete	.....	.....	.....	3.00	1,491.70	75
200	earth	624	.....	.....	.....	6	metal	.....	1.50	749.66	76
692	.....	.....	1	16	wood	16	wood	.....	5.00	1,024.57	77
.....	.....	.....	.....	.....	.....	3	metal	.....	2.75	792.31	78
.....	stone	803	.....	.....	.....	6	cedar	.....	1.00	400.00	79
20	.....	.....	.....	.....	.....	.....	.....	.....	3.50	799.92	80
40	earth	240	.....	.....	.....	31	cedar	.....	14.00	3,200.00	81
.....	.....	.....	.....	.....	.....	2	cedar	.....	.25	100.00	82
95	earth	550	.....	.....	.....	29	wood	.....	3.75	1,350.00	83
.....	earth	950	.....	.....	.....	45	cedar	.....	7.00	2,000.00	84
.....	stone	580	.....	.....	.....	9	cedar	.....	2.00	600.00	85
102	.....	.....	.....	.....	.....	12	wood	4.50	3.00	2,900.45	86
7	earth	571	.....	.....	.....	28	wood	.....	8.00	1,000.00	87
.....	.....	.....	.....	.....	.....	2	metal	.....	.75	217.46	88
560	earth	1,900	4	22	cedar	14	cedar	3.25	5.25	5,050.00	89
160	.....	.....	1	10	cedar	6	cedar	.....	3.00	1,250.00	90
20	earth	1,400	1	10	wood	33	wood	.90	7.50	1,992.94	91
160	.....	.....	.....	.....	.....	19	metal	.....	7.25	882.25	92
460	.....	.....	.....	.....	.....	9	cedar	.....	4.50	1,700.00	93
.....	earth	822	.....	.....	.....	1	concrete	.....	3.00	1,000.00	94
442	gravel	550	1	20	wood	58	wood	2.25	11.75	5,495.96	95
60	stone	100	.....	.....	.....	13	metal	.25	.25	500.00	96
.....	.....	.....	.....	.....	.....	.....	.....	.....	.50	249.62	97
10	.....	.....	1	12	wood	5	wood	.....	5.00	1,200.00	98
493	earth	738	.....	.....	.....	19	cedar	.....	3.25	900.00	99
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.25	649.21	100
.....	.....	.....	.....	.....	.....	3	tile	.....	1.00	600.00	101
.....	.....	.....	.....	.....	.....	2	cedar	.25	2.00	333.50	102
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.75	400.00	103
.....	.....	.....	.....	.....	.....	4	metal	.....	2.00	265.00	104
.....	.....	.....	.....	.....	.....	9	metal	.....	4.50	898.96	105
.....	.....	.....	.....	.....	.....	2	wood	.....	8.00	800.00	106
125	earth	600	5	16	cedar	25	wood	2.00	19.00	4,450.00	107
160	stone	835	.....	.....	.....	3	concrete	.....	4.00	12,00.00	108
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50	749.75	109

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
110	Springer By-law No. 315	.....	...	2,560	14	gravel	579	6
111	Stafford By-law No. 706	.....	...	1,146	30	gravel	1,034	8
112	Stanhope By-law No. 365	.....	...	2,378	18	gravel	185	8
113	St. Edmunds By-law No. 225	1,100	20	50	24	gravel	562	6
114	St. Joseph By-law No. 448	215	16	110	24	gravel	1,644	5
115	Stephenson By-law No. 524	1,530	16	2,000	18	gravel	865	5
116	Tarbutt and Tarbutt Additional By-law No. 29.	10	10	310	22	gravel	714	6
117	Tarentorus By-law No. 209	1,579	20	640	16	gravel	1,605	7
118	Thessalon By-law No.11	.....	...	250	20	gravel	285	6
119	Thompson By-law No. 122	80	60	75	22	.....	.....	...
120	Tisdale By-law No. 230	.....	...	.....	...	stone	740	8
121	Tudor and Cashel By-law No. 5	818	20	183	16	stone	494	6
122	Vespra By-law No. 641	.....	...	1,284	18	gravel	1,735	6
123	Westmeath By-law No. 264	.....	...	90	18	gravel	1,076	5
124	Whitney By-law No. 82	.....	...	.....	...	gravel	956	10
125	Widdifield By-law No. 311	60	40	880	18	gravel	541	10
126	Wollaston By-law No. 4	42	20	503	18	gravel	395	6
127	Worthington By-law No. 105	14	766	414	28	gravel	149	5
	Total	36,808	...	126,899	...	.....	107,162	...

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1921.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURES	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
.....	.....	.....	.....	.....	.....	3	wood	.....	9.00	784.87	110
.....	earth	2,576	.....	.....	.....	5	wood	.....	5.25	950.00	111
.....	.....	.....	.....	.....	.....	25	wood	.....	8.00	500.00	112
10	.....	.....	.....	.....	.....	2	cedar	.....	4.00	600.00	113
375	stone	100	.....	.....	.....	3	wood	.....	5.50	1,650.00	114
.....	rock	2,430	10	14	wood	42	wood	.....	8.00	2,093.75	115
10	.....	.....	.....	.....	.....	2	wood	.....	3.00	500.00	116
366	earth	3,374	.....	.....	.....	12	metal	.50	11.00	3,000.00	117
.....	earth	150	1	12	concrete	3	metal	.....	1.00	425.00	118
.....	stone	60	.....	.....	.....	1	wood	.25	.....	100.00	119
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.30	2,362.80	120
.....	stone	71	.....	.....	.....	13	cedar	.....	3.25	746.36	121
.....	clay	5,402	.....	.....	.....	3	concrete	.....	7.00	1,800.00	122
.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	1,700.00	123
.....	.....	.....	.....	.....	.....	6	metal	.....	3.00	2,820.72	124
35	rock	735	.....	.....	.....	16	cedar	.....	3.00	1,500.00	125
.....	stone	90	.....	.....	.....	3	cedar	.....	2.50	989.44	126
.....	.....	.....	.....	.....	.....	2	wood	.50	1.00	747.62	127
19,937	.....	54,639	61	.....	.....	1,260	.....	42.01	605.75	176,154.04	....

STATEMENT OF COLONIZATION ROADS BRANCH MACHINERY AND ROAD OVERSEER, BY-LAWS 1921.

No.	Township	Service	Government Expenditure
1	Chapple By-Law No. 298	Machinery—8 steel road drags; 4 drag scrapers	$ 98.36
2	Harvey By-Law No. 370	Machinery—2 Boss light graders; tile; gravel	154.97
3	Lavallee By-Law No. 224	Machinery—6 steel road drags	55.22
4	Lindsay By-Law No. 323	Machinery—1 stone crusher	675.00
5	Medora and Wood By-Law No. 368	Machinery—1 steam traction engine; 1 rock crusher with screens; 2 road drags; 16 iron culverts; 1 wood water tank with pumps and hose; timber	889.69
6	Rama By-Law No. 388	Machinery—1 traction engine; 1 tank mounted with pump	431.25
7	Stephenson By-Law No. 529	Machinery—lumber; coal; gravel; cement; explosives; tools	249.03
		NOTE.—Government Contribution 25%.	
		TOTAL	2,553.52

1	Alice and Fraser By-Law No. 7.	Road Overseer—J. M. Kennedy	48.00
2	Medora and Wood By-Law No. 366	Road Overseer—James Matts	150.00
3	Olden By-Law No. 56B	Road Overseer—J. A. Cox	64.00
4	Palmerston and Canonto By-Law No. 244	Road Overseer—J. D. Miller	28.40
5	Sheffield By-Law No. 667	Road Overseer—Wm. Henry Johnson	112.00
6	Stephenson By-Law No. 523	Road Overseer—J. H. Osborne	150.00
		NOTE.—Government contribution 40%.	
		TOTAL	552.40

MISCELLANEOUS

Inspection	$15,753.61
Engineering, Surveying and Locating Roads	6,856.95
Storage of Tools	6.00
Balance of Road and Inspection Accounts and Over-expenditures due from 1920	4,688.94
Road Machinery, Motor Trucks, etc.	4,652.25
Compensation to Injured Workmen	470.85
Hospital Services for same	51.00
Sunnidale Township (Drainage 1920)	500.00
Sudbury-Soo Trunk Road (Balance of 1916 Contract)	399.98
Southworth Township; Ignace Crossing	1.00
	$33,380.58

No.	Recapitulation	Cleared and Stumped	Graded and Shaped	Surfaced	Ditched	Cut and Fill	Bridges	Culverts	New Road	Old Road	Expenditure	No
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles		
											$ c.	
1	Direct Grants	53,472	121,910	82,377	17,488	100,566	62	1,284	75.29	540.00	293,540.26	1
2	By-law Grants (Roads)	36,808	126,899	107,162	19,937	54,639	61	1,260	42.01	605.75	176,154.04	2
3	do (Machinery)										2,553.52	3
4	do (Overseer)										552.40	4
5	Miscellaneous										33,380.58	5
	Total	90,280	248,809	189,539	37,425	152,205	123	2,544	117.30	1,145.75	$506,180.80	

Gravenhurst-Bala Road, Muskoka District.

Appendix No. 45.

To the HONOURABLE BENIAH BOWMAN,
Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit to you the report on the construction and maintenance of highways and bridges, under the provisions of the Northern and North-western Ontario Development Act, 1912, and amendments during the season ending 31st October, 1921.

The report has been prepared in tabulated form, which will be found more convenient for reference, and the districts, or sub-districts, are given in alphabetical order, as follows:

Algoma, Cochrane, Dryden, Englehart, Hearst, Kapuskasing, Kenora, Matheson, Muskoka, Nipissing-Sudbury, Parry Sound, Porcupine, Rainy River and Thunder Bay.

Trunk road construction and maintenance has received considerable attention during the year and the section of the Northern Highway, from Toronto

Severn-North Bay Trunk Road.

to North Bay, under the jurisdiction of this Branch, has been placed in very fair condition by the surfacing of the worst sections with either gravel or crushed stone.

At North Bay this road connects with the Pembroke-Mattawa-Sault Ste. Marie Road, on which many improvements and betterments were effected.

From Sault Ste. Marie eastward, this road is in excellent condition to a point about twenty miles east of Mattawa, and two gangs were engaged in the construction of the portion lying between Mattawa and Chalk River, which has never been opened up. The route being followed is mainly a parallel line to the Canadian Pacific Railway, connecting the various towns and villages. The old construction trail was partially brushed and repaired to provide for local traffic pending the completion of the Highway.

The portion of the Province served by the T. & N.O. Railway, and lying between North Bay and Cochrane, has no connection by road with Southern Ontario, as the Northern Highway, before referred to, only extends to Widdifield, a distance of about 12 miles north of North Bay. From this point to Latchford (Mileage 92) there is a stretch of 80 miles with practically no settlement, lying

"Hymers Hill," Thunder Bay District.

largely within the Temagami Forest Reserve, and no effort has yet been made in the direction of road construction in this area.

From Latchford northwards to Cochrane, there are a few stretches which, when connected up, will provide a continuous highway from the one point to the other. One of these stretches, from Krugerdorf to Swastika, was opened up this year and although not quite completed, vehicular traffic has been made possible between the Cobalt Silver Camp and the Kirkland Lake Gold Camp. Surveys have been made of the remaining portions and preliminary steps taken in regard to further construction.

From Porquis Junction to the Porcupine Gold Camp, approximately 25 miles of new trunk road was cut out to connect Porcupine and Timmins with the Latchford-Cochrane trunk road, and when completed this road will link up the Cochrane and Matheson Agricultural Districts with the mining camps as well as the pulp and paper centre at Iroquois Falls.

The East and West Highway along the Canadian National Railway between

Cochrane and Hearst, is only a series of disconnected stretches of road, at present serving local purposes; additional pieces of construction were carried out and the existing portions improved.

In North-western Ontario there are four sections with a large mileage of roads in each, but without any connection the one with the other, viz.: Thunder Bay, Kenora, Dryden and Rainy River.

Thunder Bay District has a well laid out road system, with the cities of Fort William and Port Arthur as its centre. The five main or trunk roads are: 1. The Eastern Highway, which when completed will connect the Twin Cities with Nipigon, and the route of this road follows closely along the Hydro-Electric pole line as far as construction has progressed, and it is the intention to follow the Hydro line until construction reaches Nipigon, except in the Dorion district, where advantage will be taken of the roads already constructed in that vicinity. II. The North-western Highway, known as the Dawson Road, from Port Arthur

Opening a new road, Rainy River District

to Kaministikwia. This road was practically reconstructed this year and excellent returns given for the expenditure made. III. The International Highway, connecting the Twin Cities with the Minnesota State Road to Duluth at Pigeon River. Many expensive betterments were made on this road and satisfactory results obtained. A maintenance patrol system was adopted whereby the entire highway was kept in repair and the surface preserved and improved. IV. The Port Arthur Western Highway, known as the Oliver Road, and V., the Fort William Western Highway, known as the Arthur Street Road. These two roads carry a heavy traffic from the Twin Cities to Kakabeka and the flourishing agricultural area west, and many improvements were carried out in surfacing and road drainage.

In Kenora District the Town of Kenora is the hub of a series of roads, each running to one of the outlying parts of the district. The Kenora-Keewatin Road, which carries a heavy motor truck traffic, was resurfaced with crushed stone and good results obtained. The Pellatt Road, Redditt Road, Charlesbois Road, Ritchie Road, Homestake Mine Road and many others of less importance all received attention during the year, and a new road was opened up connecting the Pellatt Road with the Lulu Lake territory.

Bar River Bridge—Algoma District.

Typical Winter Scene, Temiskaming District.

In the vicinity of Dryden, which is a sub-district of Kenora, the Western Highway, which practically parallels the C.P.R., is the principal road, as it is the base of the road system of the district. This road, as well as the northern roads leading therefrom, to or in the direction of the C. N. Railway, received considerable attention during the year, the main highway especially being now in a very fair condition for automobile traffic.

The road system in the Rainy River District has as its base the trunk road from Fort Frances to Rainy River, and the heavy traffic on this road, which includes a motor bus plying between these points, called for a heavy expenditure in maintenance and betterments. The road follows the Rainy River, which is the Ontario-Minnesota boundary, and the country lying to the north of the river being very closely settled for miles away from the river, there is a constant demand not only for new roads, but for the improvement of the existing main or leading roads to the base, on which is situated all the market centres, Devlin, Emo, Barwick, Stratton, Pinewood, and other villages, being all situated on the main Fort Frances–Rainy River Road. Each of these points demands and requires a main artery running northwards, and all have received as good a measure of attention as the appropriation would allow.

In conclusion I would add that a comparatively large portion of the appropriation for each district was this year expended in road drainage, and while this expenditure does not show a great mileage of roads constructed, it would give a large mileage of roads improved, as the maintenance cost on a well-drained system of roads is reduced to a minimum in comparison to the cost on poorly drained roads.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. Fullerton,
Director, Northern Development Branch.

Toronto, Ont., October 31st, A.D. 1921.

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

ALGOMA DISTRICT.

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
	Trunk Rd., Sudbury to S. Ste. Marie														
1	I.—Sault Ste. Marie to Day Mills.	.08	66	.08	66	.08	66	.58	25	....	..	47520	clea	red	5262
		.50	12	.50	12	.50	12	1	re	....	..	2640	deep	ened	.....
												18480	2½x3¼		
2	II.—Day Milles to Cutler.....	11.		si	debr	us	hing	..	6		18	....	..	10000	2 x1½	.....	.....
														7600	2 x1½	.....	.....
														2640	4 x1½	.....	7719
3	III.—Cutler to Copper Cliff.....	5		si	debr	us	hing	..	25.50	re		....	..	1000	2 x1½	.....	17314
														400	2½x1	½	.....
														400	2½x1½	.....	.....
														1320	3 x1½	.....	.....
														150	3 x2	.....	.....
4	IV.—Webbwood-Massey Section.	....	..	.....	..	.5	12	6	30	....	..	500	3 x1½	.....	.....
								.75	32	....	..	600	2 x1½	.....	.....
												800	clean	ed...	.....
5	V.—Diversions near Spanish.....	1.5	66	2.5	66	1.5	30	2	30	....	..	400	3 x2	.....	.....
												300	3 x2½	.....	.....
				3 mi	le	s of fe	nc	e erect	ed	....	..	150	2½x1½	2	1410
6	VI.—At Algoma Mills.....	....	..	.....	..	.....	..	.15	28	....	..	1584	3 x2	.....	225
												1100	4 x3	.....	.....
7	VII.—At Bar River.....	....	..	.....	..	.....	..	.....	..	....	..	.....	.....	.....	.....
8	VIII.—at Sucker Creek.....	....	..	.....	..	.....	..	.....	..	....	..	.....	.....	.....	200
9	IX.—At Ladouceur Creek.....	....	..	.....	..	.....	..	.....	..	....	..	.....	.....	.....	30
10	Desbarats, Kensington Road....	....	..	.....	..	.....	..	.75	24	....	..	400	.....	.....	1043
11	Goulais Bay Road.....	.1		b	rush	ed	.....	.....	..	.....	..	125	1½x1	.....	.....
												1995	2½x1	.....	.....
												750	3½x2½	.....	472
12	Lorne, Louise Road.....	1.75	40	.....	..	.5	40	.....	..	.....	..	3168	2 x1½	.....	5520
												5280	2½x1½		
												100	3 x1		
13	Wharncliffe Road.....	4	25	.....	..	2	30	.5	28	.....	..	30040	2 x1½	8	1242
		2	20	.....	..	1	24	2.5	24	.....	..	13200	3 x2½	.....	.....
		2	br	ushe	d.	.....	..	2	22						
								2.5	20						
	St. Joseph's Island & Camp d'Ours.														
14	I.—General Maintenance.....	....	..	.....	..	.9	14	.....	..	.....	..	1870	3 x2	.....	1504
												2310	2½x2	.....	.....
												119	2 x1		
15	II.—Hilton Tp., "W" Line Road.	.13	ne	w ro	ad	.....	..	.....	..	.....	..	528	2 x1½	.5	520
16	III.—Fifth Side Road.....	....	..	.....	..	.....	..	1	18	.....	..	.....	.....	1.38	1310

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
		66		4	repaired					General maintenance.	1
				3	lowered					Repairs and small betterments, 66 miles.	
						2	15"				
						2	altered				
		51				2	14"			General maintenance.	2
						1	18"			Repairs and small betterments, 51 miles.	
						3	16"				
						1	26"				
				4			16x12"				
		78				1	24x 8"			General maintenance.	3
						16	24x18"			Repairs and small betterments 78 miles.	
						2	24x24"				
						1	26x36"				
						2	18x24"				
7785	3.4			1			26x24"			Stone road.	4
						1	26x18"			12' wide, 8" thick.	
											5
		2				1	26x18"				
						1	26x36"			Three diversions eliminating five bad hills.	
						2	24x24"				
						1	30x30"				
				4	improved						
3514	c.y.	excavation								Constructing subway.	6
782	c.y.	filling									
311		railing				1	30"				
					1		450'x4'x4'				7
Used for fill								1	Reinforced concrete, 16'x-16'		8
12	c.y.	stone									9
				1	re-covered			1	Unfinished	Hill cut, 300'x2 Earth fill, 60'x20'x7'. Rock and Gravel fills { 378x3 / 200x2½ / 100x2½ / 150x4	10
											11
		4		2			14x6			Rock cut, 15'x4'x3'.	
				12	repaired						
		5		7	1					Scow repaired and approaches built.	12
				25			20x4	1	Repaired.	88 c.y. stone. 347 c.y. filling.	13
		44		4			16x2x2			Dock built.	14
				4			14x2½x2				
				2			18x2x2				15
											16

11 L.F.

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

ALGOMA DISTRICT.

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
17	IV.—"U" Line Road	1.25	s i	deb'	d	.25	16	1.25	20	....	..	....	.....	1.25	1026
18	V.—Richardson's Creek	2	14	....	..	2	14	} Cree	k	clear	ed	for d	raina	ge of	roads.
		2	16	....	..	.....	..								
19	VI.—"P" Line and 10th Side Rd.	....	..	....	..	.....		.5	18	..	..	....	.....	1.25	394
	Manitoulin Island.														
20	I.—Gore Bay to Silverwater and	5	66	.75	66	2.25	26	4.25	26	....	..	600	3 x2	.....	5934
	and					.5	36	.....	..	....	..	....	.....	.....	.....
	Silverwater to Meldrum	2.88	60	3.25	60	1.25	30	1.25	28	....	..	....	.....	.....	.....
						1.5	40	.....	..	....	..	....	.....	.....	.....
						.25	28	.75	30	....	..	....	.....	.....	.....
21	Little Current to Sheguindah	1	32	1	32	1	16	1	16	....	..	990	4 x1	2.25	2131
	and	.75	66	....	..	.75	40	.25	26	....	..	....	.....	.....	.....
	Kajawan to Gore Bay	....	..	....	..	.....	..	.75	30	....	..	....	.....	.....	.....
22	Gore Bay to Long Bay	.75	66	.6	50	.75	30	1.5	16	....	..	....	.....	1.5	1650
		.6	60	....	..	.6	50	.....	..	....	..	....	.....	.....	.....
23	Long Bay to Spring Bay	3.5	66	....	..	.....	..	2.75	28	....	..	....	.....	2.75	2300
24	Spring Bay to Providence Bay	2	66	....	..	2	40	3	28	....	..	2640	2 x1½	3.25	3520
25	Providence Bay to Mindemoya	....	..	....	..	.....	..	.....	..	....	..	....	.....	.75	450
26	Around Mindemoya Lake	....	..	....	..	.....	..	2	30	....	..	....	.....	2	762
27	Sheguindah to Manitowaning	.75	50	....	..	.....	..	.08	22	....	..	300	16x1	1	1242
								.13	26	....	..	....	.....	.....	.....
								1.75	24	....	..	....	.....	.....	.....
28	Green Bay Road	.5	40	....	..	.5	40	2	24	....	..	246	1½x1½	1	2065
												500	2 x1	...	.....
29	Little Current to Honora	3.5	26	....	..	.....	..	.5	24	....	..	....	.....	2	.....
30	On Barrie Is and	....	..	....	..	.....	..	1.25	24	....	..	....	.....	1	500
	COCHRANE DISTRICT.														
	Township. Location.														
31	Brower: Abitibi S., to line bet. 8&9	....	..	....	..	.....	..	.....	..	....	..	....	.....	.....	.....
32	Bet. lots 8 and 9, Con. 5	....	..	....	..	.....	..	.....	..	....	..	....	.....	.....	.....
33	Bet. Cons. 2 &3, lots 9 to 12	....	..	....	..	.....	..	.....	..	....	..	....	.....	.....	.....
34	Bet. Cons. 2 & 3, lots 5 & 6	.75	66	.75	66	.....	..	.....	..	....	..	....	.....	.....	——
35	Bet. Cons. 5 & 6, lots 1 & 2	.63	66	....	..	.....	..	.....	..	....	..	....	.....	.....	——
36	Calder: Bet. Cons. 8 & 9, lot 25	....	..	....	..	.....	..	.....	..	....	..	....	.....	.....	——
37	Bet. Cons. 2 & 3, lot 28, & lots 1 & 2	.75	66	.75	66	.....	..	1	33	....	..	196	3 x2	.....	——
38	On lot 1, Con.1	....	..	....	..	.....	..	.....	..	....	..	1155	4 x2½	.....	——
39	Bet. Cons. 2 & 3, lots 1 & 2	....	..	....	..	.....	..	.25	24	....	..	....	.....	.....	.....
40	Calvert: Across pt. Con. 1, lot 10.	....	..	....	..	.....	..	.34	33	....	..	900	3 x3½	.....	.....
								.....	..	....	..	1800	re	.....	.....
41	Trunk Road to Iroquois Falls	....	..	....	..	.....	..	1.25	24	....	..	4300	4 x4	.....	.....
												6600	re	.....	.....
42	Bet. Cons.1 & 2, lots 9 & 10	.25	66	.25	66	.25	24	.....	..	....	..	8596	.....	.....	.....
43	Clergue: Bet. Cons. 4 & 5, lot 5	....	..	....	..	.....	..	.11	24	....	..	....	.....	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
.....	....	2.25	.....	1	.....	.....	14x2x2	..	.....	.....	17
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	18
.....	....	.....	.....	1	.....	.....	16x2x2	..	.....	.....	19
.....	....	3.5	.....	1	.....	.....	16x1x1	1	.....	Stone fills, Earth fills,	
.....	....	.....	.....	7	.....	.....	16x8x8	..	.....	16x12x2 66x4x2	20
.....	....	.....	.....	..	1	.....	16x5x4	..	.....	100x5x1½	
.....	....	.....	.....	..	5	.....	16x1x1	..	.....	2475x3½x1½	
.....	....	.....	.....	5	.....	.....	16x3x2	..	.....	495x6x1	
					1	.....	16x6x3	..	.....	100x16x2	
					1	.....	16x6x2				
					1	.....	16x5x1				
1525	2	.....	.....	..	1	.....	16x3x4	..	.....	4 stone fills, 100'x6½x1½.	21
.....	....	.....	.....	..	2	.....	16x2x2				
					1	.....	16x4x3				
.....	....	.5	.....	..	2	.....	16x7x3	..	.....	Earth fill, 1650'x12x8".	22
.....	....	.....	.....	..	.....	.....	16x4x3				
.....	....	.....	.....	..	3	.....	.....	..	.....	.....	23
.....	....	3	.....	..	4	.....	16x4x3	1	Covered.	Earth fill, 100x16x1.	24
					3	.....	16x2½x2½				
				1	.....	.....	16x3x3				
				1	.....	.....	16x2x2				
					1	.....	18x6x3				
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	25
.....	....	3	.....	..	.....	.....	.....	..	.....	.....	26
.....	..	.....	.....	..	.....	.....	.....	..	.....	Fill, 74'x5'x15".	27
.....	....	4.50	6	..	2	.....	16x2½x2½	..	.....	Fill, 462'x26'x4½'.	28
.....	....	.....	.5	11	.....	.....	16				
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	29
.....	....	.....	.....	..	3	.....	16x3x1½	..	.....	.....	30
.....	....	.....	.....	1	.....	.....	16x4x3	..	.....	.....	31
				2	.....	.....	16x3x3				
.....	....	.....	.07	1	.....	.....	16x3x3	..	.....	.....	32
.....	....	.....	.....	10	.....	.....	16x4x3	..	.....	.....	33
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	34
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	35
.....	....	.....	.....	..	.....	.....	.....	..	.....	Scow constructed.	36
.....	....	.....	.....	3	.....	.....	16x4x3	..	.....	.....	37
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	38
.....	....	.....	.....	..	.....	.....	.....	1	30x19x6.	100 c.y. earth fill.	39
.....	....	.....	.....	2	.....	.....	20x3x3	..	.....	.....	40
.....	....	.....	.....	1	.....	.....	16x1½x1½	..	.....	.....	41
.....	....	.....	.....	..	.....	.....	.....	..	.....	.....	42
.....	....	.....	.....	1	.....	.....	16x2x2	1	16x8x8.	1300 yds. earth excavation	43

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

COCHRANE DISTRICT

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
44	Across pt. Con. 6, lot 10							.6	24			2000	4 x3		
45	Clute: Bet. Cons. 10 & 11, lot 26														
46	Bet. Cons. 10 & 11, lots 23-26	.25	66	.25	66	.2	33	.2	33			244			
						.5	24	1.12	24			759	3½x4½	.1	1000
47	Bet. lots 12 & 13, Con. 6														
48	Bet. Cons. 2 & 3, lots 3 to 5					.1	re	1	re						
49	Bet. Cons. 6 & 7							.25	33						
50	Bet. Cons. 2 & 3, lot 28							.08	33						
51	Bet. lots 12 & 13, Boundary of Fournier to Frederickhouse	.4	66	.4	66			1.4	30			1800	4 x2		
												5808			
												2442	4 x3		
52	Bet. Cons. 6 & 7, lots 13 to 17											15523			
53	Bet. Cons. 8 & 9, lots 13 to 18	1	66	1	66							2737			
54	Fauquier: Bet. lots 12 & 13, Cons. 3 to 6													2.5	
55	Fournier: Bet. lots 7 & 8, Cons. 5 & 6	1	66	1	66										
56	Bet. lots 8 & 9, Con. 6	1.25	66	1.25	66			1.25	24			1650	4 x3		
57	Bet. lots 4 & 5, Con. 6											990	5 x4		
												10956			
58	Bet. Cons. 5 & 6, lots 1, 2 & 3														
59	Bet. lots 10 & 11, Con. 6	.37	66	.37	66			.7	24						
60	Fox: Bet. lots 8 & 9, Cons. 1 to 3	1.25	66	1.25	66	.82	24					11652			
61	Bet. Cons. 2 & 3, lots 9 to 12	1.25	66			1.25	24					16509			
62	Bet. lots 4 & 5, Cons. 2 & 3 } Bet. Cons. 3 & 4, lots 3 & 4 }			3.1	24	3.1	24					33495			
63	Bet. lots 4 & 5, Cons. 1 & 2	1.2	66	1.2	66										
64	Bet. lots 10 & 11, Con. 2	1	66	1	66										
65	Bet. Cons. 4 & 5, lots 1, Brower 12 Fox											8726			
66	German: Connaught Dam Rep'rs.														115
67	Glackmeyer: Bet. Cons. 2 & 3, lots 19 to 28													2.5	
68	Lamarche: Bet. Cons. 4 & 5, lots 5 & 6	.82	66	.82	66	.75	24	.5	24			4735			
69	Bet. lots 4 & 5, Con. 3	1	66			1	24								
70	Bet. lots 8 & 9, Con. 6											1320		.25	175
71	McCart: Bet. Cons. 2 & 3, lot 4	.5	66	.5	66										
72	Bet. Cons. 2 & 3, lot 3			.5	24	.5	24					2640			
73	Newmarket: Bet. Cons. 1 & 2, Trunk Road, to Lot 4	1	66	1	66	1	24					12341			
74	Trunk Road, lots 4 & 5, Con. 5			.75	33	.75	33					8100			
75	Bet. Cons. 4 & 5, lots 3 & 4											7950			
76	Bet. Cons. 5 & 6, lots 5 & 6											14800			
	BOUNDARY LINES.														
77	Blount,—Leitch: Across Con. 1							.2	24			660	4 x3		
78	Across Cons. 1, 2 & 3							.2	24	.2	24				
79	Blount—Clackmeyer: Across lots 15, 16, 17	.2	66	.2	66			.2	24	.2	10	1188	4 x4		
80	Brower—Kennedy: Across lots 2 to 9, Brower							.33	32			330	3 x3		

NORTHERN DEVELOPMENT BRANCH

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
				1			16x4x4				44
				1			16x3x3				
				1			20x1½x1½				
								1	80x14 (piles).		45
				2			16x4x3			45 c.yds. hill cutting.	46
				3			16x3x3			2000 c.yds. filling.	
			.06								47
				2	repaired						48
				1			16x5x4				
											49
											50
			1.75	3			20x4x3				51
				2			16x4x3				
				6			16x3x3				52
											53
											54
				6			16x4x4				55
				5			16x4x2				56
											57
				5			16x3x3				58
				5			16x4x4				
				2			16x3x3				59
											60
											61
				7			16x6x6				62
											63
											64
											65
											66
											67
				4			16x4x3				68
				7			16x3x3				
											69
				2			16x3x3	1	20x6x6.	504 c.yds. hill cutting.	70
								1	20x16x7.	888 c.yds. clay excavation	71
											72
											73
											74
											75
											76
											77
											78
				4			16x4x4				79
			1.9	1			3				80

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

COCHRANE DISTRICT

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
81	Across lot 3, Brower									.07	10	200	3 x2½		
82	Across lot 27, Kennedy			Doc	k	and C	ab	le repa	ir	ed.	S	cow l	nstall	ed.	
83	Brower—Fox: Across Cons. 1 & 2.	2.	66	2	66			.2	33						
								2	24						
84	Brower—Lamarche: Across Cons. 6														
85	Calder—Clute: Across Cons. 1 & 2.							.7	30						
								.3	33			4881			
86	Across Cons. 2 to 10							1.2	33						
87	Calvert—Teefy: Across Con. 3.			Plac	in	g equ	ip	ment f	or	erec	ti	on of	bridg	e	
88	Clergue—Walker: Across Con. 5.							.46	24			5280	3 x2		
89	Clute—Fournier: Across lot 13							.12	33						
90	Across lot 14 to 16	.25	66	.25	66			.25	30						
								.31	33			240	5 x3		
91	Across lot 1 to 5, Fournier	1.9	66	1.9	66			1.9	30			11400			
92	Clute—Glackmeyer: Across lot 8 to 12							.5	30						
93	Across lots 5 to 8	6 acr under	es brus	he	d .7	66		2	33			1300		1	
94	Fournier—Lamarche: Across Cons. 4, 5 and 6							.9	33			291 4554	}		
95	Fox—Pyne: Across lots 9 to 12							2	66	1.9		24 66	} }	1.9 I3619	24
96	Glackmeyer—Lamarche: Across lots 23 to 28													.2	
	DRYDEN DISTRICT.														
97	Aubrey: Bet. lots 3 & 4, Con. 5													.75	775
98	Drayton: Bet. lots 2 & 3, Con. 3													.25	re
99	Bet. lots 2 & 3, Con. 3, and thro ugh lots 3 & 4, across Cons. 3 & 4.	1.5	66	1.5	66	1.5	35	1.5	22						50
100	Eton: Trunk Rd., Bet. Cons. 1 &2													4	3284
	Bet. lots 1 to 2													1.5	
101	Bet. lots 6 & 7, Cons. 3 & 4													.63	2252
102	Bet. Cons. 3 & 4, lots 6 to 9													1.5	
103	Bet. Cons. 5 & 6, lots 4 to 6	1.	66	1.	66	1.	35			.001	16	1320			
104	Mutrie: Bet. lots 10 & 11, Cons. 3 & 4	1.5	66	1.5	66	1.5	35	.25	22	.3	16	2046 7342	}		
105	Sandford: Bet. 2 & 3, Cons. 1 to 4.	1.5	66	1.5	66	3	35	4	22			425			
106	On lot 2, Con. 4			Cut	hil	ls and	m	ade ap	pr	oach	es	to W	abigo	on Ri	ver
107	Southworth: Bet. lots 10 & 11, Cons. 4 & 5, and in lot 11, Con. 5	1	20							.006	16				
108	Wabigoon: Bet. lots 8 & 9, Con. 6, and in lots 8 to 11, Cons. 1 &2	4.7	66	2.5	66	3.7	35	5.5	22	1	16	18810			45
	Redvers: Redvers Township														
109	Wabigoon: Bet. lots 8 & 9, Cons. 3, 4 & 5, and Bet. Cons. 5 & 6, lot 9													3.5	3730
110	Wainwright: Bet. lots 8 & 9, Con. 1													1	821
111	Bet. Cons. 1 & 2, lots 9, 10 & 11.													1	821
11	Zealand: Trunk Rd., across lots 10 to 14													2.5	680

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											81
											82
				6			16x3x3				
				1			16x2x2	1	16x10x5.	1350 c.yds. hill cutting.	83
			.04	1			16x1½x1½	1	Repaired.		84
				2			16x4x3				85
				2			16x3x3				
				11			16x3x3				86
											87
											88
											89
				3			20x4x4				90
				2			24x4x4				
				2			20x4x3	1	20x6x5.		91
				5			16x3x3				92
				4			16x3x3			150 c.yds. hill cutting.	93
				5			16x3x3				94
				4			16x4x3				95
											96
											97
											98
				2				1	30'x 16.		99
											100
											101
											102
				1			28x4x4			100' filling, 10' deep.	103
				1			30x6x6			300' hill cutting, 4' deep.	
				5						.75 mile earth covered.	104
				11							105
Bridge		1.5 miles of road earth covered.									106
											107
				19	1						108
											109
											110
											111
		3.5								Hill cut & fill, 120'x36'x4'.	11

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

DRYDEN DISTRICT

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
113	Trunk Rd., on lot 6, Con. 1, and across lot 7 bet. Cons. 3 & 2														600
114	Bet. Cons. 2 & 3, lots 4, 5-6	.5	66	.5	66	.5	35	1.25	22			1000			
	BOUNDARY LINES.														
115	Aubrey—Eton: Lots 1, 2 & pt. 3													1.25	1026
116	Aubrey—Sandford: Trunk Rd, lots 4 to 11, through lots 11 & 12, Con. 6, Aubrey, and across lot 3, Con. 6, Temple Township			8 br	us	h		2	re					4.5	3458
117	Eton—Rugby: lots 2 to 6	2.5	66			2.5	35	2.5	22			1155			
118	Lots 7, 8 & 9									.01	16	2343			
119	Eton—Wainwright: Cons. 1, 2 & 3													2	1642
120	Wainwright—Zealand: Cons. 8 to 10, Zealand	.9	66	.9	66	.9	35					500			300
121	Wainwright, Britton and Rowell: Dryden—Richan Road	2.5	66					2	22			3144			
122	Trunk Road from Wabigoon in Zealand Twp. to Quibell in Wabigoon Twp.														
	ENGLEHART DISTRICT.														
123	Beauchamp: On lot 9, Con. 4	48,	17	7 ft.	B.	M. of	br	idge ti	m	er, c	ut	,skidd	ed an	dhaul	ed—a
124	Catharine: On lot 3, Con. 3														
125	Chamberlain: On lot 1, Con.6		G	rade	s r	educe	d	on app	ro	ache	s t	o Kru	gersd	orf B	ridge
126	Bet. Cons. 5 & 6 lot 5														
127	Bet. Cons. 2 & 3, lot 8														
128	Bet. Cons.1 & 2, lot 8							.5	20						
129	Dack: Bet. lots 8 & 9, Con. 2			Gra	de	s redu	ce	d on tw	o	hills.					
130	Bet. lots 8 & 9, Con. 3			Gra	de	s redu	ce	d on tw	o	hills.					
131	Evanturel: On lot 9, Con.4	.25	12	.25	12	.25	10					1320	3 x3		
132	Bet. Cons. 5 & 6 lot 12							.5	30						
133	Gauthier: Larder Rd. to Argo Mine														
134	Ingram: Bet. lots 10 & 11 across Cons. 4 & 5	2	66	2	66	in pa	rt								
135	Bet. Cons. 3 & 4 across lots 3 & 4		St	raig	ht	ening	w	ater co	ur	se a	nd	build	ing d	am...	
136	Bet. Cons. 1 & 2, lot 8											2340	3 x2		
137	Lorrain: N. Cobalt to Paradis Bay														
138	Bet. lots 4 & 5 across lot 11					.5	20	.5	15						
139	Marter: Bet. lots 10 & 11, Con. 2		A	ppro	ac	hes to	s	teel bri	dg	e re	- c	onstr	ucted	and g	rades
140	Bet. lots 4 & 5, Con. 4														
141	Bet. Cons. 4 & 5, lot 3							.5	28						
142	Pacaud: Bet. lots 6 & 7, Con. 2	1	66												
143	Robillard: Bet. Cons. 5 & 6, lots Lots 6 & 7	.5	66			.75	20	.75	18						
144	Savard: Bet Cons. 2 & 3, lot 3														
145	Bet. Cons. 3 & 4, lot 12							.5	20						
146	Sharpe: Bet. Cons. 1 & 2, lots 1 & 2							.1	20						
147	Bet. Cons. 2 & 3, lots 2 & 3							2	30	Gra	de	reduc	ed on	seven	hills.

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
										25 mile clay covered	113
				3							114
											115
											116
				7							117
			1.25							1 mile sidebrushed, 12' wide.	118
											119
			1.75	6				2	With fills and approaches.		120
			11	90			16x4x2			339 c.yd. in fills.	
				11			16x9x3			1401 c.yd. clay covered.	121
		55									122
also75	piles and		10 pieces	special		bridge	timber.				123
								1	18' span renewed.		124
								1	60' " (timber)		125
								1	38' " "		126
								1	20' " "		127
				2			16x3x2				128
											129
								1	Repaired.		130
											131
				1			16x3x2				132
			6.75								133
											134
											135
											136
			9					3	Recovered		137
reduced.				1			16x3x3				138
reduced.											139
				1	removed			1			140
											141
											142
				1			16x5x4)				143
				2			16x4x3)				
								1	30'span.		144
											145
				1			16x8x3				146
				3			16x3x3				147
				2			16x8x3				
				1			16x12x5				
				1			16x6x5				
				1			30x6x5				
				1			30x3x2				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

ENGLEHART DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
148	Sharpe: Bet. lots 2 & 3, Con. 3, and Cons. 3 & 4, lots 3 to 6	3	66	3	66										
149	Bet. lots 2 & 3, across Con. II, and across lots 2 & 3	1.25	66	1.25	66										
	BOUNDARY LINES.														
150	Catharine—Pacaud: Cons. 1, 2, & 3														
151	Dack—Evanturel: Cons. 3 & 4		G	rade	re	duct	io	n on H	ig	h F	all	s Hill	s,350′	field	drain
152	Evanturel—Ingram: Con. 5		G	rade	re	duct	io	n on br	id	ge a	p	proac	hes		
153	Evanturel—Marter: Lot 10														
154	Robillard—Savard: Lots 11 & 12		G	rade 9	re h	duct ills.	io	n 1	20						
155	Lot 5													.1	14
156	Robillard—Truax: Cons.6		G	rade on	re 5	duct hills.	io	n .75	20						
157	Savard—Sharpe: Cons. 1 & 2							2	20						
158	Con. 4							1	20						
159	Sharpe—Truax: Lots 1 & 2		G	rade on	re 9	duct hills.	io	n .75	20						
160	Rd. from Elk Lake to Matachewan					3	10								
161	" Dane to Larder Lake														
162	" Boston Creek to Skead	4.01	18	4.01	18	4.01	18	4.01	16	.25	16	6090		.3	
163	" Swastika to Kirkland L.														
164	Branch Road from Swastika to Coal Chutes											60		.14	291
165	Latchford—Cochrane Trunk Rd., Krugerdorf to Swastika	10.5	66	9.2	66	2.3	33								
						9.4	26	2.1	22			13980		2 Con	crete
166	Rd. from Krugerdorf to Miller Ind. Mine	2.4 wide	5 ni	8.25 ng	66	8.25	30	2.38	18			4890			
167	" " Tough Oakes Mine to Crystal Lake					3.54	30	1.	18	.45	16	13654			
168	" from Rosegrove to Round Lake			6.4	66	6.4	22								
169	from Boston Creek to Round Lake	2.26	66	2.07	66	1.76	30								
170	from Charlton to Elk Lake									.05	16				
171	" Elk Lake to Gowganda	1.6	66	1.6	66	1.6	22	13.5	16			10667		11.5	
	HEARST DISTRICT.														
172	Casgrain: Bet. Cons. 4 & 5, lots 23 and 24	.33	66	.33	66	.33	24					268 2800	3½x1½		
173	Bet. lots 24 & 25, Cons. 4, 5 & 6							.6	33			24235		.5	
174	Bet. Cons. 6 & 7, lots 20 to 24	1.6	66	.63	66										
175	Bet. lots 18 & 19, Cons. 1 to 6													1.5	
176	Bet. Cons. 4 & 5, lot 19													.31	
177	Hanlan: Bet. lots 12 & 13, Cons. 1 & 2	1.5	66	1.5	66	.75	24					5500			
178	Bet. Cons. 2 & 3, lots 16 to 22	1.25	66	1.25	66	1.252	4					11142			
179	Bet. lots 18 & 19, Cons. 3, 4 & 5	2.23	66	2.23	66	2.23	24					10139			
180	Bet. Cons. 1 & 2, lots 1 to 8	.81	66			1.5	24								

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											148
											149
			3								150
tile for subsoil drainage				2			32x4x3				151
						1	125'x 24'				
								1			152
								1	80' span ready for steel.		153
				7			16x5x3				154
										Cut widened on sand hill.	155
											156
				1			24x5x3				157
											158
				1			26x5x3				159
				4			16x5x3				
											160
1150			12	56	renewed						161
			3.75	12			16x4x2	1	68'x 16'.		162
300	.6					1	12"				163
						3	12"				164
											165
abut-	1–20	x8				4		1	62x14.		
ments	1–20	x4		28			22x4x3	1	120x14.		
				16			16x4x2	1	19x16x4.		166
								1	44x16x4.		
			.5	15			16x3x2				167
								1	120' long.		168
								1	120' long.		169
				3			16x4x2				170
				23		3	2x1½	1	16x11x4.	10.4 miles brushed out.	171
										New road.	172
			1.75	2			16x3x2				173
											174
			4								175
			.25								176
											177
				2			16x3x3				178
											179
											180

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

HEARST DISTRICT

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
181	Trunk Road, lots 13 to 20							.85	re						
182	Kendall: Bet. Cons. 8 & 9, lots 19 to 24											19747			
183	Bet. lots 18 & 19, Cons. 7 & 8	.66	66	.66	66	1.5	24								
184	Bet. lots 24 & 25, Cons. 11 & 12	.3	24	.3	5							5000			
185	Kendall: Bet. lots 12 & 13, Cons. 7, 8 and 9														
186	Bet. Cons. 11 & 12, lots 19 to22														
187	Bet. lots 24 & 25, Cons. 9 & 10											1200			
188	Bet. Cons. 10 & 11, lot 19														
189	Bet. Trunk Road, lots 24 &25											2050			
190	Trunk Road, lots 5 to 23														
191	Way: Bet. Cons. 2 & 3, lots 1 to 16	1.6	66	1.6	66	.45	24					53129			
192	Bet. Cons. 10 & 11 lots 3 to 12					.65	24	1	re			4750			
193	Bet. Cons. 8 & 9, lots 2 to 6											16746			
194	Bet. lots 6 & 7, Cons. 1 & 2	1.5	66												
195	Bet. Trunk Road, lots 3 to 12							.5	re						
	BOUNDARY LINES.														
196	Casgrain—Hanlan: Across Cons. 3 & 4					1.5	24								
197	Hanlan—Way: Across lots 8 & 9	.63	66	.63	66	.63	24								
198	Kendall—Way: Across Cons. 7, 8 & 9											7500			
199	Across Cons 3 to 6	.75	66			1.73	24					898			
200	Lowther—Way: Across lots 7 & 9	.63	66												
	KAPUSKASING DISTRICT.														
201	Fauquier: Bet. lots 6 & 7, Cons. 3 & 4, and Cons. 4 & 5, lots 6 to 12									.1	12	44560			
202	Bet. lots 12 & 13, Cons. 1 & 2	1.5	66												
203	Bet. lots 6 & 7, Cons. 1 & 2	1.5	66	1.5	66										
204	On lots 8 & 10, Con. 5														
205	Trunk Road, lots 10, 11 & 12											15060			
206	Trunk Road, M.P. 50½ to 57			.5	28	.5	28					5280			
207	Trunk Road, M.P. 57 to 62½											71080			
208	O'Brien: Bet. lots 25 & 26, Cons. 11 & 12	.5	66	1.	66	1.	24	.5	24			7000			
209	Bet. Cons. 10 & 11, lots 19 to 24											5280	re		
210	Bet. lots 24 & 25, Cons. 9 & 10											2640	re		
211	Bet. lots 18 & 19, Cons. 11 & 12														
212	Trunk Road, M.P. 65½ to 69½											13200	re		
213	O'Brien & Owens: Trunk Road, M.P. 69½ to 73														
214	Owens: Trunk Road, lots 4 & Con. 13			.5	28	.5	28	.5	26			5000			
215	Shackleton: Bet. lots 24 & 25, Cons. 8 to 11	2	66			3	24								
216	Trunk Road, M.P. 42 to 46	4	66	4	66	4	28					47240			
217	Trunk Road, M.P. 46 to 49½											41060			
218	At Ground Hog River Crossing			Sco	w	and		ca	ble rep	ai	red	an	d cul	verts	repai redon

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag-ging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered			Wood	Stone or Conc.	Met.	Size	No.	Description		
			3.50	3			16x4x3			1500' clay sheeted, 10'wide	181
				4			16x3x2				182
											183
			1.50	4			16x4x3			6000' clay sheeted, 8' wide.	184
			1	1			50x14	1	Temp'y Floating.	500' clay sheeted, 8' wide.	185
			1.25	6			16x3x3			700' clay sheeted, 8' wide.	186
			1	2			16x3x2				187
								1	40' long improv	ed with "A" truss.	188
			.75	2			16x3x3				189
			5	3			16x3x2			5000' clay sheeted, 8' wide.	190
				10			16x3x2				191
			2.25	5			16x4x3				192
											193
											194
			2.25	2			16x3x2			7500' clay sheeted, 10'wide	195
											196
											197
			2.25							3500' clay sheeted, 10'wide	198
											199
											200
				10			16x5x3	1	Wood, 16x11x9.		201
											202
											203
										2 mls. of creek cleared.	204
											205
			5.50	4			16x5x3			1 mile of creek cleared; 1320' clay surfaced.	206
				18			16x5x3				207
				6			16x4x4				208
		3		7	repaire	d					209
		.75		3	repaire	d					210
		6		4	repaire	d					211
				10	repaire	d				2000' offtake ditch cleaned 2 miles clay surfaced.	212
		3.50		6	repaire	d					213
		1.50		5			16x4x4				214
											215
											216
											217
Trunk	Roa	d.									218

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

KAPUSKASING DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
	BOUNDARY LINES.														
219	Fauquier—Nansen: Across lots 7 to 12	1.75	66	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
	KENORA DISTRICT.														
220	Jaffray & Mellick: Main East Mellick Rd. (Pelletier Branch) East Charlesbois Road	.5	40	.5	40	.5	40	.5	16	.....	..	2640	3 x1	.....	461
221	Con. 1, lot 2, Con. 2	.6	40	.6	40	.4	30	.3	18	.1	14	1700	3 x2	.....	130
222	Con. 2, lot 1, Con. 3	....	..	.3	40	.5	40	.3	40	.3	15	2080	3 x1½	.....	1050
223	Con. 3, lot 2, and J.A. 3	....	..	....	..	.4	30	1.0	20	....	..	.....	.....	.....	2600
224	Coker Road, lots 5, 6 & 7, Con. 3.	.4	30	....	..	.4	30	.3	12	.1	14	1600	4 x1	.....	.....
225	Pellatt: Branch to Lulu Lake	1.66	66	1.66	66	1.66	30	2.25	16	....	..	2490	3 x2	.....	1600
226	Pellatt Road	....	..	....	..	.....	..	12	re	....	..	.....	.....	.....	40
227	Keewatin westwards	....	..	....	..	.51	30	.....	..	.....	..	3000	3 x8	.....	910
228	Kenora-Keewatin Road	....	..	....	..	.....	..	.....	..	.....	..	4650	2 x1¼	.....	235
229	Redditt: Kenora-Redditt Road	.8	40	.8	40										
	I. on lots 5 & 6 Con. 5	.3	50	.3	50	.5	30	.3	12	.1	16	1995	3 x1	.....	200
230	II. lots 12, 13, 14, Cons. 4, 5	3.5	40	3.75	40	1.75	40	1.5	18	....	..	10020	3 x2	3.5	1260
231	Beatty: Bet. lots 11 & 12, Cons. 1 & 2	....	..	....	..	.. 8.	..	2	22	.....	..	900	3 x2	.....	.....
232	Bet. lots 9 & 10, Con. 3	....	..	....	..	.....	..	1	22	.....	..	200	3 x2	.....	.....
233	Benoit: Bet. lots 6 & 7, Con. 2	....	..	....	..	.....	..	1	22	.....	..	500	3 x2	.....	.....
234	Bet. Cons. 5 & 6, lots 3 to 9	2.63	66	1.63	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
235	Bond: Bet. lots 2 & 3, Cons 3 & 4.	....	..	....	..	.....	..	1.76	22	.....	..	662	3 x2	.....	.....
236	Bowman: Bet. Cons. 4 & 5, lots 11 & 12	....	..	....	..	.....	..	1	22	.....	..	150	3 x2	.....	.....
237	Bet. Cons. 5 & 6, lot 10	....	..	....	..	.5	33	.5	22	.....	..	.....	.....	.....	.....
238	Bet. Cons. 3 & 4, lots 7 & 8	....	..	....	..	1	26	.....	..	.....	..	.....	.....	.....	.....
239	Bet. lots 6 & 7, Con. 3	1	66	1	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
240	Bet. lots 2 & 3, Con. 3	....	..	....	..	1	26	.....	..	.....	..	.....	.....	.....	.....
241	Carr: Bet. lots 4 & 5, Con. 1	....	..	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
242	Bet. Cons. 3 & 4, lots 1 to 4	....	..	....	..	.....	..	2	re	....	..	.....	.....	.....	.....
243	Bet. Cons. 5 & 6, lots 5 to 9	....	..	....	..	.....	..	2.5	re	....	..	.....	.....	.....	.....
244	Bet. lots 4 & 5, Cons 1 to 6	Fi	lle	d w	as	houts	at	culver	ts	and	b	ridge	appro	aches	.....
245	Bet. Cons. 2 & 3, lots 4 & 5	Fi	lle	d w	as	houts	at	culver	ts	and	br	idge a	pproa	ches	.....
246	Bet. lots 2 & 3, Cons. 1 & 2	....	..	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
247	Bet. lots 2 & 3, Cons. 5 & 6	.88	66	.88	66	1.38	33	.....	..	.....	..	.....	.....	.....	.....
248	Bet. Cons. 4 & 5, lots 9 & 10	1	66	1	66	1	33	.73	22	.....	..	300	3 x2	.....	.....
249	Bet. Cons. 3 & 4, lots 5 & 6	....	..	....	..	.....	..	1	22	.....	..	200	3 x2	.....	.....
250	Clergue: Bet. Cons. 2 & 3, lots 2 & 3	....	..	....	..	.....	..	1	22	.....	..	300	3 x2	.....	.....
251	Bet. lots 2 & 3, Con. 1	....	..	....	..	1	26	.....	..	.....	..	.....	.....	.....	.....
252	Currie: Bet. Cons. 4 & 5, lot 1	....	..	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
253	Bet. Cons. 4 & 5, lot 5	....	..	....	..	.5	33	.5	22	.....	..	300	3 x2	.1	.....
254	Hislop: Bet. Cons. 1 & 2, lot 5	....	..	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
255	On lot 6, Con. 2	....	..	....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag-ging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											219
											220
				2			16x2x1½				
				1			18x4x1¾				221
				1			20x3x2				
			25	5							222
				2			18x2x2				223
				4			18x2x2			Washouts repaired.	224
				10						Filling, 300′x 26′x 3′.	225
				6	repaired						226
			1.2		1	3				1537 c.yd. rock blasted and used in fills.	227
106	.41									2465 c.yd. rock blasted	
1490										and used in fills. 550 c.yd. filling. 1500 c.yd. rock fill.	228
										69′ filling in br. approach.	229
				24			18x2x1			165′x 20′x 4′ filling.	230
				8			18x3x2				231
				4			18x3x2				232
				5			18x3x2				233
											234
				11			18x3x2				235
				4			18x4x4				236
				4			18x4x4				237
											238
											239
											240
								1	Pile bridge, 650′ long, rebuilt.	40 yards rock repaired washouts.	241
											242
											243
		6									244
											245
		2									246
											247
				8			18x3x2	1	20x16x5.		248
				5			18x3x2				249
					2		28′x 3′				
				9			16x4x4				250
											251
				1			30x16x6			1270 c.yds. filling.	252
				4			18x4x4				253
								1	144x16x8.		254
								1	Timber truss on piles, 138′x16x8		255

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

MATHESON DISTRICT

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
256	Bet. Cons. 5 & 6, lot 10														
257	Bet. Cons. 1 & 2, lots 1 to 5	2.5	66	2.5	66										
258	Bet. Cons. 5 & 6, lots 2 & 3							1	22			100	3 x2		
259	Bet. lots 9 & 10 Cons. 2 & pt. 3							1.5	22			2000	4 x3		
260	Bet. lots 3 & 4, Con. 5							1	22			400	3 x2		
261	Bet. lots 9 & 10, Con. 1	1	66	1	66	1	26	1	22			1500	4 x3		
262	Bet. lots 5 & 6, Con. 1, and bet. Cons. 1 & 2, lots 4 & 5					1.75	26	1.75	66			700	3 x2		
263	Playfair: Bet. lots 1 & 2, Cons. 2 & 3	1.25	66	1.25	66	1.25	33	2	22			1000	4 x3		
264	Bet. Cons. 5 & 6, lot 12	.25	66	.25	66	.25	33								
265	Bet. Cons.4 & 5, lots 7 to 10					.75	26								
266	Stock: Bet. Cons. 5 & 6, lots 8 to 12	2.5	66	2.5	66										
267	Bet. Cons. 3 & 4, lots 1 & 2					1	33								
268	Taylor: Bet. lots 2 & 3, Cons. 1 & 2							2	re						
269	Bet. Cons. 3 & 4, lot 3	F	ill	ing i	n	at rail	ro	ad cros	si	ng					
270	Bet. Cons. 1 & 2, lots 11 & 12							1	22			200	3 x2		
271	Bet. lot 10 & 11, Con. 2	1	66	1	66	1	33	1	22			400	3 x2		
272	Bet. lots 2 & 3, Con. 3	.75	66	.75	66	.75	33	.75	22			200	3 x2		
273	Bet. Cons. 3 & 4 lots 1 & 2							1	22			400	3 x2		
274	Bet. Cons. 5 & 6, lots 1, 2 & 3	1	66	1	66	1	26								
275	Bet. lots 10 & 11, Cons. 3 & 4					1.75	26								
276	Bet. lots 8 & 9 Con. 3	.88	66	.88	66	.31	26								
277	Bet lots 8 & 9, Con. 6							.5	22						
278	Bet. Cons. 4 & 5, lots 7 & 8							1	re						
279	Walker: Bet. lots 4 & 5, Con. 1 & 2							2	22			400	3 x2		
280	Bet. Cons. 3 & 4, lot 12					.5	33								
281	Bet. Cons. 2 & 3, lots 5, 6 & 7					1.5	26								
282	Bet. lots 10 & 11, Con. 1, and Cons. 1 & 2, lot 11							.63	22						
283	Bet. Cons. 5 & 6, lot 10 11 & 12					1	26								
	BOUNDARY LINES.														
284	Beatty—Carr: Cons. 3 & 4							2	re						
285	Bet. Cons. 1 & 2														
286	Bet. Con. 4													.5	
287	Beatty—Hislop: Lots 8 to 13														
288	Bond—Stock: Lot 3														
289	Bowman—Carr: Lots 5 to 12							4	re						
290	Lots 1, 2 & 3														
291	Bowman—Currie: Cons. 4, 5 & 6														
292	Bowman—Hislop: Cons. 2, 3 & 4														
293	Carr—Taylor: Cons. 3 & 4							2	re						
294	Carr—Wilkie: Lots 5 to 10	3	66	3	66	3	26								
295	Clergue—Walker: Cons. 1 & 2							2	re						
296	Currie—Taylor: Lots 2 to 6													2.25	
297	Currie—Taylor: Lots 2, 4, 10 & 12														
298	Lots 1 to 12							6	re						
299	Hislop—Playfair: Lots 1 & 2					1	33								
300	Stock—Taylor: Cons. 2, 3 & 4													1.1	
301	Cons. 1 to 6							6	re						
302	Taylor—Walker: Bet. lots 6, 7 & 8							1.5	22						

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
								1	Repaired.		256
											257
				5			18x4x2	1	16x16x5.		258
				5			16x2x2	2	200x16x10.		259
				6			18x3x2				260
				4			18x3x2				261
				12			16x3x2				262
				10			18x3x2				263
											264
											265
											266
											267
				1			18x4x4				268
											269
				3			18x4x4	1	16x16x4.		270
				4			18x3x2				271
				5			18x4x4	1	20x16x6.		272
				4			18x4x4	1	16x16x6.		273
											274
											275
											276
											277
											278
				12			18x3x2	2	16x16x6.		279
											280
											281
				3			18x3x2				282
											283
											284
		2									285
											286
		3									287
				1			18x4x3				288
											289
		1.5									290
			.25					1	Repaired.		291
		1.5									292
											293
											294
											295
											296
				2			16x4x2				297
				4			18x6x4	1	16x6x6.		298
											299
											300
											301
				4			18x4x4				302

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DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

MATHESON DISTRICT.

	TOWNSHIP—LOCATION	Cutting L mls.	Cutting W ft.	Burning L mls.	Burning W ft.	Stumping and Grub'g L mls.	Stumping and Grub'g W ft.	Grading L mls.	Grading W ft.	Cross Lay L mls.	Cross Lay W ft.	Ditching L ft.	Ditching W & D	Gravelling L mls.	Gravelling yds. used
	LATCHFORD—COCHRANE TRUNK ROAD.														
303	Bowman: Cons. 5 & 6	W	as	hout	s	filled	at	culver	ts	and	br	idge a	pproa	ches.	.....
304	Carr: Cons. 1 & 2	....	..	....	..	.....	..	2	re	....	..	.....	.....	1	....
305	Lot 10, Con. 2	Gra	de	s red	uc	ed on	a	pproac	he	s to	W	ahtay	beag	Bridg	e....
306	Hislop: Cons. 4 & 5	W	as	hout	s	filled	at	culver	ts	and	br	idge a	pproa	ches.	.....
307	Lots 6, Con. 1	....	..	....	..	.....	..	.....	..	....	..	.....	.....	.....	.....
308	Lot 11, Con. 4	....	..	....	..	.....	..	.....	..	....	..	.....	.....	.....	.....
309	Lot 13, Con. 5	....	..	....	..	.....	..	.....	..	....	..	.....	.....	.....	.....
310	Con. 1	....	..	....	..	.....	..	1	30	....	..	.....	.....	.....	.....
311	Playfair: Cons. 5 & 6	....	..	....	..	.....	..	2	30	....	..	800	3 x2	.....	.....
312	Lot 4, Con. 4	....	..	....	..	.....	..	.....	..	....	..	450	5 x3½	.....	.....
313	Taylor: Lot 1, Con. 3	....	..	....	..	.....	..	.....	..	....	..	.....	.....	.5	.....
314	Cons. 3 & 4	....	..	....	..	.....	..	2	re	....	..	.....	.....	.....	.....
	MUSKOKA DISTRICT.														
315	Road from Severn Bridge to North Bay	....	..	....	..	.....	..	8.5	18	1	..	500	2 x1½	.....	2293½
								.25	24	....	..	560	5 x4	.....	.....
								1.5	22	....	..	500	4 x3	.....	.....
								9.	20	....	..	330	3 x2	.....	.....
								5.6	fo	r cr	us	hed s	tone.	.....	.....
316	Rd. from Utterson to Parry Sound	Und	er	brus	hi	ng	..	.25	16	....	..	1320	2 x1	.....	150
317	Rd. from Huntsville to Dwight	3	..	.....	..	.....	..	12	20	....	..	.....	.....	.....	4.76
318	Gravenhurst Sanitorium Road	.25	66	.25	66	.25	26	.33	26	....	..	.....	.....	.....	173
319	Rd. from Gravenhurst to Bala	4.5	24	4.5	24	.....	..	2	18	....	..	1915	2 x1	.....	917
								3	20						
320	Bala-Parry Sound, Footes Bay to Gordons Bay	Bru	sh	ing											
		.5	35	.....	..	.25	40	.7	16	.01	16	.....	.....	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE YEAR, 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											303
											304
											305
											306
								1	Repaired.		307
								1	Repaired.		308
								1	Repaired.		309
											310
				8			18x4x4				311
											312
											313
											314
		30				1 Steel	20'6"x18"			357 c.yd. rock fill.	315
						1 "	20'6"x14"			1147 c.yd. earth fill.	
						1 "	26'x36"			180 c.yd. excavation.	
						2 "	20'x14"	1	10'.	450 rods fencing erected.	
12851½	5.6					1 "	46'x15"	2	14'x 16".		
						1 "	30'x16"				
						2 "	20'x16"				
						1 "	12'x18"				
						1 "	20'x12"				
						2 "	22'x 8"				
					1Stone		13'x 20"x16				
					1 "		16'x 16"x14				
					2 "		18'x 22"x16				
					1 "		21'x 24"x24				
					1 "		26'x 30"x30				
				1			32'x 18"x18				
				1			22'x 48"x48				
				1			23'x 14"x14				
				1			20'x 24"x20				
				1			22'x 36"x31				
				1			20'x 12"x12				
				1			22'x 48"x6				
										1625 c.yds. earth excavation & fill in approaches to Skeleton River Br.	316
				6	repaire	d					317
						10Steel	20'x10"				
				20			16'x 20"x12				
										150 c.yd. earth filling.	318
		1.25				1 Steel	18'x 24'			100 rds. fencing erected.	319
						3 "	26'x 20'			836 c.yd. earth filling.	
						3 "	19'x 10'			122 c.yd. stone.	
						1 "	16'x 10'				
						7 "	25'x 10				
						1 "	18'x 10'				
					1Stone		16'x 12"x8"				
				7			16'x 16"x8"				
				6			14'x6"x6"				320

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

NIPISSING-SUDBURY DISTRICT.

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
	Trunk Road from Pembroke to Sudbury:														
321	Pembroke to Petawawa													4	1609
														6	719
322	Chalk River westwards	6.5		6.5		6.5		6.5				6107			
323	Stonecliff to Deux Rivieres									Rep	ai	red.			
324	Deux Rivieres to Klocks	5.5		5.5		5.5		5.5				600			
325	Klocks to Mattawa														
326	Callander to North Bay:														
	(Callander Westwards)											1600		4.5	745
	(North Bay Eastwards)													3.5	5300
327	North Bay to Sturgeon Falls											400		10	200
												5200	cleared	2	1425
								3.5	re					3.5	2670
328	Sturgeon Falls to Verner							8	re						
329	Verner to Warren													5	3108
330	Wahnapitae, Eastwards													4	99
331	Coniston to Sudbury														678
332	Minessing Road, Algonquin Park									270	16	7920	2 x1½		
	Trunk Road, North Bay Northwards:														
333	I.—North Bay to Feronia														110
334	II.—Feronia to Widdifield					3.5	26	3.5	24						
335	Trunk Rd., Sturgeon Falls to Field							.5	re					.5	
						2.5		2.5						2.5	1683
336	Sturgeon Falls—Field Road to Smoky Falls							2.75						2.25	1590
337	Warren—St. Charles Road														69
338	St. Charles—Noelville Road							2.75				1000			
339	Hagar—St. Charles Road					3.5		3.5				1000			
340	Sudbury—Azilda—Chelmsford Rd							1.5	re					1.5	1116
								.75	re					.75	535
														4	2668
341	Sudbury—Long Lake Road							1.25	re						
342	Rutter—Noelville Road							7.5	re					7.5	5300
343	Coniston—Garson Road													2.5	1562
	Trunk Road, Sudbury to Milnet:														
344	I —Sudbury to Hanmer							1.5	re	}					1000
								2.	re	}					
345	II.—Hanmer to Capreol							2.5	re						
346	III.—Capreol to Milnet	1.5	66	1.5	66	3	26	3	24						
347	Road to West Shining Tree					5.5	16			.4	8			5.5	8′ wide.

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
		6		cl	eaned	out				1 mile sidebrushing.	321
			14	cl	eaned	out				Washouts repaired.	322
				9	3	6					
			18							Boulders removed from waggon track, overhanging trees and branches removed.	323
				10		4					324
			14	2	repaire	d					325
		4.5		1				1	Repaired.	2.5 miles sidebrushed.	326
										10 miles sidebrushed.	327
		9								Creek cleared out.	
								3	Re-covered.		328
			11		1	1					329
								1	Repaired.		330
			8		clean	ed out					331
				4			14x2x2			2330 c.yd. of surfacing	332
				22			14x8			material placed on road.	
			6	2	repaire	d					333
				24	2			2	25′ span.	1500 c.yd. hill cutting.	334
					repaire	d	(Old road)				335
				4	3	3	(Newroad)			.5 mile sidebrushed.	
				8							336
in	gen	eral	repairs								337
				8	rebuilt						338
				10				1	20′span.	350′ fill, 3′ deep.	339
											340
				6		2				Road widened at bad curve.	341
				5		16					342
											343
											344
										1 mile sidebrushed.	345
											346
				27							347

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

PARRY SOUND DISTRICT.

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
348	Rd. from Severn Br. to North Bay.	....	..	....	..	.....	..	14.91	18	....	..	300	3 x2	1	2509¾
								9.5	15	....	..	140	2 x1	.....	.....
								1	22	....	..	1146	3 x2½	.....	.....
								8	20	....	..	800	2 x1½	.....	.....
												300	1½x1	.....	.....
349	Powassan—Chisholm Road.....	....	..	....	..	.....	..	4.5	22	....	..	.....	.....	.....	80
350	Powassan—Nipissing Road.....	....	..	....	..	.....	..	8	18	....	..	100	2 x2	.....	289
351	Nipissing—Restoule Road.....	Brushing.													
		2	..	....	..	.....	..	.....	..	....	..	495	1½x1½	.....	1285
		.1	66	.1	66	.1	66	7.25	22	....	..	1014	3 x1	.....	.....
												1849	2 x1½	.....	.....
352	Powassan—Restoule Road: (Christian Valley).....	1.5	66	1.5	66	1	26	1	24	.....	..	188	2 x1½	.....	.....
												500	4 x1½	.....	.....
												225	2½x1	.....	.....
353	Trout Creek—Commanda Road..	6	66	6	66	4.5	26	2	24	.03	12	3924	cleared....		2845
								2	22	.....	..	150	5 x5	.....	.....
												660	2 x1	.....	.....
												6	272x1	.....	.....
												2250	1½x1½	.....	.....
												1000	2 x1½	.....	.....
354	Burks Falls—Maganatawan Road	4.5	66	4.5	66	5	26	4	25	.....	..	8900	3 x2½	.....	1412
												9240	4 x2½	.....	.....
												2340	3 x1½	.....	.....
												4350	5 x1		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
		143.50		2			22x24x24			10560 ft. ditches cleared, stone walls 134'x4'x3'.	348
				1			18x48x24				
				2			18x36x24			421 c.yd. stone fill.	
				3			16x36x24			860 c.yd. earth fill.	
				1			16x24x12			1624 c.yd. cinders on road	
				7			16x48x48				
				1			18x48x24				
				1			18x48x36				
				1			covered				
					1		20x36x24				
					1		16x24x24				
					1		16x72x24				
					1		14x24x24				
					1		16x24x24				
						4	26x30				
						1	24x30				
		2.50		2			18x48x24				349
		6								3 c.yd. stone fill.	350
		7.50		5			repaired	1	Repaired.	4 c.yd. stone fill.	351
					2		18x8x2				
					13		18x3x2			Stone wall, 196'x 8.	
					2		18x4x4			Stone wall, 528'x 4.	
					4		18x2x2				
				5			18x3x2				
				8			18x4x4				
				15			18x3x2				
		2.25		2			(subways)			¼ mile filled 2 feet deep.	352
				2			22x4x2			Grade reduction, 300'x4'.	
				1			24x5x3			Stone wall, 300'x5x3.	
				3			26x3x3			250 c.yd. excavation,	
				2			13x2½x1			400 c.yd. embankment.	
		13				1	14'x 18"	1	Repaired.	2050 c. yd. filling.	353
						3	20'x 24"			52 c. yd. stone fill.	
						2	20'x 12"			6200 c. yd. excavation.	
						1	18'x 12"			Side hill cutting.	
				5			18x3x3			¼ mile x 6'.	
				1			30x6x4				
				1			28x5x4				
				4			18x3x3				
				1			24x6x3				
				1			24x5x3				
				1			19x4x2½				
				9			18x3x3				
				9			16x3x3				
				1			30x6x6				
				1			24x3x3				
						1	26x3x3				
						3	24x3x3				
		3.50		8			26x4x2			3494 c. yd. excavation.	354
				11			22x4x4			1876 c. yd. embankment.	
						1	24x4x4			204 c. yd. earth fill.	
										71 c. yd. stone fill.	
										.17 mile brushed out.	

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

PARRY SOUND DISTRICT.

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
355	Gravenhurst—Bala-Parry Sound Road	.25	40	.25	40	.5	40	1.2	16	.....	.....	6900	3 x2	.....	.....
	PORCUPINE DISTRICT														
	Township Location														
356	Dundonald: Bet. 6 & 7, Cons. 3, 4 & 5	3	66	2.5	66	2.5	24	.....	.....	.....	.....	.....	.....	.....	.....
357	Matheson: Bet. lots 6 & 7, Cons. 6 & pt. 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14340	.....	.....	.....
358	Mountjoy: Bet. lots 4 & 5, N. of Mattagami River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
359	Mountjoy: Bet. lots 4 & 5, N. of Transmission Line	.5	66	.5	66	.5	24	.....	.....	.....	.....	3100	.....	.....	.....
360	Transmission Line lots 4 & 5, to Sandy Falls	.....	.....	.....	.....	3.5	24	.....	.....	.....	.....	36295	.....	.....	.....
361	Bet. lots 8 & 9, Cons. 2, 3 & 4	.....	.....	.....	.....	.....	.....	3	24	105	16	394	.....	.....	132
362	Shaw: To "Tommy Burns" Mine.	6.5	24	6.5	24	6.5	24	.....	.....	.....	.....	.....	.....	.....	.....
363	Tisdale: Trunk Rd., McIntyre Hill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.125	200
364	Tisdale & Delora to "Anchorite" Mine	1.5	66	1.5	66	2.75	24	.14	24	375	16	4200	.....	.....	.....
	BOUNDARY LINES.														
365	Delora—Ogden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	450	.....	.5	400
366	Delore—Shaw: S. Porcupine, 3 miles south	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	120
	TRUNK ROAD.														
367	Porcupine to Porquois Junctin	24.9	66	16.6	66	24.9	30	24.9	30	.....	.....	.....	.....	.....	.....
	RAINY RIVER DISTRICT.														
	Townships Location														
368	Aylesworth: River Rd., lots 15-21.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	.....
369	Barwick: Trunk Road, across Manitou Reserve; also lots 1-8 & 12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7920	.....	3.5	.....
370	Blue: Bet. Sec. 34 & 35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....
371	Burriss: Bet. lots 8 & 9, Con. 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	.....
372	Carpenter: Bet. lots 6 & 7, Cons. 4 & 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.25
373	Crozier: R.R. lots 1-5 and bet. Sec. 15-22, 21-22 & 21-28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2640 18480	.....	2.5	.....
374	Curran: Lots 1 to 8 and 11 to 14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....
375	Dance: Bet. lots 8 & 9, Cons. 1 & 2	2	Br	ushe	d	.....	.....	2	.....	.....	.....	10560	.....	.....	.....
376	Devlin: Bet. Sec. 4-5, 8-9, 20-21, 28-29, 32-33, 29-32, 26-27, 22-27 & 22-23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
				3			12x1½x1½				355
				4			16x10x6				
											356
											357
		4						5	Repaired.		358
											359
		1		8			18x5x2	1	229x18x5.	300 yds. surfaced with loam.	360
				1			13x10x3				361
											362
800											363
				2			18x5x2	1	18x16x4.	3196 c. yds. filling.	364
				1			18x15x4	1	18x10x4.		
				1			18x8x2	1	25x18x4.		
								1	20x18x4.		
											365
				9			16x6x2	1	102x16x4.		366
								1	51x16x4.		
								1	25x16x4.		
								1	20x16x4.		
											367
											368
										¾ mile widened.	369
				1							370
											371
											372
				7							373
											374
				2							375
				5							376

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

RAINY RIVER DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
377	Dilke: Bet. Sec. 34–35													.63	
378	Trunk Rd., lots 17 to 24, and across lots 9, 12, 15, 37, 38, 39 west of 48													2.25	
379	Dobie: East Townline, Cons. 1 to 5													3	
380	Lash: Trunk Road, bet. Sec. 26–35, 27–34, 28–33, south of Sec. 32											2640 15840		2.5	
381	Bet. Sec. 26–27	.5		.5		.5									
382	Morley: Trunk Rd., across Indian Reserve, and bet. lots 10–11, 10–15, 9–16, 8–17, 7–18, and west of Sec. 18													5.5	
383	Morley: Bet. lots 8–17, & R.R. 53–54											7920			
384	Mather: Bet. Cons. 5 & 6, lots 7 & 8, and bet. lots 6 & 7, Con. 6													2	
385	East Townline, Cons. 1 to 3													1	
386	McCrossin: Across Cons. 1 & 2													1	
387	Bet. Cons. 2 & 3, lot 3					.25		.25							
388	McCrossin—Tovell: Townline, Cons. 5 & 6	.5		.5		.5		2							
389	McIrvine: Bet. Sec. 29–30, 31–32, across lots 45 to 48											4290		1.5	
	Indian Mission Road							1.25							
391	Miscampbell: Bet. lots 8 & 9, Cons. 1 & 2, and south of lots A B & C	1		Brush in g				1						3	
392	Morson: Bet. lots 12 & 13, Cons. 1 & 2							2							
393	Nelles: Bet. Sec. 2 & 3													.5	
394	Bet. Sec. 8 & 9													.5	
395	Bet. Sec. 26–27 & 34–35											10560			
396	West of Sec. 25											3960			
397	Patullo, Bet. Sec. 21–22, 27–28, 33–34													1.75	
398	East of Sec. 13							1							
399	East of Sec. 25 & 36	1.5		1.5		1.5									
400	Potts: Bet. lots 2 & 3, Cons. 3 to 5							1.5							
401	Pratt: Across Cons. 1 & 2, and Cons. 5 & 6													2	
402	Richardson: Bet. Cons. 1 & 2, lots 5 to 8							2							
403	Shenston: Across Indian Reserve south of Sec. 1 & 2, east of Sec. 1 & 12													2.5	
404	From T unk Road, north to connect with road bet. 28 & 29	1.75		1.75											
405	Sifton: Bet. lots 8 & 9, Con. 2	1		Brush in g		1						5280			
406	Spohn: Bet. lots 4 & 5, Cons. 3 to 5													2.25	
407	Bet. Sec. 13–14 & 21–22													1	
408	North of Sec. 2 to 5							3.5				18480			
409	South of 42, 43 & 44							3				15840			
410	Across Sec. 27											3960			
411	Across lot 10, Con. 3											3300			

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											377
											378
				5				2	Repaired.		379
											380
											381
											382
				7							383
											384
				2				1	45′ pile bridge.		385
											386
											387
				4							388
											389
				3							390
				6							391
				6							392
											393
											394
											395
											396
											397
											398
											399
				5							400
											401
											402
											403
											404
											405
											406
											407
											408
											409
											410
											411

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

RAINY RIVER DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
412	North of Sec. 2 & 3, and across lots 13 & 14	2	..	2	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
413	Bet. Sec. 19–27	.75	..	.75	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
414	Trunk Road, Rainy River to Harris Hill	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
415	Sutherland: Bet. lots 6 & 7, Con. 1	.....	..	.....	..	.....	..	.....	..	.....	..	2640	.....	.....	.....
416	Tait: West of Sec. 24	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.5	.....
417	Tovell: Bet. Cons. 2 & 3, lot 7	.....	..	.....	..	.....	..	.5	..	.....	..	2640	.....	.....	.....
418	Con. 2 & 3, lots 5 & 6	.....	..	.....	..	.....	..	.....	..	.....	..	5280	.....	.....	.....
419	Bet. lots 6 & 7, Cons. 2 & 3	.....	..	.....	..	.....	..	.....	..	.....	..	2640	.....	.....	.....
420	Across lot 7, Con. 2	.....	..	.....	..	.....	..	.....	..	.....	..	825	.....	.....	.....
421	Bet. Cons. 2 & 3, lots 5, 6, & 7	1.75	..	1.75	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
422	Woodyatt: Across Indian Reserve	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	1	.....
423	Bet. Sec. 32–33	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.5	.....
424	Worthington: Trunk Road, south Sec. 31, 32, 34, 35 & 36	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	2	.....
425	Rainy River to Fort Frances	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
426	Spohn Trunk Road	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
427	1Sleeman—Bergland Road	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
428	Emo—Offtake Road	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
429	Devlin-Big Fork Road	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
	THUNDER BAY DISTRICT.														
430	Crooks & Pardee: Pine River to Minnesota Boundary	4.5	s br	ide ushe	d	.....	..	.....	..	.....	..	390	.....	2.75	.....
431	Crooks & Blake: Jarvis River to Pine River	11		do		.....	..	.....	..	.....	..	.....	.....	.75	1657
432	Paipoonge: Bet. Cons. 4 & 5, lots 1 to 15	.75		do		.....	..	.....	..	.....	..	.....	.....	.....	628
433	Neebing: Lot 11	.....	..	.....	34	4 t. fe	nc	e erect	ed	on	ap	proac	hes to	bridg	e.
	SILVER MOUNTAIN ROAD.														
434	Paipoonge: Across lots 1 to 7 O'Connor, Townline to Silver Creek	2.5		do		.....	..	3.5	re	.....	..	2445	.....	1	857 1786
435	Paipoonge: Arthur St. to C.N.R.	.....	..	.....	..	.....	..	.5	re	.....	..	.....	.....	.....	.....
436	Gillies: Across lots 7 to 10	2		do		.....	..	2	..	.....	..	85	4 x3	.....	.....
437	Bet. lots 10 & 11, Cons. 4 & 5	.75	45	.75	45	.75	28	.75	16	.....	..	.....	.....	.....	.....
438	Sellers to Morgan	.75	66	.75	66	.75	26	.75	22	.....	..	1600	.....	.....	.....
439	Lybster: Morgan North-westwards	.75	50	.75	50	.75	26	.75	16	.....	..	.....	.....	.75	.....
	KAKABEKA—HYMERS ROAD.														
440	Oliver	.....	30	0 fee	t to	f road	w	idened	fr	om	14	feet t	o 24 f	eet.	.....
441	O'Connor: Bet. Cons. 6 & 7, lots 2 to 5	2	s id	ebru	sh	ed	..	2	re	.....	..	300	.....	2	2065
442	Bet. lots 6 & 7, Cons. 4 & 5	.....	..	.....	..	.....	..	1.63	re	.....	..	.....	.....	1.63	1419
443	On lot 6, Con. 1	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.25	287½
444	Gillies: On lot 6, Con 6	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.25	222

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											412
											413
											414
				5							415
											416
											417
											418
											419
											420
											421
											422
											423
				6							424
		65									425
		15									426
		18									427
		10									428
		7									429
		18		183	cedar repaired	& pined		1	Repaired.	36500 c.yds. earth excavated for road widening. 680′ heavy fence and handrailing.	430
		11		2		2			2	200 c. yds. earth excavated for road widening.	431
		3.75		2							432
		.12									433
shale gravel				31							434
											435
		2	.5		3						436
										Side hill cut, 300′ long.	437
				7	1						438
				4						Side hill cut, 0.75 miles.	439
				1	replaced		18x6x4			2000 c.yd. excavation & fill	440
				6						2 creeks straightened.	441
				1							442
										Side hill cut, 150′ long.	443
										1500 c. yd. side hill excavation.	444

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

THUNDER BAY DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
	HYMERS—SOUTH GILLIES ROAD.														
445	South Gillies: Hymers Hill	....	..	....	..	....	..	....	..	....	..	....	....	.15	....
446	Cons. 2 & 3	1	si	debr	us	hed.	..	1.5	22	....	..	501	....	....	1350
	SUNSHINE ROAD.														
447	Conmee: Bet. lots 4 & 5 Cons. 5 & 6	1.63	66	1.63	66	1.632	8	....	..	....	..	....	....	....	....
448	Bet. Con. "A" & lot 1	....	..	....	..	....	..	....	..	....	..	....	....	....	....
	SOUTH GILLIES—PEARSON ROAD.														
449	Gillies: Bet. lots 6 & 7, Con. 1 & Pearson, across Cons. 3, 4, 5 & and lots 19 & 20	3	si	debr	us	hed.	..	5	22	....	..	2400	....	....	....
450	Pearson: Bet. lots 22 & 23, Con. 2	....	..	....	..	....	..	....	..	....	..	2000	....	....	....
	ROAD FROM DONA BRIDGE TO FORBES TOWNSHIP.														
451	Dawson Road lots, Dona Bridge to lot 2	2	40	2	40	2	26	.5	22	....	..	....	....	....	....
452	To South Boundary, Forbes	....	..	....	..	....	..	....	..	....	..	....	....	....	....
	Boundary line across lot 13	....	..	....	..	....	..	....	..	....	..	....	....	....	....
	Forbes: Bet. lots 12 & 13, Con. 1	2.25	66	2.25	66	2.25	26	....	..	....	..	....	....	....	....
	SCOBLE ROAD.														
453	Blake—Scoble Boundary, Cons. 1, 2 & 3, Scoble, lots 1 to 2	....	..	....	..	....	..	8	22	....	..	900	....	3	1500
454	Gillies: Bet. Cons. 1 & 2, lots 1 to 6	....	..	....	..	....	..	....	..	....	..	....	....	....	....
	PEARSON—PARDEE ROADS.														
455	Pearson: Bet. lots 6 & 7, Cons. 1, 2 & 3	2.5	66	2.5	66	2.5	28	....	..	....	..	600 600	3 x2½ 6 x2	....	....
456	Pearson: Bet. lots 11 & 12, Cons. 1, 2 & 3	1.5	16	1.5	16	1.5	28	1.75	22	....	..	1 450	3 x2½	....	....
	ROAD ON BLIND LINE CONMEE.														
457	Conmee: Across lots 1 to 6, Con. 1, and bet. lots 6 & 7, Con. 1	3.5	si	debr	us	hed.	..	3.5	..	....	..	....	....	3.5	2594½
	ARTHUR STREET ROAD.														
458	Paipoonge: Fort William to Kakabeka	....	Road		w	ayma	in	tained	an	d ke	pt	in ge	neral	repai	r. ...
	PORT ARTHUR—NEPIGON ROAD.														
459	McGregor: Port Arthur eastwards	8	si	debr	us	hed.	..	....	..	....	..	11488	3½x2	8	5678
460	McKenzie River to Sibley	3.5	se	cond	g	rowth	..	....	..	....	..	21620	....	....	500 1940

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
					1		84'x 18"			600' heavy guard rail.	445
				3	1						446
											447
								1	14' wide.		448
				29							449
										.5 mile clay surfaced.	450
				2							451
											452
								1	16x13x3.		
				33		7	repaired	1	16x10x4.		453
			3								454
											455
				9				1	16'x 7'.		456
		3.5		3							457
		11									458
		8				42				315 c. yd. stone in road foundation.	459
Sand gravel				35						1200 c. yd. stone in road foundation.	460

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

THUNDER BAY DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
461	Sibley eastwards	4.5	40	4.5	40	4.5	28								
462	At McKenzie River														
	DAWSON ROAD.														
463	McIntyre: Port Arthur to lot 27, Con. "A," Dawson Rd. lots	8	s id	ebru	sh	ed.		8	24			3500		1	
464	Oliver & Ware: McIntyre Tp. to Kaministikwia	5.5		do.								31680	3 x1½	9	2445
	JOHN ST. ROAD.														
465	McIntyre & Oliver: Port Arthur—Kam River	8		do.								31680	3 x1½		
	OLIVER ROAD.														
466	McIntyre & Oliver: Port Arthur—Kakabeka	8		do.								22720	3 x1½		
	CURRENT RIVER ROAD														
467	McIntyre & Gorham: Along Current River to line bet. Cons. 3 & 4, Gorham	1.25	40	1.25	40	1.25	26	1	22						
	DOG RIVER ROAD.														
468	Ware: Dawson Rd. to lot 20 Con. 6							2.5	22					1	
	DOG LAKE ROAD														
469	Gorham & McIntyre: Dawson Rd. to Gorham Ware Boundary on line bet. Cons. 5 & 6	3.5	s id	ebru	sh	ed.						800			1265
	COPENHAGEN ROAD.														
470	McIntyre & McGregor — Gorham Boundary: Port Arthur to Con. 3, Gorham	2.5		do.								1170		3	1196
	TOWNSHIP WORK.														
471	Dawson Road Lots: Extension of Dawson Road														
472	Bet. Cons. 1 & 2, lots 12 to 15	2		do								5180			180
473	Dorion: Bet. lots 1 & 2, Con. 4							.3				825 1650			
474	Ouimet to Coldwater River	1.25		do.								225		.3	
475	Bet. lots 2 & 3, Con. 4							.1				600			
476	Bet. Cons. 3 & 4, Ouimet to lot 9							.5				1200		.38	
477	Brunner Road, Cons. 4 to 6	1		do.								3960		1.5	
478	Bet. lots 10 & 11, and across lots 10 & 11, to corner of lot 9	.7		do.				.25				750		.25	

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag-ging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered			Wood	Stone or Conc.	Met.	Size	No.	Description		
											461
			25					1	Abutments completed and steel erected.	2000 c. yd. earth fill.	462
				6							463
				10				1	Re-covered.		464
				2	new						465
				6	reapire	d					
		21.50									466
			3.06								467
			1.5	16							468
		6		7							469
								1	16x11x4.		
				3				1	16x16x4.	2 creeks cleared out.	470
			8	r	epairin	g				1 hill graded and ditched.	471
				3				1	Repaired.		472
				1							473
				3							474
											475
				7							476
				7							477
								1	Renewed.		478

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

THUNDER BAY DISTRICT.

	TOWNSHIP—LOCATION	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	yds. used
479	Bet. Cons. 4 & 5, lots 11 & 12							.008						.008	
480	Bet. Cons. 3 & 4, lots 13 & 14	.13		.13		.13		.13							
481	Bet. lots 12 & 13, Con. 4, and bet. Cons. 3 & 4, lots 9 to 12	.2	s id	ebru	sh	ed.		.007						.3	
482	Bet. lots 8 & 9, Con. 3													.3	
483	Bet. Cons. 2 & 3, lots 9 to 13	2	s id	ebru	sh	ed.		.1						.2	
484	Gorham: Bet. Cons. 3 & 4, lots 9 & 10	1	40	1	40	1	22	1	16			575			
485	Bet. lots 8 & 9, Cons. 1, 2 & 3	2 .75	s id 40	ebru .75	sh 40	ed. .75	24							2.25	380
486	Gorham & Ware Boundary, Cons. 1 & 2	.25	40	.25	40	.25	24					700		2.75	520
487	Lybster: Bet. Cons. 1 & 2, lots 1 & 2	1	40	1	40	1	24	1	16						
488	Marks: Bet. Cons. 1 & 2 lots 3 & 8	.2	5	side	br	ushed									
489	Bet. lots 6 & 7, Con. 2	1 side	22 br	1 ushe	22 d,	1 grade	22 d	1 & culv	16 er	ts	ins	1000 talled			
490	Bet. Cons. 2 & 3, lots 3 & 4			do.				do.				do.			
491	Bet. lots 2 & 3, Con. 2			do.				do.				do.			
492	Bet. Cons. 5 & 6, lot 2			do.				do.				do.			
493	Bet. Cons. 6 & 7, lot 1			do.				do.				do.			
494	Marks & O'Connor Boundary, Cons. 6 & 7			do.				do.				do.			
495	Pearson: Bet. Cons. 3 & 4, lots 7 to 11	.5	66	.5	66	.5	26	.2 .5	re 20			310 150			
496	Bet. Cons. 4 & 5, lots 1 & 2											150			
497	Bet. lots 9 & 10, Cons. 1 & 2	.25	40	.25	40			.75	16						
498	Bet. Cons. 4 & 5, lots 12 & 13, and bet. lots 12 & 13, Con. 5														
499	Bet. Cons. 2 & 3, lots 9 & 10											130			
500	Schreiber: Schreiber to L. Superior							.25	16			2000		1.12	110
501	Scoble: Bet. lots 2 & 3, Con. 1							.5	20						
502	Bet. lots 4 & 5, Cons. 2 & 3	.75	60	.75	60	.75	26	.5	16	.25	12				
503	Scoble & Gillies: Cons. 3 & 4											600		2	.98
504	Scoble & Paipoonge: Lots 3 & 4	.08	si	debr	us	hed.		.25	16					1.25	
505	Sterling & Lyon: Lots 4 & 5									.38	12	1980		.38	
506	Sterling: Bet. Cons. 2 & 3, and bet. lots 2 & 3, Con. 2											1508			
507	Strange: Silver Mt. to Whitefish														
508	Whitefish to West Boundary					1.5	20	.25	16						
509	Ware: Bet. Cons. 3 & 4, lots 1 to 4,	1.75	40	1.75	40	1.75	40								
510	Bet. lots 17 & 18, Cons. 2 & 3, and bet. Cons. 3 & 4, lots 13 to 18														
511	Bet. lots 10 & 11, Cons. 1 & 2	3	s id	ebru	sh	ed.									75

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging Miles	Other Rep'rs Miles	Culverts				Bridges		Remarks	
Yds. crushed	L covered			Wood	Stone or Conc.	Met.	Size	No.	Description		
								1	Re-covered.		479
											480
											481
											482
				5							483
				1							484
					repaired						485
				15							486
											487
			8								488 489 490 491 492 493 494
			2	4							495
			1.25	7							496
			1	1							497
				3						1 hill cut down and rocks removed from roadway	498
				1	replaced			2	Re-covered.		
				1							499
				1	removed						
				4	renewed			1	Repaired.		500
											501
				6							502
				6				2	Raised.		503
											504
											505
				7							506
			5	12	replaced						507
			2	9	replaced						508
											509
			6	25				1	16x16x5.	500 c. yd. rocks removed from road.	510
			3	19				1	Recovered.		511

Appendix No. 46.

NEW LISKEARD DEMONSTRATION FARM.

Work on the Farm during the past year consisted of the production of 120 acres of crop, and in the clearing of approximately 18 acres of new land. On account of not having any farm buildings, it was not considered advisable to carry on any field demonstration work, in the production of a variety of crops. The Farm produced 60 acres of hay, and 60 acres of oats.

Practically all ploughing was done in the fall of 1920, with the exception of 10 or 12 acres of new land; this was ploughed in the spring. Considering the rather adverse growing season, the crops turned out very well.

The seeding of oats was commenced on the 18th of May, and concluded on the 25th. We grew two varieties of oats, viz., O.A.C. No. 72, and O.A.C. No. 3. The O.A.C. No. 3 gave the best results, matured earlier, filled better, and weigh heavier. The No. 3 matured in 75 days from date of seeding. The weight of a cleaned sample of this variety averages 37 pounds to the measured bushel; this is considered to be exceptionally good for the past year. On account of having such a large crop, and owing to the necessity of having to stack same, I deemed it advisable to sell 30 acres, standing in the field; this left 30 acres to be taken off by the farm.

We commenced cutting hay on the 10th of July, and before we had it finished, we commenced cutting our O.A.C. No. 3 oats. The hay gave an exceptionally good yield, especially the first cut of new hay, which was approximately all clover. The entire 60 acres would average a ton and a half per acre.

The oats did not yield quite as well as last year, on account of drought, the total yield being about 1,800 or 2,000 bushels.

About 40 acres of land have been ploughed this fall, for next year's crop. This leaves us with between 90 and 100 acres of hay crop for next year.

I would urgently recommend that farm buildings be erected next year, and that the farm be properly equipped with a small herd of good cattle, and a few hogs.

I am firmly convinced that the farm can be made to fill a very important need in this part of the district. Every year the Government distributes more or less seed grain through this part of Northern Ontario, and it only seems reasonable that the major part of this supply might be grown on the New Liskeard Farm.

It is impossible, however, to carry on work of this kind successfully without farm buildings.

Short Course and Seed Fair.

As in past years, the farm has co-operated with the Department of Agriculture in providing accommodation in the judging pavilion for holding a Short Course and Seed Fair.

Our Short Course and Seed Fair was conducted last year in co-operation with the International Harvester Company; Messrs. O'Grady Bros., of New Liskeard, are agents for this firm. The course lasted four days, and we had an attendance of from 100 to 150 each day. Following is a list in connection with with the short course and Seed Fair:

CLASS 1—OATS.

Section 1—1 bus. O.A.C., No. 3 Oats—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

Section 2—1 bus., O.A.C., No. 72—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

Section 3—1 bus., Banner Oats—
1st, $3.50; 2nd, $2.50 ; 3rd, $1.50; 4th, 50c.

Section 4—1 bus., Any other variety (White)—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

CLASS 2—WHEAT.

Section 1—1 bus., Marquis Spring Wheat—
1st, $5.00; 2nd, $4.00; 3rd, $3.00; 4th, $2.00; 5th, $1.00; 6th, 50c.

CLASS 3—BARLEY.

Section 1—1 bus. Any six-rowed Variety.—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

CLASS 4—PEAS.

Section 1—1 bus., Large Field Pea—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

Section 2—1 bus., Small Field Pea—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

CLASS 5—GRASSES.

Section 1—½ bus., Red Clover Seed—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.
Section 2—½ bus., Alsike Seed—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.
Section 3—½ bus., Timothy Seed—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

CLASS 6—FLAX.

Section 1—½ bus., Flax Seed—
1st, $3.50; 2nd, $2.50; 3rd, $1.50; 4th, 50c.

CLASS 7—POTATOES.

Section 1—1 bus., Irish Cobbler Type—
1st. $4.00; 2nd, $3.00; 3rd, $2.00; 4th, $1.00; 5th, 50c.

Section 1—1 bus., Green Mountain Type.
1st, $4.00; 2nd, $3.00; 3rd, $2.00; 4th, $1.00; 5th, 50c.

PROGRAMME FOR AGRICULTURE SHORT COURSE AND SEED FAIR.

March 29th—1.15 p.m. to 3.00 p.m.
H. G. Bell, B.S.A., Toronto, Ont.
Subject—Soils, Fertilizers and Soil Cultivation.

March 30th.—3.00 p.m. to 4.30 p.m.
J. W. Clarke, Cainsville Ont.
Subject—Production of Registered Seed.

March 31st—1.15 p.m. to 3.00 p.m.
Jno. Gardhouse, Weston, Ont.
Subject—Dairy and Dual Purpose Cattle.

April 1st—1 30 p.m. to 3.00 p.m.
W. H. J. Tisdale, B.S.A., Toronto, Ont.
Subject—Co-operative Grading and Marketing of Wool.

3.00 p.m. to 4.30 p.m.
Geo. H. Barr, Chief of Dairy Division, Ottawa, Can.
Subject—Dairying and Creamery Work, Annual Creamery Meeting.

EVENING LECTURES.

March 31st—7.45 p.m.
J. W. Clarke, Cainsville, Ont.
Subject—Lecture, Vegetable Growing—(Moving Pictures).

April 1st—7.45 p.m.
J. W. Clarke, Cainsville, Ont.
Subject—Lecture and Demonstration on Poultry—(Moving Pictures).

List of Prize Winners, as follows:

CLASS 1—OATS.

Oats—O.A.C., No. 3—
1st, Chas. H. Thomas, Uno Park, Ontario.
2nd, J. R. Philp, R. R. 1, New Liskeard, Ontario.
3rd, Jno. Winnesheimer, R. R. 1, Thornloe, Ontario.

Oats—O.A.C., No. 72—
1st, Geo. C. Foster, Uno Park, Ontario.
2nd, W. R. Peters.
3rd, W. Hermiston, Uno Park, Ontario.
4th, W. A. Reid, Earlton, Ontario.

Oats—Banner—
1st,
2nd, Jas. Carter.

Oats—Any other Variety—
1st, Chas. Thomas, Uno Park, Ontario.
2nd, Bruce Irvine, Hanbury, Ontario.

Oats—Any other Variety—
1st,
2nd,
3rd, W. Hermiston, Uno Park, Ontario.

Sweepstakes in Oats—Chas. Thomas, Uno Park, Ontario.

CLASS 2—WHEAT

Wheat, Marquis Spring—
1st, W. A. Reid, New Liskeard, Ontario.
2nd, J. R. Philp, R. R. 1, New Liskeard, Ontario.
3rd, J. M. Gray, New Liskeard, Ontario.
4th, Jas. Carter, New Liskeard, Ontario.
5th, R. Parker, New Liskeard, Ontario.
6th, Chas. Thomas, Uno Park, Ontario.

Sweepstakes in Wheat—W. A. Reid.

CLASS 3—BARLEY.

Any six-rowed Variety—
1st, Geo. C. Foster, Uno Park, Ontario.
2nd, W. A. Reid, Earlton, Ontario.
3rd, R. Parker, New Liskeard, Ontario.
4th, R. H. Nickle, Hanbury, Ontario.

CLASS 4—PEAS.

Peas, Large Field—

1st, Chas. H. Thomas, Uno Park, Ontario.
2nd, J. R. Philp, R. R. 1, New Liskeard, Ontario.
3rd, T. H. Nickle, Hanbury, Ontario.
4th, W. A. Reid, New Liskeard, Ontario.

Peas, Small Field—

1st, Chas. Thomas, Uno Park, Ontario.
2nd, J. M. Gray, New Liskeard, Ontario.
3rd, Jas. Carter, New Liskeard, Ontario.
4th, Albert Brooks.

Sweepstakes in Peas—Chas. Thomas, Uno Park, Ontario.

CLASS 5—GRASSES.

Seed, Red Clover—

No entries.

Seed, Alsike—

1st, J. R. Philp, R. R. 1, New Liskeard, Ontario.
2nd, Jno. Winnesheimer, R. R. 1, Thornloe, Ontario.
3rd, W. A. Field, Earlton, Ontario.
4th, J. M. Gray, New Liskeard, Ontario.

Sweepstakes in Alsike Seed—J. R. Philp, New Liskeard, Ontario.

Seed, Timothy—

1st,
2nd,
3rd, Jas. Carter, New Liskeard, Ontario.

CLASS 6—FLAX.

Flax Seed—

1st, Chas. Thomas, Uno Park, Ontario.
2nd, J. R. Philp, R. R. 1, New Liskeard, Ontario.
3rd, Geo. C. Foster, Uno Park, Ontario.
4th, J. M. Gray, New Liskeard, Ontario.

CLASS 7—POTATOES.

Potatoes, Irish Cobbler Type—

1st, Chas. Thomas, Uno Park, Ontario.
2nd, T. H. Nickle, Hanbury, Ontario.

Potatoes, Green Mountain Type—

1st, Geo, Walsh. New Liskeard, Ontario.
2nd, W. A. Reid, Earlton, Ontario.
3rd, Jno. Sharp, New Liskeard, Ontario.
4th, J. M. Gray, New Liskeard, Ontario.

AMOUNT OF PRIZE MONEY PAID OUT..... $90.50

In conclusion, I wish to state that the Farm has had a quite successful year, and has produced a very creditable crop, in view of the rather indifferent growing season. One point I overlooked in speaking of our farm crops, was our second growth crop of clover. We cut 30 acres of second crop, which averaged about a ton per acre. It was one of the best second growth crops of hay that I have ever seen.

All of which is respectfully submitted.

W. G. NIXON,

Agricultural Representative.

ONTARIO GOVERNMENT CREAMERY.

New Liskeard, Ont., November 10th,1921.

Honourable Beniah Bowman,
Minister of Lands and Forests,
Parliament Buildings, Toronto, Ontario.

Dear Sir,—I beg to enclose report of Creamery operations for the year ending October 31st, 1921. While the amount of business done in the winter months was somewhat disappointing, nevertheless we had a nice increase in the amount of cream received during the latter six months. We took in a great deal more than a year ago.

There was one noted difference in the past year after the first of May, and that was the drop in the price of butter in one week of twenty cents per pound. The difference between the lowest prices of fat last year and this year was twenty-two cents per pound. The lowest last year was fifty-five cents, and this year thirty-three. We had two hundred and thirty-six patrons the past year, ranging in herds of cows from two to twenty. There have been a few silos gone up the past summer, and prospects are for some more again this coming year. There were some very good crops of corn and sunflowers grown this year, and the second clover was exceptionally good, which kept the cows in a good thrifty condition, and will no doubt help materially in giving extra milk for the coming winter. During the past year, we received 297,567 pounds of cream, and manufactured therefrom 96,981 pounds of butter, for which we received $38,535.82 and paid patrons $32,716.96, at an average price for butter fat for the year of 42.3 cents per pound.

I enclose a summary report of cream received, butter manufactured, money received and paid out since commencing operations in August, 1917.

Lbs. Cream	1,135,743
Lbs. Butter	364 878
Value Butter	$179,794.67
Paid Farmers	$159,179.48

All of which I humbly submit.

A. MacLachlan,
Manager.

Seed Grain, Section 2 (1).

The practice of providing seed grain for settlers in North and North-western Ontario was continued in the spring of 1921. Acting in co-operation with the District Agricultural Representatives, distributing stations were established in the Districts of Rainy River (Emo), Thunder Bay (Port Arthur), Temiskaming (New Liskeard and Matheson), Sudbury (Sudbury), Kenora (Dryden), Manitoulin Island (Gore Bay), Muskoka, Parry Sound and Nipissing (Huntsville). The following quantities of seed were distributed: Oats, 4,568 bushels; wheat, 378 bushels; barley, 428 bushels; clover, 5,870 pounds; alsike, 1,870

pounds; timothy, 8,831 pounds. This seed was supplied, in accordance with the provisions of the Northern and North-western Ontario Development Act 1915, to registered locatees or patentees. Those who did not pay cash at the time of purchase executed a promissory note for the amount of the purchase, with interest at 6 per cent., payable on 1st December, 1921, the note being registered as a first charge against the property. The seed was purchased locally wherever the local Agricultural Representative could obtain the requisite quantity, of good quality and at an approved price.

Cattle Purchase, Section 2 (2).

The settlers in the northern part of the District of Temiskaming, in the neighbourhood of the Provincial Demonstration Farm at Monteith, expressed to the Superintendent there a desire to purchase a good class of cow, and asked the assistance of the Government in obtaining cattle of the best type. The Northern Development Branch purchased through the Farm Superintendent one car load of cows, containing 18 head, obtained in the Powassan section, and these were shipped to Monteith. The farmers in the district readily availed themselves of the opportunity of procuring cows of good quality, and the whole consignment was sold for cash at prices varying from $30 to $60, the total receipts being sufficient to cover the cost of the transaction. The cattle have proved eminently satisfactory.

Section 1 (D).

THE ASSISTANCE OF SETTLERS.

Re Feed Shortage.

The attention of the Department of Agriculture was drawn during the summer of 1921, by the Representative at Gore Bay, to the devastation caused upon Manitoulin Island by the unusual conditions of drought which had prevailed throughout the spring and growing season. As a result, the fodder and grain crops, which have been a source of pride to the farmers of the island in previous years, were extremely small. The condition was intensified through a plague of grasshoppers, which completed the destruction of whatever growth had survived the absence of moisture. The local farmers are noted as large producers of cattle, sheep and hogs, and fears were entertained that unless Government assistance was forthcoming, not only would there be no surplus of feed for wintering the stock, but that the available fodder would not be sufficient to meet their needs during the fall of 1921.

It was decided to assist the agricultural industry on the island by supplying a quantity of hay, oats and corn to the farmers, to be paid for either in cash or by promissory note, executed by the purchaser and a guarantor. Arrangements were made for this distribution to be done through the Northern Development Branch under Section 1 (D) of the Northern and North-western Ontario Development Act, 1912, and amendments.

The quantities estimated to be required were: about 1,500 tons of hay, 27,000 bushels of oats, and 10,000 bushels of corn. The prices which farmers were willing to pay were not to exceed $30 per ton for the hay, 75 cents per bushel for the oats, and $40 per ton for corn. The hay was purchased in the Bar River District, delivered by rail to Little Current; at Sault Ste. Marie, delivered by scow to Gore Bay; at Lion's Head, delivered by boat to Providence Bay; at Owen Sound, delivered by barge to Kagawong, and West Bay; and from various points in the counties of Grey, Bruce and Huron, delivered to Owen Sound, and thence transhipped in part by the Dominion Transportation Company boats to Little Current, Gore Bay and Meldrum Bay; and as to the larger proportion, special arrangements were made for collection and storage on the dock at Owen Sound, and trans-shipment by tug and barges to various docks on the island. The corn and oats were purchased at the elevators at Tiffin and Midland; and this grain was shipped by the specially chartered tug and barges used to transport the hay from Owen Sound.

Considerable difficulties were experienced in the transporting of the feed to the Island. The necessity for importing such large quantities of fodder was unprecedented, and the ordinary means of transportation were inadequate; farmers from whom the hay was purchased were not anxious to dispose of their stocks, owing to the general failure of crops throughout Ontario, and higher prices were anticipated; bad weather during the shipping period interfered with the arrangements made, and postponed delivery until the passage of heavily laden barges across the Georgian Bay became hazardous and slow. The whole of the shipping operations were, however, successfully concluded by the second week in November. Agents were appointed at the various receiving docks, and the feed was immediately available for distribution to the farmers.

The total quantities purchased were 1470 tons hay; 27,000 bushels No. 2 C W. inspected Oats; 13,571 bushels No, 2 Yellow inspected corn.

The prices charged to the farmers were: Hay, $29.00 per ton; corn, $1.77 per bushel, or $36.00 per ton; oats, 74 cents per bushel.

A feed shortage also became evident in the Mattawa District, towards the end of the summer, and four carloads of hay, containing 43 tons, have been shipped there, to partially meet the needs of the farmers in that locality. This hay is being sold at the rate of $27.00 per ton, under the same conditions as feed was supplied to Manitoulin Island.

The feed thus supplied to farmers in affected areas, has been of the greatest benefit in enabling them to avoid disposing of their stock at greatly reduced prices, and it is hoped that, with an average production in the season to come, they will be re-established upon a normal basis.

SUMMARY OF EXPENDITURE.

FOR THE TEN YEARS ENDING 31ST OCTOBER, 1921.
Northern and North-western Ontario Development Fund.

SECTION.	Summary of Expenditure 23rd May, 1912, to 31st Oct., 1920.	Expenditure for year ending 31st October, 1921.	Total Expenditure to 31st October, 1921.
Section 1 (a) Works and Improvements	$ 2,100.00	.....	$ 2,100.00
Section 1 (b) Roads	6,963,451.00	$1,406,125.78	8,369,576.78
Section 1 (d) Farms	74,757.67	5,210.70	79,968.37
Section 1 (d) Assistance of Settlers	.....	60,056.87	60,056.87
Section 1 (e) Creamery and Grain Elevators	38,374.54	7,470.13	45,844.67
Section 2 (1) Seed Grain	177,972.12	12,640.51	190,612.63
Section 2 (2) Cattle Purchase Account	19,126.06	968.55	20,094.61
Section 2 (6) Fire Protection	3,773.45	.....	3,773.45
Returned Soldiers' and Sailors' Settlement Act, 1917	1,173,638.51	4,274.65	1,177,913.16
	$8,453,193.35	$1,496,747.19	$9,949,940.54
Settlers' Loan Acct., Clause 9 (Amend. Act 1916).	549,401.63	115,775.18	665,176.81
	$9,002,594.98	$1,612,522.37	$10,615,117.35

STATEMENT OF EXPENDITURE.

UNDER NORTHERN AND NORTH-WESTERN ONTARIO DEVELOPMENT ACTS, 1912 AND 1915.
FOR THE YEAR ENDING 31ST OCTOBER, 1921.

Districts and Sections.		Expenditure, year ending 31st Oct., 1921.
1. Kenora		$ 55,381.42
2. Dryden		67,086.55
3. Port Arthur		60,019,59
4. Fort William		72,334.65
5. Rainy River		126,724.95
6. St. Joseph Island		8,363.78
7. Sault Ste. Marie		136,520.84
8. Sudbury		70,967.72
9. Nipissing		68,996.76
10. Parry Sound		72,159.13
11. Muskoka		76,476.25
12. Renfrew		18,421.12
13. Simcoe		722.51
14. Algonquin Park		6,867.89
15. Manitoulin Island		62,280.93
16. Sundry Surveys (Muskoka, Parry Sound and Nipissing)		6,170.74
17. Temiskaming		475,064.86
18. General Administration		21,566.09
		$1,406,125.78
19. Farms		5,210.70
20. Assistance of Settlers		60,056.87
21. Creamery		7,470.13
22. Seed Grain		12,640.51
23. Cattle Purchase		968.55
24. Returned Soldiers' and Sailors' Settlement Act:		
General Account	$3,923.35	
Adjustment Account	351.30	
		4,274.65
25. Settlers' Loan Account		115,775.18
TOTAL		$1,612,522.37

November 15, 1921.

ARTHUR E. D. BRUCE,
Secretary and Accountant.

STATEMENT OF EXPENDITURE, YEAR ENDING 31ST OCTOBER, 1921.

Making of Roads, Section 1 (b):			
Bruce, A. E. D., Secretary and Accountant, salary	$3,450.00		
Sinton, Jas., Road Engineer, salary	2,400.00		
Beardall, F. G., Principal Clerk, salary	2,100.00		
Lawer, W. L., Senior Account Clerk, salary	1,900.00		
Reid, A., Map Draughtsman, salary	1,700.00		
Dicker, C. L., Clerk, salary	1,400.00		
Fleming, Miss E., Junior Clerk, salary	1,100.00		
Carefoot, Miss O., Clerk-Stenographer, salary	1,050.00		
		15,100.00	
Wages	$793,774.80		
Contracts	253,675.68		
Supplies and Equipment	343,575.30		
		1,391,025.78	
		$1,406,125.78	
Advancement of Settlement and Colonization, Section 1 (d):			
Wages	$4,275.08		
Supplies, Stock and Equipment	935.62		
		5,210.70	
Assistance of Settlers, Section 1 (d):			
Hay, Oats, Corn, Freight and Disbursements		60,056.87	
Creamery, New Liskeard, Section 1 (e):			
Wages	$3,790.17		
Supplies, Equipment, Freight and Expenses	3,679.96		
		7,470.13	
Seed Grain, Section 2 (1):			
Wages	41.25		
Seed, Freight and Disbursements	12,599.26		
		12,640.51	
Cattle Purchase Account, Section 2 (2):			
Cost of Cattle, Freight and Disbursements		968.55	
Returned Soldiers' and Sailors' Land Settlement Act., 1917:			
Wages	$2,786.15		
Supplies and Disbursements	1 137.20		
	3,923.35		
Adjustment Account	351.30		
		4,274.65	
			$1,496,747.19
Settler's Loan Account, Amending Act, 1916:			
Dane, F., Commissioner, salary	$5,000.00		
Kennedy, W. K. P., Accountant, salary	2,500.00		
Crawford G., Stenographer, salary	975.00		
		$8,475.00	
Net amount of loans issued	$105,859.00		
Expenses	1,441.18		
		107,300.18	
			115,775.18
			$1,612.522.37

ARTHUR E. D. BRUCE,
Secretary and Accountant.

November 15, 1921.

NORTHERN DEVELOPMENT BRANCH.

STATEMENT OF REVENUE FOR THE YEAR ENDED 31ST OCTOBER, 1921.

Section 1 (b) Roads:		
Sale of supplies, stock and equipment, rentals and refunds	$ 2,016.86	
Section 1 (d) Farms:		
Sale of produce	2,417.25	
Section 1 (d) Assistance of Settlers:		
Cash sales of feed	6,480.82	
Section 1 (e) Creamery:		
Butter revenue, sale of buttermilk and cans	6,247.56	
Section 2 (1) Seed Grain:		
Notes retired and cash sales	21,796.09	
Section 2 (2) Purchase of Cattle Account:		
Notes retired and cash sales	5,943.20	
Clause 5 (1-12) Soldiers' Settlement Account:		
Sale of buildings, equipment, stock and material, rentals Kapuskasing and Shackleton Colonies	8,590.91	
		$53,492.69
Settlers' Loan Account:		
Payments on Principal, Interest, etc.	85,832.63	
Total Revenue under all heads, 1921 account		$139,325.32

RECORD OF CORRESPONDENCE.

FOR YEAR ENDED 31ST OCTOBER, 1921.

Letters received		8,753
Letters mailed	10,712	
Circulars mailed	652	
		11,364

November 15, 1921.

ARTHUR E. D. BRUCE,
Secretary and Accountant.

Appendix No. 47.

46 Richmond St. West,
Toronto, January 14, 1922.

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

Sir,—I have the honour to submit a report of the business of this department to the end of October, 1921, as follows:

Total number of applications received for loans, 2,931, applying for $1,162,864, an average of $396.75 per application, each case being considered on its own merits, and loans advanced on the basis of improvements to land.

The total number of loans granted to settlers was 1,903, amounting to $626,995.00, an average of $329.48. This includes an advance to the Sudbury Co-Operative Creamery Co., Limited, $12,000.00, and a loan of $10,000.00 to Kenora Dairy Co-Operative Association.

The repayments on account of loans has continued to be very satisfactory, 90 per cent. of the payments on account of interest having been made, and 96 per cent, of amount due on account of principal. Some loans have been paid in advance. It is just a question if this good showing will continue, as a number of conditions are not just so favourable as in the past years, but there is a sincere effort on the part of the settlers to live up to the terms on which the loans were advanced.

Recently there have been a large number of applications received—no doubt, due to the fact that settlers are forced to devote more time on their own lots. Lack of other employment that formerly engaged their attention, and that furnished quicker cash returns, is the reason.

Beg to direct your attention to the attached memorandum, giving details of operations carried on, and it's a pleasure to be able to report that settlers continue to express their appreciation for the loans received through this department, acknowledging the help it has been to them in many ways, particularly by enabling them to clear up land.

(Sgd.) F. Dane,
Settlers' Loan Commissioner.

Memorandum of Settlers' Loans to October 31st, 1921.

Applications.

Total number of applications received	2,931
Total amount applied for	$1,162,864.00
Average per application	$396.75
Amount applied for under approved applications	$785,730.00

Loans.

Number of loans issued	1,903
Equal to 65% of applications.	
Amount granted	$626,995.00
Equal to 54 % of total amount applied for and Equal to 80% of total amount applied for under approved applications.	
Average loan	$329.48
Total acreage covered by liens	292,732
Acreage improved land	40,045
Equal to 13.7% of total acreage.	
Average loan per acre on total acreage	$2.14
Average loan per acre on acreage improved land	$15.66

Note.—Figures, except averages include application for, and loan of $12,000.00 to Sudbury Co-operative Creamery Co., Ltd., and $10,000.00 to Kenora Dairy Co-operative Association.

Repayments.

Accrued interest due	$ 95,079.46
Accrued interest received	86,338.37 or 90.80%
Payment on principal due	198,356.17
Payments on principal received	191,235.84 or 96.41%
Total payments due	293,435.63
Total payments received	277,574.21 or 94.59%

Details of Loans Issued and Outstanding.

District.	No. of Loans.	Amount.	Unpaid Principal and Accrued Interest.
Algoma	38	$ 12,105.00	$ 10,262.08
Kenora	198	72,645.00	59,472 80
Nipissing	83	30,300 00	22,874 36
Rainy River	155	49,700 00	32,888 99
Sudbury	71	37,800 00	31,525 23
Temiskaming	816	249,240 00	159,695 02
Thunder Bay	542	175,205 00	127,781 77
Totals	1,903	$626,995 00	$444,500 25

Appendix No. 48.

Report of Forestry Branch, 1921.

Sir,—The report of the work of this Branch for the year ending 31st October, 1921, is given under the sections of Forest Protection, Forest Investigation, Reforestation, and Forest Pathology.

I. Forest Protection.

(1) *Legislation.*

No changes have been made in the Forest Fires Prevention Act since 1918. The experiences of the past two seasons have indicated, however, that amendments making fire-fighting compulsory and providing for jail sentences as well as fines for certain infringements of the Act, are desirable. This latter applies especially to the Permit Regulations.

(2) *Organization and Personnel.*

The supervision of the field force was carried on by one Forest Supervisor, with headquarters at Kenora, and three Fire Inspectors, with headquarters at Cochrane, Sudbury, and Parry Sound.

A re-arrangement of Chief Ranger Districts was made, and two more Chief Rangers added to the staff, making a total of thirty-two, with fifty Deputy Chief Rangers. This allowed direct field supervision on the basis of one deputy or chief ranger to every thirteen rangers.

The average daily force was as follows: April, 22; May, 591; June, 1014; July, 1,035; August, 1,027; September, 467; October, 33. The total number

of persons employed for at least a part of the season, was 1,228. Of these 142 resigned, and 69 were dismissed.

Owing to the fire season being early, over half the staff (568) were on duty by the middle of May, and by the end of the month the number had risen to 962. On the fifteenth of June, the total number on the pay roll was 1,014; on the first of July, 1,022; on the fifteenth of July, 1,036; on the first of August, 1,029, and on the fifteenth of August, 1,034. By the end of August, however, it was possible to discontinue several patrols, so that the total number of men on duty was reduced from 1,034 to 977 between the middle and the end of August. On the fifteenth of September, there were only 533 men on duty, and by the end of the month this number had been reduced to 78, practically all of those left being engaged in repairing equipment and finishing up certain local improvements.

As stated in previous reports, one of the chief factors mitigating against a successful controlling of forest fires in Ontario, is the impermanency of the personnel. Fire-ranging is a specialized line of work, requiring special training, and until a permanent organization of trained men is built up, progress will be slow.

(3) *Expenditure.*

The expenditure for the fiscal year was $610,534.74, classified as below, with the figures for the preceding years given for comparison. Against this expenditure, protection accounts for the year totalled approximately $181,047.32.

CLASSIFICATION OF EXPENDITURE.

Item.	1921	1920	1919	1918
Pay roll	$433,463.02	$398,919.61	$405,212.30	$416,500.00*
Equipment	28,384.40	22,287.83	22,899.02	28,350.00
Expendable property	19,505.86	16,589.99	13,903.06	10,700.00
Travel (inspection)	21,034.95	17,495.93	15,826.37	13,440.00
Improvement work	3,621.06	1,591.01	4,765.35	4,280.00
Extra fire fighting	65,267.79	41,491.24	58,863.92	1,445.00
Express, postage, etc	7,926.65	5,401.02	5,646.47	5,365.00
Miscellany	31,331.01	2,331.08	5,955.02	6,054.78
Total	$610,534.74	$506,107.71	$528,071.51	$486,134.78

* Figures rounded off.

(4) *Fires.*

There was very little snow in the winter of 1920-21 and this disappeared very early in the spring. Then followed very unusual weather conditions, practically no rain falling in some districts until August, and in others not until September. Because of this early hazard it was necessary to place the full ranging staff on duty as fast as possible.

CLASSIFICATION OF FOREST FIRES.

By Month.

Month.	1921	1920	1919	1918	1917
	No.	No.	No.	No.	No.
April and May	301	422	362	294	449
June	290	309	414	273	320
July	475	142	613	124	158
August	97	300	377	268	117
September and October	106	114	14	6	66
Totals	1,269	1,287	1,780	965	1,110

By Origin.

Origin.	1921		1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Settlers	122	9.6	11.0	7.7	8.1	8.2
Campers	112	8.8	11.7	9.2	9.7	13.9
Railways	188	14.8	23.9	37.0	46.5	49.5
Lightning	139	11.0	1.1	3.0	3.8	2.9
Logging operations	64	5.0	4.6	2.5	4.1	4.1
Miscellaneous	14	1.1	7.2	4.3	4.6	3.6
Unknown	630	49.7	40.5	36.3	23.2	17.8
	1,269	100.0	100.0	100.0	100.0	100.0

By Size.

Size.	1921		1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Quarter acre and under	264	20.8	23.2	30.5	40.5	36.3
Over quarter to 5 acres	304	24.0	29.4	27.7	33.7	19.5
Over 5 to 10 acres	86	6.8	8.1	6.1	6.0	4.8
Over 10 to 100 acres	259	20.4	17.1	16.5	13.6	9.5
Over 100 to 500 acres	169	13.3	12.0	8.7	5.1	4.7
Over 500 acres	.....	.....	.....	.....	1.1	25.2
Over 500 to 1,000 acres	70	5.5	5.0	3.3	.....	.....
Over 1,000 to 10,000 acres	103	8.1	4.9	5.9	.....	.....
Over 10,000	14	1.1	0.3	1.3	.....	.....
	1,269	100.0	100.0	100.0	100.0	100.0

Of the total number of fires, settlers were responsible for 122, or 9.6 per cent. A large part of these (45) were permit fires which for various reasons were allowed to get beyond control. Included in this 122 were also 11 fires set without permits, and in connection with which court proceedings were instituted. Convictions were secured in ten instances, the penalties ranging all the way from a fine of ten dollars and costs to one hundred dollars and costs, and in one case a sentence of thirty days' hard labor was imposed.

The number of fires known to be caused by campers was 112, or 8.8 per cent of the total.

The number of fires directly attributed to railways, with a total of 4,951 miles within the Fire Districts of the Province, was 188, or 14.8 per cent. of the total number from all causes, a decrease in the percentage of 9.1 per cent. over 1920, and 34.7 per cent. over 1917. This decrease is due largely to the increased attention given to locomotive inspection by our staff.

The fires of railway origin were distributed as follows:

Railway.	Per cent. of Total Number of Railway Fires.			
	1921	1920	1919	1918
Canadian National Railway (exclusive of Northern line)	44.7	32.3	24.6	25.4
Canadian Pacific Railway	29.8	27.9	26.3	24.9
Canadian National Railway (Northern Transcontinental line only)	7.9	16.4	25.9	21.8
Temiskaming and Northern Ontario Railway	10.6	9.9	17.9	10.5
Algoma Eastern Railway	2.8	5.0	0.3	2.9
Algoma Central Railway	1.0	4.4	1.5	1.1
Grand Trunk Railway	3.2	4.1	3.5	13.4
	100.0	100.0	100.0	100.0

Average Number of Railway Fires Per Hundred Miles of Line.

Canadian National Railway (exclusive of Northern line)	5.8
Canadian Pacific Railway	3.9
Canadian National Railway (Northern Transcontinental line only)	1.8
Temiskaming and Northern Ontario Railway	6.3
Algoma Eastern Railway	5.9
Algoma Central Railway	0.6
Grand Trunk Railway	1.6

Lightning is credited with starting 139 fires, or 11.0 per cent. of the total number of all fires, a decided increase over previous years, due no doubt to the occurrence of many electrical storms, which were accompanied by little or no precipitation, and fires which ordinarily would have been extinguished by the rain without making themselves apparent, were able this year to gain considerable headway. Fires from this source were restricted largely to a few regions, especially the Algonquin Park district, where 47 of the 139 lightning fires occurred.

A total of 749,534 acres were reported burned over, more than twice the area burned over in 1920, due largely to the exceptional weather conditions prevailing throughout the season. This acreage was classified as below:

CLASSIFICATION OF BURNED-OVER AREA.

Forest Condition.	1921		1920	1919	1918	1917
	Acres	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land	99,104	13.2	14.7	26.8	15.8	19.1
Cut-over land (some timber left)	190,977	25.5	38.8	27.3	37.0	39.2
Young growth (below six inches)	151,700	20.2	26.7	25.3	23.5	19.5
Barren and grass land	307,753	41.1	19.8	20.6	23.7	22.2
	749,534	100.0	100.0	100.0	100.0	100.0

As the table shows, the area of timber land burned over this season was 13.2 per cent. of the total area burned, slightly lower than the figure for last year, and considerably lower than the figure for 1919.

Land which had been cut over, but upon which there was some timber left, and land upon which young growth existed, formed 25.5 and 20.2 per cent. respectively of the area burned. It is upon these two classes of land that we must depend to a large extent for our future timber crop, and the importance of protection on these areas can not be too strongly emphasized. Until a systematic system of brush disposal is inaugurated in connection with logging operations, little can be accomplished in the protection of these cut-over areas.

The high percentage of barren and grass land burned over is due to the large areas of swamps and muskegs burned, the season being so dry that these swamps and muskegs became quite inflammable, a rather unusual occurrence.

On the shore of Lake Nipissing, Parry Sound District

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1921.

Ranger District.	Number of fires	Timber land, mainly coniferous, i.e., soft-wood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate—										
1. Kenora District	42	4,563	5	1,117	225	2,422	19	9,226	10	17,587
2. Rainy River	62	3,408	3	2,880	635	513	234	408	1	8,082
3. Thunder Bay	48	23	3	130	.....	23	42	1,415	134	1,770
4. Nipigon	12	8	.....	.....	.....	3	.....	13	5	29
5 C. G. R.—Western	10	.....	.....	.....	.....	.....	.....	649	8	657
6. C. G. R —Central	11	.....	.....	.....	.....	.....	.....	25,640	.....	25,640
	185	8,002	11	4,127	860	2,961	295	37,351	158	53,765
II. Northern Inspectorate—										
1. Hearst	12	3	.....	810	.....	29	.....	27	.....	869
2. Kapuskasing	13	12	.....	540	570	45	.....	140	.....	1,307
3. Cochrane	75	1,073	46	8,671	612	2,110	.....	4,532	82	17,126
4. Abitibi	17	7,790	.....	15,850	3,800	2,600	.....	24,715	.....	54,755
5. Timmins	49	3,018	.....	12,601	1,020	250	.....	9,215	31	26,135
6. Matheson	32	6,890	200	360	5,512	2,675	235	16,067	45	31,984
7. New Liskeard	14	75	.....	1,300	85	135	.....	255	5	1,855
	212	18,861	246	40,132	11,599	7,844	235	54,951	163	134,031
III. Central Inspectorate—										
1. Soo	28	3,434	.....	400	3,908	.....	3,651	21,877	5	33,275
2. Webbwood	76	1,052	2,002	2,555	3,121	75	1,225	24,823	53	34,906
3. Sudbury	64	1,354	169	560	3,733	4,761	7,433	8,488	17	26,515
4. North Bay	57	6 634	220	1,491	2,832	7,801	65,762	6,191	376	91,307
5. Mississagi	11	440	.....	640	.....	203	456	124	.....	1,863
6. Chapleau	43	405	.....	1,291	109	366	974	13,275	527	16,947
7. Longlac	7	171	.....	50	.....	80	.....	101	.....	402
8. Foleyet	79	11,252	.....	5,560	3	8,106	.....	2,526	5	27,452
9. Timagami, W. & S.	18	21,180	3	872	.....	900	100	280	.....	23,335
10. Timagami, East	62	2,262	101	1,065	837	214	323	502	2	5,306
11. Timagami, North	25	8,404	.....	2,081	1	4,800	.....	11,747	.....	27,033
12. Algoma Central	46	6,018	11	28,465	10,782	2,179	806	11,648	320	60,229
	516	62,606	2,506	45,030	25,326	29,485	80,730	101,582	1,305	348,570

VI. Southern Inspectorate										
1. Parry Sound	63	4,957	12	1,010	28,917	10,586	6,288	52,015	.....	103,785
2. Muskoka	28	15	160	5	315	5	360	2,607	3	3,470
3. Algonquin, North	61	8	.....	13,512	9,240	4,865	3,776	27,115	100	58,616
4. Algonquin, South	79	23	1	2,440	2 367	282	1,712	21,630	1	28,456
5. Madawaska	36	460	100	1,625	1,345	146	849	1,337	185	6,047
6. Trent	79	850	286	627	2,500	292	694	7,179	69	12,497
7. Eastern Reserve	10	.....	.....	.....	.....	103	192	2	.....	297
	356	6,313	559	19,219	44,684	16,279	13,871	111,885	358	213,168
Totals	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
Per Cent	.....	12.8	0.4	14.5	11.0	7.5	12.7	40.8	0.3	100.0
1920 Totals	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 Totals	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 Totals	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

(5) *Permits.*

Permits were issued in 139 townships, as compared with 123 townships in 1920 and 136 townships in 1919. A total of 5,966 permits were issued, covering an area of 23,678 acres, 158 permits less than were issued in 1920.

As shown in the tables below, the greatest number of permits were issued in the districts of Matheson, Cochrane, and Hearst. Most of the burning under permit was done during the month of June, 3,085 permits being granted, with 1,329 in September and 1,154 in May. During the month of July, it was necessary, in some districts, to prohibit burning, owing to the exceptionally dry weather.

STATEMENT OF PERMITS ISSUED.

Ranger District.	Number of Permits.				
	1921	1920	1919	1918	1917
Cochrane	1,503	1,982	2,275	3,493	.....
Matheson	1,599	1,887	1,691	2,346	.....
New Liskeard	916	1,169	1,557	2,179	.....
Hearst	1,082	756	702	514	.....
Timmins	407	193	199	651	.....
All other districts	459	167	211	407	.....
Totals	5,966	6,154	6,635	9,590	3,486

	Number of Permits.				
	1921	1920	1919	1918	1917
May	1,154	1,003	1,536	2,248	.....
June	3,085	2,011	2,786	2,899	.....
July	364	891	496	2,050	.....
August	1,329	1,620	1,475	2,156	.....
September	34	629	342	237	.....
Totals	5,966	6,154	6,635	9,590	3,486

Ranger District.	Acreage Burned Over Under Permit.				
	1921	1920	1919	1918	1917
Cochrane	4,652	4,984	5,437	10,267	.....
Matheson	5,442	5,427	4,760	7,371	.....
New Liskeard	7,726	9,768	13,521	17,863	.....
Hearst	2,124	1,478	1,379	1,134	.....
Timmins	988	424	925	1,971	.....
All other districts	2,746	686	768	1,072	.....
Totals	23,678	22,767	26,790	39,683	15,186

(6) *Equipment.*

The most important addition to our equipment this season was ten portable fire-fighting pumps. These pumps are supplied with from 500 to 1,000 feet of hose, and have proved of inestimable value in fire-fighting. There were also purchased 168 pairs of blankets, 29 canoes, 51 tents, 12 railway velocipedes, 2 railway motor cars, and 2 power boats, one 18 feet and the other 27 feet in length.

(7) *Railway Inspection under B.R.C.*

No change was made in the organization of the inspection of fire protective appliances on railway locomotives, two inspectors devoting their whole time to this work.

LOCOMOTIVE INSPECTION, 1921.

Railway	Number Inspected. Times.					Total Number Engines	Total Number Inspections.					Inspections showing defects	Percentage Defective.				
	1	2	3	4	5 & over	1921	1921	1920	1919	1918	1917	1921	1921	1920	1919	1918	1917
C.P.R...	121	73	47	48	23	312	723	660	499	448	328	60	8.3	16.8	29.9	36.4	19.5
C.N.R. .	65	46	23	27	29	190	498	351	317	232	154	48	9.7	7.9	15.5	22.4	39.6
G.T.R...	86	34	21	5	1	147	242	226	155	184	60	4	1.7	4.8	11.0	28.3	20.0
A.C. & H.B.R. .	4	7	4	..	1	16	35	25	23	36	37	8	22.8	12.0	13.0	38.8	45.9
A.E.R...	...	1	1	3	2	7	28	26	18	20	36	6	21.4	46.1	16.7	70.0	55.5
	276	161	96	83	56	672	1,526	1,288	1,012	920	615	126	8.3	12.8	21.8	32.1	28.3

A total of 41 round-houses was visited, and 1,526 locomotive inspections made, covering 672 locomotives, as against 1,288 inspections in 1920 on 659 locomotives. The above table shows that not only has the number of inspections increased each year, but the percentage of locomotives found defective has steadily decreased from 32.1 per cent. in 1918 to 8.3 per cent. in 1921; and in keeping with this, the percentage of fires definitely attributed to railways has decreased from 46.5 per cent. in 1918 to 14.8 per cent. this year.

The average cost per inspection in 1921 was $1.70, as compared with $1.86 in 1920, and $2.07 in 1919.

II. Forest Investigation.

Ottawa-Huron Survey.—This season the work of forest reconnaissance of the Province was continued, and the country within the fire district south of the French and Ottawa Rivers completed, the settled parts of Parry Sound and Muskoka excepted.

For the purposes of comparison, the surveyed area is divided into seven districts, namely, Algonquin Park, Ottawa Valley, Renfrew, Madawaska, Muskoka, Parry Sound, and Georgian Bay. Of these, Madawaska was, in part, covered the previous summer (1920) by three forestry graduates, and the results of both surveys are included in the figures of this report. It may be explained that the boundaries of these districts do not correspond with the existing municipal boundaries, except in the case of Algonquin Park. Ottawa Valley is taken as the fringe of country between the Park and Ottawa River. Renfrew includes those portions of Nipissing and Renfrew counties south-east of the Park. Madawaska takes in northern and eastern Hastings and the northerly portions of Frontenac and Lennox and Addington. Muskoka refers only to a small north-eastern part of that district. Georgian Bay is applied to the western portion of Parry Sound and Muskoka districts. Parry Sound covers the remainder of Parry Sound district, except the central north and south alienated strip. Trent refers to northern Peterborough and central and western Hastings.

In order to fully understand this report, a few remarks on the subject of ownership conditions will be necessary.

Ownership.—Of the total area, about 65 to 70 per cent. remains in the Crown. In the Algonquin Inspectorate (Algonquin Park, Ottawa Valley, Renfrew), this represents approximately 90 per cent. of the total area. Here, the patented lands exist as a fringe of varying width along the Ottawa River front, and as more or less solid masses with intervening and scattered Crown lands, in Renfrew. In the Georgian Bay Inspectorate (Georgian Bay, Parry Sound, Muskoka), Crown lands comprise 60 per cent. of the total area. The bulk of these are located in a solid block in the north-east sector and on the shores of Georgian Bay; the remainder are found in the south-east sector, along the eastern border of the Inspectorate and adjacent to Algonquin Park. In the Trent Inspectorate (Madawaska and Trent), the distribution of Crown and patented lands is quite different. Instead of being located in separate localities, the Crown lands are interspersed throughout the area in blocks of up to 30 or 40 square miles, surrounded and cut off by the holdings of settlers. Thus we have many smaller forests, more or less set off by themselves, with agricultural land in between.

Land under license comprises 9,587 square miles, of which the Algonquin Inspectorate forms 55.6 per cent., Parry Sound 26.1 per cent., and Trent Inspectorate 18.3 per cent. This relation bears a striking resemblance to the timbered areas yet containing commercial supplies within the Inspectorates, as out of a total of 1,507,539 acres, Algonquin forms 58.5 per cent., Parry Sound 24.7 per cent., and Trent 16.6 per cent.

The diversity of ownership conditions within the Inspectorate, indicating, as they do, the relative occurrence of timber or young growth, will undoubtedly call for different forms of forest management.

In the survey proper, the following will, in brief, describe the classification used, the methods employed, and some of the results obtained. Further information, regarding composition of parties, routes, cost of survey, dates, etc., is given in the appendix.

Field Work.—Forest type maps were prepared in the field, delimiting cleared land from barrens and forest. The forest area was differentiated into hardwood, coniferous and mixed types, with the poplar-birch type separated from the other hardwoods. The first three types were classified as to condi-

tion, namely, virgin, moderately culled, severely culled, second growth, and young growth. The poplar-birch stands were thrown into two groups, on the basis of whether white pine reproduction was in evidence or not. The mixed type was defined as containing more than 20 per cent. numerically of either hardwood or conifers among the dominants. Young growth corresponds to saplings up to 4 inches; second growth to polewood above 4 inches.

On these maps, showing forest types and conditions, there were also placed roads, trails, abandoned roads, railway lines, existing telephone lines, watershed boundaries, and good locations marked for lookout points for fire ranging use. Along with this field mapping, information was compiled by townships, covering such points as present fire hazards, location and number of male help available for fire fighting, wood-using industries and mills in existence, nature and extent of other industries such as farming, mining, game and fish, tourist traffic, population, general suitability of the area for agriculture, etc.

From Calabogie, two parties commenced work on the settled sector southeast of Algonquin Park (Renfrew). With this completed, a third party was formed, and all three followed respective railway lines—C.P.R., C.N.R., G.T.R. —thence along the Ottawa River and through the Park. On the completion of the Algonquin Park area, one party struck across-country from Trout Creek to C.N.R., and south, so covering the Parry Sound sector. The other two parties attacked the Georgian Bay sector, one party following the C.P.R. north from Parry Sound, and the other travelling south by launch and canoe.

Effective use of Ford cars in the more settled sections of Ottawa Valley, Parry Sound, Renfrew, Madawaska, and of canoes in Algonquin Park and Georgian Bay sectors, combined to speed up the work and minimize waste of power and energy.

Sixteen forestry students were employed in the summer's work, working under the immediate direction of Messrs. G. M. Dallyn, P. McEwen, and W. A. Delahey of this Branch. Two parties of eight and one of three formed separate camps. The method of work was by foot, with distances computed by pacing. Men worked in pairs. Each pair was given a block of territory to cover, involving about twenty miles travelling, daily. This may mean an area from nine to fifteen square miles, depending on the nature of the settlement, i.e., existing roads, etc., and topography. Boundaries of forest types were checked from lookout sites. Railways, junction of roads, surveyed lakes, rivers, lot lines, served as tying in points, and in less settled districts, compass triangulation was employed.

In all, 7,682,518 acres were examined at a cost of one-quarter of a cent per acre.

Forest Composition.—Of 7,213,372 acres of land investigated in 1920 and 1921, 79.2 per cent. is forested, 10.9 per cent. is barren, and 9.9 cleared. Lakes form an additional area of 469,146 acres, or 6.1 per cent. of the total area examined.

First, let us discuss the composition of the forest area. The composition of the forested area (5,710,291 acres) is made up of 36.6 per cent. mixed; 22.4 per cent. poplar-birch: 19.1 per cent. hardwood; 18.2 per cent. poplar-birch-coniferous; and 3.7 per cent. coniferous. The mixed type occupies over one-half of the forested area in each of Algonquin Park, Parry Sound, and Georgian Bay districts, and these contain 73.2 per cent. of the total mixed forest. The

remaining sectors have relatively more cleared land, an older logging history, a consequent longer fire record and therefore, a much smaller proportion of this desirable composition.

Of the forested area, 2,319,334 acres, or 40.6 per cent., represents combinations of poplar and birch, with and without conifers. Of this, 44.8 per cent. contains a noticeable pine admixture. In the unsettled timbered areas of Algonquin Park and Parry Sound, this type represents but one-fifth of the forested land, whereas in the remaining settled sections, it represents one-third.

3.7 per cent., or 206,935 acres, were classified as coniferous forests. Almost one-half of this is, again, located in Algonquin Park.

Hardwoods cover 19.1 per cent., or 1,097,419 acres, of the forest. This type usually represents a culled virgin, mixed stand, the conifers having been largely removed. This condition is particularly noticeable in the Muskoka region, representing here, one-half the forest. In Algonquin Park, Parry Sound and Madawaska, one-fifth, and in the Ottawa, Georgian Bay sectors, one-twentieth of the forest is so classified.

Conditions.—The following outstanding features in the various forest conditions may be of interest. Only 26.4 per cent. of the present total forest area is virgin or moderately culled, that is, one-quarter of the forested area contains commercial timber, represented by 51.5 per cent. mixed, 45.1 per cent. hardwood, and only 3.4 per cent. coniferous composition. Algonquin Park contains three-fifths, Parry Sound one-fifth, of the mixed, while, of the hardwoods, Algonquin Park contains one-half and Madawaska one-quarter.

Areas classed as severely culled form 10.6 per cent. of the forest, and include a diversity of conditions, mainly due to the almost inevitable fire following the logger. This may be represented by alternate patches of young growth and small stands of timber, or by second growth stands with scattered mature trees of indifferent character. This type of forest presents a particularly vicious fire hazard to commercial stands, owing to the accumulated slash following recent logging operations. This condition is particularly true of the Parry Sound district, where one-fifth of the forest was so classified.

Second growth in the mixed-hardwood-coniferous forests covers 18.7 per cent. of the forest area, or 1,066,556 acres. Four-fifths of this is mixed composition—a satisfactory condition of reproduction—36.2 per cent. of which is found in Algonquin Park.

Young growth in the mixed-hardwood-coniferous forest is represented by 210,296 acres, or 3.7 per cent. of the forested area. Of this, 64.8 per cent. is mixed composition, over three-fifths of which is found in the Georgian Bay sector.

Second growth poplar-birch stands occupy 529,555 acres, or 9.3 per cent. of the forested area. 73.0 per cent. of this contains a coniferous admixture—mainly white pine—of which Algonquin Park comprises 41.6, Ottawa Valley 28.9, and Madawaska 21.7 per cent., while Georgian Bay, Parry Sound, and Madawaska districts, together, only represent 1.9 per cent. of this type. There remain 143,317 acres where conifers are not noticeably present. With this type of forest, there is usually present an understudy of balsam or hemlock, and in the more open stands, pine. The future of such forests is, therefore, relatively satisfactory, always providing fire is kept out.

Young growth of poplar-birch type occupies 1,789,779 acres, or 31.3 per cent. (almost one-third), of the total forest. Of this, 36.9 per cent. has coniferous admixture of which Madawaska contains 64.3 per cent. One-fifth of

the total forested area is then in a semi-barren condition, supporting, in the main, poplar-birch degenerates with an occasional fire-scarred pine.

Of the total area, barrens occupy 10.9 per cent., or 790,092 acres, a pitiful representation of the original pinery. This condition is most pronounced in the Madawaska and Georgian Bay sectors.

Cleared land comprises 9.9 per cent., or 712,989 acres. Of this, the settled district south of Algonquin Park, represents 76.9 per cent.; Ottawa Valley and Parry Sound, together, 21.3; while, in Algonquin Park and Georgian Bay, we find only 1.8 per cent. From the nature of the country, the presence of so many abandoned farms, and the general appreciation of most of this sector as a crop-producing area, it is not likely that the present percentage of cleared land will increase.

Summary.—A study of these pages reveals the fact that, as a result of logging operations and repeated fires, over 60 per cent. of the original forest —which was of a mixed or coniferous character—is now occupied by less desirable types, and instead of the former pineries, occupying one-half the area, we find only 3.1 per cent. thus occupied, pine having been superseded by poplar-birch and barrens on the remaining areas.

In summing up, the conditions over the whole area, excluding cleared land, are shown in the following table.

TABLE SHOWING BY PERCENTAGES THE RELATIONSHIP OF CONDITIONS ON THE POTENTIAL FOREST AREA.

Condition.	District.						
	A.	O.	R.	Ma.	M.	P.S.	Totals
Vigin and moderately culled	44.2	5.2	11.3	13.9	65.5	28.7	23.3
Severely culled	6.2	4.4	9.4	10.0	2.9	20.3	9.3
Second growth	35.3	38.4	16.6	19.4	1.4	18.4	24.6
Young growth	8.3	40.6	40.8	46.7	30.2	20.0	30.7
Barrens	6.0	11.4	21.9	10.0	0.0	12.6	12.1

A.—Algonquin Park; R.—Renfrew; Ma.—Madawaska; M.—Muskoka; P.S.—Parry Sound; O.—Ottawa Valley.

In the above table, the potential forest land is classified as follows: Timber, i.e., virgin and moderately culled areas, 23.3 per cent.; cordwood and distillation material or severely culled areas, 9.3 per cent.; second growth, 24.6 per cent.; young growth, 30.7 per cent.; and barrens, 12.1 per cent.

From this we can see the varied character of the relationship of the forest conditions in the various districts, for example, in Algonquin Park, we find 44.2 per cent. timber, 35.3 per cent. second growth, with only 8.3 per cent. young growth; while in the Madawaska, only 13.9 per cent. timber land remains, second growth occupying 19.4 per cent., with young growth representing almost 50 per cent. of the area. It also shows, in the case of Muskoka district, practically no intermediate or second growth.

The outstanding feature of the present condition of these 6,500,000 acres. as a whole, is the undesirable transformation by the agency of fire after logging, The three types—poplar-birch with coniferous reproduction, the poplar-birch without, and the barrens—represent, in general, logged-over areas burned an

increasingly large number of times, and were once largely occupied by pine. In addition, we may assume that the present areas, classed as mixed young and second growth, were formerly largely pine. These several classes now occupy 62.3 per cent. of the potential forest area, where once pine stands predominated.

It is of interest to note the future outlook as regards the next crop of softwood saw timber on this large area of over four million acres. We may fairly assume that a relatively satisfactory reproduction of pine occurs on the area now occupied by immature mixed growth—15.1 per cent. Of the remainder, a partial pine restocking occurs only on the areas typed as poplar-birch-coniferous, or 15.8 per cent. The balance (31.4 per cent.), typed as poplar-birch and barrens and totalling 2,072,719 acres, is without hope of coniferous growth. This condition is most prevalent in the more settled districts, like Madawaska and Renfrew, and in the sparsely settled Georgian Bay sector, through which two railway lines run. The worst sector is that of Renfrew, adjoining the timbered region of Algonquin Park.

The above represents the universal history of forest areas after logging. Until brush disposal accompanies all logging operations, this degeneration of forest growth will go on.

Appended are the detailed tables.

ALGONQUIN, GEORGIAN BAY, TRENT FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.

	Airy		Algona, S.		Algona, N.		Alice		Anglin	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	3,390	7.3	12,865	38.7	9,405	39.6	32,292	56.8	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	1,050	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	4,175	.....	505	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	194	.....	.....	.....	.....	.....
Young growth	.....	.....	110	.....	.....	.....	.....	.....	.....	.....
	5,225	11.4	615	1.9	194	0.8	.....	.....	.....	.....
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	140	.....	.....	.....
Severely culled	.....	.....	705	.....	40	.....	.....	.....	800	.....
Second growth	625	.....	1,355	.....	100	.....	198	.....	3,040	.....
Young growth	.....	.....	290	.....	60	.....	284	.....	.....	.....
	625	1.3	2,350	7.1	200	0.8	622	1.1	3,840	8.0
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	1,740	.....
Severely culled	820	.....	315	.....	238	.....	1,804	.....	.....	.....
Second growth	.....	.....	12,530	.....	.....	.....	2,522	.....	38,434	.....
Young growth	.....	.....	.....	.....	.....	.....	2,536	.....	.....	.....
	820	1.8	12,845	38.6	238	1.0	6,862	12.1	40,174	83.8
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	75	.....	480	.....	250	.....	1,684	.....	2,130	.....
Saplings	.....	.....	2,030	.....	.....	.....	220	.....	925	.....
	75	0.1	2,510	7.6	250	1.1	1,904	3.4	3,055	6.4
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	50	.....	.....	.....	420	.....	10,388	.....	565	.....
Saplings	1,850	.....	2,045	.....	12,984	.....	4,716	.....	130	.....
	1,900	4.1	2,045	6.1	13,404	56.7	15,104	26.6	695	1.5
III. Barrens	34,290	74.0	.....	.....	.....	.....	.....	.....	155	0.3
Land area investigated	46,325	.....	33,230	.....	23,691	.....	56,784	.....	47,920	.....

ALGONQUIN, GEORGIAN BAY, TRENT FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Baxter		Bagot		Ballantyne		Barron		Bethune	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I Cleared Land	1,455	4.2	14,485	21.6	.....	.....	.....	.....	2,755	6.0
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	870	.....	.....	.....	5,385	.....	.....	.....	19,205	.....
Severely culled	.....	.....	.....	.....	6,290	.....	.....	.....	14,410	.....
Second growth	1,830	.....	160	.....	.....	.....	360	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	490	.....	.....	.....
	2,700	7.7	160	0.2	11,675	26.2	850	1.9	33,615	73.6
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	290	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	105	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	6,540	.....	.....	.....
Young growth	.....	.....	.....	.....	1,455	.....	.....	.....	.....	.....
	.....	.....	.....	.....	1,850	4.1	6,540	14.4	.....	.....
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	17,680	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	380	.....	.....	.....	3,460	.....
Second growth	12,570	.....	27,830	.....	4 980	.....	12,815	.....	2,140	.....
Young growth	.....	.....	.....	.....	360	.....	.....	.....	.....	.....
	12,570	36.1	27,830	41.4	23,400	52.6	12,815	28.2	5,600	12.2
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	960	.....	7,912	.....	.....	.....	17,260	.....	.....	.....
Saplings	7,115	.....	11,066	.....	.....	.....	.....	.....	105	.....
	8,075	23.1	18,978	28.2	.....	.....	17 260	38.2	105	0.2
5. Poplar-Birch without coniferous reproduction:										
Standards and poles	.....	.....	5,572	.....	570	.....	2,850	.....	.....	.....
Saplings	7,835	.....	219	.....	340	.....	4,980	.....	90	.....
	7,835	22.4	5,791	8.6	910	2.0	7,830	17.3	90	0.2
III. Barrens	2,270	6.5	.....	.....	6,680	15.1	.....	.....	3,575	7.8
Land area investigated	34,905	.....	67,244	.....	44,515	.....	45,295	.....	45,740	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 921—CLASSIFICATION OF LANDS.—*Continued.*

	Blair		Blythfield		Boulter		Bonfield		Bower	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I Cleared Land	40	0.0	1,864	5.6	4,840	10.8	17,540	35.0	140	0.1
II. Forest:										
1. Hardwood:										
Virgin and moderately culled					1,095		710			
Severely culled	4,590				1,390					
Second growth					570		2,160			
Young growth					120		735			
	4,590	7.0			3,175	6.6	3,605	7.2		
2. Coniferous:										
Virgin and moderately culled	5,650								945	
Severely culled										
Second growth	2,820								555	
Young growth					90					
	8,470	12.8			90	0.2			1,500	4.0
3. Mixed:										
Virgin and moderately culled	4,170				1,230		780		16 850	
Severely culled	660		680		1,970					
Second growth	36,420		11,138		4,720		4,355		9,585	
Young growth							1,265			
	41,250	62.6	11,818	35.4	7,920	16.5	6,400	12.7	26,435	69.8
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles					3,450		1,820			
Saplings	5,365		18,200		830		2,730			
	5,365	8.2	18,200	54.3	4,280	8.9	4,550	9.1		
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles					1,860		1,060			
Saplings	3,640				14,995		14,925			
	3,640	5.5			16,855	35.2	15,985	31.7		
III. Barrens	2,540	3.9	1,556	4.7	10,430	21.8	2,175	4.3	9,930	26.1
Land area investigated	65,895		33,438		47,590		50,255		38,005	

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Boyd		Bishop		Burpee		Brown		Burton	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	80	0.2	430	1.1	.....	.....	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	14,180	.....	2,365	.....	.....	.....	.....	.....	1,840	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	350	.....
Second growth	400	.....	.....	.....	105	.....	.....	.....	440	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	14,580	23.0	2,365	6.2	105	0.3	.....	.....	2,630	5.0
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	965	.....	960	.....	.....	.....	510	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	965	1.5	960	2.5	.....	.....	510	1.2	.....	.....
3. Mixed:										
Virgin and moderately culled	1,965	.....	24,805	.....	840	.....	1,895	.....	2,400	.....
Severely culled	.....	.....	4,995	.....	13,120	.....	3,655	.....	605	.....
Second growth	4,800	.....	1,570	.....	2,220	.....	6,580	.....	620	.....
Young growth	.....	.....	1,050	.....	450	.....	960	.....	330	.....
	6,765	10.6	32,420	85.2	16,630	43.3	13,090	29.8	3,955	7.7
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	9,250	.....	180	.....	.....	.....	.....	.....	.....	.....
Saplings	1,850	.....	130	.....	.....	.....	3,405	.....	2,350	.....
	11,100	17.5	310	0.8	.....	.....	3,405	7.7	2,350	4.5
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	2,260	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	5,845	.....	1,440	.....	.....	.....	12,975	.....	9,320	.....
	8,105	12.8	1,440	3.8	.....	.....	12,975	29.6	9,320	17.8
III. Barrens	21,985	34.6	500	1.3	21,245	55.3	13,900	31.7	33,880	65.0
Land area investigated	63,500	.....	38,075	.....	38,410	.....	43,880	.....	52,135	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Bronson		Brougham		Brudenell		Buchanan		Burns	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	9,090	14.2	15,726	30.0	4,800	25.2	148	0.3
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	180	.....	380	.....	528	.....	.....	.....	3,260	.....
Severely culled	.....	.....	80	.....	.....	.....	.....	.....	7,870	.....
Second growth	.....	.....	8,060	.....	12,418	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	380	.....	.....	.....
	180	0.4	8,520	13.3	12,946	24.7	380	2.0	11,130	24.9
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	1,450	.....	360	.....	.....	.....	590	.....	146	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,450	3.0	360	0.6	.....	.....	590	3.1	146	0.3
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	8,902	.....
Severely culled	.....	.....	575	.....	.....	.....	.....	.....	676	.....
Second growth	44,655	.....	19,020	.....	13,868	.....	725	.....	2,690	.....
Young growth	.....	.....	.....	.....	.....	.....	1,465	.....	.....	.....
	44,655	92.7	19,595	30.7	13,868	26.5	2,190	11.5	12,268	27.6
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	1,792	.....	390	.....	6,202	.....
Saplings	.....	.....	10,550	.....	286	.....	.....	.....	530	.....
	.....	.....	10,550	16.5	2,078	4.0	390	2.0	6,732	15.0
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	100	.....	1,666	.....
Saplings	1,890	.....	9,585	.....	7,782	.....	10,565	.....	5,818	.....
	1,890	3.9	9,585	15.0	7,782	14.8	10,665	56.2	7,484	16.7
III. Barrens	.....	.....	6,200	9.7	.....	.....	.....	.....	6,780	15.2
Land area investigated	48,175	.....	63,900	.....	52,400	.....	19,015	.....	44,688	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Butt		Biggar		Cameron		Cardwell		Calvin	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	.....	.....	3,075	3.4	1,245	5.3	6,925	19.6
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	14,605	.....	4,740	.....	2,285	.....	.....	.....	.....	.....
Severely culled	.....	.....	60	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	920	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	920	.....	.....	.....	.....	.....
	14,605	31.5	4,800	10.1	4,125	4.6	.....	.....	.....	.....
2. Coniferous:										
Virgin and moderately culled	1,280	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	1,430	.....	.....	.....	.....	.....
Second growth	300	.....	990	.....	3,055	.....	160	.....	80	.....
Young growth	325	.....	.....	.....	2,280	.....	.....	.....	140	.....
	1,905	4.1	990	2.1	6,765	7.5	160	0.7	220	0.6
3. Mixed:										
Virgin and moderately culled	17,410	.....	16,870	.....	1,785	.....	10,150	.....	.....	.....
Severely culled	11,215	.....	17,950	.....	5,280	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	19,120	.....	580	.....	565	.....
Young growth	.....	.....	.....	.....	1,330	.....	.....	.....	.....	.....
	28,625	61.8	34,820	73.0	27,515	30.3	10,730	45.7	565	1.6
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	12,325	.....	.....	.....	5,115	.....
Saplings	.....	.....	.....	.....	12,475	.....	.....	.....	1,640	.....
	.....	.....	.....	.....	24,800	27.3	.....	.....	6,755	19.1
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	7,445	.....
Saplings	1,200	.....	7,080	.....	6,435	.....	11,310	.....	13,420	.....
	1,200	2.6	7,080	14.8	6,435	7.1	11,310	48.3	20,865	59.1
III. Barrens	.....	.....	.....	.....	17,980	19.8	.....	.....	.....	.....
Land area investigated	46,335	.....	47,690	.....	90,695	.....	23,445	.....	35,330	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Canisbay		Carling		Chisholm		Christie		Clancy	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	2,345	4.1	18,640	36.3	5,770	12.7	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	940	.....	.....	.....	1,590	.....	.....	.....
Severely culled	.....	.....	5,995	.....	12,105	.....	7,775	.....	.....	.....
Second growth	.....	.....	2,660	.....	160	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	100	.....	825	.....	.....	.....
	.....	.....	9,595	16.8	12,365	24.0	10,190	22.3	.....	.....
2. Coniferous:										
Virgin and moderately culled	355	.....	.....	.....	.....	.....	.....	.....	1,690	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	575	.....	.....	.....	.....	.....	1,130	.....
Young growth	.....	.....	.....	.....	1,150	.....	.....	.....	.....	.....
	355	0.8	575	1.0	1,150	2.2	.....	.....	2,820	5.3
3. Mixed:										
Virgin and moderately culled	36,870	.....	.....	.....	.....	.....	.....	.....	17,850	.....
Severely culled	110	.....	540	.....	.....	.....	15,405	.....	480	.....
Second growth	3,290	.....	.....	.....	1,180	.....	435	.....	15,870	.....
Young growth	.....	.....	.....	.....	100	.....	.....	.....	.....	.....
	40,270	88.4	540	0.9	1,280	2.5	15,840	34.9	34,200	64.0
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	110	.....	.....	.....	.....	.....	10,775	.....
Saplings	.....	.....	9,400	.....	.....	.....	.....	.....	.....	.....
	.....	.....	9,510	16.7	.....	.....	.....	.....	10,775	20.1
5. Poplar-Birch without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	1,060	.....	1,165	.....	16,825	.....	13,705	.....	2,270	.....
	1,060	2.3	1,165	2.2	16,825	32.7	13,705	30.1	2,270	4.3
III. Barrens	3,850	8.5	33,255	58.3	1,170	2.3	.....	.....	3,390	6.3
Land area investigated	45,535	.....	56,985	.....	51,430	.....	45,505	.....	53,455	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Clara		Conger		Cowper		Croft		Deacon	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,235	2.0	180	0.3	.....	.....	2,345	11.3	40	0.1
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	.....	.....	500	.....	.....	.....	9,865	.....
Severely culled	.....	.....	.....	.....	.....	.....	1,485	.....	.....	.....
Second growth	260	.....	.....	.....	.....	.....	90	.....	.....	.....
Young growth	350	.....	.....	.....	.....	.....	.....	.....	.....	.....
	610	1.0	.....	.....	500	3.6	1,575	7.6	9,865	8.71
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	6,880	.....	50	.....	330	.....	.....	.....	1,480	.....
Young growth	140	.....	.....	.....	.....	.....	.....	.....	.....	.....
	7,020	11.2	50	0.0	330	2.4	.....	.....	1,480	2.8
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	2,205	.....	1,280	.....
Severely culled	3,170	.....	7,830	.....	40	.....	2,035	.....	5,210	.....
Second growth	10,150	.....	13,515	.....	1,165	.....	4,350	.....	5,720	.....
Young growth	650	.....	.....	.....	.....	.....	.....	.....	3,835	.....
	13,970	22.4	21,345	40.4	1,205	8.6	8,590	41.5	16,045	30.5
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	15,175	.....	.....	.....	445	.....	.....	.....	7,045	.....
Saplings	7,255	.....	2,415	.....	7,720	.....	875	.....	3,445	.....
	22,430	35.9	2,415	4.6	8,165	58.2	875	4.2	10,490	20.0
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	2,155	.....	.....	.....	.....	.....	.....	.....	14,405	.....
Saplings	7,425	.....	20,005	.....	3,815	.....	1,690	.....	260	.....
	9,580	15.3	20,005	38.0	3,815	27.2	1,690	8.2	14,665	27.9
III. Barrens	7,600	12.2	8,780	16.7	.....	.....	5,640	27.3	.....	.....
Land area investigated	62,445	.....	52,775	.....	14,015	.....	20,715	.....	52,588	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Devine		Dickens		Dickson		Edgar		Ferguson	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	155	0.3	.....	.....	.....	.....	.....	.....	210	1.0
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	32,405	.....	.....	.....	170	.....	.....	.....	710	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	1,290	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	32,405	68.2	.....	.....	170	0.4	.....	.....	2,000	9.5
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	480	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	1,560	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	960	.....	4,610	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	3,000	6.8	4,610	8.6	.....	.....
3. Mixed:										
Virgin and moderately culled	9 050	.....	4,720	.....	7,810	.....	.....	.....	.....	.....
Severely culled	1,005	.....	1,510	.....	4,625	.....	.....	.....	.....	.....
Second growth	1,865	.....	1,570	.....	28,025	.....	27,280	.....	645	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	11,920	25.1	7,800	20.4	40,460	92.1	27,280	51.3	645	3.1
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	1,890	.....	320	.....	18,350	.....	.....	.....
Saplings	.....	.....	1,210	.....	.....	.....	.....	.....	4,160	.....
	.....	.....	3,100	8.1	320	0.7	18,350	34.5	4,160	19.6
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	2,320	.....	.....	.....
Saplings	.....	.....	9,980	.....	.....	.....	675	.....	.....	.....
	.....	.....	9,980	26.1	.....	.....	2,995	5.6	.....	.....
III. Barrens	3,060	6.4	17,290	45.4	.....	.....	.....	.....	14,150	66.8
Land area investigated	47,540	.....	38,170	.....	43,950	.....	53,235	.....	21,165	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Ferr e		Ferris		Finlayson		Fitzgerald		Fraser	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	955	2.0	11,755	18.7	.....	.....	.....	.....	2,918	5.4
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	280	.....	.....	.....	40,455	.....	1,690	.....	1,294	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	930	.....	.....	.....	2,910	.....	.....	.....
Young growth	.....	.....	80	.....	.....	.....	.....	.....	.....	.....
	280	0.6	1,010	1.6	40,455	76.7	4,600	8.8	1,294	2.4
2. Coniferous:										
Virgin and moderately culled	6,380	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	100	.....	.....	.....	.....	.....	328	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	6,380	13.0	100	.2	.....	.....	.....	.....	328	0. 6
3. Mixed:										
Virgin and moderately culled	12,480	.....	.....	.....	9,205	.....	1,465	.....	.....	.....
Severely culled	2,035	.....	.....	.....	1,390	.....	470	.....	.....	.....
Second growth	10,535	.....	3,575	.....	1,515	.....	16,270	.....	350	.....
Young growth	.....	.....	1,550	.....	.....	.....	.....	.....	.....	.....
	25,050	51.2	5,125	8.1	12,110	22.9	18,205	34.8	350	0.6
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	13,470	.....	916	.....
Saplings	.....	.....	1,980	.....	190	.....	14 060	.....	.....	.....
	.....	.....	1 980	3.1	190	0.4	27,530	52.7	916	1.7
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	1,260	.....	.....	.....	.....	.....	3,414	.....
Saplings	300	.....	41,730	.....	.....	.....	.....	.....	44,468	.....
	300	0.6	42,990	68.3	.....	.....	.....	.....	47,882	88.%
III. Barrens	15,915	32.6	.....	.....	.....	.....	1,955	3.7	308	0.0+
Land area investigated	48,880	.....	62,960	.....	52,755	.....	52,290	.....	53,996	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Franklin		Freeman		Freswick		Gibson		Grattan	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	
I. Cleared Land	.....	.....	560	1.0	.....	.....	890	1.6	27,556	67.
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	1,510	.....	.....	.....	350	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	9,297	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	1,965	.....
	1,510	27.2	.....	.....	350	0.8	.....	.....	11,262	16.4
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	3,885	.....	.....	.....	830	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	350	.....
	.....	.....	.....	.....	3,885	9.0	.....	.....	1,180	1.7
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	29,610	.....	11,670	.....	130	.....
Severely culled	.....	.....	5,390	.....	570	.....	6,190	.....	1,050	.....
Second growth	.....	.....	24,640	.....	4,510	.....	6,175	.....	3,580	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	720	.....
	.....	.....	30,030	55.7	34,690	80.1	24,035	43.9	5,480	8.0
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	3,650	.....	.....	.....	2,975	.....
Saplings	.....	.....	600	.....	390	.....	21,975	.....	11,585	.....
	.....	.....	600	1.1	4,040	9.3	21,975	40.1	14,560	21.2
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	1,700	.....
Saplings	4,040	.....	15,460	.....	350	.....	7,725	.....	6,990	.....
	4,040	72.8	15,460	28.7	350	0.8	7,725	14.1	8,690	12.6
III. Barrens	.....	.....	7,300	13.5	.....	.....	160	0.3	.....	.....
Land area investigated	5.550	.....	53,950	.....	43,315	.....	54,785	.....	68,728	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Griffith		Guthrie		Gurd		Hagarty		Hagerman	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	3,685	8.1	.....	.....	5,585	19.7	26,722	47.3	5,725	12.5
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	235	.....	1,080	.....	328	.....	1,160	.....
Severely culled	.....	.....	.....	.....	4,725	.....	120	.....	3,600	.....
Second growth	2,180	.....	.....	.....	.....	.....	240	.....	.....	.....
Young growth	760	.....	.....	.....	4,860	.....	.....	.....	.....	.....
	2,940	6.4	235	0.4	10,665	37.6	688	1.2	4,760	10.4
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	366	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	140	.....	7,790	.....	.....	.....	1,622	.....	2,560	.....
Young growth	.....	.....	.....	.....	.....	.....	128	.....	.....	.....
	140	0.3	7,790	13.3	.....	.....	2,116	3.8	2,560	5.6
3. Mixed:										
Virgin and moderately culled	.....	.....	6,595	.....	1,855	.....	1,690	.....	4,960	.....
Severely culled	145	.....	.....	.....	2,655	.....	452	.....	11,350	.....
Second growth	2,390	.....	.....	.....	5,190	.....	6,946	.....	900	.....
Young growth	.....	.....	.....	.....	.....	.....	500	.....	.....	.....
	2,535	5.6	6,595	11.2	9,700	34.2	9,588	16.9	17,210	37.6
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	41,445	.....	.....	.....	2,034	.....	.....	.....
Saplings	2,925	.....	.....	.....	.....	.....	3,256	.....	.....	.....
	2, 925	6.4	41,445	70.7	.....	.....	5,290	9.4	.....	.....
5. Poplar-Birch without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	150	.....	1,298	.....	.....	.....
Saplings	10,080	.....	2,305	.....	1,215	.....	10,814	.....	11,145	.....
	10,080	22.2	2,305	3.9	1,365	4.8	12,112	21.4	11,145	24.4
III. Barrens	23,200	51.0	270	0.5	1,065	3.7	.....	.....	4,360	9.5
Land area investigated	45,505	.....	58,640	.....	28,380	.....	56,516	.....	45,760	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Hardy		Harrison		Head		Himsworth		Hindon	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,480	4.0	.....	.....	2,690	4.5	2,175	23.4	600	1.6
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	.....	.....	1,780	.....	.....	.....	8,580	.....
Severely culled	190	.....	280	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	320	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	190	0.5	280	0.5	1,780	3.0	320	3.4	8,580	23.5
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	110	.....	170	.....	210	.....	.....	.....	.....	.....
Second growth	550	.....	.....	.....	420	.....	.....	.....	.....	.....
Young growth	290	.....	490	.....	.....	.....	.....	.....	.....	.....
	950	2.6	660	1.1	630	1.1	.....	.....	.....	.....
3. Mixed:										
Virgin and moderately culled	17,585	.....	.....	.....	.....	.....	.....	.....	20,340	.....
Severely culled	10, 890	.....	200	.....	1,640	.....	.....	.....	.....	.....
Second growth	1,070	.....	4,440	.....	4,780	.....	110	.....	.....	.....
Young growth	320	.....	51,620	.....	.....	.....	.....	.....	.....	.....
	29,865	80.5	56,260	93.0	6,420	10.7	110	1.2	20,340	55.7
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	15,610	.....	.....	.....	.....	.....
Saplings	.....	.....	1,304	.....	25,410	.....	.....	.....	.....	.....
	.....	.....	1,304	2.2	41,020	68.3	.....	.....	.....	.....
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	220	.....	.....	.....	900	.....	.....	.....	.....	.....
Saplings	3,420	.....	.....	.....	3,185	.....	4,440	.....	7,010	.....
	3,640	9.8	.....	.....	4,085	6.8	4,440	47.8	7,010	19.2
III. Barrens	955	2.6	1,950	3.2	3,350	5.6	2,250	24.2	.....	.....
Land area investigated	37,080	.....	60,454	.....	59,975	.....	9,295	.....	36,530	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Hunter		Joly		Jones		Laurier		Lauder	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	720	2.2	3,548	11.6	1,545	3.8	640	1.8
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	19,610	.....	9,440	.....	2,818	.....	7,520	.....	4,780	.....
Severely culled	.....	.....	2,960	.....	.....	.....	4,130	.....	.....	.....
Second growth	.....	.....	8,560	.....	104	.....	9,590	.....	90	.....
Young growth	.....	.....	130	.....	.....	.....	.....	.....	50	.....
	19,610	41.9	21,090	64.1	2,922	9.6	21,240	52.1	4,920	13.7
2. Coniferous:										
Virgin and moderately culled	540	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	190	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	955	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	730	1.6	.....	.....	.....	.....	955	2.3	.....	.....
3. Mixed:										
Virgin and moderately culled	10,485	.....	470	.....	226	.....	.....	.....	1,530	.....
Severely culled	970	.....	.....	.....	.....	.....	1,425	.....	.....	.....
Second growth	525	.....	570	.....	224	.....	845	.....	3,035	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	11,980	25.6	1,040	3.1	450	1.7	2,270	5.6	4,565	12.8
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	1,478	.....	.....	.....	14,755	.....
Saplings	.....	.....	140	.....	1,682	.....	.....	.....	235	.....
	.....	.....	140	0.5	3,160	10.1	.....	.....	14,990	41.8
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	2,110	.....
Saplings	.....	.....	6,030	.....	9,722	.....	14,780	.....	1,480	.....
	.....	.....	6,030	18.3	9,722	31.8	14,780	36.2	3,590	10.0
III. Barrens	14,485	30.9	3,880	11.8	10,764	35.2	.....	.....	7,135	19.9
Land area investigated	46,805	.....	32,900	.....	30,566	.....	40,790	.....	35,840	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Lawrence		Lister		Livingstone		Lount		Lyndoch	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	190	0.4	.....	.....	3,285	7.1	9,664	17.6
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	8,640	.....	7,645	.....	9,295	.....	10,695	.....	2,220	.....
Severely culled	.....	.....	.....	.....	.....	.....	7,310	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	1,180	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	8,640	19.4	7,645	16.1	9,295	21.3	18,005	38.8	3,400	6.2
2. Coniferous:										
Virgin and moderately culled	120	.....	.....	.....	.....	.....	200	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	3,390	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	120	0.3	3,390	7.2	.....	.....	200	0.4	.....	.....
3. Mixed:										
Virgin and moderately culled	34,075	.....	5,835	.....	28,330	.....	3,295	.....	25	.....
Severely culled	.....	.....	5,435	.....	5,025	.....	7,780	.....	.....	.....
Second growth	1,330	.....	7,650	.....	.....	.....	4,320	.....	11,340	.....
Young growth	.....	.....	.....	.....	.....	.....	155	.....	105	.....
	35,405	79.5	18,920	40.1	33,355	77.5	15,550	33.5	11,470	20.9
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	1,500	.....
Saplings	.....	.....	.....	.....	.....	.....	.....	.....	8,745	.....
	.....	.....	.....	.....	.....	.....	.....	.....	10,245	18.6
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	15,825	.....	.....	.....	1,960	.....	.....	.....
Saplings	.....	.....	1,330	.....	450	.....	5,945	.....	5,855	.....
	.....	.....	16,155	36.2	450	1.0	7,905	17.0	5,855	10.6
III. Barrens	360	0.8	.....	.....	80	0.2	1,465	3.2	14,335	26.1
Land area investigated	44,525	.....	47,300	.....	43,180	.....	46,410	.....	54,969	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Lyell		McClintock		McConkey		McCraney		McKay	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,566	3.6	240	0.6	1,495	3.0	.....	.....	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	10,322	.....	31,865	.....	150	.....	39,835	.....	.....	.....
Severely culled	1,808	.....	.....	.....	.....	.....	1,260	.....	.....	.....
Second growth	590	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	1,638	.....	.....	.....	.....	.....	.....	.....	1,838	.....
	14,358	33.0	31,865	73.0	150	0.3	41,095	88.2	1,838	6.9
2. Coniferous:										
Virgin and moderately culled	.....	.....	130	.....	740	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	270	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	130	0.3	740	1.5	270	0.6	.....	.....
3. Mixed:										
Virgin and moderately culled	2,240	.....	4,850	.....	18,990	.....	780	.....	.....	.....
Severely culled	.....	.....	300	.....	6,320	.....	2,545	.....	.....	.....
Second growth	222	.....	.....	.....	14,730	.....	670	.....	3,120	.....
Young growth	.....	.....	100	.....	.....	.....	.....	.....	1,280	.....
	2,462	5.7	5,250	12.0	40,040	79.5	3,995	8.6	4,400	16.4
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	4,550	.....	.....	.....	2,530	.....
Saplings	216	.....	.....	.....	.....	.....	.....	.....	.....	.....
	216	0.5	.....	.....	4,550	9.1	.....	.....	2,530	9.5
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	170	.....	.....	.....	.....	.....	.....	.....
Saplings	3,006	.....	5,990	.....	1,800	.....	.....	.....	17,946	.....
	3,006	6.9	6,160	14.1	1,800	3.6	.....	.....	17,946	67.2
III. Barrens	21,906	50.3	.....	.....	1,525	3.0	1,240	2.6	.....	.....
Land area investigated	43,514	.....	43,645	.....	50,300	.....	46,600	.....	26,714	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	McKellar		McKenzie		McLaughlin		Machar		Maria	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	7,800	17.3	2,280	5.1	30	0.0	2,140	15.5	595	0.9
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	.....	.....	7,025	.....	3,115	.....	350	.....
Severely culled	.....	.....	570	.....	.....	.....	4,180	.....	.....	.....
Second growth	1,410	.....	625	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	1,825	.....	.....	.....
	1,410	3.1	1,195	2.7	7,025	16.1	9,120	65.9	350	0.5
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	680	.....	.....	.....	1,545	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	140	.....
Second growth	200	.....	.....	.....	.....	.....	235	.....	2,955	.....
Young growth	225	.....	.....	.....	.....	.....	.....	.....	.....	.....
	425	0.9	.....	.....	680	1.6	235	1.7	4,640	6.8
3. Mixed:										
Virgin and moderately culled	6,540	.....	12,550	.....	19,595	.....	255	.....	.....	.....
Severely culled	4,950	.....	6,455	.....	.....	.....	1,100	.....	.....	.....
Second growth	10,575	.....	.....	.....	.....	.....	140	.....	17,525	.....
Young growth	.....	.....	915	.....	.....	.....	.....	.....	355	.....
	22,065	49.0	19,920	45.0	19 595	45.2	1,495	10.8	17,880	26.5
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	24,645	.....
Saplings	5,680	.....	.....	.....	.....	.....	.....	.....	9,200	.....
	5,680	12.6	.....	.....	.....	.....	.....	.....	33,845	50.2
5. Poplar-Birch without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	2,155	.....
Saplings	7,700	.....	2,210	.....	.....	.....	770	.....	7,650	.....
	7,700	17.1	2,210	5.0	.....	.....	770	5.6	9,805	14.5
III. Barrens	.....	.....	18,735	42.2	16,170	37.1	60	0.5	375	0.6
Land area investigated	45,080	.....	44,340	.....	43,500	.....	13,820	.....	67 490	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Master		McLean		Matawatchan		Mills		Monteith	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	580	7.6	7,190	16.2	4,530	9.9	440	3.3
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	1,540	.....	2,410	.....	1,410	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	5,160	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	360	.....	.....	.....	.....	.....
	1,540	2.8	2,410	31.6	6,930	15.6	.....	.....	.....	.....
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	400	.....	.....	.....	1,000	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	400	0.7	.....	.....	1,000	2.3	.....	.....	.....	.....
3. Mixed:										
Virgin and moderately culled	1,550	.....	.....	.....	830	.....	13,980	.....	.....	.....
Severely culled	1,000	.....	.....	.....	.....	.....	13,670	.....	.....	.....
Second growth	4,725	.....	.....	.....	13,775	.....	220	.....	6,530	.....
Young growth	490	.....	.....	.....	.....	.....	.....	.....	.....	.....
	7,765	13.8	.....	.....	14,605	33.0	27,870	60.7	6,530	49.3
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	3 075	.....	.....	.....	6,570	.....	.....	.....	.....	.....
Saplings	1,885	.....	.....	.....	1,910	.....	.....	.....	.....	.....
5. Poplar-Birch, without coniferous reproduction:	4,960	8.9	.....	.....	8 480	19.1	.....	.....	.....	.....
Standards and poles	14,300	.....	.....	.....	.....	.....	340	.....	.....	.....
Saplings	27,010	.....	4,650	.....	5,925	.....	425	.....	6,280	.....
	41,310	73.8	4,650	60.8	5,925	13.3	765	1.7	6,280	47.4
III. Barrens	.....	.....	.....	.....	220	0.5	12,760	27.7	.....	.....
Land area investigated	55,975	.....	7,640	.....	44,350	.....	45,925	.....	13,250	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Mowatt		Murchison		Nightingale		Nipissing		Niven	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	315	0.5	1,085	2.4	30	0.0	670	4.6	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	1,795	.....	820	.....	10,235	.....	180	.....	.....	.....
Severely culled	6, 430	.....	1,710	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	8,225	11.0	2,530	5.5	10,235	25.0	180	1.2	.....	.....
2. Coniferous:										
Virgin and moderately culled	7,020	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	1,380	.....	.....	.....	1,285	.....	.....	.....	950	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	8,400	11.2	.....	.....	1,285	3.1	.....	.....	950	1.8
3. Mixed:										
Virgin and moderately culled	3,490	.....	1,760	.....	14,360	.....	1,350	.....	805	.....
Severely culled	3,820	.....	3,995	.....	.....	.....	.....	.....	.....	.....
Second growth	17,725	.....	400	.....	1,805	.....	.....	.....	22,375	.....
Young growth	.....	.....	.....	.....	300	.....	.....	.....	530	.....
	25,035	33.4	6,155	13.6	16,465	40.3	1,350	9.4	23,710	45.2
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	370	.....	2,985	.....	350	.....	.....	.....	19,095	.....
Saplings	5,590	.....	.....	.....	225	.....	.....	.....	7,840	.....
	5,960	7.9	2,985	6.6	575	1.4	.....	.....	26,935	51.4
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	11,815	.....	12,300	.....	.....	.....	12,220	.....	500	.....
	11,815	15.8	12,300	27.1	.....	.....	12,220	84.8	500	1.0
III. Barrens	15,135	20.2	20,325	44.8	12,385	30.2	.....	.....	310	0.6
Land area investigated	74,885	.....	45,380	.....	40,975	.....	14,420	.....	52,405	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Oakley		Osler		Papineau		Patterson		Paxton	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,415	4.4	.....	.....	6,300	12.7	4,250	6.4	.....	.....
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	23,295	.....	4,660	.....	.....	.....	6,815	.....	16,600	.....
Severely culled	.....	.....	.....	.....	.....	.....	1,630	.....	350	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	23,295	72.4	4,660	10.0	.....	.....	8,445	12.7	16,950	35.0
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	2,265	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	250	.....	.....	.....
Second growth	.....	.....	945	.....	780	.....	300	.....	1,205	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	945	2.0	780	1.6	2,815	4.2	1,205	2.5
3. Mixed:										
Virgin and moderately culled	795	.....	8,030	.....	.....	.....	7,105	.....	4,405	.....
Severely culled	.....	.....	6,375	.....	135	.....	2,005	.....	19,935	.....
Second growth	1,170	.....	12,550	.....	4,635	.....	8,985	.....	.....	.....
Young growth	.....	.....	690	.....	1,140	.....	.....	.....	185	.....
	1,965	6.1	27,645	59.1	5,910	11.9	18,095	27.0	24,525	50.7
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	2,735	.....	3,105	.....	.....	.....	.....	.....
Saplings	.....	.....	.....	.....	11,775	.....	4,250	.....	.....	.....
	.....	.....	2,735	5.8	14,880	30.0	4,250	6.4	.....	.....
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	10,150	.....	105	.....	.....	.....	145	.....
Saplings	5,520	.....	665	.....	18,020	.....	22,480	.....	5,560	.....
	5,520	17.1	10,815	23.1	18,125	36.6	22,480	33.7	5,705	11.8
III. Barrens	.....	.....	.....	.....	3,550	7.2	6,405	9.6	.....	.....
Land area investigated	32,195	.....	46,800	.....	49,545	.....	66,740	.....	48,385	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued*

	Peck		Pentland		Petawawa		Preston		Pringle	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	.....	.....	11,050	51.1	105	0.2	5,065	10.6
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	10,930	.....	15,715	.....	.....	.....	1,965	.....	2,780	.....
Severely culled	.....	.....	.....	.....	135	.....	.....	.....	5,215	.....
Second growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	10,930	25.4	15,715	29.0	135	0.6	1,965	4.2	7,995	16.7
2. Coniferous:										
Virgin and moderately culled	.....	.....	80	.....	.....	.....	7,295	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	185	.....	.....	.....
Second growth	.....	.....	690	.....	2,050	.....	270	.....	65	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	770	1.4	2,050	9.5	7,750	16.6	65	0.1
3. Mixed:										
Virgin and moderately culled	27,830	.....	23,275	.....	.....	.....	18,320	.....	21,275	.....
Severely culled	.....	.....	830	.....	.....	.....	5,565	.....	4,010	.....
Second growth	440	.....	2,720	.....	.....	.....	4,055	.....	1,620	.....
Young growth	.....	.....	385	.....	1,245	.....	.....	.....	.....	.....
	28,270	66.0	27,210	50.3	1,245	5.8	27,940	60.0	26,905	56.1
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	190	.....	.....	.....	375	.....	165	.....
Saplings	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	190	0.4	.....	.....	375	0.8	165	0.4
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	.....	.....	3,005	.....	.....	.....	.....	.....	2,810	.....
Saplings	3,665	.....	7,215	.....	7,125	.....	1,910	.....	695	.....
	3,665	8.6	10,220	18.9	7,125	33.0	1,910	4.1	3,505	7.3
III. Barrens	.....	.....	.....	.....	.....	.....	6,580	14.1	4,285	8.8
Land area investigated	42,865	.....	54,105	.....	21,605	.....	46,625	.....	47,985	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Proudfoot		Radcliffe		Raglan		Richards		Ridout	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	2,640	6.1	6,256	14.7	14,262	21.7	4,500	10.6	295	1.0
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	3,170	.....	3,505	.....	6,486	.....	.....	.....	16,560	.....
Severely culled	5,575	.....	114	.....	.....	.....	.....	.....	1,890	.....
Second growth	6,065	.....	1,275	.....	1,254	.....	.....	.....	.....	.....
Young growth	.....	.....	1,120	.....	.....	.....	.....	.....	.....	.....
	14,810	34.0	6,014	14.2	7,740	11.8	.....	.....	18,450	64.3
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	.....	.....	2,175	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	470	.....	755	.....	.....	.....	935	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	470	1.1	755	1.7	.....	.....	3,110	7.4	.....	.....
3. Mixed:										
Virgin and moderately culled	14,095	.....	1,910	.....	914	.....	.....	.....	4,730	.....
Severely culled	970	.....	.....	.....	1,675	.....	160	.....	80	.....
Second growth	1,635	.....	3,731	.....	18,214	.....	380	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	16,700	38.4	5,641	13.3	20,803	31.6	540	1.3	4,810	16.0
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	.....	.....	796	.....	554	.....	365	.....	.....	.....
Saplings	.....	.....	435	.....	10,140	.....	300	.....	90	.....
	.....	.....	1,231	2.9	10,694	16.2	665	1.6	90	0.3
5. Poplar-Birch without coniferous reproduction:										
Standards and poles	255	.....	2,495	.....	.....	.....	.....	.....	.....	.....
Saplings	8,645	.....	14,225	.....	9,890	.....	26,910	.....	5,015	.....
	8,900	20.4	16,720	39.4	9,890	15.0	26,910	63.6	5,015	17.3
III. Barrens	.....	.....	5,855	13.8	2,430	3.7	6,545	15.5	25	0.1
Land area investigated	43,520	.....	42,472	.....	65,819	.....	42,270	.....	28,685	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

—	Rolph		Sabine		Sebastopol		Shawanaga		Sherborne	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	3,930	9.3	880	1.7	12,230	28.8	.....	.....	670	2.4
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	21,600	.....	100	.....	.....	.....	6,460	.....
Severely culled	115	.....	17,795	.....	21,430	.....	.....	.....	1,320	.....
Second growth	1 140	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	3,710	.....	.....	.....	.....	.....	.....	.....
	1,255	2.9	43,105	84.5	21,530	50.6	.....	.....	7,780	29.1
2. Coniferous:										
Virgin and moderately culled	250	.....	.....	.....	.....	.....	.....	.....	.....	.....
Severely culled	350	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	2,425	.....	50	.....	.....	.....	.....	.....	130	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	3,025	7.1	50	0.1	.....	.....	.....	.....	130	0.5
3. Mixed:										
Virgin and moderately culled	570	.....	70	.....	.....	.....	.....	.....	1,105	.....
Severely culled	1,210	.....	1,180	.....	.....	.....	1,190	.....	.....	.....
Second growth	9,600	.....	.....	.....	.....	.....	230	.....	160	.....
Young growth	.....	.....	.....	.....	1,455	.....	10,230	.....	.....	.....
	11,380	26.9	1,250	2.5	1 455	3.4	11,650	40.4	1,265	4.7
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	2,995	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	8,220	.....	.....	.....	6,430	.....	8,620	.....	375	.....
	11,215	26.7	.....	.....	6,430	15.1	8,260	29.9	375	1.4
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	3,130	.....	.....	.....	.....	.....	.....	.....	.....	.....
Saplings	7,415	.....	300	.....	865	.....	.....	.....	16,400	.....
	10,545	24.9	300	0.6	865	2.1	.....	.....	16,400	61.9
III. Barrens	940	2.2	5,420	10.6	.....	.....	8,510	29.7	.....	.....
Land area investigated	42,290	.....	51,005	.....	42,510	.....	28,780	.....	26,620	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	Sherwood		Sinclair		Sproule		Stratton		Wallbridge	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	9,488	20.8	70	0.8	.....	.....	.....	.....	730	1.1
II. Forest:										
1. Hardwood:										
Virgin and moderately culled	.....	.....	7,780	.....	1,100	.....	1,725	.....	.....	.....
Severely culled	650	.....	740	.....	.....	.....	.....	.....	360	.....
Second growth	92	.....	.....	.....	.....	.....	.....	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	742	1.6	8,520	92.4	1,100	2.5	1,725	2.9	360	0.5
2. Coniferous:										
Virgin and moderately culled	.....	.....	.....	.....	1,590	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	.....	.....	.....	.....	415	.....	6,545	.....	4,250	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	400	.....
	.....	.....	.....	.....	2,005	4.5	6,545	11.0	4,650	6.7
3. Mixed:										
Virgin and moderately culled	.....	.....	.....	.....	17,730	.....	.....	.....	.....	.....
Severely culled	132	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second growth	1,892	.....	630	.....	1,550	.....	16,990	.....	.....	.....
Young growth	.....	.....	.....	.....	.....	.....	4,220	.....	24,445	.....
	2,024	4.5	630	6.8	19,280	42.8	21,210	35.7	24,445	35.5
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:										
Standards and poles	1,774	.....	.....	.....	.....	.....	16,280	.....	.....	.....
Saplings	710	.....	.....	.....	155	.....	.....	.....	1,300	.....
	2,484	5.5	.....	.....	155	0.3	16,280	27.4	1,300	1.9
5. Poplar-Birch, without coniferous reproduction:										
Standards and poles	6,212	.....	.....	.....	.....	.....	5,210	.....	.....	.....
Saplings	22,614	.....	.....	.....	700	.....	8,470	.....	3,240	.....
	28,826	63.3	.....	.....	700	1.5	13,680	23.0	3,240	4.7
III. Barrens	1,948	4.3	.....	.....	21,755	48.4	.....	.....	34,125	49.6
Land area investigated	45,512	.....	9,220	.....	44,995	.....	59,440	.....	68,850	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1921—CLASSIFICATION OF LANDS.—*Continued.*

	White		Wilberforce		Wilkes		Wilson		Wylie		Wood	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	.....	.....	30,665	50.4	55	0.1	1,570	3.8	2,660	11.3	525	1.0
II. Forest:												
1. Hardwood:												
Virgin and moderately culled	.....	.....	250	.....	8,260	.....	205	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	240	.....	.....	.....	.....	.....	.....	.....
Second growth	350	.....	.....	.....	.....	.....	.....	.....	275	.....	60	.....
Young growth	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	350	0.7	250	0.4	8,500	19.9	205	0.5	275	1.2	60	0.1
2. Coniferous:												
Virgin and moderately culled	.....	.....	.....	.....	475	.....	.....	.....	.....	.....	.....	.....
Severely culled	.....	.....	.....	.....	190	.....	.....	.....	.....	.....	.....	.....
Second growth	7,455	.....	2,085	.....	1,710	.....	.....	.....	3 465	.....	210	.....
Young growth	845	.....	160	.....	.....	.....	.....	.....	.....	.....	.....	.....
	8,300	16.0	2,245	3.7	2,375	5.6	.....	.....	3,465	14.7	210	0.4
3. Mixed:												
Virgin and moderately culled	.....	.....	190	.....	24,860	.....	9,115	.....	170	.....	275	.....
Severely culled	.....	.....	6,750	.....	1,110	.....	6,625	.....	.....	.....	.....	.....
Second growth	24,650	.....	3,370	.....	5,045	.....	200	.....	4,040	.....	10,035	.....
Young growth	.....	.....	13,430	.....	.....	.....	2,330	.....	.....	.....	.....	.....
	24,650	47.7	23,740	39.0	31,015	72.7	18,270	43.7	4,210	17.9	10,310	20.5
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:												
Standards and poles	3 630	.....	220	.....	120	.....	.....	.....	2,860	.....	750	.....
Saplings	10,540	.....	.....	.....	.....	.....	.....	.....	1,350	.....	3,900	.....
	14,170	27.4	220	0.4	120	0.3	.....	.....	4,210	17.9	4,650	9.2
5. Poplar-Birch, without coniferous reproduction:												
Standards and poles	225	.....	1,230	.....	120	.....	.....	.....	2 465	.....	640	.....
Saplings	4,030	.....	2,500	.....	480	.....	.....	.....	5,280	.....	32,295	.....
	4,255	8.2	3,730	6.1	600	1.4	.....	.....	7,745	32.9	32,935	65.4
III. Barrens	.....	.....	.....	.....	.....	.....	21,710	52.0	970	4.1	1,690	3.4
Land area investigated	51 725	.....	60,850	.....	42,665	.....	41,755	.....	23,535	.....	50,380	.....

ALGONQUIN, GEORGIAN BAY TRENT, FOREST SURVEY, 1920—1921—CLASSIFICATION OF LANDS BY DISTRICTS.

	Algonquin Park		Ottawa Valley		Renfrew		Madawaska 1920—21	
	Acres	%	Acres	%	Acres	%	Acres	%
I. Cleared Land	1,065	0.6	85,625	11.2	150,522	20.9	398,002	18.1
II. Forest:								
1. Hardwood:								
Virgin and moderately culled	309,090	17.0	25,180	3.3	41,742	5.8	162,729	7.4
Severely culled	8,200	0.5	13,610	1.8	34,768	4.8	104,988	4.8
Second growth	3,620	0.2	6,905	0.9	1,220	0.2	61,203	2.8
Young growth	490	.....	2,735	0.4	7,296	1.0	46,613	2.1
	321,400	17.7	48,430	6.4	85,026	11.8	375,533	17.1
2. Coniferous:								
Virgin and moderately culled	15,953	0.9	1,795	0.2	2,681	0.4	9,166	0.4
Severely culled	3,030	0.2	2,130	0.3	745	0.1	20,800	0.9
Second growth	59,220	3.4	21,715	2.9	9,494	1.3	12,304	0.6
Young growth	2,625	0.1	3,800	0.5	922	0.1	615	.....
	80,828	4.6	29,440	3.9	13,842	1.9	42,885	1.9
3. Mixed:								
Virgin and moderately culled	460,205	26.1	8,030	1.1	19,798	2.8	78,515	3.6
Severely culled	97,490	5.5	13 405	1.8	18,032	2.5	55,178	2.5
Second growth	323,464	18.3	92,805	12.2	36,216	5.0	176,265	8.0
Young growth	12,145	0.7	7,855	1.0	18,991	2.7	5,409	0.3
	893,304	50.6	122,095	16.1	93,037	13.0	315,367	14.4
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:								
Standards and poles	160,475	9.2	111,495	14.6	22,883	3.2	84,035	3.8
Saplings	39,785	2.3	84,950	11.1	10,154	1.4	418,846	19.1
	200,260	11.5	196 445	25.7	33,037	4.6	502,881	22.9
5. Poplar-Birch, without coniferous reproduction:								
Standards and poles	70,210	4.0	27,005	3.5	24,678	3.4	15,049	0.7
Saplings	91,605	5.1	175,195	23.0	195,098	27.1	368,192	16.7
	161,815	9.1	202,200	26.5	219,776	30.5	383,241	17.4
III. Barrens	103,155	5.9	77,660	10.2	125,576	17.3	180,201	8.2
Land area investigated	1,761,827	.....	761,895	.....	720,816	.....	2,198,110	.....

ALGONQUIN, GEORGIAN BAY, TRENT, FOREST SURVEY, 1920—1921—CLASSIFICATION OF LANDS BY DISTRICTS.—*Concluded.*

	Muskoka		Parry Sound		Georgian Bay		Totals		
	Acres	%	Acres	%	Acres	%	Acres	%	%
I. Cleared Land	3 630	2.5	66,505	7.3	7,640	1.1	712,989	9.9	(79.2)
II. Forest:									
1. Hardwood:									
Virgin and moderately culled	66,595	45.5	67,385	7.3	6,655	0.9	679,376	9.4	(11.9)
Severely culled	3,950	2.7	68,345	7.4	14,705	2.1	248,566	3.4	(4.3)
Second growth	.....	.....	26,660	2.9	5,095	0.7	104,703	1.5	(1.8)
Young growth	.....	.....	7,640	0.8	.....	.....	64,774	0.9	(1.1)
	70,545	48.2	170,030	18.4	26,455	3.7	1,097,419	15.2	(19.1)
2. Coniferous:									
Virgin and moderately culled	.....	.....	15,035	1.6	7,020	1.0	51,650	0.7	(0.9)
Severely culled	.....	.....	560	0.1	170	.....	27,435	0.4	(0.5)
Second growth	130	0.1	8,315	0.9	7,305	1.1	118,483	1.6	(2.1)
Young growth	.....	.....	515	0.1	890	0.1	9,367	0.1	(0.2)
	130	0.1	24,425	2.7	15,385	2.2	206,935	2.8	(3.7)
3. Mixed:									
Virgin and moderately culled	26,970	18.4	162,425	17.7	20,570	2.9	776,513	10.8	(13.6)
Severely culled	80	0.1	103,800	11.3	42,580	6.0	330,565	4.6	(5.8)
Second growth	1,960	1.3	112,100	12.2	100,560	14.2	843,370	11.7	(14.8)
Young growth	.....	.....	3,720	0.4	88,035	12.5	136,155	1.9	(2.4)
	29,010	19.8	382,045	41.6	251,745	35.6	2,086,603	29.0	(36.6)
4. Poplar-Birch, 5 to 20 per cent. coniferous reproduction:									
Standards and poles	.....	.....	4,715	0.5	2,635	0.4	386,238	5.4	(6.8)
Saplings	465	0.3	16,415	1.8	79,854	11.3	650,469	9.0	(11.4)
	465	0.3	21,130	2.3	82,489	11.7	1,036,707	14.4	(18.2)
5. Poplar-Birch without coniferous reproduction:									
Standards and poles	.....	.....	5,735	0.6	640	0.1	143,317	2.0	(2.5)
Saplings	42,635	29.1	140,935	15.4	125,650	17.8	1,139,310	15.8	(19.9)
	42,635	29.1	146,770	16.0	126,290	17.9	1,282,627	17.8	(22.4)
III. Barrens	25	.....	107,125	11.7	196,350	27.8	790,092	10.9	
Land area investigated	146,440	.....	917.930	.....	706,354	.....	7,213,372	.....	

(Percentage figures in parentheses denote the participation of each forest type in the total forest area.)

Aerial Forest Survey.—The survey covered by the following report was undertaken by the Ontario Forestry Branch in co-operation with the Canadian Air Board for the purpose of determining the possibility of using air craft in connection with forest field work, and was carried on from Sioux Lookout, a western divisional point on the north line of the C.N.R. (G.T.P.), from March to October of the current year. During this time approximately 10,000 square miles was worked over, comprising in general the territory lying between the G.T.P. railway and the Lake St. Joseph - Lac Seul - English River waterway, from the Manitoba boundary east to the foot of Lake St. Joseph.

1. *Personnel.*—One station superintendent and pilot, two pilots, one chief mechanic, one storesman, one photographer, two engine fitters, one rigger, one boat builder, one clerk-stenographer, one cook and one cookie, furnished by the Air Board. The Forestry Branch observers were one forester and one student assistant.

2. *Equipment.*—One F.3. Flying Boat, two H.S.2.L. Flying Boats, one small motor boat, one row boat, four box cars (used for photographic dark room and store room, sleeping quarters, office, cookhouse and storage), technical stores and photographic equipment including two wind motors, two vertical aerial cameras (Kodak Company Type K.1.), one oblique camera, and one ground camera; compasses, chains, calipers, etc., and general office equipment.

3. *Characteristics of Machines.*—Some details of the more important characteristics of the types of air craft used, is perhaps necessary at this point for a correct comprehension of operating conditions.

The F.3. Flying Boat is a very large British machine, measuring over one hundred feet along the leading edge of the top plane; is capable of carrying up to a dozen men, and can fly for over six hours without refueling. Air speed is from seventy to eighty knots (80 to 90 miles per hour) and time to reach five thousand feet about thirty minutes. Although the splendid visibility from the observer's cockpit and the machine's ability to remain in the air for such a long time, were both points in favor of its use for the summer's work, such advantages in the air were more than offset by the difficulty of manoeuvring on the comparatively small lakes of the district. The machine was, therefore, the opportunity arising, exchanged for a third H.S.2.L. with the Victoria Beach (Lake Winnipeg) Air Station.

The H.S.2.L. is a Flying Boat of American design, considerably smaller than the F.3., seventy feet across the leading edge of the top plane; is capable of carrying up to five men, and of flying for about three and one-half hours without refueling. Air speed is between fifty-five and sixty-five knots (60 to 70 miles per hour), with time to climb three thousand feet about forty-five minutes. It will thus be seen that the H.S.2.L. has not as good a performance as that of the larger F.3. It has, however, advantages. Visibility from the observer's cockpit is better, and as it has only one engine and the F.3. requires two for sustained flight, the chances of trouble from this source are practically halved. But it is on the water, and not in flight, that the H.S.2.L.'s peculiar advantages become apparent. Here the machine is comparatively easy to manoeuvre, and because of its sturdy construction—which is, no doubt, largely responsible for its poor performance—can venture landings on unknown beaches and, in general, withstand, much better than a more finely built machine, the accidental ill-treatment which inevitably occurs under field conditions.

4. *Working Conditions.*—Weather, the lack of local arrangements in connection with the establishment of an Air Station and finally the erecting,

launching and testing the machines did not permit of regular flying until late in May. From the outset, as had been confidently expected, it was apparent that, largely because of the simple composition of the forest in this latitude, type mapping could be carried on without further experience, in so far as the separation of timber species and barren areas was concerned. These first flights served also to show, what was amply borne out by subsequent experience, that the country presented a very excellent flying chance, being liberally sprinkled with fairly large and well-connected lakes and free from any great land elevations. Thus, the limitations of low performance were largely offset, making it possible to fly with confidence and safety literally anywhere; and it should be borne in mind that the successful operation of low performance machines cannot be counted on without such favorable conditions. Flying and forest conditions having thus been found suitable, and as the separation of timber types and non-commercial areas was all the information required over a large area, typing on this basis was commenced about June 4, and carried on during the remainder of June and July. Weather conditions were ideal for flying, so that by August 2, the mapping of some fifty thousand square miles was completed to show the following types:

(1) Coniferous stands, 75 per cent. of better coniferous species;
(2) Mixed stands, less than 75 per cent. hardwood;
(3) Burned-over areas partially restocking.

5. *Mapping Methods.*—The system of mapping outlined below, was also developed during this period, and was used throughout the season.

The region being entirely unsurveyed—it might be said unexplored, if the main canoe routes of the Hudson Bay Company were excluded—township sheets for field sketching were not available, and it became necessary to prepare field sheets. This was done by plotting the information recorded on the eight mile to the inch Dominion Standard Topography Sheet for the region, to a suitable scale, the scale finally adopted being one inch to the mile. Field sheets, prepared as above, were attached to a drawing board and taken into the air. Here, just as in ground work, the chief consideration in mapping is to locate and orient the map. On the ground, by recognized survey methods, this can be done either by scaling off a known distance on the line being run and orienting by compass and back sight, or by orienting and intersecting for position on points whose location is already known. In the air, location, in the past season's operations and under aerial conditions generally, cannot be had by the use of the most orthodox ground method, i.e., traveling on a line whose length and direction are known. It should not be inferred from this that aerial navigation is discredited, but it requires the constant attention of a skilled navigator, besides the pilot, supplied with an assortment of complicated instruments. Moreover, calculations are necessary, even with the fullest instrumental equipment at present available; and the delay thus entailed, however small, is a distinct drawback in aerial sketch work. On the other hand, because of the greater number of such features, which can be seen at one and the same time, position by reference to known physiographic features can be obtained in flight more rapidly, accurately and easily than in the great majority of cases on the ground. On the same basis and for similar reasons, type lines can also be drawn in flight at a distinct advantage. In consideration of the foregoing, mapping, during the past season, was carried on almost exclusively by reference.

6. *Results.*—The mapping of the area mentioned above, which had been originally considered a season's work, having been completed in less time than expected (August 2), and the method and results having proved so satisfactory, plans were made for an extension of the survey. It was decided not only to continue typing of the adjoining territory, but also to attempt a classification of the three composition types into age or size classes.

By October 12, when weather conditions stopped field work, an additional area of almost equal size, bringing a total for the season up to approximately 10,000 square miles, was mapped to show in the three composition types, mentioned above, four size classes, viz.:

(1) Mature stands, at least 75 per cent. of trees of commercial size.
(2) Pole wood stands, not over twenty-five per cent. of commercial size.
(3) Sapling growth, no trees of commercial size.
(4) Reproduction, not over 3 feet in height.

This was worked out by landings to relate the appearance from the air to the actual condition of the stand as determined by ground work. Wherever possible, during such landings, sample plots of the types were laid out and measurements recorded. Results in this connection were extremely gratifying, and in twenty-one landings, a total for the season, including thirteen where sample plots were taken, no single case occurred in which the aerial classification differed materially from conditions as actually found on the ground.

The 10,000 square miles (6,400,000 acres) mapped, showed the forest condition as a whole to be approximately one-quarter of the coniferous type, one-third of the mixed type, and the remainder a burned-over type more or less restocking.

The coniferous type was defined as 75 per cent. or better coniferous, the species being white and black spruce, jack pine and balsam. The mixed type consisted of these species with poplar and birch. The original attempt to differentiate poplar-birch stands, as a separate type, proved not feasible. The burned-over type included only those areas where the second growth is mainly still below commercial size; it was estimated that three-quarters of such areas are restocking in some degree.

While opportunities for ground study were very limited, as can be seen by the small number of sample plots below, a few general remarks may be of interest.

The species composition, throughout the whole area covered, is very simple. Jack pine, black and white spruce, balsam, birch and poplar make up over ninety per cent. of the tree growth. White cedar occurs frequently in a dwarfed condition along the lake and river margins. Red maple, American elm, and black ash occurred occasionally. The proportion of white and red pine is very much less than the favorite method of travel in the country—that is, by water —would indicate. South of the G.T.P., red and white pine occur very frequently on lake and river margins, and from the main line of the C.P.R. become rapidly prominent, until at the international boundary, they are found interspersed with birch and poplar in extensive stands and splendid development. North of the G.T.P. (the region to which this survey relates) however, they rapidly disappear, even on small islands and lake shores; and the most northerly point at which white pine was noted, is not far from Sioux Lookout, on the English River, above Lac Seul. It is, however, highly probable that scattered bluffs and fringes would be found on the more southerly portions of

this lake, although a landing on the north-east shore showed no signs of the species, either on the shore or islands. Red pine is known to occur somewhat farther north, a bluff of perhaps five acres being noted at the head waters of the Albany drainage, on a sandy slope between Upper and Middle Green Grass Lakes. Unlike a species approaching its climatic limit, these northerly specimens of both white and red pine retain to a very marked degree, the vigorous appearance of their race and indeed appear to be much less affected by adverse climatic conditions than the other regional species. The above circumstances and the occurrence of these trees in isolated clumps, lend color to the tradition which is common among the lumbermen and early settlers of this region, that their commercial range at one time extended much further north —indeed, to Hudson Bay—and that the present distribution is due to a widespread fire or series of fires occurring from fifty to one hundred and fifty years ago. That fire would wholly consume every trace of such a forest over such an area seems improbable. Whatever the composition of the forest may have been in former times however, it would appear that the present species composition, if undisturbed, will, within a single generation of trees, show a tremendous increase in the percentage of balsam fir. Everywhere, on all sites and under dominant stands of every species, one is impressed by the prevalence and thrifty growth of balsam reproduction, which often forms a complete waist or knee-high canopy, almost totally weeding out rival reproduction and even undergrowth.

There is in this northern forest ample evidence of the severity of the climate. Mature stands of white spruce, which is the largest timber tree in the region, are almost invariably filled with the trunks and debris of wind-thrown specimens. This is believed to be due however, not so directly to the severe wind storms of the region, as to the weakening of trunks due to a very widespread condition of heartrot. In this connection, one may record that frost crack is extremely common. While such destruction is perhaps most easily seen in the case of mature white spruce, it is also to be found in mature stands of all the timber species; more particularly in the northern part of the region covered. Under such conditions, stands below maturity, produce far more and more valuable timber.

It is believed, too, that the effects of climate can be seen in the behaviour of the reproduction, more particularly as Lake St. Joseph is approached. Areas in this region, when burned over, very frequently pass through a somewhat different cycle than that obtaining for similar sites under more favorable climatic conditions. South of Lake Nippissing, for example, such sites are within three or four years, completely covered with a growth of tree seedlings typically poplar and birch. Here, however, although sites and chances of seeding, etc., seemed at least to be equally favorable, such areas very frequently were found with willow, alder, and other shrubby growths among which reproduction of tree species was sparsely interspersed.

7. *Aerial Photography.*—As aerial photography is a highly specialized process requiring definite equipment for definite objects, it could only be used experimentally during the past season. With this in view, some twenty-two hundred vertical and three hundred oblique exposures were made.

As pictures, oblique aerial exposures are, perhaps, more interesting and, at first sight, more instructive than verticals, being readily comparable to ground views from high buildings and land elevations. As the camera producing them is a fairly simple instrument, they are also easier to obtain. Such

pictures are valuable as permanent records of important aerial observations and as a substitute for lengthy descriptions of forest conditions. For mapping purposes, however, they are of little use.

Vertical pictures, on the other hand, while they are not artistic or interesting at first sight as pictures, can be used for mapping and type classifying. The cameras making such exposures are, however, delicate and complicated instruments. In operation, they are fixed to the machine, and can be made to produce, either automatically or by a simple operation, exposures at such a rate that each succeeding exposure will cover a certain proportion (greater or less as desired) of the territory covered by the exposure preceding it. By thus including a part of one picture in another—or "overlapping"—it becomes possible to "join" one to another and build up a composite picture containing any number of single exposures. The accurate joining of two pictures of this kind is not, however, as simple a matter as might be supposed from the foregoing, which takes no account of the motion of the machine during exposure. Such motion, the effects of which must be corrected by dark room work and which might be compared to that of a ship—sometimes slowly rising and falling, as if riding on the long, gentle swell of an aerial ocean; sometimes rolled sharply from side to side or pitched fore and aft—continually and unavoidably violates the requirements for exact similarity in the scale of overlapping pictures—namely, that exposure be made at exactly the same height and with fore and aft and lateral axis either level or at the same degree of departure from level. While the differences arising from the above causes are usually small in each separate case, the total effect over a series of hundreds of pictures may produce great inaccuracy. Nor is the motion of the machine the only element affecting the accuracy of aerial photographic survey, for even in perfectly built up strips, where point has been made to correspond with point exactly in the overlap, there is still the error due to the natural differences in ground elevation. Unfortunately, such errors require for their correction, besides laboratory work, a certain amount of ground survey work, which shall be visible in the picture and whose details can be plotted and used as a check. Errors arising from the foregoing however, do not have to be seriously reckoned with in a flat country, and where absolute accuracy is not essential.

Results of this year's work would indicate that satisfactory pictures can be produced which will show sufficient detail to separate types; but it would appear that before this possibility can be utilized to any great extent, it will be necessary to accumulate a photographic reference library of known forest growths as a basis of comparison, and also to devise a satisfactory method of joining the strips of pictures to one another to make a mosaic. Such joining is not a matter of the operation of a mechanical device, as in the joining of successive pictures to make a strip, but is dependent on the ability of the pilot to fly his machine along evenly spaced parallel courses, so as to cause the long edges of the strips to join—a very different and more difficult undertaking. Corrections for differences in ground elevation and motion of the machine must be made in this connection, just as with the sections of each strip.

Despite the difficulties outlined above, the use of aerial photography for mapping would appear to be an almost certain development in survey work. Its ability to reproduce detail is unlimited: it can also produce results rapidly and with a degree of completeness, the value of which can hardly be appreciated without experience.

8. *Fire Patrol.*—Detection of forest fires was carried on during the fire

season in connection with the regular survey work, location being reported on return to the base, to the local rangers or by wire to the district chief. From the season's flying experience, it would appear that aerial detection of fire is both more reliable and more efficient than any other system as yet devised. On the score of reliability, records of the field unit of three machines, with which the past season's work was carried on, show that it would have been possible throughout the season to provide a daily patrol of at least one machine capable of covering a two hundred mile beat. This is the more creditable when it is considered that flight was continued without engine overhaul up to, in the case of one, and far past in the case of the other two machines, the time limit for the engines prescribed by the makers. Chances of uncertain service, such as the above and the numerous other ways, need not be incurred, in the case of machines operating from a permanent base, with an almost certain gain in dependability.

As regards the efficiency of the aerial observer to spot fire, it is believed that this is entirely a question of personnel. Fires can be seen clearly and for great distances. They can be seen despite ground-haze, which from above is scarcely perceptible, and can be located by anyone provided with, and capable of reading, a good map. In addition to merely observing and locating fire, however, the aerial observer can also, and should be required, to report on its size and situation with respect to local fire barriers and progress during fighting—information which cannot be supplied by any other system of detection, except by great good fortune, and which is of immense value to the proper planning of fire fighting operations.

Suppression, which is at once the essential and most difficult part of any fire protection system, was successfully carried out by the use of air craft on two occasions. In one instance, this entailed the transportation and supplying of a total of six men for a distance of seventy-five miles by air; fire fighting was carried on for eight days. The second fire occurred forty miles from the base and was fought by four men taken in and supplied by air; for four days. Although opportunity for further work of this kind was abundant and could readily have been undertaken, it was considered inadvisable to do so in view of the fact that the unit was not organized for such work and that it would interfere too much with the regular survey work. The above results should indicate, however, that aerial transportation can be used for fire suppression.

The importance of aerial transportation, and the extent to which it could be used for forest fire suppression in this Province can only be grasped after a consideration of the large number of suitable ready-made landing grounds for sea-planes and flying boats which are scattered throughout almost the whole fire district; and the further consideration that successful development along this line would immediately place such points in the same category as road and railway heads, from which it would be possible to obtain men and supplies at short notice in case of any emergency.

9. *Summary.*—(a) Approximately 6,400,000 acres, lying in general between the G.T.P. Railway and the Albany - Lac Seul waterway, were mapped as composition types by sketch; about one-half of this was further classified into size classes.

Some 325,000 acres, in scattered strips, were covered by aerial photography.

Twenty-one special landings were made for sample plot work in typical forest stands.

Throughout the season forest fire detection was carried on, secondarily to

the survey work. Fighting was carried out in two instances, to explore the possibilities in this line.

(b) This survey was carried on in co-operation with the Canadian Air Board, who supplied three H.S.2L. flying boats with the necessary personnel and equipment; with R. N. Johnston of this Branch, and forestry student assistant F. T. Jenkins, as observers.

(c) The total flying time for the season was 333 hours; the cost, $140.00 per flying hour, and two-thirds cents per acre.

10. *Conclusions.*—It is believed that a proper attitude towards the following conclusions from the season's work is one which regards it as essentially experimental.

The H.S.2L. type of craft was serviceable because of the physiography of the region. A territory less liberally studded with lakes would require a machine of proportionately greater speed and climb. Some fitting-up is necessary for the working convenience and comfort of the observer.

The observer is called upon for rapid recognition and classification of types, according to recognized ground standards, and rapid mapping of boundaries. This requires special aptitude as training by flying is expensive.

Required ground studies should be done by separate crews.

Aerial photography is specialized work and should be attempted on a large scale only by units organized for that purpose. It requires, for best operation, flying equipment capable of high speed and climb, in order to take full advantage of good photographic light and to be able to operate at a height where aerial disturbances producing errors in exposure, are at a minimum. Cameras should be chosen with regard to the class of work required and the machine in which they are to be used. In survey work, the exposures should be finished and at least roughly plotted in the field, to prevent possible serious lack of data through some failure in field operations.

Fire detection can be carried on with either high or low performance machines, both reliably and efficiently. The matter of suppression is dependent for success on the opportunities for landing. These uses of the air craft being secondary, no estimate of cost can be given.

Operation cost of flying, being slight as compared to overhead, the season's program of work should make provision for the utilization of all possible flying time and not merely perfect flying weather.

In conclusion, it is desired to make reference to the splendid work of the personnel of the Air Board, and more particularly to the mechanics. No inference that their work was more worthy of mention than that of any other section of Air Board personnel is intended here, for this would be entirely untrue, but it is a fact that the work of the mechanic is usually overlooked. Nearly everyone is fully aware that a machine must have a pilot to fly, but how many have more than a dim realization of the absolute dependence of flight on the faithful, hard, and often unpleasant, work of the mechanic?

Of the hearty co-operation of the whole unit, however, enough cannot be said. Indeed, this was true to such an extent that work was carried on as if not two but one, and that a forest organization, was involved. This is the more remarkable when it is remembered that the foresters, through lack of data and experience, could not act with certainty from day to day, but had of neces-

sity to chop and change as experience and opportunity indicated. Such changes, discouraging in any case, must have been much more so when made, as they frequently were, for what, to an outsider, must have appeared as trivial or obscure reasons.

III. Reforestation.

Provincial Forestry Station, St. Williams:

The broadening-out policy, in preparation for the many reforestation projects which are facing the Government, has been emphasized during the year at St. Williams. A description of the work done is as follows:

Seed Beds.—Spring sowing of seed beds commenced April 5th and continued until June 9th. In all, 605 beds, each 30 feet long by 4 feet wide, were sown, the amount of seed used being 591¼ pounds of all species. Fall sowing of seed beds commenced November 15th and continued until December 10th. 340 beds of the same size were sown, requiring 395⅝ pounds of seed.

SPRING SOWING.

Species.	No. of Beds Sown.	Amount Seed per Bed. Ozs.	Total Amount Seed. Lbs.
White Pine	180	24	270
Scotch Pine	80	11	55
Jack Pine	75	12	56¼
Austrian Pine	5	28	8¾
White Spruce	180	12	135
Norway Spruce	5	20	6¼
White Cedar	80	12	60
Totals	605		591¼

FALL SOWING.

Species.	No. of Beds Sown.	Amount Seed per Bed. Ozs.	Total Amount Seed. Lbs.
White Pine	75	34	150
Scotch Pine	10	12	7½
Red Pine	210	12	157½
Jack Pine	5	10	3 1-8
White Spruce	35	24	52½
Basswood	5	5	25
Totals	340		395 5-8

Besides the sowing of these beds, the following hardwood species were sown in drills: Red Oak, 10 bushels; Black Walnut, 25 bushels; and Sweet Chestnut, 1½ bushels.

Nursery Lines.—During the spring 50,000 one-year-old jack pine seedlings were lined out; also a shipment of 40,000 white spruce and 60,000 Scotch pine, purchased from the Quebec Nursery. During the autumn, 1,000,000 Scotch

pine, which had been sown in the spring seed beds, were transplanted to the nursery lines.

Fertilizer.—In connection with the two foregoing operations, fertilizers, as shown hereafter, were used:

Location	Animal.		Mineral.		
	Manure.	Dried Blood.	Muriate of Potash.	Acid Phosphate.	Sulph. of Ammonia.
	Tons.	Lbs.	Lbs.	Lbs.	Lbs.
Lot 19	40	150	.....	600	105
Lot 20	11	.....	.....	.....	.....
Lot 22		370	60	310	62
Lot 4	6	.....	.....	.....	.....
Lot 1	8	300	100	260	50

The following is a list of stock on hand December, 1920:—

Hardwoods:		
Ash, White	8,500	
Chestnut	4,000	
Cherry Bl.	1,450	
Hackberry	1,400	
Hicorz ovata	500	
Locust Bl.	2,900	
Maple, Man.	2,700	
Maple, Soft	6,300	
Oak, Red	20,900	
Poplar cuttings	250,000	
Walnut, Bl.	37,300	
Walnut Wh.	15,000	
		350,950
Conifers:		
Pine, Austrian	20,000	
Pine, Jack	2,134,000	
Pine, Scotch	2,349,500	
Pine, White	950,000	
Spruce, Norway	80,000	
Spruce White	2,728,000	
Cedar, White	505,000	
Balsam	8,000	
		8,774,500
Total of Hardwoods and Conifers		9,125 450

Additions to Property.—The most important addition to the station property was the installing of a new water system. This includes a pumping station capable of forcing 7,600 gallons of water per hour into a 20,000 gallon tank. This is elevated 100 feet from the ground, which gives excellent pressure to the system. 700 yards of 4-inch iron pipe form the main which, in turn, supplies the various nursery compartments through the existing 5 acres of overhead sprinkling system.

Four new buildings have been erected during the year. An implement house, 101 feet long by 30 feet wide, provides needed room for all machinery. One small barn, a common room for employees, and an additional workmen's house were also erected. This makes a total of 8 dwellings as follows: Manager's residence, foreman's house, 5 houses for teamsters, fire ranger, and workmen, and a common room.

Two and a half acres of new lawn was made, a half-mile cedar hedge planted, and 140 rods of wire fence was erected.

Several new roads were laid out on the property, necessitating the erection of two new bridges. Five miles of old road were cleared of brush, to facilitate fire-fighting work when needful. All fire roads were ploughed and cultivated, and an additional fire line of one-third of a mile in length was cleared and broken up.

Improvement Cutting.—On the 1,720 acres comprising the forest station, approximately seventy per cent. consists of woodland. During favorable weather in late fall and winter, improvement cutting was carried on, over an area of forty acres. Weed trees and windfalls were cut down, after which they were converted into logs and cordwood, the remaining slash being burned. Trees that showed evidence of butt rot, fire scar, ill form, oppression and senility were removed and utilized to the best advantage. The aim was to leave a stand composed of only sound, healthy, vigorous trees, thereby minimizing fire hazard and preventing, to a degree, insect and vegetable infection.

Protection (Disease and Insects).—Two men were employed during the summer months in connection with the eradication of Ribes for the prevention of the infection of nursery material with White Pine Blister Rust. No evidence of either Pine or Ribes stage of the disease was found. Destruction of White Pine Weevil was also carried on and all attacked leaders of trees in older plantations were removed, in an attempt to lessen the destruction caused by this insect.

Labor.—One of the difficulties in building up a permanent staff has been the lack of house accommodation, either on the Government property or elsewhere. With the increasing number of dwellings being erected at the station, this problem has been partially solved. For part time employment, which is a big factor in work of this kind, the neighborhood contributes plenty of young men. During the season, the personnel comprised, besides the manager of the station, a foreman, an under-foreman, 2 teamsters, a fire ranger, and 28 workmen.

Tree Planting.

Private Planting.—The work of tree distribution to private owners throughout the province was again carried on during the spring. The species available for distribution for the season of 1921 were as follows: Scotch pine, black walnut, butternut, red oak, white ash, sugar maple, white elm, and black locust.

Last year some fifty odd applications more than the branch could fill, were received. 225 separate operations were supplied. The number of trees for these amounted to 291,769 of all species. In terms of acres, this would represent, at six feet spacing, 240 acres of reforested land.

Government Planting.—Owing to the fact that the demand for planting material throughout the province was so great this year, little permanent planting was done at the forestry station at St. Williams. A mixture of Scotch pine and European larch was planted, covering an area of 5 acres, and 10,000 white spruce were planted in mixture with red oak.

A plantation of 3 acres was set out in Leeds county, with the co-operation of the council of Elizabethtown Township, where a sand ridge had been inconveniencing traffic on a county road for years. This plot will serve as a demonstration plantation for land owners in the neighborhood, who are threatened with drifting soil.

Extensive planting work was also carried on in connection with reclaiming the sand banks of Prince Edward County. These banks consist of a finger-

shaped peninsula which separates the waters of West Lake—a lake five miles in two dimensions—from Lake Ontario. The peninsula is three-quarters of a mile wide at its base and extends five miles in a north-westerly direction until it reaches the town of Wellington in a narrow point. From its orientation, it will be seen that part of the peninsula lies at right angles to the prevailing winds of Ontario. Because of this, much excellent land farm has for years been continually spoiled or covered up by drifting sand. Since this section of the country was first surveyed in 1852, it is estimated that 85 acres of good land have been covered with drifting soil.

The planting material used in this work consisted of Carolina poplar cuttings and green willow cuttings and limb material. Belts were planted one hundred feet apart, each belt consisting of one row of limb material and five to seven rows of cuttings, and were planted at right angles to the prevailing winds. The area planted would aggregate 150 acres and covers the part of the banks where the despoiling of agricultural land is most imminent.

Seed Collecting.

The Forestry Branch endeavors, as far as possible, to secure in the Province all seed used for the growing of nursery stock. The only exception, which is made in this regard, is Scotch pine seed. This tree, not being a native of America, the seed must necessarily be imported until trees of our own growing have become old enough to supply our needs. A quantity of Scotch and jack pine cones were gathered from the plantations at St. Williams; also 140 bushels of jack pine cones were gathered at a lumbering operation in Northern Ontario during the winter.

One of the most useful species for reforesting in Ontario is our native red pine. It grows well on poor soil, has few enemies, and is valuable for timber purposes. The only drawback in its use is the infrequency of its seed years. The season of 1921 was a good seed year for the species. The crop was not as general as the crop of 1913 was reported to have been, but groups of trees in the area covered, bore a maximum crop of cones.

The collecting of this species was confined to a section of Simcoe County, lying between Angus, Lisle and Tioga, which includes a large section of Camp Borden. Through the liberality of the Air Board in granting the use of a building for extracting purposes, and by co-operation in other ways, the work was carried on more expeditiously. It is doubtful whether a more suitable area than this for collecting red pine seed exists in the province. Here, the trees occur scattered in pure stands, and growing in this way, they have assumed the form of open grown trees which increases their value for seed collecting purposes.

The extracting of the seeds is carried on at the forestry station at St. Williams and also at Angus, where large quantities of seed have been gathered the last two years. Both plants handle the material which is gathered locally. The larger one is at Angus, and has a capacity of 20 bushels of red pine or 75 bushels of white spruce per 8-hour day. Two men do all the work, including firing, turning and filling the drums and cleaning of seed.

During this season, the crop of most hardwood seeds was poor. It was impossible to secure quantities of such useful trees as maple, white ash, and elm.

Seed collected during the year is as follows:

Species.	No. of Bushels.	Pounds of Seed.	Cost per Lb.
Red Pine	440	300	$6.74
Scotch Pine	95	56½	2.94
Jack Pine	175	.....	4.45
Austrian Pine	3	.....	.....
Black Locust	6	10½	4.11
Black Cherry	5-8	.....	.....
Red Oak	13	.....	2.25
Honey Locust	.....	8	1.75
Sweet Chestnut	1½	.....	.....
Walnut	25	.....	.....
Soft Maple	1	.....	.....

IV. Forest Pathology.

(Report of Dr. J. H. Faull for 1921).

Many interesting problems of forest pathology in Ontario have been called into review during the last year, some in continuation of uncompleted studies, others taken up in response to specific needs or inquiries. The field work was carried on mainly in the Temagami Forest Reserve, where, as in the past, valuable assistance was afforded by the Chief Ranger, Mr. C. E. Hindson. In addition, visits were made to the hardwood area of Algonquin Park, to the recently cut-over limits in the neighborhood of Otter, and to the pulpwood district north of Temiskaming. A few days were spent at the request of the Division of Forest Insects, Entomological Branch, Ottawa, in a co-operative examination of pulpwood forests injured by the spruce bud worm, to discover, if possible, what part fungi or other factors play in destroying the trees attacked by this pest. I was associated in my work, for a part of the time, with Mr. A. W. McCallum, B.Sc.F., Dominion Forest Pathologist, who was engaged in the study of a root rot of living trees, caused by the honey agaric, *Armillaria mellea*, an especially abundant form in our northern forests, and one which appears to be virulent in overcrowded stands or in trees much weakened by needle blight, spruce bud worm attacks, or other injuries, and with Mr. H. P. Bell, M.Sc., of Halifax, Nova Scotia, who was intimately concerned with certain diseases of balsam. As a part of the field work, extensive additions were made to our reference collections of pathological materials. These have likewise been considerably augmented by specimens sent in from various parts of Ontario, and from outside places, especially the contiguous provinces and states.

(1) Needle Blight of White Pine.

Observations for the fourth summer in succession, were made on the needle blight of the white pine, and the conclusions stated in the Reports of the Minister of Lands and Forests for 1919 and 1920 have been confirmed and extended. This malady, a yellowing or reddening in late spring or early summer, of the needles of the white pine, so prevalent in the Temagami Forest Reserve and to some extent in other parts of Ontario, is due to a killing of the absorbing

roots, ascribable to a drying-out that takes place in periods of drought in shallow or leachy soils. The result is that at the time the new needles are expanding, there is a sudden demand for water that cannot be supplied and, in consequence, the young needles turn pale and then redden from the tips downward. Owing to the dry weather experienced last summer (1921), the blight, while not as abundant as in 1918, was more sharply defined than in 1920. The forest commissioner for the State of Maine reports that a similar situation has prevailed in the pine forests on sandy soils in the southern part of Maine. But white pine (*Pinus Strobus*) is not the only tree affected in the blight areas, although it probably suffers much more severely than other types; proof is accumulating that shows that other timber species are involved to a greater or less extent, dependent on their relative susceptibilities. A full account will be published when the investigations in hand have been completed. The status of 633 white pine trees, whose history has been followed since 1918, is summarized in the table that follows:

Blighted trees studied	358
Checks (healthy trees)	275

Of the checks, two only have developed blight, and under known conditions. They blighted in 1919, following a partial lifting of the thin soil cover and its permanent displacement from the bed of coarse broken rock on which it lies—the action of ice. These trees died in 1921. The blighted trees have been divided into two classes: (1) those with trunks 6 inches or less in diameter (b.h.); (2) those with trunks more than 6 inches in diameter.

	Blighted in 1918.	1919	Died 1920	1921	Total % dead.	Showing blight in 1921.	Apparently recovered.	Doubtful.
I.	147	2	6	2	6.8	24	105	8
II.	211	12	20	18	23.7	80	44	37

From the results obtained, it is reasonable to conclude: (1) that young stands are not likely to be seriously depleted by needle blight; (2) that injury to heavily blighted mature stands may be so great as to be a deciding factor in determining the time of harvesting.

(2) Butt Rots.

Butt or stump rots constitute the outstanding destructive agencies at work in our Ontario forests. No type of forest is exempt, and every mature stand becomes more and more susceptible with increasing age. Butt rots, once established, continuously decrease stumpage values; they are also responsible for most windfalls, and so for the vast amounts of debris that litter the floors of our forests, affording a limitless supply of highly combustible wasted materials. There are various types, but all are due to the action of parasitic fungi. Fortunately, they are almost altogether restricted to mature or suppressed timber; young trees are practically immune. This fact greatly simplifies the problem of control. In this connection, it is in place to state that any effective plan of scientific forest management is bound to take cognizance of the part played by butt rots in the economics of the forest, and the administration of any such plan will not only secure a maximum yield from the forest, but will also make a long stride forward in the matter of fire control.

Our investigations on these trunk and root diseases have so far followed along three lines: (a) the tabulation of the various types as to kind, host relationship and distribution; (b) the working out of a ready means of field and laboratory diagnosis for each type; (c) consideration of particular cases in response to special inquiries. To these, others should be added—such, for example, as the rate of progress of an infestation, and the relation of butt diseases to age, specific resistance and environmental factors. As a part of the scheme of tabulation, it would be especially profitable to include information relative to the age at which various species of trees lose their resistance to the inroads of the different kinds of decay fungi. Observations show that, in general, this feature will vary with location, and especially the characters of the physical and the biotic environment—such factors, for example, as soil, crowding, etc., and possibly climate. The factor of wounding or killing of roots is also important, for it is probable that none of the fungi concerned can gain entrance into the host except through wounds or dead areas in the bark and cambium. To what extent wounded and dead roots regularly occur in different localities remains to be seen. But from an examination of the root systems of many trees in the Temagami Forest Reserve, it is certain that in that region wounds are very common on the centrally directed faces of the main roots, particularly just below or near the trunk axis, and the inner roots are frequently dead.

(a) Much progress has been made in the work of tabulation. The fundamental need of this undertaking is indicated by the fact that several types of butt or heart rot have been found to be new. One of the most important of the latter, and recorded here for the first time, is a root and butt rot of spruce, hemlock, and white pine, with which a pored type of fungus, *Polyporus Tomentosus Fries*, is constantly associated. On further search, it will probably be found that the red and the jack pine should be included in this list, and possibly balsam. The fruiting body of the fungus is yellowish, leathery in texture, stalked, with a rounded cap 1-3 inches in diameter; it commonly grows on the soil in the neighborhood of coniferous trees, but is attached by its stalk to the covered roots of its host. The decay caused is of the piped or speckled type —whitish spots at first in the rather darkened wood, later becoming small cavities up to half an inch or more in length and a twelfth of an inch in diameter. This decay quite closely resembles the common "pecky wood-rot" or "partridge rot," caused by *Trametes pini*, but differs from the latter in that it is a butt rot. While not infrequent throughout it is apparently much commoner in some localities than in others. In the Otter district, for example, a high percentage of the white pine was affected, and to such an extent that frequently the butt log was of no value and was allowed to remain on the ground. I am indebted to Mr. A. W. McCallum for striking specimens of this decay as a heart rot in black spruce.

(b) One of the chief drawbacks encountered in investigating butt rots is the lack of information on the identity of the causal organisms. This applies to the larger number of butt and heart rots of conifers in America. Balsam rots may be cited as an extreme case, for though several types occur in living balsam trees, no one as yet, so far as the literature shows, has definitely established a connection with a specific fungus in any one case. To meet this need, and as an outgrowth of the present work, investigations in this field were independently inaugurated in the provincial University two years ago, and are now being vigorously carried forward with fruitful results. The methods employed are those so successfully used in cultural diagnostic studies of bacteria.

(c) A special case, calling for an investigation of heartwood weakened by fungi, was referred to the Forestry Branch by the manufacturers concerned, a year or so ago, in connection with the use of birch for spokes. A preliminary examination of our birch was soon after undertaken, and it has become evident that certain types of defective trees, easily recognizable, should be avoided as a source of wood calling for maximum resistance. The defects in question

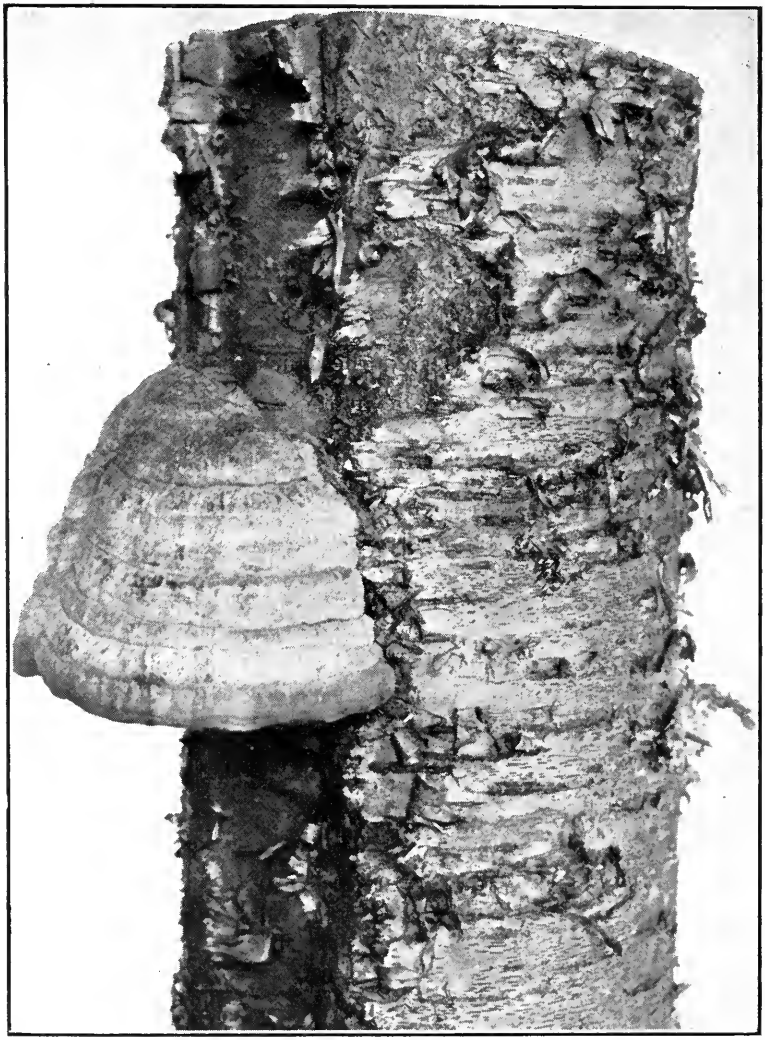


Fig. 1.— Fruit-body of the True Tinder Fungus on living Yellow Birch.

are ascribable to the true tinder fungus, one of the oldest known fungi, but like many others, imperfectly understood. A preliminary account follows.

(3) A Preliminary Account of the True Tinder Fungus.

The true tinder fungus attacks standing or fallen beech, birch, poplar, and occasionally elm, causing a whitish decay. It is readily recognized by its

fruiting-bodies or sporophores, the grayish hoof-shaped punks or brackets so common on the trunks of its hosts (Figure 1). Most frequently this fungus works from the crown down, though not invariably so. The true tinder fungus abounds throughout Ontario, and is also frequent in the adjoining states. Von Schrenk & Spaulding (Von Schrenk, H. & Perley Spaulding: Diseases of Decid-

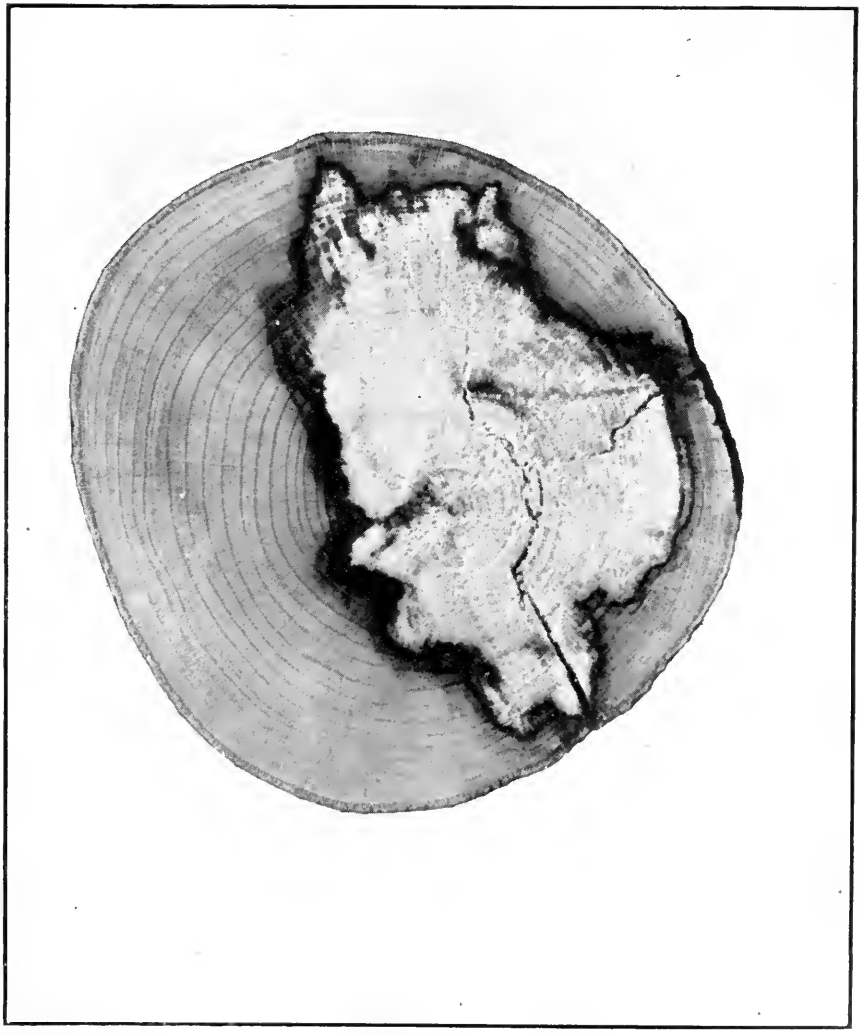


Fig. 2.—Section of living Beech Tree showing Heart Rot caused by the True Tinder Fungus.

uous Forest Trees, Bull. No. 149, Bureau of Plant Industry, U.S. Dept. of Agr., Washington, 1909) report that "In northern New England, New York, Michigan, Wisconsin, and Minnesota in particular, the tinder fungus (*Fomes fomentarius*) is one of the commonest wood-destroying forms found in deciduous forests." The observations of the writer have been made for the main part in the Algonquin Park and the Lake Ontario areas.

Botanically, many new points of interest have been noted—such as the characters of its spores, their viability and method of germination, the remarkable habit of vernal spore discharge, and the production of spores for three or four years from the same pore layers. But the main interest here centers on

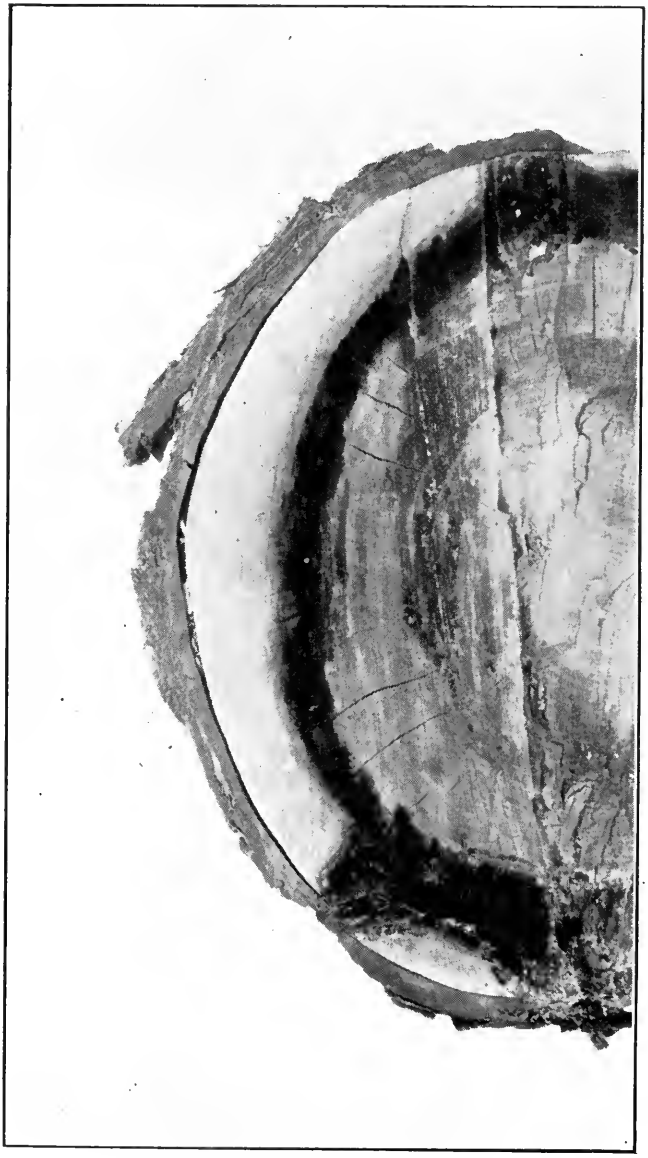
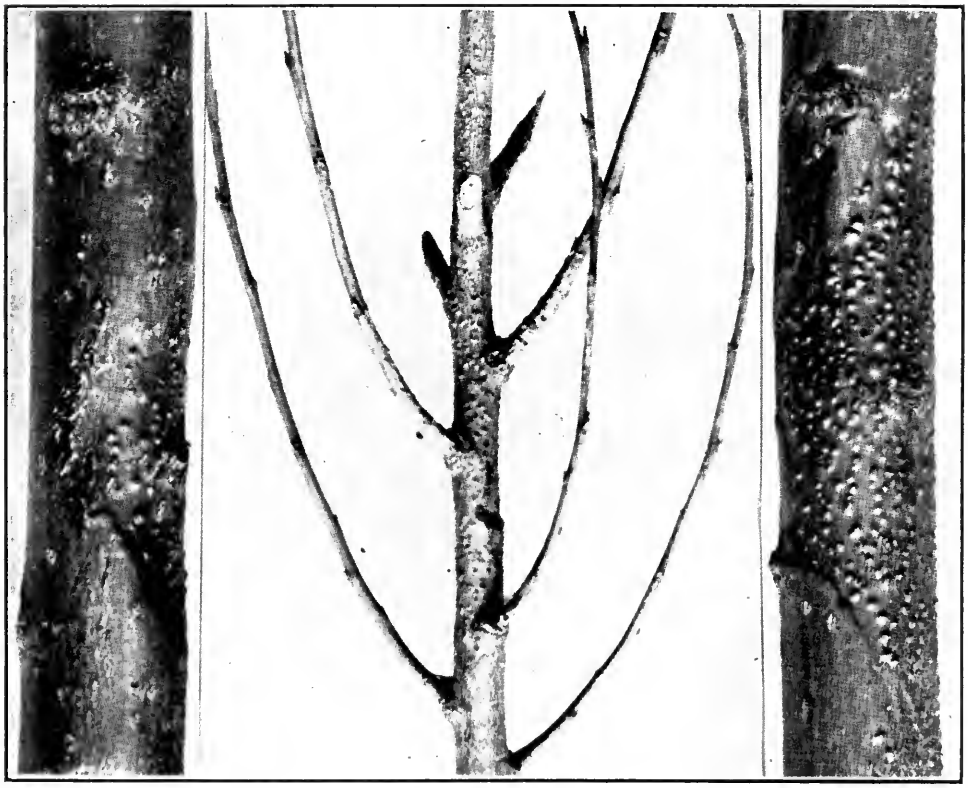


Fig. 3.—Section of Trunk of living Yellow Birch showing decay in inner sapwood and heartwood caused by the True Tinder Fungus. This section was kept for a few weeks under conditions favorable to development of fungus on the affected cut surface. The surface growth of the fungus darkened.

the relationship to its host. Regarding this feature, a general misconception has existed, and one that directly concerns the application of the heartwood to some industrial purposes. Various manuals or bulletins, dealing with the

fungus, ascribe to it a decay in the outer sapwood immediately under the bark, from there working inwards. An examination of hundreds of affected trees has failed to substantiate this view in any one instance. On the contrary, in living trees, the fungus enters through wounds or broken or dead branch stubs and penetrates to the inner sapwood and heartwood, rapidly spreading up and down in these regions of the stem and more slowly outward towards the bark. Figure 2 illustrates a section taken from a living beech in which this fungus is working as a pure heart rot. In birch it appears to spread more abundantly



Photographs by Hedgcock & Hunt.

Fig. 4.—Cankers in Lombardy Poplar caused by *Dothichiza populea.*

and rapidly in the inner sapwood as is shown in Figure 3, but it is important to note that the adjoining heartwood is also affected and, in consequence, weakened. One of the most significant features is the circumstance that cured timber from trees in which the decay is in its incipient stages, is indistinguishable by ordinary means of examination at the command of the user, from perfectly sound timber. The infection of the birch appears to be commonly associated with the breaking of the branches of the crown, due to the action of a boring insect. Complete results will be published when the investigations have been brought to a conclusion.

(4) A Poplar Canker.

Early in May, 1921, an examination was made for the Toronto Harbor Commission of a plantation of about 500 Lombardy poplars planted out in the fall of 1920 on the Lake Shore road, York County, which were found to be affected with a canker disease caused by an imported fungus, *Dothichiza populea*, Sacc. & Briard. Fully 80 per cent. of the trees were diseased, and all were cut down and destroyed. This fungus, apparently, found its way into America originally from Europe in nursery stock, and in the present instance there is every probability that the disease was already established in the young trees when they left the local nursery from which they were obtained. A visit to the nursery in question at the time, resulted in finding the disease in the remaining stock of Lombardy poplars. The causal fungus attacks the trunks and branches of trees of all ages, killing them outright or permanently disfiguring them; but it is especially virulent in newly transplanted trees and in stock heeled in for early spring planting. Besides the Lombardy poplar, it is also known to attack the cottonwood, *populus deltoides*. To what extent other poplars are susceptible is not known, but it seems worth while that this feature should be watched. It is also certain that there should be the closest inspection on the part of nurserymen and of those who purchase poplars from nurseries.

This disease was reported for the first time in America by Hedgcock & Hunt in 1916 (Hedgcock, George C. & N. R. Hunt: *Dothichiza populea* in the United States, Mycologia 8, pp. 300-308, 2 plates, 1916), but was known thirty years or more prior to that in Europe, especially in France, Germany and Italy. Specimens were received by the writer from an eastern source in Canada in 1917 through the courtesy of the Dominion Botanist. In Europe, *populus deltoides* seems quite as liable to attack as *populus nigra*, and in France severe losses have been experienced in plantations of the former grown for timber.

The causal fungus attacks the bark, killing the cambium. In such spots, the bark becomes more or less sunken, but not much discolored (Figure 4). These depressed areas or cankers rapidly extend in all directions, and as a result, girdling commonly takes place. Pustules soon appear on the cankers, and from them emerge countless numbers of tiny spores which serve to transmit the parasite to other hosts. Diseased trees in nurseries or in plantations should be cut down and burned.

I have the honour to be, sir,

your obedient servant,

E. J. ZAVITZ,

Provincial Forester.

Toronto, Ont., October 31st, A.D. 1921.

Appendix No. 49.

AGREEMENT BETWEEN PROVINCE AND E. W. BACKUS ET AL.
REFERRED TO IN APPENDIX NO. 50.

THIS INDENTURE made in triplicate this thirtieth day of September, A.D. 1920.

BETWEEN:

His Majesty the King, represented by the Honourable the Minister of Lands and Forests for the Province of Ontario, hereinafter called the Crown,

OF THE FIRST PART,

—and—

Edward Wellington Backus, of the City of Minneapolis, in the State of Minnesota, Manufacturer, The Keewatin Lumber Company, Limited, and The Keewatin Power Company, Limited, hereinafter called the Company,

OF THE SECOND PART.

WHEREAS the Company did on the 7th day of July, A.D. 1920, enter into an Agreement with the Town of Kenora for the establishment of pulp and paper mills and saw mills in the town of Kenora, a copy of which Agreement is hereto attached, marked Schedule "A,"

AND WHEREAS the said Agreement has been ratified by the ratepayers of the said Municipality;

AND WHEREAS the Crown did by Agreement dated the 19th day of August, 1914, agree to sell to the Keewatin Lumber Company, Limited, the pulp wood on the area known as The Lake of the Woods Pulp Limit, a copy of which last-mentioned Agreement is hereto attached, marked Schedule "B";

AND WHEREAS the Keewatin Lumber Company, Limited, is in default under the terms of the said last-mentioned agreement and has now no rights thereunder;

AND WHEREAS there is not now, nor is there capable of development at Kenora, water power sufficient to produce electrical energy to operate a pulp mill of the capacity in the said Agreement, marked Schedule "B":

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants, promises and agreements hereinafter contained, it is hereby agreed as follows:

1. The Crown hereby agrees that the said Agreement of the 19th day of August, 1914, between the Crown and the Keewatin Lumber Company, Limited, set out in Schedule "B" hereto, is now revived and is to be construed as in full force and effect from and after this date, save that paragraph 7 of the said Agreement, dated the 19th day of August, A.D. 1914, shall be and the same is hereby amended by striking out the figures "40" in the first line of said paragraph, and substituting the figures "80" and by striking out the figures "20" in the second line thereof and substituting the figures "40."

2. The Crown agrees to grant to the Company a lease of the water power known as the White Dog Rapids on the Winnipeg River in the District of Kenora, together with a strip of land on each side of the said rapids and all

the other land necessary for flowage purposes, together with all water power privileges and all rights, easements and appurtenances which the Minister of Lands and Forests may deem expedient for the utilization of the waters of White Dog Rapids for power purposes. For this purpose the Company shall submit plans and descriptions of survey of the necessary land required to be used in developing the said water power privilege and the construction of the necessary works thereon, such plans to be subject to the approval of the Minister of Lands and Forests, who, upon such approval, shall prepare a form of lease of the same in which the lands and lands under water to be covered by the lease will be specifically delimited. Upon the execution of said lease the Crown will grant to the Company the right to flood any Crown lands which the said Minister of Lands and Forests may deem expedient, and to such an extent and in such manner and subject to such conditions and stipulations as the Minister may deem expedient; all plans and specifications of works for the storage and regulation of said waters to be subject to the approval of the said Minister. The lease of the said water power will be the standard form of Government lease of water power, but in addition the said lease and right so granted shall be subject to the rights of all private owners of property who are liable to be affected by the development of the water power at the said Rapids or the storage of water in connection therewith, and to such rentals, reservations, provisoes, conditions and stipulations (including the regulation of the Norman dam at the outlet of the Lake of the Woods) as the Minister of Lands and Forests may deem to be in the public interests.

3. Neither said lease nor said right to flood Crown lands shall in any way be taken or construed as a demise or grant to the Company of any lands, or lands under water, rights or privileges not within the limits, power or legislative authority of the Province of Ontario, it being understood and agreed that the lands and lands covered by water to be therein demised or granted, and all rights or privileges to be thereby conferred, are limited to such as are owned or controlled by the Crown as hereinbefore defined.

4. It is hereby expressly provided and agreed that the Agreement for a lease to be given the Company as aforesaid is for the purpose of enabling the Company to carry out the terms of their said agreement with the Town of Kenora (Schedule "A") and their agreement with the Crown (Schedule "B") and is conditional upon the due performance of said agreements (save as otherwise herein provided) and upon the failure or neglect of the Company to carry out any of the terms of said agreements, or either of them, as herein provided, or of this agreement, the Minister of Lands and Forests for the Province of of Ontario, for the time being shall, in addition to all other powers contained in said lease, have the power to cancel the said lease and the agreement therefor herein contained.

5. In consideration whereof the Company agree that they will forthwith after the execution of this Agreement proceed with the erection in the Town of Kenora of the mills mentioned in paragraphs 1, 2 and 3 of said Agreement set out in Schedule "B" hereto, and in accordance with the provisions of the last-mentioned agreement will erect and complete the said mills mentioned in said paragraphs and will in all other respects carry out their obligations under the terms of the said Agreement as now revived, varied and amended, including the manufacture in the said mills of the wood from the area described in the said agreement (Schedule "B"), and specifically undertake that they will construct and place in operation one unit of the said pulp mill of 50 tons daily capacity, not later than the 1st day of October, 1921, and will continue con-

struction work uninterruptedly until the mills mentioned in the said Agreement (Schedule "B") shall be fully completed, subject to the direction of the Minister of Lands and Forests as to the erection of the paper mill.

6. And the Company hereby covenants and agrees to indemnify and save harmless the Crown against any and all causes of action, loss, costs, damages or expenses which may be awarded by lawful authority against the Crown in connection with, or by reason of, the development of said water power at White Dog Rapids.

7. The Company further agrees to reserve such quantities of news print paper as they may be required from time to time so to do by the Minister of Lands and Forests for the purchase by publishers within the Dominion of Canada.

8. The Crown will presently offer for public competition the pulpwood and timber on an area comprising a part of the English River Watershed and which area is bounded on the West by the boundary of the Province of Manitoba; on the South by the National Transcontinental Railway, on the North by the English River and Lac Seul, and on the East by the Westerly limit of Indian Reserve No. 28 extended north in a straight line to the northerly boundary and south to the southerly boundary of the said area; and the Company will tender for the said area in the terms of the conditions of sale thereof, one of which will be that the timber and pulpwood on the said area will be manufactured at Kenora (including the manufacture into newsprint paper of the pulpwood suitable for that purpose) and if the Company's tender is accepted the Company will enlarge their said mills at Kenora to at least the capacity mentioned in the said Agreement (Schedule "A") and will accept this Agreement as a satisfactory agreement within the meaning of clause (a) of paragraph 1 of the said Agreement (Schedule "A") and as a full compliance by the Town of Kenora with its obligations under clauses (ee) and (ff) of the said Agreement (Schedule "A" and the Company will thereupon carry out and perform all their obligations under the said agreement (Scheduel "A") and will further extend the said pulp and paper mills and increase the capacity thereof beyond that called for by the said Agreement (Schedule "A") as they may from time to time be required by the Minister of Lands and Forests to do, having regard to the quantity of pulpwood that will be available for the said mills. Provided that if it is ascertained by the Minister of Lands and Forests within three years from this date that there is not sufficient pulpwood and timber on the above described area to operate the said mills in Kenora as set forth in the said Agreement (Schedule "A") he will put up for public competition such an additional area or areas to the north of the English River as will provide the necessary timber and pulpwood for the said purpose, and in the Conditions of Sale thereof it shall be provided that the manufacture thereof shall be in the Town of Kenora. The ascertainment and estimate by the Minister as aforesaid shall be final and conclusive and binding on all parties to this Agreement.

9. Nothing in this agreement shall affect the application of the provisions of any statute or order-in-council whether now existing or which hereafter may be enacted or made dealing with the regulation, control or inspection of water power and of the use of waters in Ontario.

10. If the Company fails or neglects to erect, extend and operate the said mills in accordance with the terms of this Agreement, then all rights under this Agreement shall terminate and be forever forfeited. Provided, however, that there shall be no forfeiture or cancellation hereunder for the reason (if

that situation should arise) that the forest products available to the Company are found inadequate to carry on the operation of the said mills to the capacity mentioned in the said Agreement (Schedule "A").

11. Where the word "Company" occurs in this Agreement, it shall be understood to refer to and include the heirs, executors, administrators, successors and assigns of the parties hereto respectively of the Second Part, and this Agreement shall be binding upon all of the aforesaid parties.

IN WITNESS WHEREOF the Minister of Lands and Forests has hereunto set his hand and seal and the said Edward Wellington Backus has hereunto set his hand and seal and the Companies have affixed their corporate seals and the President of the said Companies has signed.

WITNESS:

F. J. NIVEN.

BENIAH BOWMAN,
Minister of Lands and Forests

EDWARD W. BACKUS,

[SEAL]
DEPARTMENT OF LANDS AND FORESTS.

THE KEEWATIN POWER COMPANY, LIMITED, by its President
EDWARD W. BACKUS.

[CORPORATE SEAL]
THE KEEWATIN LUMBER COMPANY, LIMITED.

THE KEEWATIN LUMBER COMPANY, LIMITED, by its President
EDWARD W. BACKUS.

Appendix No. 50.

THE ENGLISH RIVER PULPWOOD AND TIMBER LIMIT AGREEMENT.

THIS AGREEMENT made in triplicate this seventh day of January, One Thousand Nine Hundred and Twenty-one.

BETWEEN:

His Majesty, the King, represented by the Honourable, the Minister of Lands and Forests for the Province of Ontario, hereinafter called THE CROWN.

OF THE FIRST PART,

—and—

Edward Wellington Backus of the City of Minneapolis in the State of Minnesota, Manufacturer, The Keewatin Lumber Company, Limited, and the Keewatin Power Company, Limited, hereinafter called THE GRANTEES.

OF THE SECOND PART.

WHEREAS by advertisement, duly published, the Honourable, the Minister of Lands and Forests for the Province of Ontario, called for tenders to be received by him, up to and including the eighteenth day of December, 1920, for the right to cut forest products on an area in the English River watershed in the District of Kenora in the Province of Ontario, hereinafter more particularly described;

AND WHEREAS on the said eighteenth day of December, 1920, the said Minister received from the Grantees a tender for the right to cut the forest products on the said area, which said tender was duly accepted on the twenty-second day of December, 1920;

AND WHEREAS the grant of the right to cut forest products upon said area was, by said advertisement for tenders and by the tender of the said Grantees, based upon and subject to certain terms, conditions and stipulations;

AND WHEREAS this agreement is entered into for the purpose of ensuring the performance by the Grantees of the obligations contained in the said tender and acceptance thereof, as hereinafter defined, and of securing the Grantees the said supply of forest products for the purposes of the mill or mills to be established, maintained, conducted and carried on in the Town of Kenora in said District of Kenora;

AND WHEREAS under the terms of an agreement between the parties hereto dated the 30th day of September, A.D. 1920, and executed by the parties hereto, the said Grantees herein agreed to forthwith, after the execution of said agreement, dated the 30th day of September, A.D. 1920, proceed with the erection in the Town of Kenora, of certain mills therein referred to, and, upon certain other terms and conditions therein contained, to enlarge and further extend said mills and increase the capacity thereof as therein provided;

AND WHEREAS, in fulfilment of its promise therein contained to offer for competition certain pulpwood and timber on the area comprising a part of the English River Watershed, referred to in the 8th paragraph of said agreement, dated the 30th day of September, 1920, the Crown has offered for competition the forest products hereinafter more particularly described, and the Grantees have tendered for the said area, and the said Grantees' offer therefor has been accepted by the Crown, and the Grantees are now under obligation to carry out all their obligations to erect, construct, enlarge, extend, complete and operate the mills provided for in said agreement, dated the 30th day of September, 1920;

NOW THEREFORE, THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants, promises and agreement hereinafter contained, it is hereby agreed as follows:

1. The Grantees shall proceed with the construction of the pulp and paper mills in said Town of Kenora provided for in said agreement, dated the 30th day of September, 1920, and on or before the 22nd day of October, 1921, shall have constructed and have in operation in the said Town of Kenora a pulp mill of a capacity of, and manufacturing, fifty (50) tons of pulp daily, and shall continue uninterruptedly the construction work upon said pulp and paper mills until there is being manufactured at said pulp and paper mills 200 tons of newsprint paper per day.

2. The Grantees shall fully complete and equip said pulp and paper mills and have the same in operation on or before the 22nd day of December, 1923, expending in said construction of said pulp and paper mills the sum of at least $2,500,000.00, of which sum of $2,500,000.00 so to be expended, the sum of not less than $1,000,000.00 shall have been expended by the Grantees, on or before the 22nd day of October, 1921.

3. Upon and after the said completion of said pulp and paper mills, the said Grantees, during the currency of this agreement, shall continue to operate the said pulp and paper mills so that the daily output thereof shall not be less than 200 tons of newsprint paper

4. The Grantees shall further extend the said pulp and paper mills and increase the capacity thereof as from time to time they may be required by the Minister so to do, having regard to the quantity of pulpwood available for the said mills.

5. The Grantees shall provide and operate a sawmill or sawmills in the said Town of Kenora of such capacity as the Minister from time to time may require, and shall operate the said sawmill or sawmills during the whole period of this agreement so that the output of said sawmill or sawmills, in each year thereof, shall be such reasonable quantities as from time to time may be required by said Minister.

6. The said Grantees shall employ and keep employed in connection with the operation of said pulp and paper and sawmills, at least 1,000 persons for at least 10 months in each and every year during the period of this agreement.

7. The said sawmills shall be in operation during the year 1921.

8. The Grantees shall further extend the said pulp and paper mills and increase the capacity thereof beyond that hereinbefore provided for, as they may from time to time be required by the Minister so to do, having regard to the quantities of pulpwood and other timber that will be available for the said mills.

9. In consideration of a cash bonus of $50,100 and of said expenditure, and of the contracts and agreements entered into on the part of the Grantees, the Crown will and doth for the dues hereinafter set forth and provided, and subject to the terms, conditions and regulations as to the locality and manner of cutting, measuring, removing and driving same as may from time to time be imposed by the Minister, and subject also as is hereinafter set forth and contained, grant to the Grantees the right to cut and remove all the merchantable timber or wood in or upon the area hereinafter described, to be used only in and for the purpose of supplying the said mill or mills to be erected, for a period of twenty-one years from the date hereof, from unoccupied, unsold and unlocated lands of the Crown as follows:

> Commencing at the intersection of the northerly limit of the Canadian National (Transcontinental) Railway right-of-way with the inter-provincial boundary between the provinces of Ontario and Manitoba; thence north along said inter-provincial boundary to the southerly shore of the English River; thence in a general course north-easterly, following the southerly shore in all its windings of said English River, lake expansions and Lac Seul to the intersection with the west limit of Indian Reserve No. 28; thence south-east and south, following the westerly and southerly boundaries of said Indian Reserve to the south-westerly angle thereof near Lost Lake; thence continuing south astronomically to the northerly limit of the aforesaid right-of-way; thence westerly, following the said limit right-of-way to the point of commencement, containing by admeasurement three thousand and forty-six square miles (3,046 sq. miles) more or less.
>
> Saving and excepting from the above-described area all Indian Reserves, all townsites, and all those parts of the Townships of Rice, Malachi, Redditt, Smellie, Redvers, Wabigoon, Buller, Wauchope, Ladysmith, and Rowell, lying north of said right-of-way, and all islands in lakes or rivers within the described area; also the rights of timber licensees as to timber sold on timber berths, A.T.W. 2, 3,

9, and 10, and timber sold on all other timber berths within the described area, under license.

Saving, excepting and reserving also therefrom all water powers; and also all lands heretofore patented, leased, located or applied for, in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister entitles the applicant or applicants to a lease or patent for such lands; together with the right of the Crown to sell, lease, locate or otherwise dispose of any water powers or lands included in the hereinbefore described area on such terms and conditions for settlement, mining or other purposes as the Minister may deem advisable.

10. The Grantees as to the right to cut the merchantable timber and wood on the said area as above described, shall pay a bonus of $50,100 (the receipt whereof is hereby acknowledged) and the following dues on said merchantable timber and wood: that is to say,

	Cents
Black Walnut and Oak, per cubic foot	.06
Elm, Ash, Tamarac and Maple, per cubic foot	.06
Birch, Basswood, Cedar, Poplar, per cubic foot	.05
Red and White Pine, and Jackpine, per cubic foot	.07½
All other woods, per cubic foot	.03
Basswood and Poplar sawlogs, per thousand feet B.M.	2.00
Pine sawlogs, per thousand feet B.M.	2.50
Maple and Oak sawlogs, per thousand feet B.M.	2.50
Hemlock, Tamarac, and other woods, per thousand feet B.M.	1.50
Spruce, per thousand feet B.M.	2.00
Cordwood (hard), per cord	.40
Cordwood (soft), per cord	.25
Tan Bark, per cord	.60
Spruce Pulpwood, per cord	.80
Balsam and other Pulpwood, per cord	.40
Railway Ties, per tie	.10
Spruce Boom Timber, per thousand feet B.M.	2.00
Pine Boom Timber, per thousand feet B.M.	2.50
All other Boom Timber, per thousand feet B.M.	2.50
Cedar Poles, 30 ft. and less	.25
Cedar Poles, 31 ft. to 40 ft.	.50
Cedar Poles, 41 ft. to 50 ft.	.75
Cedar Poles, 51 ft. and over	1.00
Cedar Posts, each	.02

or such other rates or dues thereon as may from time to time be fixed by the Lieutenant-Governor-in-Council; but in no case shall the price so to be fixed be at higher figures than the price at which the general public shall be permitted to cut on other portions of the Crown domain, or than others, similarly situated, shall be permitted to cut.

11. It is distinctly understood that the Grantees obtain the right to cut the timber only, and have no right to the soil or use thereof, except as may be necessary for cutting and removing the wood and timber, as aforesaid, subject to such reasonable terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Minister.

12. The Grantees shall not have the right to cut or remove timber of any kind from any lands while under timber license or permit from the Crown.

13. The wood and timber shall be cut upon such portions of said territory, and in such manner as the Minister may from time to time direct, and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payment of such annual charge for fire protection as may from time to time be fixed by the Lieutenant-Governor-in-Council.

14. No wood or timber cut on the said territory shall be exported or sold to any person or persons; but such wood or timber shall be used for the purpose of supplying the mills of the said Grantees in the Town of Kenora as aforesaid.

15. The Grantees shall reserve such quantities of newsprint paper as they may be required from time to time so to do by the Minister, for purchase by publishers within the Dominion of Canada.

16. Proper sworn returns of the quantity of wood or timber cut each season shall be made by the Grantees to the Crown, in conformity with the Crown Timber Act and Regulations thereunder, and payment shall be made for such wood and timber not later than the 1st day of October in each year, and the Crown shall have all the rights and powers in respect of enforcing such payments as are now provided in the case of timber cut under timber license.

17. The Grantees shall not, at any time or in any place, deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals, or matter of any kind, which shall or may be injurious to fish life, or have the effect of destroying, harming, or driving away the fish in such river, stream, or water.

18. All water powers and privileges on said territory, and the right of the Crown to raise, hold, lower, and maintain the waters on the rivers, streams and lakes in said territory at such height and in such conditions as may be found necessary and expedient for the development of such water powers, are reserved to the Crown.

19. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said territory on the same terms and conditions for settlement, mining, or other purposes, as ordinary Crown lands situated elsewhere, and this agreement is not to impede or retard settlement, or mining operations, and nothing herein contained shall limit or affect the right of the Department of Lands and Forests to sell, lease, locate or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

20. Nothing herein contained or to be done hereunder or by virtue hereof shall entitle the Grantees to a monopoly in the use of any rivers, streams, or lakes or tributaries thereof in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the Grantees in any way interfering with the driving of logs or timber down the said rivers, streams, or lakes or tributaries thereof, the Minister shall have full power to determine from time to time the provisions necessary to overcome such interference and thereupon the said Grantees as and when directed will make provision accordingly.

21. It is distinctly understood and agreed that nothing herein contained shall, without the consent in writing of the Minister, be deemed to confer any

right to cut or remove timber from any territory or areas while under license or permit from the Crown.

22. The Minister shall have the right to have the timber operations on the said territory inspected at any time he may deem it advisable.

If upon any such inspection, it appears and the Minister so decides, that the timber operations are carried on in such a way that any merchantable or valuable timber which should be removed, is being left or destroyed, he shall have the right to have said timber estimated and charge the same to the Grantees, who shall pay for the same, as so estimated, at the same rates of dues as if it had been actually removed by the said Grantees.

23. The cutting and removing of the timber on this territory or any part thereof shall not be deemed to have been completed until it has been declared satisfactory by the Minister.

24. The Grantees, upon entering into this Agreement, shall deposit forthwith with the Provincial Treasurer of Ontario, Two Hundred and Fifty Thousand Dollars ($250,000.00) cash or an equal amount of Dominion of Canada bonds or Province of Ontario securities, to guarantee the erection and operation of the said mills in conformity with the said conditions, which said bonds and securities shall be forfeited to the Crown in the event of the failure of the Grantees to fulfill all or any of the conditions of this agreement. The said cash or bonds or securities shall be returned upon due performance of the conditions herein contained to the satisfaction of the Minister and the expenditure of the sums herein stipulated.

25. The Crown does not guarantee any particular quantity of wood or timber, nor undertake to do more than grant the right to cut such quantities of wood or timber as may be on the said area, subject to the reservations and conditions hereinbefore provided.

26. In the event of failure on the part of the Grantees to erect, construct, or operate the said pulp, paper or sawmills as hereinbefore agreed, or in default of the said Grantees keeping said pulp, paper and sawmills in operation after the erection thereof, or keeping the required number of persons employed as aforesaid, or upon default of compliance with any of the terms, requirements, provisions or conditions as aforesaid, the Crown may revoke the right, license or permit to cut the said forest products, and upon said revocation all rights of the Grantees under this agreement shall be and become *ipso facto* null and void, and all securities or moneys paid as a deposit or bonus herein shall be forfeited to the Crown as liquidated damages; provided that thirty days' notice in writing of intention to revoke the said right, license or permit shall be given by registered letter addressed to the Grantees at the said Town of Kenora, before any such revocation, in order that the Grantees may have an opportunity of being heard should either or any of them so desire.

27. The word "Minister" herein shall mean Minister of Lands and Forests for the Province of Ontario.

28. This agreement shall be binding upon and enure to the benefit of the Grantees, their heirs, executors, administrators, successors, and assigns. Provided, however, that this agreement and the term hereby created, shall not be assigned or transferred without the written consent of the Minister.

29. The said parties for themselves, their heirs, successors, executors, administrators, and assigns, respectively, do hereby respectively covenant and agree to the full performance on their part, respectively, of everything herein stipulated to be done.

IN WITNESS WHEREOF the said Minister of Lands and Forests for the Province of Ontario and the parties hereto of the second part, have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED in the presence of
(Sgd.) F. J. NIVEN.

(Sgd.) BENIAH BOWMAN.

As to the execution by the Minister of Lands and Forests
(Sgd.) F. J. NIVEN.

(Sgd.) EDWARD WELLINGTON BACKUS.

As to the execution by Edward Wellington Backus, The Keewatin Lumber Company, Ltd., and the Keewatin Power Company, Ltd.
(Sgd.) F. J. NIVEN.

(Sgd.) KEEWATIN LUMBER COMPANY, LTD., by E. W. Backus, Pres.

(Sgd.) KEEWATIN POWER COMPANY, LTD., by E. W. Backus, Pres.

Attest:
(Sgd.) CHAS. C. NONEY,
Secretary, Keewatin Lumber Co., Ltd.

Attest:
(Sgd.) CHAS. C. NONEY,
Secretary, Keewatin Power Co., Ltd.

Appendix No. 51,

NIPIGON PULP AND PINE LIMIT AGREEMENT.

THIS AGREEMENT made in triplicate this 15th day of July, One Thousand Nine Hundred and Twenty-one.

BETWEEN:

His Majesty, the King, represented by the Honourable, the Minister of Lands and Forests for the Province of Ontario, hereinafter called THE CROWN,

OF THE FIRST PART,

—and—

Provincial Paper Mills, Limited, hereinafter called THE GRANTEE,

OF THE SECOND PART.

WHEREAS, by advertisement duly published, the Honourable, the Minister of Lands and Forests for Ontario, called for tenders to be received by him up to and including the 29th day of December, 1920, for the right to cut pulpwood and pine timber on a certain area situated on the north side of Lake Superior, and territory adjacent thereto, in the District of Thunder Bay, hereinafter more particularly described,

AND WHEREAS on the 29th day of December, 1920, the said Minister received from the Grantee a tender for the right to cut pulpwood and pine timber on said area, which said tender has been approved and accepted,

AND WHEREAS the grant of the right to cut pulpwood and pine timber upon said area was, by said advertisement for tenders and by the tender of the said Grantee, based upon and subject to certain terms, conditions and stipulations,

AND WHEREAS this agreement is entered into for the purpose of ensuring the performance by the Grantee of the obligations contained in the said tender and acceptance thereof as hereinafter defined and of securing the Grantee the said supply of pulpwood and pine timber for the purpose of the mill or mills to be established, maintained, conducted, and carried on at a point or points within the District of Thunder Bay or some place approved by the Lieutenant-Governor-in-Council,

NOW THEREFORE, THIS INDENTURE WITNESSETH that, in consideration of the premises, it is agreed by and between the Grantee and the Crown as follows:

1. The Grantee shall, on or before two years from the date hereof, have in operation at a point or points within the District of Thunder Bay, or at the Grantee's option at some other place, approved by the Lieutenant-Governor-in-Council, a paper mill or mills with the necessary pulp mills therewith of a value of not less than $1,500,000.00, and have in operation at some point or points as aforesaid, within one year of the date of acceptance of tender, a mill or mills of the value of not less than $1,000,000.00; and upon and after the completion of said mills, the said Grantee, during the currency of this agreement, shall, subject as hereinafter provided, continue to operate the said mills, and shall employ and keep employed, in connection with the operation of said mills, at least 300 persons on an average for at least ten months in each and every year during the currency of this agreement.

2. Commencing with the month of January, 1925, the Grantee shall, in the month of January of each and every year during the currency of this agreement, deliver to the Minister upon such form as the Minister may direct, a statement, verified by the oath of the secretary of the Grantee, showing the persons, who, during the calendar year ending with the thirty-first day of December then next preceding, were employed by the Grantee in operating the said mills, together with such other details in connection therewith as the Minister may require.

3. The Grantee shall manufacture at said mill or mills a quality of paper equivalent to that now in use in the publication of school-books by the Department of Education of the Province of Ontario, as may from time to time be directed by the Lieutenant-Governor-in-Council, and shall supply directly or indirectly during the period covered by this agreement, such quantity of said grade of paper as shall, in the opinion of the Minister of Lands and Forests, fully satisfy the requirements of the said Department of Education at prices to be agreed on, or in default of agreement at the then market price or prices, which said market price or prices is or are to be ascertained and determined by arbitration as follows: The same shall be referred and submitted to the arbitration, determination and award of three arbitrators, one arbitrator to be nominated by the Minister, one arbitrator to be nominated by the Grantee, and the third by the two so named, or in default of those two agreeing on the third, such third arbitrator to be appointed by any judge of the Supreme Court of

Ontario. The award of such arbitrators (or any two of them) shall be final and conclusive, and there shall be no appeal therefrom and the parties hereto do mutually covenant and agree each with the other that the award to be made by the said arbitrators or any two of them, shall in all respects be well and faithfully kept and observed. The provisions of "The Arbitration Act" of Ontario, save so far as the same may be inconsistent with the provisions hereof, shall apply to said arbitration; it being understood that delivieries shall be made promptly, notwithstanding that the price may not have been agreed upon or ascertained or determined.

4. As and when required so to do by a publisher or publishers of the Province of Ontario, the Grantee shall supply to such publisher or publishers, at prices to be agreed upon by the Grantee and such publisher or publishers, paper of the quality specified in Clause 3 hereof, but so that not more than fifteen per centum of the output of said mills shall be required to be supplied under the terms of this Clause.

5. In consideration of the bonus hereinafter mentioned and of said expenditures and of the contracts and agreements entered into on the part of the Grantee, the Crown, for the said bonus and the dues hereinafter set forth and provided and subject to the terms, conditions, and regulations as to locality and manner of cutting, measuring, driving and removing same as may from time to time be imposed by the Minister and subject also as hereinafter set forth and contained, will and doth grant to the Grantee the right to cut and remove all spruce, balsam, banksian or jackpine, poplar and whitewood trees, to supply for a period of twenty-one years the said mill or mills or extensions thereof or additions thereto (provided however, that where such extensions or additions are outside the District of Thunder Bay, the same have been approved of by the Lieutenant-Governor-in-Council); and also to cut and remove all red and white pine trees from unlicensed, unoccupied, unsold and unlocated lands of the Crown in or upon the area hereinafter described as follows:

> Commencing at the point in which the east limit of the Township of Nipigon intersects the north shore of Nipigon Bay of Lake Superior; thence north along the east boundary of the said township 5 miles and 36½ chains to the north-east angle of the township; thence east astronomically a distance of 5 miles and 30 chains more or less to a point south, astronomically, from the south-east angle of the Township of Ledger; thence north, astronomically, seven (7) miles, more or less to the south-east angle of the said Township of Ledger; thence east, astronomically, along the south boundary of the Nipigon Forest Reserve twenty-two (22) miles to the south-east angle thereof; thence north, astronomically, along the east boundary of the Nipigon Forest Reserve eight (8) miles; thence east, astronomically, a distance of twenty-eight (28) miles, more or less, to a point of intersection with the west boundary of the Pic River Pulp and Timber Limit produced north; thence south eight (8) miles, more or less, to the north-west angle of said Pic River Pulp and Timber Limit and continuing south along the west boundary of said timber limit twenty-three (23) miles, more or less, to the north shore of Lake Superior; thence westerly and north-westerly, following the shore of Lake Superior to the place of beginning, containing an area of one thousand two hundred and forty (1,240) square miles, more or less, excepting from the above described area, the right-of-way and lands of the Canadian Pacific Railway Company, and all other lands patented, leased or sold therein.

Reserving and excepting, nevertheless, from the above-described area, all lands under the water of all rivers, lakes and streams within the said described area; also all lands heretofore patented, licensed, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister entitles the applicant or applicants to a lease or patent for such lands, together with the right of the Crown to sell, lease, locate or otherwise dispose of any lands included in the hereinbefore described area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere.

6. The Grantee, as to the right to cut the pulpwood and pine timber on said area, as above described, shall pay a bonus of $1.33 per cord for spruce pulpwood; a bonus of 20 cents per cord for all other pulpwood above mentioned; and a bonus of $5.00 per thousand feet, board measure, for pine logs, and shall also pay the following Crown dues, namely: 80 cents per cord for spruce pulpwood; 40 cents per cord for all other pulpwood; $2.50 per thousand feet, board measure, for pine logs; or such other dues as shall be fixed from time to time by the Lieutenant-Governor-in-Council.

7. It is distinctly understood that the Grantee obtains the right to cut the timber only, and has no right to the soil or use thereof, except as may be necessary for cutting and removing the wood and timber, as aforesaid, subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same, as may from time to time be imposed by the Minister.

8. The wood and timber shall be cut upon such portions of said territory, and in such manner as the Minister may from time to time direct, and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payment of such annual charge for fire protection as may from time to time be fixed by the Lieutenant-Governor-in-Council.

9. All pulpwood cut on the said territory shall be used for the supply of, and shall be manufactured at the said mills or extensions thereof or additions thereto (provided, however, that where such extensions or additions are outside the District of Thunder Bay, the same shall have been approved of by the Lieutenant-Governor-in-Council). All pine timber shall be sold subject to the manufacturing condition, that is to say, it shall be manufactured in the Dominion of Canada.

10. The Crown does not guarantee any particular quantity of wood or timber nor undertake to do more than grant the right to cut such quantities of wood or timber as may be on said area, subject to the reservations and conditions hereinbefore provided.

11. Proper sworn returns of wood and timber cut each season shall be made by the Grantee to the Crown, in conformity with the Crown Timber Act and regulations thereunder, and payment of bonus and Crown dues upon all the wood and timber cut by the Grantee, shall be made by the Grantee to the Crown forthwith upon the rendering from time to time by the Crown to the Grantee of an account thereof; and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of the enforcement of such payments and of any interest charges thereon as are now or hereafter may be provided in the case of the dues on timber cut under timber license.

12. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest; and if upon inspection it appears, and the Minister so decides, that the said timber operations are carried on in such a way that any merchantable or valuable timber that should be removed, is being left or destroyed, the Minister shall have the right to estimate the said timber so remaining uncut or being destroyed, and charge the same to the Grantee at, and the Grantee shall pay therefor, the same rate of dues and bonus as if the same had been actually removed by the said Grantee.

13. The cutting and removing of timber on said territory or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown nor until such operation shall have been declared satisfactory by the Minister.

14. The Grantee shall not, at any time or in any place, deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals, or matter of any kind, which shall or may be injurious to fish life, or have the effect of destroying, harming or driving away the fish in such river, stream or water.

15. All water powers and privileges on said territory, and the right of the Crown to raise, hold, lower, and maintain the waters on the rivers, streams and lakes in said territory at such height and in such conditions as may be found necessary and expedient for the development of such water powers, are reserved to the Crown.

16. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said territory on the same terms and conditions for settlement, mining, or other purposes as ordinary Crown lands situated elsewhere, and this agreement is not to impede or retard settlement, or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

17. Nothing herein contained or to be done hereunder or by virtue hereof, shall entitle the Grantee to a monopoly in the use of any rivers, streams, or lakes or tributaries thereof, in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the Grantee in any way interfering with the driving of logs or timber down the said rivers, streams or lakes or tributaries thereof, the Minister, as well as such other lawful authority as may be constituted therefor, shall have full power to determine from time to time the provisions necessary to overcome such interference, and thereupon the said Grantee, as and when directed, will make provision accordingly.

18. It is distinctly understood and agreed that nothing herein contained shall be deemed to confer any right to cut or remove timber from any territory or area while under license or permit from the Crown.

19. The deposit of $25,000.00, made by the Grantee with its said tender, shall be held by the Crown as security for due performance by the Grantee of its agreements contained in Clause 1 hereof, to have in operation as therein mentioned, within one year from the date of said tender, a mill or mills of the value of not less than $1,000,000 and to have in operation as in said Clause 1 hereof mentioned, within two years from the date hereof, a mill or mills with the necessary pulp mills therewith, of the value of not less than $1,500,000, and upon the Grantee complying to the satisfaction of the Minister, with the said provisions

of said Clause 1 hereof, the said $25,000.00 shall be applied by the Crown and go in reduction of the first moneys payable by the Grantee for dues and bonuses hereunder, until in that way the Grantee has been given credit for the full sum of $25,000.00.

20. Subject to the power of the Minister to waive the right of revocation, caused by any failure on the part of the Grantee, herein provided for, in the event of failure on the part of the Grantee to erect, construct, or operate the said pulp or paper mills as herein agreed, or in default of the said Grantee keeping said pulp or paper mills in operation after the erection thereof as herein agreed, or keeping the required number of persons employed as herein agreed, or upon default of compliance with any other of the terms, requirements, provisions or conditions as aforesaid, the Crown may revoke the right, license, or permit to cut the said forest products, and upon said revocation all rights of the Grantee under this agreement shall be and become *ipso facto* null and void, and all moneys paid as a deposit or bonus herein, shall be forfeited to the Crown, provided that thirty days' notice in writing of intention to revoke the said right, license, or permit shall be given by registered letter addressed to the Grantee at 54 University Avenue, Toronto, Ontario, before any such revocation, in order that the Grantee may have an opportunity of being heard should it so desire.

21. Upon all bonus and dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter the Grantee, without prejudice to the power of the Crown to enforce the payment of such bonus and dues at any time the Minister may think proper, shall pay to the Crown, interest at the rate of six per cent. per annum from said thirtieth day of September; and upon all of such bonus and dues remaining unpaid on the thirty-first day of October then next ensuing, the Grantee shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

22. The word "Minister" shall mean Minister of Lands and Forests for the Province of Ontario.

23. This agreement shall be binding upon and enure to the benefit of the Grantee, its successors and assigns; provided, however, that this agreement and the term created shall not be assigned or transferred without the written consent of the Minister, endorsed on said assignment or transfer.

24. The said parties, for themselves, their heirs and assigns, respectively, do hereby covenant and agree to the full performance on their part, respectively, of everything herein stipulated to be done.

IN WITNESS WHEREOF said Minister of Lands and Forests for the Province of Ontario, and the Grantee, have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED
in the presence of

BENIAH BOWMAN.

Witness as to execution by the Honourable, the Minister of Lands and Forests.
W. C. CAIN.

PROVINCIAL PAPER MILLS, LIMITED, by J. H. Weldon, President.

Witness as to execution by Provincial Paper Mills, Limited.
MARGARET CRAINE.

By S. F. Duncan, Secretary.

Appendix No. 52.

THE NAGAGAMI RIVER PULP AND TIMBER LIMIT AGREEMENT.

THIS AGREEMENT made in triplicate this fifteenth day of September, One Thousand Nine Hundred and Twenty-one.

BETWEEN:

His Majesty, the King, represented by the Honourable, the Minister of Lands and Forests for the Province of Ontario, hereinafter called THE CROWN.

OF THE FIRST PART,

—and—

The Transcontinental Development Company, Limited, hereinafter called THE GRANTEE,

OF THE SECOND PART.

WHEREAS, by advertisement duly published, the Honourable, the Minister of Lands and Forests for Ontario, called for tenders to be received by him up to and including the fifteenth day of June, 1921, for the right to cut pulpwood and pine timber on a certain area situated on the Nagagami River and other territory adjacent thereto in the District of Algoma, hereinafter more particularly described,

AND WHEREAS on the fifteenth day of June, 1921, the said Minister received from the Grantee the tender for the right to cut pulpwood and pine timber on said area, which said tender has been approved and accepted,

AND WHEREAS the right to cut pulpwood and pine timber on said area was, by said advertisement for tenders and by the tender of the said Grantee, based upon and subject to certain terms, conditions and stipulations,

AND WHEREAS this agreement is entered into for the purpose of ensuring the performance by the Grantee of the obligations contained in said tender and acceptance thereof as hereinafter defined, and of securing the Grantee the said supply of pulpwood and pine timber for the purpose of the mill or mills to be established, maintained, conducted and carried on at a point or points at or near the said area at some place or places approved of by the Minister,

NOW THEREFORE, THIS INDENTURE WITNESSETH that in consideration of the premises it is agreed by and between the Grantee and the Crown as follows:

1. On or before the third day of October, 1921, the Grantee shall have commenced construction work on a pulp mill within the limits of the territory hereinafter described, or at some place in the Province of Ontario approved by the Minister and will throughly equip the same so that the expenditure in connection with the erection, equipment and machinery of the said pulp mill will be at least One Million Dollars ($1,000,000), and shall expend in connection with the erection, equipment and machinery of the said pulp mill as follows: On or before the fifteenth day of June, 1922, the sum of Two Hundred Thousand Dollars ($200,000); between the fifteenth day of June, 1922, and the fifteenth day of June, 1923, the latter day inclusive, the sum of Three Hundred and Fifty

Thousand Dollars ($350,000); and between the fifteenth day of June, 1923, and the fifteenth day of June, 1924, the sum of Four Hundred and Fifty Thousand Dollars ($450,000).

2. Upon and after the completion of said pulp mill, the said Grantee, during the currency of this agreement, shall continue to operate the said pulp mill so that the daily output thereof shall, in each and every day during the currency of this agreement, be not less than 100 tons of pulp; and shall employ or keep employed, in connection with said operation of said mill, at least two hundred (200) persons on an average for at least 10 months in each and every year during the period of this agreement, and the employment of hands as aforesaid shall form part of the consideration for the price of the pulpwood and pine timber.

Commencing with the month of January, 1925, the Grantee shall, in the month of January of each and every year during the currency of this agreement, deliver to the Minister, upon such form as the Minister may direct, a statement verified by the oath of the secretary of the Grantee, showing the persons who, during the calendar year ending with the 31st day of December then next preceding, were employed by the Grantee in operating said mill, together with such other details in connection therewith as the Minister may require.

3. The Grantee shall erect a paper mill within such time and at such place as the Minister of Lands and Forests may direct, having a capacity of at least seventy-five (75) tons of paper per day; and after the erection thereof shall operate the same continuously for the period of this agreement, so that the daily output of the said mill shall not be less than fifty (50) tons of paper. The Grantee hereby agrees to reserve from time to time such quantities of newsprint paper as it may be required to do by the said Minister for the purchase by publishers within the Dominion of Canada.

4. The cutting of the said pulpwood and timber may begin as soon as, but not before, the said sum of Two Hundred Thousand Dollars ($200,000) shall have been expended on the erection, equipment and machinery of said mills, buildings and structures.

5. In consideration of the bonus hereinafter mentioned and of the said expenditure and of the contracts and agreements entered into on the part of the Grantee, for the said bonus and the dues hereinafter set forth and provided and subject to the terms, conditions and regulations as to locality and manner of cutting, measuring, driving and removing the same as may from time to time be imposed by the Minister, and subject also as hereinafter set forth and contained, the Crown will and doth grant to the Grantee the right to cut and remove all the spruce, balsam, banksian or jack pine, poplar and whitewood trees sufficient to supply the said mill or mills to be erected, for a period of twenty-one (21) years, and also to remove all red and white pine trees from unlicensed, unoccupied, unsold and unlocated lands of the Crown in or upon the area hereinafter described as follows:

> Commencing at the south-west angle of the township of Foch, thence north along the line between the districts of Algoma and Thunder Bay a distance of 54 miles, 1 chain and 26 links, to the north-west angle of the township of Boyce; thence east along the north boundaries of the townships of Boyce, Shuel, Mulloy, Fintry and Auden, a distance of 46 miles, 58 chains and 50 links, to the north-east angle of the last named township; thence south along the east boundaries of the township of Auden and Gill, 18 miles to the south-east angle of the township

of Gill; thence west along the south boundary of Gill 9 miles, 4 chains and 63 links to the south-west angle of the township; thence south along the west boundaries of Storey, Langemarck and Dowsley 26 miles, 77 chains and 58 links to the south-west angle of Dowsley; thence east along the south boundary of that township 9 miles, 1 chain and 65 links to the south-east angle thereof, thence south astronomically along the east limit of Farquhar township 9 miles and 6 chains, more or less, to the south-east angle of the township; thence west along the south boundaries of Farquhar, Haig, Wicksteed, Lessard and Foch 47 miles, 44 chains and 70 links, more or less, to the place of beginning.

Reserving and excepting nevertheless from the above-described area the right-of-way of the Canadian National Railway through the townships of Farquhar, Haig, Wicksteed, Lessard, Nagagami and Flanders, and also the right of way through the townships of Gill, McMillan, Fintry, Mulloy and Shuel, also all lands under the water of all rivers, lakes and streams within the said described area; also all lands heretofore patented, licensed, leased, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests entitles the applicant or applicants to a lease or patent for such lands, together with the right of the Crown to sell, lease, locate or otherwise dispose of any lands included in the hereinbefore described area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere.

6. The Grantee, as to the right to cut the pulpwood and pine timber on said area as above described, shall pay a bonus of thirty-five cents (35c) per cord for spruce pulpwood in addition to the Crown dues of eighty cents (80c) per cord and shall pay a bonus of thirty-five cents (35c) per cord for all other pulpwood above mentioned in addition to Crown dues of forty cents (40c) per cord, and shall pay a bonus of ten dollars ($10) per thousand feet board measure for pine logs in addition to dues of two dollars and fifty cents ($2.50) per thousand feet board measure, or such other rates of dues as may from time to time be fixed by the Lieutenant-Governor-in-Council for such pulpwood and pine timber.

7. It is distinctly understood that the Grantee obtains the right to cut the timber only and has no right to the soil or use thereof except as may be necessary for cutting and removing the wood and timber as aforesaid, subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Minister.

8. The wood and timber shall be cut upon such portions of said territory and in such manner as the Minister may from time to time direct and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payment of such annual charge for fire protection as may from time to time be fixed by the Lieuenant-Governor-in-Council.

9. All pulpwood cut on the said territory shall be used for the supply of, and shall be manufactured at the said mills (or extensions thereof or additions thereto approved by the Minister). All pine timber shall be sold subject to the manufacturing condition, that is to say, it shall be manufactured in the Dominion of Canada.

10. The Crown does not guarantee any particular quantity of wood or timber nor undertake to more than grant the right to cut such quantities of wood or timber of the kind aforesaid as may be on the said area, subject to the reservations and conditions hereinbefore provided.

11. Proper sworn returns of wood and timber cut each season shall be made by the Grantee to the Crown in conformity with the Crown Timber Act and regulations thereunder, and payment of bonus and Crown dues upon all wood and timber cut by the Grantee shall be made by the Grantee to the Crown forthwith upon the rendering from time to time by the Crown to the Grantee of an account thereof, and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of the enforcement of such payments and of any interest charges thereon as are now or hereafter may be provided in the case of the dues on timber cut under timber license.

12. Upon all bonus and dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter, the Grantee, without prejudice to the power of the Crown to enforce the payment of such bonus and dues at any time the Minister may think proper, shall pay to the Crown interest at the rate of six per cent. (6%) per annum from said thirtieth day of September, and upon all of such bonus and dues remaining unpaid on the thirty-first day of October then next ensuing, the Grantee shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

13. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest, and if upon such inspection it appears to the Minister and the Minister so decides that the said timber operations are carried on in such a way that any merchantable or valuable timber that should be removed is being left or destroyed the said Minister shall have the right to estimate the timber so remaining uncut or being destroyed and the Grantee shall pay therefor the same rates of dues and bonus as if the same had been actually removed by the said Grantee.

14. The cutting and removing of timber on the said area or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown nor until such operation shall have been declared satisfactory by the said Minister.

15. The Grantee shall not at any time or at any place, deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals or matter of any kind which shall or may be injurious to the fish life or have the effect of destroying, harming, or driving away the fish in such river, stream or water.

16. All water powers and privileges on said territory and the right of the Crown to raise, hold, lower, and maintain the waters on the rivers, streams, and lakes in said territory at such height and in such conditions as may be found necessary and expedient for the development of such water powers, are reserved to the Crown.

17. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere, and this agreement is not to impede or retard settlement or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

18. Nothing herein contained or to be done hereunder or by virtue hereof shall entitle the Grantee to a monopoly of any rivers, streams or lakes or tributaries thereof in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf and in the event of the works of the Grantee in any way interfering with the driving of logs or timber down the said rivers, streams or lakes or tributaries thereof, the Minister shall have full power to determine from time to time the provisions necessary to overcome such an interference, and thereupon the said Grantee as and when directed shall make provision accordingly.

19. It is distinctly understood and agreed that nothing herein contained shall without the consent in writing of the Minister be deemed to confer any right to cut or remove any timber from any area while under license or permit from the Crown.

20. The deposit of $50,000 made by the Grantee with the said tender shall be held by the Crown as security for the due performance by the Grantee of the provisions contained in clause numbered 1 hereof. After the said pulp mill is erected and in operation, the said deposit of $50,000 may be applied on account of the payment of bonus as it from time to time accrues, and, subject to said application to the payment of bonus, said deposit shall remain as a guarantee for the due performance by the Grantee of all the obligations of the Grantee under this agreement. Said deposit shall be forfeited to the Crown in the event of the failure of the Grantee to fulfil all or any of the obligations or conditions of this agreement. The said deposit, or so much, if any, thereof as shall not have been applied to the payment of bonus, shall be returned to the Grantee upon due performance to the satisfaction of the Minister, of the obligations and conditions herein contained.

21. In the event of failure on the part of the Grantee to erect, construct or operate the said pulp and paper mills as hereinbefore agreed, or in default of the said Grantee keeping said pulp and paper mills in operation after the erection thereof or keeping the required number of persons employed as aforesaid, or upon default of compliance with any of the terms, requirements, provisions or conditions as aforesaid, the Crown may revoke the right, license or permit to cut the said forest products, and upon said revocation all rights of the Grantee under this agreement shall be and become ipso facto null and void, and all securities or moneys paid as deposit or bonus herein shall be forfeited to the Crown as liquidated damages, providing that thirty (30) days' notice in writing of intention to revoke the said right, license or permit shall be given, which said notice may be given by registered letter addressed to the Grantee at its head office in Ontario, before any such revocation, in order that the Grantee may have an opportunity of being heard, should it so desire.

22. The Minister shall have the power to extend, within the said period of twenty-one years, the time for the doing by the Grantee of any act required by this agreement to be done by the Grantee, and also shall have the power to waive the right of revocation caused by any failure on the part of the Grantee herein provided for.

23. The Grantee may negotiate with the Crown for the purpose of enabling the Grantee to secure an undeveloped water power to develop for the operation of the mill or mills hereinbefore mentioned.

24. The word "Minister" shall mean Minister of Lands and Forests for the Province of Ontario.

25. This Agreement shall be binding upon and enure to the benefit of the Grantee, its successors and assigns, provided, however, that this agreement and the term created shall not be assigned or transferred without the written consent of the Minister.

26. The said parties, for themselves, their successors and assigns, respectively do hereby covenant and agree to the full performance on their part respectively, of everything herein stipulated to be done.

IN WITNESS WHEREOF, said Minister of Lands and Forests for the Province of Ontario and the Grantee, have hereunto set their hands and seals.

Signed, Sealed, and Delivered in the Presence of:

W. C. CAIN.

E. PEARLE KING.

BENIAH BOWMAN, *Minister of Lands and Forests.*

TRANSCONTINENTAL DEVELOPMENT COMPANY, LIMITED.

W. S. MORLOCK, *President.*

SAMUEL D. FOWLER, *Secretary.*

Appendix No. 53.

THE LONG LAKE PULP AND TIMBER LIMIT AGREEMENT.

THIS AGREEMENT made in triplicate this fourth day of August, One Thousand, Nine Hundred and Twenty-one,

BETWEEN:

His Majesty the King, represented by the Honourable the Minister of Lands and Forests of the Province of Ontario, hereinafter called "THE CROWN,"

OF THE FIRST PART,

—and—

John Homer Black, of the City of Toronto, in the County of York and Province of Ontario, hereinafter called "THE GRANTEE,"

OF THE SECOND PART.

WHEREAS by advertisement duly published, the Honourable the Minister of Lands and Forests for Ontario, called for tenders to be received by him up to and including the fourth day of July, 1921, for the right to cut pulpwood and pine timber on a certain area situated in the vicinity of Long Lake, in the District of Thunder Bay, hereinafter more particularly described,

AND WHEREAS on the fourth day of July, 1921, the said Minister received from the Grantee the tender for the right to cut pulpwood and pine timber on said area, which said tender has been approved and accepted,

AND WHEREAS the right to cut pulpwood and pine timber on said area was by said advertisement for tenders and by the tender of the said Grantee based upon and subject to certain terms, conditions and stipulations,

AND WHEREAS this agreement is entered into for the purpose of ensuring the performance by the Grantee of the obligations contained in said tender and acceptance thereof as hereinafter defined, and of securing the Grantee

the said supply of pulpwood and pine timber for the purpose of the mill or mills to be established, maintained, conducted and carried on at a point or points at or near the said area at some place or places approved of by the Minister,

NOW, THEREFORE, THIS INDENTURE WITNESSETH that in consideration of the premises, it is agreed by and between the Grantee and the Crown as follows:

1. On or before the twelfth day of October, 1921, the Grantee shall have commenced construction work on a pulp mill in or near said area at some place approved by the Lieutenant-Governor-in-Council and will thoroughly equip the same so that the expenditure in connection with the erection, equipment and machinery of said pulp mill will be at least one million dollars ($1,000,000), and shall expend in connection with the erection, equipment and machinery of said pulp mill as follows: On or before the fourth day of July, 1922, the sum of two hundred thousand dollars ($200,000); between the fourth day of July, 1922, and the fourth day of July, 1923, the latter day inclusive, the sum of three hundred and fifty thousand dollars ($350,000), and between the fourth day of July, 1923, and the fourth day of July, 1924, the sum of four hundred and fifty thousand dollars ($450,000), on or before which last-mentioned date the Grantee shall have said mill equipped and in operation.

2. Upon and after the completion of said mill, said Grantee, during the currency of this agreement, shall continue to operate the said pulp mill so that the daily output thereof shall, in each and every day during the currency of this agreement, be not less than one hundred and fifty (150) tons of pulp, and shall employ or keep employed in connection with said operation of said mill at least three hundred (300) persons on an average for at least ten (10) months in each and every year during the period of this agreement, and the employment of said three hundred (300) persons as aforesaid shall form part of the consideration for the price of the pulpwood and pine timber.

Commencing with the month of January, 1925, the Grantee shall, in the month of January of each and every year during the currency of this agreement, deliver to the Minister upon such form as the Minister may direct, a statement, verified by the oath of the secretary of the Grantee, showing the persons who, during the calendar year ending with the thirty-first day of December then next preceding, were employed by the Grantee in operating the said mill, together with such other details in connection therewith as the Minister may require.

3. The Grantee shall with all convenient despatch proceed to construct a paper mill or mills in or near the said area at such place as the Minister may direct, which said paper mill or mills shall be of the capacity of at least one hundred (100) tons of paper per day and shall have the same in operation on or before the fourth day of July, 1925, and on and after the completion of said paper mill or mills, the said Grantee during the currency of this agreement shall continue to operate said mill or mills continuously so that the daily output thereof shall not be less than 75 tons of paper. The Grantee hereby agrees to reserve from time to time, such quantities of newsprint paper as he may be required to do by the Minister for purchase by publishers within the Dominion of Canada.

4. The cutting of the said pulpwood and timber may begin as soon as but not before the said sum of two hundred thousand dollars ($200,000) shall have been expended on the erection, equipment and machinery of said mills, buildings and structures.

5. In consideration of the bonus hereinafter mentioned, and of the said expenditure and of the contracts and agreements entered into on the part of the Grantee, for the said bonus and the dues hereinafter set forth and provided, and subject to the terms, conditions and regulations as to locality and manner of cutting, measuring, driving and removing the same as may from time to time be imposed by the Minister, and subject also as hereinafter set forth and contained; the Crown will and doth grant to the Grantee the right to cut and remove all the spruce, balsam, banksian or jack pine, poplar and whitewood trees sufficient to supply the said mill or mills to be erected for a period of twenty-one (21) years from the date hereof, and also to remove all red and white pine trees from unlicensed, unoccupied, unsold and unlocated lands of the Crown in or upon the area hereinafter described, as follows:

Commencing at a point in the north boundary of the Nipigon Pulp and Timber Limit at the distance of 12 miles east from the east boundary of the Nipigon Forest Reserve; thence north astronomically 68 miles, more or less, to the southerly limit of the right-of-way of the Canadian National Railway (National Transcontinental), thence easterly along the southerly limit of the said right-of-way 66 miles, more or less, to the north boundary of the township of Barlow; thence continuing easterly along the said limit of said right-of-way through the townships of Barlow, Selwyn and Henderson 25 9/10 miles, more or less, to the east boundary of the last named township; thence south along the east boundaries of the townships of Henderson and Bell, 13 miles more or less, to the south-east angle of Bell; thence west along the south boundaries of the townships of Bell, Low, Klotz, Fernow and O'Meara, 45 miles more or less, to the south-west angle of O'Meara, thence south astronomically 24 miles; thence west astronomically 16 miles; thence south astronomically 16 miles more or less, to the easterly prolongation of the north boundary of the Nipigon Pulp and Timber Limit; thence west astronomically allong the said line 30 miles, more or less, to the place of beginning.

Reserving and excepting therefrom the right of way of the Canadian National Railway (Canadian Northern) and also all Indian Reserves, and all lands under the water of all rivers, lakes and streams within the said described area; also all lands heretofore patented, licensed, leased, located or applied for in respect of which such proceedings have been taken or shall hereafter be taken as in the opinion of the Minister of Lands and Forests entitled the applicant or applicants to a lease or patent for such lands, together with the right of the Crown to sell, lease, locate or otherwise dispose of any lands included in the hereinbefore described area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere.

6. The Grantee as to the right to cut the pulpwood and pine timber on said area as above described shall pay a bonus of forty-nine cents (49c) per cord for spruce pulpwood in addition to the Crown dues of eighty cents (80c) per cord and shall pay a bonus of thirty-eight cents (38c) per cord for all other pulpwood above mentioned, in addition to Crown dues of forty cents (40c) per cord, and shall pay a bonus of ten dollars ($10) per thousand feet, board measure, for pine logs in addition to dues of two dollars and fifty cents ($2.50) per thousand feet, board measure, or such other rates of dues as may from time

to time be fixed by the Lieutenant-Governor-in-Council for such pulpwood and pine timber.

7. It is distinctly understood that the Grantee obtains the right to cut the timber only and has no right to the soil or use thereof except as may be necessary for cutting and removing the wood and timber as aforesaid, subject to such terms, conditions and regulations as to the cutting, measuring, removing and driving of the same as may from time to time be imposed by the Minister.

8. The wood and timber shall be cut upon such portions of said territory and in such manner as the Minister may from time to time direct and such precautions shall be taken and means employed to prevent injury or destruction by fire on said territory as said Minister may require, including payment of such annual charge for fire protection as from time to time may be fixed by the Lieutenant-Governor-in-Council.

9. All pulpwood cut on the said territory shall be used for the supply of, and shall be manufactured at the said mills (or extensions thereof or additions thereto approved of by the Lieutenant-Governor-in-Council). All pine timber shall be sold subject to the manufacturing condition, that is to say, it shall be manufactured in the Dominion of Canada.

10. The Crown does not guarantee any particular quantity of wood or timber nor undertake to do more than grant the right to cut such quantities of wood or timber of the kind aforesaid as may be on the said area, subject to the reservations and conditions hereinbefore provided.

11. Proper sworn returns of wood and timber cut each season shall be made by the Grantee to the Crown in conformity with the Crown Timber Act and regulations thereunder, and payment of bonus and Crown dues upon all the wood and timber cut by the Grantee shall be made by the Grantee to the Crown forthwith upon the rendering from time to time by the Crown to the Grantee of an account thereof, and in addition to all other remedies it may have therefor, the Crown shall have all the rights and powers in respect of the enforcement of such payments and of any interest charges thereon as are now or hereafter may be provided in the case of the dues on timber cut under timber license.

12. Upon all bonus and dues of all kinds on the pulpwood and timber cut under this agreement prior to the first day of May in any year during the currency of this agreement remaining unpaid on the thirtieth day of September next ensuing thereafter, the Grantee, without prejudice to the power of the Crown to enforce the payment of such bonus and dues at any time the Minister may think proper, shall pay to the Crown interest at the rate of six per cent. (6%) per annum from said thirtieth day of September, and upon all of such bonus and dues remaining unpaid on the thirty-first day of October then next ensuing, the Grantee shall pay interest at the rate of one per cent. (1%) per month from said thirty-first day of October until the same is fully paid.

13. The Minister shall have the right to inspect the timber operations on the said territory at any time he may deem it advisable or in the public interest, and if upon such inspection it appears to the Minister and the Minister so decides that the said timber operations are carried on in such a way that any merchantable or valuable timber that should be removed is being left or destroyed, the said Minister shall have the right to estimate the timber so remaining uncut or being destroyed and the Grantee shall pay therefor the same rates of dues and bonus as if the same had been actually removed by the said Grantee

14. The cutting and removing of timber in the said area or any part thereof shall not be deemed to have been completed until it has been examined by an officer of the Crown, nor until such operation shall have been declared satisfactory by the said Minister.

15. The Grantee shall not at any time or at any place deposit, empty, run or turn into any river, stream, or other waters whatsoever, any refuse, sawdust, chemicals or matter of any kind which shall or may be injurious to fish life or have the effect of destroying, harming, or driving away the fish in such river, stream or water.

16. All water powers and privileges on said territory and the right of the Crown to raise, hold, lower and maintain the waters on the rivers, streams and lakes in said territory at such height and in such conditions as may be found necessary and expedient for the development of such water power, are reserved to the Crown.

17. The Crown shall retain the right to sell, lease, locate or otherwise dispose of any lands included in the said area on the same terms and conditions for settlement, mining or other purposes as ordinary Crown lands situated elsewhere, and this agreement is not to impede or retard settlement or mining operations, and nothing herein contained shall limit or affect the right of the Crown or its Ministers to sell, lease, locate or otherwise dispose of lands in the aforesaid territory for settlement, mining or other purposes.

18. Nothing herein contained or to be done hereunder or by virtue hereof, shall entitle the Grantee to a monopoly of any rivers, streams or lakes, or tributaries thereof in the said territory, but the same shall be and continue open for the use of the public in accordance with the law in that behalf, and in the event of the works of the Grantee in any way interfering with the driving of logs or timber down the said rivers, streams, or lakes, or tributaries thereof, the Minister shall have full power to determine from time to time the provisions necessary to overcome such an interference, and thereupon the said Grantee as and when directed shall make provision accordingly.

19. It is distinctly understood and agreed that nothing herein contained shall, without the consent in writing of the Minister, be deemed to confer any right to cut or remove any timber from any area while under license or permit from the Crown.

20. The sum of fifty thousand dollars ($50,000) deposited by the Grantee with its tender for the above area shall remain on deposit to guarantee the due performance by the Grantee of all the obligations of the Grantee under this agreement, which said deposit shall be forfeited to the Crown in the event of the failure of the Grantee to fulfil all or any of the obligations or conditions of this agreement. The said deposit shall be returned upon due performance of the obligations and conditions herein contained to the satisfaction of the Minister.

21. In the event of failure on the part of the Grantee to erect, construct or operate the said pulp or paper mills as herein agreed or in default of the said Grantee keeping said pulp or paper mills in operation after the erection thereof as herein agreed, or keeping the required number of persons employed as herein agreed, or upon default of compliance with any other of the terms, requirements provisions, or conditions as aforesaid, the Crown may revoke the right, license or permit to cut the said forest products, and upon said revocation all rights of the Grantee under this agreement shall be and become ipso facto null and void, and all moneys paid as a deposit, or bonus herein, shall be forfeited to the Crown, provided that thirty days' notice in writing of intention to revoke the said right

license or permit shall be given by registered letter addressed to the Grantee at the City of Toronto, in the County of York, before any such revocation, in order that the Grantee may have an opportunity of being heard should it so desire.

22. The word "Minister" shall mean Minister of Lands and Forests for the Province of Ontario.

23. This agreement shall be binding upon and enure to the benefit of the Grantee, its successors and assigns, provided, however, that this agreement and the term created shall not be assigned or transferred without the written consent of the Minister.

24. The said parties, for themselves, their heirs and assigns, respectively do hereby covenant and agree to the full performance on their part respectively, of everything herein stipulated to be done.

25. IN WITNESS WHEREOF, said Minister of Lands and Forests for the Province of Ontario, and the Grantee, have hereunto set their hands and seals.

Signed, Sealed and Delivered
in the presence of

(Signed) W. C. CAIN.

(Signed) BENIAH BOWMAN,
Minister of Lands and Forests.

(Signed) J. H. BLACK.

REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1922

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by Clarkson W. James, Printer to the King's Most Excellent Majesty
1923

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Load of waney-board white pine timber cut on Sturgeon River watershed, season 1921.

CONTENTS

Report of the Minister of Lands and Forests of the Province of Ontario

For the Year Ending 31st October, 1922.

To His Honour the Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

In pursuance of the provisions of the Public Lands Act I have the honour to submit for the information of Your Honour and the Legislative Assembly a report for the fiscal year ending the 31st day of October, 1922, with respect to the proceedings and transactions of the Department of Lands and Forests.

It affords me pleasure to announce as a preface to the detailed data following that the revenue in timber operations and land transactions during the year has been the largest in the history of the Province, exceeding that of the preceding year by over $400,000.

An outline of the scope of the undertakings of the Department and the functions of each Branch disclose the variety and importance of the services rendered.

As the name implies, there are two outstanding and somewhat distinct units of the Department, viz, "Lands" and "Forests", but these embrace in the application of the Acts and Regulations the rendering of services not directly expressed in either term, such as extensive building of roads and generous assistance to settlers.

Under the heading of "Lands" come:

(A) *Surveys*, *Sales*, *Leases*, *Locations* and *Grants* of *Agricultural lands*, the *placing of settlers* and the general disposition of all Crown areas for *Ranching*, *Summer Resorts*, *Fur Farming*, *Transmission Lines*, *Mill Sites*, *Water Lots* and numerous other purposes.

(B) *Water Powers:* The leasing of same for commercial and industrial purposes at annual rentals based upon h.p. developed and sold.

(C) Public Parks such as Algonquin, Quetico and Rondeau—great Provincial natural recreation grounds and protectors and propagators of wild game and bird life, also conservers of timber and possessors of great opportunities for the study of technical forest problems.

(D) *Loans and Advances* to settlers covering seed grain, feed and stock; Experimental Farms; Creameries; Dairy Co-operative Societies.

(E) Building of Colonization and Northern Ontario Trunk and side roads to meet needs of settlers.

Under the heading of "Forests" come:

(A) Cruising, surveying and estimating timber and pulpwood areas.

(B) Selling and disposing of timber limits.

(C) Measurement of timber and the collection of all charges resulting from the issue of timber licenses and from bush operations.

(D) Forest Fire Protection.

(E) Reforestation.

LAND TRANSACTIONS.

Notwithstanding the more or less general tendency of the individual in Old Ontario to trek from the rural to urban fields, the newer and northern part of the Province holds its own reasonably well in its attractiveness to the pioneer settler. The Great Clay Belt traversed by the Transcontinental is being acquired by the man who is prepared to break the way for the future users of that productive section.

A considerable number of colonists have purchased farm holdings on the line between Cochrane and Hearst. The prospective opening in the near future of the pulp mill at Kapuskasing, with its attendant town population, has given an additional impetus to the settlement movement and substantial development on bush lots in the way of cutting and clearing has resulted.

A determined effort has been made towards concerted settlement rather than indiscriminate allocation of land. Certain tiers in townships contiguous to the line of railway have been opened rather than the whole townships, and settlers have been required to limit their selections within more circumscribed areas.

This system, besides conducing towards more effective community life, proves more economic in the building of roads and caring for the needs of settlers in the way of checking up the work done and assisting them in more speedily getting clearance for timber cut or approval of improvements made.

Each section in Northern Ontario succeeded in getting a fair share of those who located or purchased land. The sum of $189,549.68 was received from the sale of agricultural lands and townsites with Crown Leases.

Regular inspections of holdings have been made with a view to eliminating the spurious holder or speculator in timber or pulpwood.

Important assistance has been rendered to settlers because of fire loss or crop failures and it is most satisfactory to indicate that the returns payable on loans to cover advances are being splendidly made and reflect credit on the patience and industry of the well-intentioned producer in the newer parts.

Details as to land sales and collections are as follows:

Clergy Lands.

But a small area of these lands still exist in the Crown and during the year 100 acres was sold for $50.00, while the sum of $613.87 was collected on account of former sales.

Common School Lands.

Practically all such lands have been long since alienated, although isolated cases still arise where parties are clearing title, and from this source $1,013.60 was collected.

Grammar School Lands.

Some 99.38 acres of these lands were sold for $178.88 and the sum of $538.40 was collected.

University Lands.

These lands, as the heading implies, are set apart for the support of the University, and the area sold was 2,155 acres, for $1,077.50, while the total revenue from such sources was $2,080.37.

Crown Lands.

For agricultural and townsite purposes 132,188.12 acres were sold and the total collections on these and former sales were $114,975.11.

The total area leased amounted to 15,409.05 acres and rentals collected from leaseholders to $57,175.06.

Free Grants.

There has been a marked increase during the year in the area of land located as free grants; a total number of 1,013 persons selected land as compared with 858 last year. The tendency to more intensive farming on smaller areas has reduced the individual farm area from 136 acres to 130 acres. The privilege of purchasing additional land adjacent to their farms has been taken by a larger number of settlers, but the areas are somewhat less as stated above. The previous year only 136 settlers increased their holdings by this means, but during the present year 177 parties purchased a total area of 5,954 acres.

There were 135,656 acres located and 460 patents were issued covering 64,813 acres to settlers who have cleared and put under actual cultivation the required area on their homesteads.

Settlers on Purchased Lands.

The demand for land by bona-fide settlers shows a marked increase, with the result that it has been necessary to open new areas for sale and an increase in the area sold. Lands in the vicinity of Kapuskasing in the Townships of O'Brien, Owens, Williamson and Nansen, along the Transcontinental Railway, have been opened during the year, and in this particular area 12,131 acres have been sold, and the demand still continues. The extension of the T. & N. O. Railway line has caused an increase in the already great demand for land in the Cochrane agency, but the adjacent agencies of Matheson and Hearst still lead in the number of actual settlers.

During the year 894 persons purchased land, an increase of over one hundred and fifty. It was found that a number of parties were holding land, apparently for speculative purposes, and they were required to either continue settlement or dispose of their interests to actual settlers, with the result that 549 persons were granted permission to assign their interests, covering an area of 75,102 acres, as compared with 314 persons the previous year. This land was sought by those expressing the intention of becoming actual farmers and the balance of the purchase price paid in full in each case.

Naturally as time goes on the demand for free grants of land by returned soldiers decreases, as they are rapidly becoming established in other lines of business. This year, however, there were 219 locations of 160 acres each granted to returned men, or a total of 35,040 acres.

Patents were granted covering 43,119 acres to 328 settlers who had met the required building and clearing conditions.

Ranching Lands.

There is a constantly growing request for land for ranching and pasture purposes as a result of the policy adopted by the Department of leasing these lands at five cents per acre per annum with easy conditions as to stocking. Farmers who have their farms practically all under grain crops are acquiring additional areas and enlarging their activities to that of sheep and cattle raising.

Rough land more adapted for ranching or pasture has been largely taken up for this purpose, and during the year Leases and Licenses of Occupation have issued, covering 8,200 acres.

Numerous inquiries have been received for marsh or low-lying lands for the purpose of raising muskrats and other fur-bearing animals. This promises to be an industry which may make valuable lands that at the present time have practically no market value.

Licenses of Occupation were issued for fur farming in the townships of Eric and Genoa, District of Sudbury, and for a parcel of land west of the Township of Strange in the District of Thunder Bay, containing 2,520 acres.

Military Grants

Under Act 1 Edward VII, Cap. 6, and amendments thereto, there have been issued 13,998 Military Certificates. Notwithstanding the fact that the date for receiving applications for these grants expired in September, 1908, a large number of inquiries regarding certificates have been received.

As a result of legislation this year, limiting the time in which to locate to the 30th April next, a larger percentage of the outstanding certificates are being located or surrendered to the Crown.

During the year 22 of these certificates have been located on 3,473 acres, making a total of 8,413 certificates actually located on land.

Few certificates are being surrendered for the $50.00 commutation money, as the land which may be located is worth more than the commutation value of the certificates. There were, however, six surrendered in this manner.

There were 240 acres purchased by three certificates being applied in payment thereof, making a total of 803 certificates which have been thus applied on land.

Of the locations already made under certificates 42 patents were issued during the year, making a total of 7,530 certificates which have been thus disposed of by the Department.

A large area, 4,334 acres, which had been located to 30 veterans who neglected to perform settlement duties within the time required by the Act, was cancelled and the land redeemed by the Crown.

There are still 1,510 certificates outstanding.

During the last session of the Legislature an amendment to the Veterans' Act was passed providing that no locations of land will be made after the 30th day of April, 1923. After a lapse of twenty years it was deemed advisable to place a time limit upon the selection and allocation of land for the purposes of the Act. Any certificate thereafter may, however, be surrendered to the Crown for a cash consideration of $50.00, or accepted as payment for Crown land at its face value of $80.00.

It is confidently predicted that the amendment will conduce towards the return of several hundred certificates by the end of the time limit for locating.

Collections.

The total revenue of the Department from all sources, which was the largest ever received, amounted to $4,439,340.03, being over $400,000.00 more than that of the preceding year. The sale of Agricultural Lands and Townsites, with Crown Leases, including Provincial Parks, etc., amounted to $189,549.68; Casual Fees $2,118.95; Refund Items $66,239.43. From Woods and Forests

the Revenue was $4,181,431.97, made up of the following items: Bonus $1,446,-351.31; Timber Dues $2,315,668.17; Ground Rent $103,179.09; Transfer Fees $6,295.00; Fire Protection $309,938.40. (See Appendix No. 4, page 26.)

Disbursements.

The total Expenditure, less Civil Government, of the Department for all services (exclusive of those rendered under the Northern and North-Western Ontario Development Acts, for which see Appendices Nos. 47, 48 and 49), was $2,399,175.22. Some of the more important items were: Crown Lands Agents' Salaries and Disbursements $22,803.85; Homestead Inspectors $28,423.00; Crown Timber Agents $41,452.56; Fire Ranging $684,585.62; Forest Ranging and Measurement of Timber $299,616.18; Reforestation $151,216.63; Algonquin Provincial Park $42,450.97; Quetico Provincial Park $13,401.05; Rondeau Provincial Park $12,975.12; Surveys $154,856.61; Colonization Roads $671,184.48; Commissions re Sundry Investigations $33,556.07; Litigation of Constitutional and Other Questions $34,895.57; Aerial Surveys $15,000.00; Special Warrants $71,221.88; Clearing Townsites and Removing Fire Hazards $11,070.42. (Additonal details are found in Appendix No. 6.)

TIMBER REVENUE.

From all sources in connection with the administration of the Timber Resources the sum of $4,181,431.97 was collected, the largest amount ever collected in the history of the country. This sum is in excess of the unprecedented record of last year by over $400,000.00.

It should be noted that while the accruals for the past year approximated only $3,000,000, collections were greater by over $1,000,000, the difference being accounted for by a payment of some $400,000, resulting from the Court action of the Crown against the Shevlin-Clarke Company and by a close check upon outstanding accounts and a follow-up system of collection.

Notwithstanding the somewhat trying and uncertain market conditions obtaining during the earlier part of the fiscal year, the dealers and operators, prompted by a desire to co-operate with the Crown in its desire to maintain a regular revenue, responded splendidly. In certain cases, rather than force a company to the wall because of an inability to finance its operations, the Crown, without impairing its security, made provision to meet the situation.

Log Operations.

As pointed out in last year's report a number of the smaller operators, because of the depression in the lumber market, considered the financial outlay for heavy bush operations too hazardous, and in consequence their output was limited, while certain larger operators in some instances, apprehending a continuation of the precarious market, restricted their cutting. Such narrowing operations, naturally justified, are reflected in the following figures.

Throughout the year only 247,554,350 feet B.M. pine for sawlogs, boom and dimension timber, was cut, or approximately 90,000,000 feet less than the previous year. Sawlog timber, other than pine, was taken out to the extent of 57,311,922 feet B.M., or nearly 10,000,000 feet less than during the year 1921. Boom and dimension timber other than pine accounted for 2,266,461 feet B.M. For piling 102,162 lineal feet and 73,339 feet B.M. were cut.

Tie production was much lower than for the two years immediately preceding, only 1,755,419 having been taken, as against 4,001,471 for 1922 and over 6,000,000 for 1920. The decreased figures are due to lack of new railway construction, uncertainty in connection with tie contracts and the requirement in new sales that ties shall be sawn and not hewn, the latter for the most part being taken out, measured on a B.M. basis and included in the log returns. (See Appendix No. 7, pages 34.)

The more or less pessimistic lumber outlook that prevailed in the latter part of 1921 and continued for a considerable part of 1922 has given way to an optimistic one, which I consider will be amply reflected in the returns of the coming year, the indications pointing in the direction of a much heavier logging operation this coming winter.

Pulpwood: The quantity of pulpwood cut subject to Crown dues totalled some 289,113 cords, scarcely one-third of that covered in 1921, but this reduction in cordage was not unexpected. In addition to this quantity 415,304 cords were cut free of Crown Dues, this having been taken from patented lands or those held by settlers with proper improvements. The peak market price of pulpwood during the war and continuing some time thereafter gave an impetus to large contracts extending over several seasons and abnormal cuts by individuals in the expectation that the market price would stand. A lowering of the price with a large unsold stock on hand from 1920 and 1921 lessened activities in pulpwood regions.

There has been an improved tone in the pulp and paper industry and the tendency is towards a steadier and upward market.

By the end of the present year, or in the early weeks of the year 1923, two new mills are expected to be in operation, one at Kenora, resulting from the English River sale in 1920 and the other at Kapuskasing as a result of the arrangement consummated with the Spruce Falls Company in 1920.

The Provincial Paper Mills, Limited, by virtue of an agreement entered into with the Government in pursuance of the sale of the Nipigon Timber Limit in 1920, are operating their mill at Port Arthur.

For ready reference and future use in comparisons I am furnishing in this report, as promised in my last year's summary, a tabulated statement of all the timber sales made throughout the year, giving such details as to area, price, purchaser and other features that may be useful. (See Appendix No. 51.) A compilation of timber sales or transactions is being prepared to cover a reasonable period of the past, which shall serve as a permanent record of the Department.

Lands under License: The area covered by License at the end of the fiscal year, 31st October, 1922, was 17,289½ square miles, subject to a ground rent of $5.00 per square mile. This was less by 2,500 square miles than the year 1921.

SUMMARY OF TIMBER REVENUE.

Bonus	$1,446,351 31
Timber Dues	2,315,668 17
Ground Rent	103,179 09
Transfer Fees	6,295 00
Fire Protection	309,938 40
	$4,181,431 97

Cullers' Examination.

Two examinations were held during the year, one at Callander and one at Fort Frances, on the 3rd day of October, 1922.

Six candidates successfully passed the examination and were duly granted licenses authorizing them to act as Cullers.

(For names of Cullers who passed at this examination, see Appendix No. 10, page 38.)

(For complete list of Licensed Cullers see Minister's Reports for 1917, 1918, 1919, 1920 and 1921).

Timber Commission.

The Timber Commission appointed in March, 1920, to report on the administration of the timber resources of the Province, published three interim reports, as stated in last year's Departmental report and submitted its main or final report in June 1922.

The report has been regularly printed and speaks for itself.

As a result of or during the Timber Investigation a sum approximating $122,000 was collected as trespass and over-run charges.

From a monetary point of view the fact should not be overlooked that in addition to this amount the Crown succeeded in its court action against the Shevlin-Clarke Company, which action was instituted following an interim report of the Commissioners on the Timber Investigation.

The decision of the Court declared that the Agreement made by the Ontario Government with Shevlin-Clarke in respect of berths 45 and 49 Quetico Reserve was illegal and held that the company should pay, instead of $7 per M ft. B.M. for the pine, $17.60 per M ft. B.M. Doyle Rule, in addition to Crown Dues.

This difference in the rate meant a payment to the Crown of approximately $170,000, to cover the increased rate on the timber cut, and approximately $900,000 on the timber still remaining to be cut under the estimates made, so that the decision of the Court in respect of these berths will ultimately add to the Crown's revenue more than $1,000,000 above that which would have come had the investigation not proceeded and the case not been instituted.

Two other court actions were contemplated against the Shevlin-Clarke Company, one to recover certain monies alleged by the Crown to have been due it from the Company because of too great an over-run, and a second action was instituted with a view to having the Court declare invalid the sale of berth 51 to the Company.

A settlement was reached whereby the Company agreed that in consideration of the withdrawal of the action against it, the sum of $250,000 cash would be paid. The agreement closed out all the actions including that of the Company which proposed to proceed with its appeal against the Crown in the case of berths 45 and 49. Under an Act of the Legislature, being Cap. 20, 12—13 George V, the agreement and licenses of the Company were duly confirmed.

CROWN SURVEYS.

Survey of Crown lands in the northern part of the Province, consisting of base and meridian lines, township boundaries, lake and river traverse, have been carried on in compliance with the several instructions issued.

The survey of the Ontario-Manitoba boundary line was also continued to the twelfth base line of Dominion surveys in Manitoba.

Certain large islands have been subdivided for summer resort purposes and additional park lots were laid out at Rondeau Park and Presqu'ile Park.

The town plot subdivisions of lands patented since 1910 have been approved pursuant to R.S.O. 1910, chapter 34, as follows:

Timmins Addition. South-east quarter of south half of lot 12, concession 3, Township of Tisdale, District of Cochrane.

Timmins Addition. Part of broken lot 2, concession 2, Township of Mountjoy, District of Cochrane.

Hornepayne. Township of Wicksteed, District of Algoma.

Kirkland Lake Addition. (Wright and Hargreaves subdivision) Township of Teck, District of Timiskaming.

Municipal Surveys.

Pursuant to sections 15, 16 and 17 of the Surveys Act, petitions for the re-survey of lines laid out under competent authority have been received from the Corporations of the Municipalities of:

Township of Beckwith,
Township of Clinton,
County of Lincoln (Townships of Niagara and Grantham).

Surveys performed and confirmed were:

Durie Street, City of Toronto,
First Concession road allowance Township of Clinton.

Detailed reports of the several surveys will be found in Appendices 20 to 42 inclusive.

Provincial Parks.

More and more each year is emphasized the wisdom and foresight in segregating wild natural areas as forest preserves, playgrounds and sanctuaries for the preservation of our forests, our game and fur-bearing animals.

The Department in its effort to give the people a faint idea of the value of Ontario's natural resources, installed the second annual display at the Canadian National Exhibition, a photograph of which is reproduced and shown on page 132.

The public showed its approval of the display by a record-breaking attendance, the spaces surrounding the exhibit being packed with a dense throng of interested spectators from early morning until closing time at night.

A picturesque log cabin, typical of the forest ranger's home, snugly set against a background of Ontario's natural forest trees, pine, spruce, balsam and birch trees, mingled together into one harmonious picture. It was a section of the great Northland's out-of-doors, rocks, trees and water, and wild animals, grouped together in its quaint effect; in other words the out-doors from the primeval Northland was brought down and installed indoors, affording the multitude an opportunity to view and inhale the aroma of the wildwood and greenwood.

The public school teachers of the city embraced the opportunity to bring the children to view these object lessons, many times more impressive and more interesting than those derived from cold print. The beaver pond proved a never-ending source of interest, the family of seven live beaver from Algonquin Park, playing and chasing each other through and under the water, and at meal time sitting up and holding a small birch stick between their forepaws, contentedly gnawing at their favourite food, the bark of poplar and birch.

Part of the exhibit consisted of live deer, silver foxes, wild turkeys and pheasants from the Rondeau Park preserve, and sections of trees cut down by

the industrious beaver. A live wild timber wolf, captured in Algonquin Park, was shown for the first time in captivity. A part of the exhibit which proved very interesting was the display of the various kinds of pulpwood used in paper manufacture. Indian guides were also there making birch-bark canoes and snowshoes.

The whole exhibit proved most interesting and educative, and won favourable commendation from visitors from all parts of the world, and from the Board of Directors of the Canadian National Exhibition.

COLONIZATION ROADS.

The sum of $671,184.48 was spent upon Colonization Roads, or $165,000 more than the previous year. Those outlying sections of the Province that do not benefit from the Provincial Highway system, that are yet for the most part unsold and unpatented, must of necessity be accorded treatment justly due to the pioneers, and consequently both organized and unorganized municipalities received the advantage of this expenditure. New roads were built, old ones repaired, bridges constructed and maps prepared and plans devised for proposed improvements.

For detailed expenditure see Appendix No. 46.

NORTHERN DEVELOPMENT BRANCH.

A sum of $2,010,153.23 was expended for development purposes in Northern and North-western Ontario. Of this amount $1,603,148.53 was expended upon the construction, maintenance and repair of roads and bridges, or slightly under eighty per cent of the total amount expended. The balance, $407,004.76 was used to advance settlement and colonization, included in which was the making of loans to settlers through the Settlers' Loan Commissioner.

The report of the Branch will be found on pages 159 to 202 inclusive, Appendices 47 and 48 and that in connection with Settlers' Loans, on pages 207 and 208, Appendix 49.

FORESTRY BRANCH

Forest Survey.

With a view to ascertaining the types of timber upon certain of our hitherto uncruised and unestimated stretches of country, the Forestry Branch conducted careful, systematic and expert cruises, using standard machines and collaborating with experienced ground parties.

Two most important surveys and estimates that will have far reaching results are, first—one covering a portion of the James Bay watershed, lying between Cochrane and Moose Factory, and the other an extensive block comprising over 5,000 square miles in the Sudbury and Algoma Districts.

An excellent example of quickly, accurately and economically segregating and mapping different types is found in the James Bay Report (see Appendix No. 50).

Forest Fire Protection.

During the past season a change was made in the field organization of the region south of the French River. This territory, known as the Ottawa-Huron region and comprising 10,000,000 acres, was divided into three districts and placed under technical forest engineers.

Improvement Work: The Forestry Branch is rapidly installing an over-head system of lookout towers and telephone communication, in order to secure quick detection of fires. 175 miles of telephone lines and 28 lookout towers were constructed this last season. Several hundred miles of roads and trails were opened and cleaned out; landing docks made for boats and canoes; camping grounds made in several places; and signs put up directing travellers as to good camping sites.

During the past season the following new structures were put up—38 rangers' cabins, three store houses, one car house, one boat house and two oil houses for the storage of gasoline and oil.

Mechanical Equipment: Until a few years ago fire fighting in the woods was done by rangers with shovels and mattocks, carrying water to the fires with ordinary buckets. To-day our organization has a large number of portable gasoline engines and pumps which carry from 500 to 1,000 feet of hose. These small portable pumps have proven of great value; in many cases saving the entire cost of all pumps purchased up to date. During the last season 16 of these portable pumps with fire-fighting hose were secured.

For supervision of forest fire protection along railways and territory adjacent thereto, gasoline power motor cars have been of great assistance. During the past season seven of these power motor cars were purchased.

On many of the larger waters, power motor boats are being installed for better protection. During the past season three power motor boats were purchased.

I wish to point out that organized, modern forest fire protection requires an over-head quick method of detecting fires at their inception, and then improved mechanical equipment for reaching and successfully fighting them. A considerable proportion of our expenditure for several years must be in the nature of permanent improvements and should be classed as Capital Expenditure.

Air Patrol: During the past season, through an arrangement with the Air Board, about ten million acres were patrolled by seaplanes. It is the opinion of the Forestry Branch staff that air patrol must be used as a factor in reaching a solution of forest protection.

The fact of the air-craft working over a district has a very salutary effect on the people using the woods; secures quick and accurate detection of fires and often permits of landing and actually extinguishing them.

Daily flights of two machines were made, one flying out of Parry Sound, and one out of Whitney.

Slash Disposal: Some reasonable solution of the slash disposal problem is one of the most pressing needs in connection with fire protection.

During the last season our field officers have been able to secure considerable burning of slash at hazardous points in timber operations through the co-operation of the operators. I believe that the timber operators on the whole are prepared to co-operate with the Department in any reasonable slash disposal regulations. This question of regulations can only be carried out in a satisfactory manner through the direction of the district officers, as slash disposal is a local problem.

Forest Fires: During the past season two very bad weather periods developed, namely, during May and September.

1021 fires occurred and of these 539 did not exceed five acres in size, and 799 did not exceed 100 acres in size. In other words we feel that the organization is locating fires early and doing good work in extinguishing them quickly. While exaggerated newspaper reports might indicate a very bad forest fire season in Ontario, such is not the case. The total acreage burned was 346,000, which is the smallest since 1918.

When we consider a forest region of 100,000,000 acres under protection, our total acreage loss will compare very favourably with that of any similar area in America.

Southern Clay Belt Fire: Reference should be made to the fire which swept over a portion of the Southern Clay Belt on October 4th, 1922.

This fire passed over an area, over 90 per cent. of which has left the Crown. The area has developed into a fine farming region, and this fire could scarcely be designated as a forest fire, although numerous small bush and clearing operations aided in carrying the fire. Throughout the region numerous clearing fires were burning during late September. A terrific wind arose on October 4th, after several days of very dry weather, and within a few hours hundreds of fires had swept everything before them. This fire passed over areas which have been cleared and partly under cultivation for over twenty years.

The details of this fire are contained in a special report, following an investigation by the Provincial Fire Marshal. This report was published by The King's Printer in December, 1922.

Reforestation.

The older more settled portions of Ontario present two outstanding problems in relation to reforestation.

1. The protection and improvement of the present privately owned woodlands and the reforesting of the small privately owned waste lands unsuited for agriculture.

2. The reforesting, through provincial and municipal effort, of the larger waste land areas scattered throughout older Ontario.

Many districts in older Ontario have less than five per cent. of woodland left and the solution of this problem is of vital importance to agricultural Ontario. Throughout Western Europe, where the demand for land to produce food crops is most pressing, from 15 to 20 per cent. of forest cover is maintained.

Provincial Forest Stations: The policy of establishing demonstration forest stations in the larger waste land areas was adopted in 1908, when the Norfolk Station was started. We believe that with the development of several of these stations in the larger waste land areas as demonstrations and sources of planting material, a great incentive will be given to both private and municipal reforestation projects.

Nurseries: The Norfolk Station has in the past produced the nursery stock for distribution throughout the Province, as well as that for local use.

At this nursery we now have the following plants one and two years old:

Coniferous or Evergreens:
(Chiefly Red, White and Scotch Pine, White Cedar and Spruce) 14,900,000
Hardwoods:
(Ash, Elm, Maple and Walnut) 596,000

Total 15,496,000

This nursery has developed from an output of 500,000 plants to a capacity of several millions.

Plantations: A little over 500 acres of demonstration plantations have been made at this station. The oldest plantations (13 years old) are now from 24 to 25 feet high. The educational effect of these on the locality is shown by the increasing demand for planting material from private owners who visit this station.

Prince Edward County Station: Two years ago a forest station was opened at the Sand Banks in the above County. This is a sand formation of about 600 acres which was owned by the Crown. Owing to the formation of dunes this sand area was becoming a menace to adjacent farm lands.

During the past season some 500,000 willow and poplar cuttings were planted in order to check the moving sand.

Orono Forest Station: During the past season this forest station was opened. One hundred and fifty acres of light land was acquired adjacent to the village of Orono, in the County of Durham. Throughout this district there is considerable land adapted to reforestation, and this station will eventually take care of the requirements of the district for nursery stock in addition to providing demonstration plantations. Seed bed ground has been prepared and 200,000 seedlings from Norfolk have been planted.

Midhurst Forest Station: One thousand acres of sand land have been secured at Midhurst, Simcoe County, where a Provincial forest station is being established.

This land was at one time covered with a pinery and much of it is still covered with stumps.

Clearing up land for nursery purposes was carried out last autumn and 375,000 one-year-old seedlings were put out in nursery lines.

Municipal Reforestation Projects: Through legislation passed in 1921 the Province is enabled to co-operate with county and township municipalities in establishing municipal forests. The municipalities secure the land and the Province carries out the planting.

In the case of *County projects*, where large areas are involved, the Province undertakes the management and care during the earlier years.

In the case of *Township projects*, which are of a smaller size and in the form of demonstration plantations, the Province bears the cost of planting, and the local authorities look after maintenance. Twelve demonstration township plantations were started last season.

The following County project has been started:

Simcoe County: 1,000 acres of cut-over pine land was purchased by the County. Last season 60 acres was reforested. Local nursery was opened and 1-year-old material supplied from the Norfolk Nurseries.

Distribution of Planting Material: The Department supplies free of cost forest planting material to land-owners throughout the Province. Forest plantations have been started in all of the older counties during the past few years.

Last season's distribution of trees was as follows:

Private land owners	327,732
Municipal and Provincial projects	731,500
Total	1,059,232

The annual distribution *previous* to last season averaged about 500,000 plants. Our present output has been doubled, and I expect that by the spring of 1924 the output will reach several million plants per year. During the past season an inspection was made of 448 plantations. About 84 per cent. of these plantations are reported as having been successful.

Seed Collection: An effort has been made to secure our forest seed supply from local sources. A seed collecting centre was established at Angus, in Simcoe County, where the Department secured a building at Camp Borden for seed extraction purposes.

Seeds of the native Pines, Spruces and Cedar, collected	1,334 lbs.
Seeds of hardwood as Walnut, Ash, Maple and Elm, collected	1,065 bushels.

BENIAH BOWMAN,
Minister.

Department of Lands and Forests,
Toronto, October 31st, 1922.

Sulphite pulp mill, Kapuskasing, Spruce Falls Co., to be running by end of calendar year.

APPENDICES

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1922.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
	Hon. B. Bowman	Minister	1919, Nov. 14	$6,000 00	
	W. C. Cain	Deputy Minister	1903, Mar. 1	5,100 00	
	F. J. Niven	Minister's Secretary and Secretary to the Department	1897, May 27	3,000 00	
	F. E. Titus	Solicitor to Department	1920, Mar. 2	3,500 00	
	M. E. Bliss	Senior Clerk Stenographer	1909, Aug. 16	1,300 00	
	E. Harrison	"	1920, May 14	1,100 00	
	R. P. Ferguson	"	1918, April 2	1,200 00	
	A. J. Allan	Clerk Stenographer	1921, May 2	975 00	
	B. Lankin	Office Boy	1921, Jan. 14	775 00	
Lands Branch	S. Draper	Chief Clerk	1900, May 1	2,850 00	
	W. R. Ledger	Principal Clerk	1894, Feb. 15	2,300 00	
	C. E. Burns	"	1897, July 29	2,300 00	
	W. S. Sutherland	Senior Clerk	1900, Mar. 18	1,900 00	
	J. B. Proctor	"	1897, Jan. 15	1,900 00	
	J. E. Drinkwater	"	1915, Oct. 19	1,800 00	
	A. E. Roe	"	1906, Oct. 16	1,800 00	
	F. W. Bindon	"	1915, Jan. 26	1,600 00	Died July 8th, 1922.
	F. A. Lucas	Clerk	1906, Dec. 18	1,700 00	
	S. A. Platt	"	1905, June 12	1,700 00	
	S. Mulholland	"	1918, May 6	850 00	
	M. Bengough	Senior Clerk Typist	1896, Oct. 23	1,300 00	
	E. F. O'Neil	"	1902, July 7	1,200 00	
	S. Ross	Senior Clerk Stenographer	1917, July 9	1,200 00	
	E. G. Halliday	"	1907, Feb. 21	1,200 00	
	B. M. Benson	"	1909, May 25	1,200 00	
	E. Hills	"	1912, July 2	1,200 00	
	E. Singleton	Clerk Stenographer	1917, April 16	1,050 00	
	A. E. Robillard	Engrossing Clerk	1894, May 4	1,600 00	
	B. Chambers	Clerk Stenographer	1917, April 24	900 00	

	L. V. Rorke	Director of Surveys	1909, May 1	4,400 00	
	J. Hutcheon	Inspector of Surveys	1913, April 1	3,300 00	
	H. C. Smith	Cartographer	1919, Dec. 12	2,400 00	Transferred from Department of Mines, Jan. 1, 1922.
	D. G. Boyd	Senior Map Draughtsman	1896, Oct. 16	2,400 00	
	J. Work	Principal Clerk	1909, May 18	2,000 00	
	H. Treeby	Map Draughtsman	1896, June 25	1,900 00	
Surveys Branch	B. Rushford	"	1910, Jan. 24	1,800 00	
	F. E. Blanchet	"	1906, May 15	1,800 00	
	A. Leaman	"	1907, Sept. 12	1,800 00	
	E. M. Jarvis	Senior Clerk	1897, April 25	1,800 00	
	W. A. Hewitt	"	1921, May 2	1,500 00	
	M. H. Kirkland	Senior Clerk Stenographer	1902, July 21	1,200 00	
	E. C. Armer	"	1909, Aug. 6	1,100 00	
	C. O'Connor	Clerk Typist	1907, Oct. 16	900 00	
	E. J. Zavitz	Provincial Forester	1912, Nov. 7	4,600 00	
	C. R. Mills	Assistant Provincial Forester	1921, Mar. 28	3,150 00	
	F. S. Newman	Forester	1913, Oct. 1	2,300 00	
	J. Houser	Head Clerk	1905, July 17	2,550 00	
	H. D. Gillard	Principal Account Clerk	1897, Dec. 6	2,100 00	
	W. F. Trivett	"	1900, June 25	2,100 00	
	N. L. Rogers	Senior Account Clerk	1911, Aug. 1	1,800 00	
	A. H. O'Neil	Senior Clerk	1906, July 19	1,700 00	
	G. W. Harris	Clerk	1906, Sept. 1	1,500 00	
	E. H. Telfer	"	1915, Sept. 27	1,600 00	
Forestry Branch	S. D. Meeking	"	1910, Feb. 8	1,600 00	
	E. H. Squire	"	1916, Jan. 4	1,400 00	
	M. C. Rowland	Senior Clerk Stenographer	1912, May 1	1,200 00	
	S. O. Dennis	"	1910, Mar. 2	1,100 00	Resigned Aug. 31, 1922.
	J. Bald	"	1913, June 12	1,200 00	
	J. McCort	Clerk Stenographer	1918, Feb. 28	1,050 00	
	V. M. Bassford	"	1920, June 1	900 00	Resigned May 15, 1922.
	J. Ferguson	Junior Clerk Stenographer	1919, Aug. 4	900 00	
	A. S. McKyes	Clerk Stenographer	1921, May 9	975 00	
	D. M. Hastings	"	1920, April 28	1,050 00	
	H. M. Lount	Accountant	1903, Oct. 1	2,700 00	
	C. J. Clarke	Senior Clerk	1905, Aug. 9	1,900 00	
	W. A. Burritt	"	1907, Sept. 24	1,700 00	
Accounts Branch	R. Gordon	Clerk	1912, July 30	1,500 00	
	C. Bowland	Senior Clerk Typist	1908, July 9	1,200 00	
	M. A. Whyte	Clerk Typist	1921, June 1	975 00	
	C. C. Johnson	Clerk	1921, May 16	1,300 00	

Appendix No. 1.—Concluded.

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1922.

Branch.	Name.	Designation.	When Appointed.	Salary per annum.	Remarks.
Records Branch	S. K. Burdin	Head Clerk	1916, April 6	2,500 00	
	A. Ferguson	Senior Clerk	1915, Dec. 15	1,700 00	
	C. Dies	Clerk	1905, Oct. 2	1,500 00	
	F. Samuels	"	1903, Dec. 5	1,500 00	
	C. W. St. John	"	1906, July 9	1,400 00	
	W. B. Baines	"	1912, April 9	1,500 00	
	J. T. Lee	"	1917, June 25	1,500 00	
	N. B. Mathewson	"	1915, May 7	1,400 00	
	H. Brophy	Senior Clerk Messenger	1898, Oct. 1	1,300 00	
Colonization Roads Branch	C. H. Fullerton	Superintendent	1915, Oct. 15	4,400 00	
	C. H. Meader	Road Engineer	1912, June 14	2,700 00	
	M. P. Doherty	Principal Clerk	1898, May 1	2,100 00	
	A. Gamey	Account Clerk	1915, July 19	1,300 00	
	W. T. Axford	Junior Clerk	1910, July 11	1,000 00	

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 2.

List of Agents for the year ending October 31st, 1922.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
		Land Agents.			
Arthurs, E.	Espanola Mills	Part District of Sudbury	1915, June 1	$500 00	
Baker, R. H.	Minden	Part Victoria	1907, Oct. 1	350 00	
Bolger, J. W.	New Liskeard	Part District of Temiskaming	1913, Aug. 1	1,200 00	
Both, C.	Denbigh	Part of Frontenac and Addington	1905, Oct. 20	200 00	
Blank, Frank	Wilno	Part District of Renfrew	1921, Apr. 1	500 00	
Brown, John	Markstay	" " Nipissing and Sudbury	1916, July 3	600 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28	.....	For salary see Homestead Inspectors.
Cameron, W.	Stratton Station	Part District of Rainy River	1911, May 8	500 00	
Campbell, I. M.	Parry Sound	" " Parry Sound	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie	" " Algoma	1920, Nov. 18	300 00	
Dempsay, S. J.	Cochrane	" " Cochrane	1911, Feb. 1	1,100 00	
Dodds, T.	Thessalon	" " Algoma	1915, May 1	500 00	
Douglas, W. J.	Maynooth	Part Hastings	1912, June 1	500 00	
Ellis, H. J.	Powassan	Part District of Parry Sound	1909, May 20	500 00	
Freeborn, Dr. J. S.	Magnetawan	" " " "	1905, Nov. 10	500 00	
Gibson, J. E.	Dryden	" " Kenora	1914, Dec. 5	1,000 00	
Hales, W.	Apsley	Part County of Peterborough	1911, July 17	250 00	
Hollands, C. J.	Fort Frances	Part Townplot of Alberta and District of Rainy River	1892, Oct. 12	300 00	
Holland, H. E.	Kenora	Part District of Kenora	1921, Jan. 1	600 00	
Lockhart, J.	Pembroke	Part Renfrew	1922, Feb. 16	300 00	
McFayden, A.	Emo	Part District of Rainy River	1905, Sept. 8	600 00	
MacLennan, J. K.	Sudbury	" " Sudbury	1905, July 3	700 00	
Mills, J. E.	Matheson	" " Cochrane	1921, Aug. 1	1,200 00	
O'Donnell, J. L.	Hearst	" " "	1921, May 3	800 00	
Parsons, W. J.	North Bay	" " Nipissing	1908, Apr. 8	1,000 00	
Philion, J. A.	Sturgeon Falls	" " "	1907, Sept. 13	500 00	
Small, R.	Mattawa	" " "	1910, July 1	500 00	
Teasdale, R. A.	Massey	" " Sudbury	1917, July 1	600 00	
Thaw, D.	Emsdale	" " Parry Sound	1919, July 2	500 00	
Watt, F.	Pembroke	Part Renfrew	1913, May 28	300 00	Retired from office February 16, 1922.
Whybourne, W. E.	Marksville	Part St. Joseph Island	1905, Apr. 7	300 00	

Appendix No. 2.—Concluded.

List of Agents for the year ending October 31st, 1922.

Name	Post Office Address	District or County	Date of Appointment	Salary per annum	Remarks.
Wilson, A. N.	Kinmount	Part District of Peterborough	1915, May 6	175 00	
Wilson, S. H.	Port Arthur	" " Thunder Bay	1921, Nov. 26	1,200 00	
Woollings, J.	Englehart	" " Temiskaming	1908, July 13	800 00	
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May 1	900 00	Also Inspector of Mining Recorders' Offices.
		Homestead Inspectors.			
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec. 1	1,500 00	
Bastien, J. A.	Chelmsford	W. part of Sudbury District	1913, May 12	1,200 00	
Brown, J. B.	Bracebridge	Muskoka District	1905, July 28	1,100 00	Also Crown Lands Agent.
Cragg, W. V.	New Liskeard	S. part of Temiskaming District	1913, Apr. 1	1,500 00	
Dean, Thos.	Sault Ste. Marie	Algoma District	1908, Aug. 3	900 00	Also Crown Lands Agent.
Hughes, T.	Murillo	Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F. J. W.	Callander	District of Parry Sound	1920, June 10	1,500 00	
Owens, H. B.	Cache Bay	E. part Sudbury and W. part Algoma Districts	1918, July 1	1,000 00	
Smith, D.	Cochrane	N. Part of Temiskaming District	1912, Apr. 24	1,800 00	
Van Horn, L. E.	Monteith	Part Temiskaming and Algoma Districts	1920, Jan. 27	1,600 00	
Watson, T. P.	Englehart	Centre part of Temiskaming District	1905, May 10	1,500 00	
Wigle, R. G.	Dryden	Kenora District	1914, June 1	1,500 00	
		Timber Agents.			
Christie, W. P.	Parry Sound	Part Parry Sound and Muskoka Districts	1903, Dec. 4	1,700 00	
Hawkins, S. J.	Webbwood	Part Algoma and Sudbury Districts	1905, Aug. 16	1,900 00	
Huckson, A. H.	Sault Ste. Marie	Part District of Algoma	1914, Apr. 1	2,300 00	
Larose, S. C.	Ottawa	Part Ottawa District	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard	Part Temiskaming District	1907, Jan. 1	2,200 00	
McDonald, A.	Fort Frances	Rainy River District	1916, Aug. 7	1,600 00	Retired from office April 7, 1922.
McDougall, J. T.	North Bay	Nipissing and part Sudbury Districts	1908, July 1	2,300 00	
Spence, D. J.	Cochrane	Part Temiskaming and Algoma Districts	1920, Dec. 1	2,300 00	
Stevenson, A.	Peterborough	Belleville District	1905, Oct. 4	1,900 00	
Wood, W. G. A.	South Porcupine	Porcupine District	1917, Mar. 1	1,600 00	

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 3.

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1922.

Service.	Acres sold and leased.	Amount of sales and leases.	Collections on sales and leases.
		$ c	$ c
Lands Sold:			
Agricultural and Townsites	132,188.12	102,422 57	114,975 11
Clergy Lands	100.00	50 00	663 87
Common School Lands	270.00	378 00	1,013 60
Grammar School Lands	99.38	178 88	538 40
University Lands	2,155.00	1,077 50	2,080 37
Lands Leased:			
Crown	15,392.15	8,876 88	55,618 06
Temagami	16.90	190 00	1,557 00
	150,221.55	113,173 83	176,446 41

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 4.

Statement of Revenue of the Department of Lands and Forests for the year ending October 31st, 1922.

Service.	$ c	$ c	$ c
LAND COLLECTIONS.			
Crown Lands:			
Agricultural	97,416 44		
Townsites	17,558 67		
		114,975 11	
Clergy Lands	663 87		
Common School Lands	1,013 60		
Grammar School Lands	538 40		
University Lands	2,080 37		
		4,296 24	
			119,271 35
Rent:			
Crown Leases		53,763 99	
Algonquin Provincial Park		1,562 67	
Temagami Leases		1,557 00	
Sand and Gravel		291 40	
			57,175 06
WOODS AND FORESTS.			
Bonus		1,446,351 31	
Timber Dues		2,315,668 17	
Ground Rent		103,179 09	
Transfer Fees		6,295 00	
Fire Protection		309,938 40	
			4,181,431 97
Parks:			
Algonquin Provincial Park		6,683 25	
Rondeau Provincial Park		5,174 02	
Quetico Provincial Park		1,246 00	
			13,103 27
Casual Fees		1,676 95	
Cullers' Fees		256 00	
Forest Reserves Guides' Fees		186 00	
			2,118 95
REFUNDS.			
Fire Ranging		9,726 06	
Forest Ranging		52,146 92	
Special Survey of Ontario and Manitoba Boundary Line		3,200 00	
Reforestation		544 85	
Contingencies, Lands		303 80	
Surveys		186 00	
Agents' Salaries		131 80	
			66,239 43
			4,439,340 03

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 5.

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1922, which are considered as Special Funds.

Service.	$ c.	$ c.
Clergy Lands.		
Principal	395 40	
Interest	268 47	
		663 87
Common School Lands.		
Principal	731 07	
Interest	282 53	
		1,013 60
Grammar School Lands.		
Principal	337 18	
Interest	201 22	
		538 40
University Lands.		
Principal	1,404 16	
Interest	676 21	
		2,080 37
		$4,296 24

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 6.

Statement of Disbursements of the Department of Lands and Forests for the year ending October 31st, 1922.

Service.	$ c.	$ c.	$ c.
AGENTS' SALARIES AND DISBURSEMENTS.			
Land, $22,803.85			
Arthurs, E.		500 00	
Baker, R. H.	350 00		
Disbursements	7 30		
		357 30	
Blank, F.	500 00		
Disbursements	201 50		
		701 50	
Both, C.		200 00	
Bolger, J. W.	1,200 00		
Disbursements	334 00		
		1,534 00	
Brown, John	600 00		
Disbursements	35 99		
		635 99	
Cameron, W.	500 00		
Disbursements	50 00		
		550 00	
Campbell, Miss I. M.	500 00		
Disbursements	150 00		
		650 00	
Dean, T.	300 00		
Disbursements	155 70		
		455 70	
Dempsay, S. J.	1,100 00		
Disbursements	129 90		
		1,229 90	
Dodds, T.	500 00		
Disbursements	17 25		
		517 25	
Douglas, W. J.	500 00		
Disbursements	21 25		
		521 25	
Ellis, H. J.		500 00	
Freeborn, J. S.	500 00		
Disbursements	26 50		
		526 50	
Gibson, J. E.	1,000 00		
Disbursements	183 90		
		1,183 90	
Hales, W.	250 00		
Disbursements	19 75		
		269 75	
Holland, H. E.	600 00		
Disbursements	606 50		
		1,206 50	
Hollands, C. J.	300 00		
Disbursements	140 00		
		440 00	
McFayden, A.	600 00		
Disbursements	46 85		
		646 85	
Carried forward		12,626 39	

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		12,626 39	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Land—Concluded.			
MacLennan, J. K.	700 00		
Disbursements	119 00		
		819 00	
Mills, J. E.	1,200 00		
Disbursements	144 60		
		1,344 60	
O'Donnell, J. L.	800 00		
Disbursements	242 50		
		1,042 50	
Parsons, W. J.	1,000 00		
Disbursements	223 00		
		1,223 00	
Philion, J. A.	500 00		
Disbursements	38 49		
		538 49	
Small, R.	500 00		
Disbursements	36 75		
		536 75	
Teasdale, R. A.	600 00		
Disbursements	17 96		
		617 96	
Thaw, D.		500 00	
Watt, F.	88 15		
Lockhart, J.	210 68		
Disbursements	9 50		
		308 33	
Whybourne, W. E.	300 00		
Disbursements	9 25		
		309 25	
Wilson, A. N.	175 00		
Disbursements	6 00		
		181 00	
Wilson, S. H.	1,116 44		
Kurki, Miss A.	182 69		
Disbursements	471 05		
		1,770 18	
Woollings, J.	800 00		
Disbursements	186 40		
		986 40	
Homestead Inspectors, $28,423.00.			
Barr, J. C.	1,500 00		
Disbursements	1,202 05		
		2,702 05	
Bastien, J. A.	1,200 00		
Disbursements	1,198 30		
		2,398 30	
Brown, J. B.	1,100 00		
Disbursements	639 28		
		1,739 28	
Cragg, W. V.	1,500 00		
Disbursements	543 60		
		2,043 60	
Carried forward		31,687 08	

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward	.....	31,687 08	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Homestead Inspectors.—Concluded.			
Dean, T.	900 00		
Disbursements	510 10		
		1,410 10	
Hughes, T.	1,400 00		
Disbursements	1,065 90		
		2,465 90	
Jervis, H. F. J. W.	1,500 00		
Disbursements	818 65		
		2,318 65	
Owens, H. B.	1,000 00		
Disbursements	1,883 45		
		2,883 45	
Smith, D.	1,800 00		
VanHorn, L. E.	1,600 00		
Corke, A.	385 00		
Disbursements	1,889 98		
		5,674 98	
Watson, T. P.	1,500 00		
Disbursements	869 75		
		2,369 75	
Wigle, R. G.	1,500 00		
Disbursements	916 94		
		2,416 94	
Timber, $41,452.56.			
Alexander, J. A.	2,920 00		
McDonald, A.	697 38		
McLeod, Miss R.	438 46		
Disbursements	805 22		
		4,861 06	
Christie, W. P.	1,700 00		
Disbursements	449 81		
		2,149 81	
Hawkins, S. J.	.....	1,900 00	
Huckson, A. H.	2,300 00		
McDougall, Miss M.	782 31		
Disbursements	1,049 28		
		4,131 59	
McCaw, J. G.	2,712 00		
MacCrindle, Miss I.	1,043 06		
Hurdman, G. C.	23 00		
Disbursements	498 69		
		4,276 75	
McDougall, J. T.	2,300 00		
Disbursements	848 79		
		3,148 79	
MacDonald, S. C.	2,200 00		
Disbursements	352 53		
		2,552 53	
Milway, J. H.	2,504 00		
Godfrey, Miss S.	960 00		
Disbursements	1,068 46		
		4,532 46	
Carried forward	.....	78,779 84	

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward		78,779 84	
AGENTS' SALARIES AND DISBURSEMENTS—*Continued.*			
Timber—Concluded.			
Smith, J. D. C.	2,504 00		
Brunsel, Miss E. L.	977 91		
Disbursements	1,534 22		
		5,016 13	
Spence, D. J.	2,300 00		
Disbursements	1,030 84		
		3,330 84	
Stevenson, A.	1,900 00		
Disbursements	689 78		
		2,589 78	
Whelan, P. J., disbursements		513 31	
Wood, W. G. A.	1,600 00		
Disbursements	849 51		
		2,449 51	
Miscellaneous, $2,279.72.			
Green, H. P., Caretaker of Islands in Charleston Lake.	50 00		
Disbursements	2 65		
		52 65	
Jamieson, W. H., Caretaker of Islands in Dog and Laboria Lakes		50 00	
McDonald, H., disbursements		56 00	
McNichol, T. E., inspecting Township of Nansen		102 00	
Nash, Jas., inspecting Township of Nansen		102 00	
Sheppard, H. E., disbursements		14 65	
Stuart, Joseph, services as Supervisor of Wellington Beach		50 00	
McArthur, T. A., Inspector of Agencies	900 00		
Disbursements	952 42		
		1,852 42	
			94,959 13
OTTAWA AGENCY.			
Larose, S. C., Acting Agent		1,800 00	
Rent	700 00		
Disbursements	190 47		
		890 47	
			2,690 47
CULLERS' ACT.			
Legris, J. P., disbursements		46 25	
McDougall, J. T., disbursements		23 00	
Milway, J. H., disbursements		39 42	
			108 67
Carried forward			97,758 27

Appendix No. 6—Continued.

Service.	$ c.	$ c.	$ c.
Brought forward			97,758 27
Fire Ranging			684,585 62
Forest Ranging			299,616 18
Forest Reserves			6,340 36
Reforestation			151,216 63
Algonquin Provincial Park			42,450 97
Quetico Provincial Park			13,401 05
Rondeau Provincial Park			12,975 12
Surveys			154,856 61
Colonization Roads			671,184 48
Board of Surveyors			200 00
Grant to Canadian Forestry Association			3,000 00
Annual Membership Fees			39 97
Insurance			1,497 67
Commissions re Sundry Investigations			33,556 07
Litigation of Constitutional and Other Questions			34,895 57
Aerial Surveys			15,000 00
Allowance School Section, S. Walsingham			150 00
Workmen's Compensation			2,406 46
Unforseen and Unprovided			302 50
Special Warrants.			
Clearing Lands at Kapuskasing		15,409 11	
Clark, Dr. Judson F.		1,019 05	
Legal Fees and Expenses		54,793 72	
			71,221 88
Miscellaneous.			
Law Society of Upper Canada, fees			20 00
Refunds—Miscellaneous			24,037 52
Clearing Townsites and Removing Fire Hazards			11,070 42
Beach and Shore Protection			5,000 00
Display at Toronto Exhibition			985 44
Moving Expenses of Officials			170 38
Veterans' Commutation			300 00
Carried forward			2,338.239 17

Appendix No. 6—Concluded.

Service.	$ c.	$ c.	$ c.
Brought forward			2,338,239 17
CONTINGENCIES, ETC.			
Departmental.			
Printing and Binding	2,845 22		
Stationery	12,091 77		
		14,936 99	
Express and Cartage	695 42		
Postage	2,902 32		
		3,597 74	
Telegraphing	1,254 02		
Car Fare	72 00		
Livery	142 75		
		1,468 77	
Subscriptions	230 14		
Advertising	7,302 52		
		7,532 66	
Typewriters, repairs and inspections		1,272 05	
Bowman, Hon. Beniah, travelling expenses	750 00		
Cain, W. C., " "	66 20		
Niven, F. J., " "	104 10		
Titus, F. E., " "	81 50		
Rorke, L. V., " "	419 15		
Hutcheon, J., " "	581 51		
Work, J., " "	94 53		
O'Neil, A. H., " "	73 40		
Zavitz, E. J., " "	179 90		
Tilley, Johnston Co., legal fees	350 00		
		2,700 29	
Extra Clerks	9,645 19		
Maps	13,013 31		
Sundries	378 85		
		23,037 35	
			54,545 85
COLONIZATION ROADS CONTINGENCIES.			
Printing and Binding	524 18		
Stationery	1,216 19		
		1,740 37	
Postage	192 38		
Express	12 65		
		205 03	
Telegraphing	24 56		
Subscriptions	18 79		
Typewriter, repairs and inspections	60 00		
		103 35	
Fullerton, C. H., travelling expenses	721 95		
Meader, C. H., " "	877 17		
Niven, F. J., " "	56 70		
		1,655 82	
Extra Clerks	2,565 18		
Sundries	120 45		
		2,685 63	
			6,390 20
			2,399,175 22

For particulars of expenditure of the Northern Development Branch see Appendix No. 48.

H. M. LOUNT,
Accountant.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix

FORESTRY

Statment of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

Agencies.	Area covered by timber licenses.	Saw logs.				
		Pine.		Other.		
	Square Miles.	Pieces.	Feet B.M.	Pieces.	Feet B.M.	Pieces.
Western Timber District	11,979	6,618,556	218,869,821	1,310,516	43,562,743	34,149
Belleville Timber District	465½	43,105	786,991	77,471	2,992,380	138
Ottawa Timber District	4,845	378,819	23,175,872	361,865	10,756,799	1,656
	17,289½	7,040,480	242,832,684	1,749,852	57,311,922	35,943

General Statement

Agencies.	Shingle Bolts.	Cedar Lineal feet.	Cedar Posts	Telegraph Poles.	Pulpwood.	Railway Ties.		
	Cords.		Pieces.	Pieces.	Cords.	Pieces.	Transfer Fees.	Interest.
Western Timber District	207	.....	45,865	12,440	267,132	1,738,958	$ c 5,615 00	$ c 55,961 46
Belleville Timber District	.....	2,178	6,448	3,465	26	9,880	185 00	453 60
Ottawa Timber District	.....	.....	4,212	5,222	21,955	6,581	495 00	1,088 30
	207	2,178	56,525	21,127	289,113	1,755,419	6,295 00	57,503 36

JOHN HOUSER,
Chief Clerk in Charge.

No. 7.

BRANCH

Rent and Bonus during the year ending 31st October, 1922.

DESCRIPTION OF TIMBER.

Boom and Dimension.			Piling.				Cordwood.		Tan Bark.
Pine.	Other.						Hard.	Soft.	
Feet B.M.	Pieces.	Feet B.M.	Pieces.	Lineal Feet.	Pieces.	Feet B.M.	Cords.	Cords.	Cords.
4,481,462	14,803	1,637,610	2,831	102,162	867	73,339	1,897	25,127	205
24,392	793	189,386	.....	.....	.....	.....	20	.....	37
215,812	2,972	439,465	.....	.....	.....	.....	.....	5,285	29
4,721,666	18,568	2,266,461	2,831	102,162	867	73,339	1,917	30,412	271

of Timber.—Concluded.

Amounts accrued.

Trespass.	Timber Dues.	Bonus.	Deposit Timber Sales.	Ground Rent.	Fire Protection.	Total.
$ c	$ c	$ c	$ c	$ c	$ c	$ c
48,302 71	1,080,512 35	1,147,950 27	130,650 00	75,348 76	275,541 53	2,819,882 08
3,279 82	8,152 24	209 27	25 00	4,175 00	5,263 00	21,742 93
793 58	95,085 99	.....	.....	22,925 00	29,133 87	149,521 74
52,376 11	1,183,750 58	1,148,159 54	130,675 00	102,448 76	309,938 40	2,991,146 75

W. C. CAIN,
Deputy Minister.

Appendix No. 8.

PATENTS OFFICE (Lands Branch).

Statement of Patents, etc., issued from 1st November, 1921, to October 31st, 1922.

Public Lands (late Crown)	472
" " (late School)	10
" " (late Clergy Reserves)	3
" " (University)	17
Free Grant Lands (Act of 1913)	350
" " (Act of 1901) Veterans	42
Mining Lands (Patents)	313
Mining Leases	263
Water Power Leases	4
Crown Leases	130
Licenses of Occupation	117
Timagami Islands Leases	9
Sand and Gravel Licenses	29
Pine Patents	3
Quarry Claims	9
Total	1,771

CHAS. E. BURNS,
Clerk of Patents.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 9.

WOODS AND FORESTS BRANCH.

Statement of Revenue collected during the year ending October 31st, 1922.

Amount of Western Collections at Department	$3,960,896 23
" Belleville " " "	19,256 61
" Ottawa " " "	201,279 13
	$4,181,431 97

WOODS AND FORESTS.

Bonus	$1,446,351 31
Timber Dues	2,315,668 17
Ground Rent	103,179 09
Transfer Fees	6,295 00
Fire Protection	309,938 40
	$4,181,431 97

WOODS AND FORESTS REVENUE.

October 31st, 1922.

WESTERN DISTRICT—		
Timber dues	$2,102,199 89	
Bonus	1,315,579 59	
Ground rent	75,348 76	
Interest, timber dues	55,489 34	
Interest. ground rent	472 12	
Transfer fees	5,615 00	
Timber sale deposit	130,650 00	
Fire protection	275,541 53	
		$3,960,896 23
OTTAWA DISTRICT—		
Timber dues	$147,636 96	
Ground rent	22,925 00	
Interest, timber dues	914 43	
Interest, ground rent	173 87	
Fire protection	29,133 87	
Transfer fees	495 00	
		201,279 13
BELLEVILLE DISTRICT—		
Timber dues	$9,058 29	
Bonus	96 72	
Ground rent	4,175 00	
Interest, timber dues	369 26	
Interest, ground rent	84 34	
Fire protection	5,263 00	
Transfer fees	185 00	
Timber sale deposit	25 00	
		19,256 61
		$4,181,431 97

H. M. LOUNT,
Accountant.
JOHN HOUSER,
Chief Clerk in Charge.

W. C. CAIN,
Deputy Minister.

Appendix No. 10.

Memorandum of parties who passed the Cullers' Examination in 1922.

Cox, G. B., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Dingwall, Alex., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Kirton, William, Pakesley, examined at Callander on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Lester, Hiram L., Kippewa, Quebec, examined at Callander on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Mullin, L. J., Fort Frances, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

Smith, Cecil S., McDougall's Mills, examined at Fort Frances on the 3rd day of October, 1922, license granted on the 9th day of October, 1922.

JOHN HOUSER,
Chief Clerk.

W. C. CAIN,
Deputy Minister.

Appendix No. 11.

Statement of the Work done in Military Office, Lands Branch of the Department of Lands and Forests, during the year ending October 31st, 1922.

Veteran Patents issue	42
Locations under Military Certificates	22
Certificates applied in payment of lands	3
Certificates surrendered for commutation money	6

J. B. PROCTOR,
Clerk in Charge.

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 12.

RECORDS BRANCH, 1921-1922.

Communications received:	
From Crown Lands Agents	9,598
" Crown Timber Agents	4,877
" Mining Recorders	2,703
" Homestead Inspectors	4,073
" Superintendent Algonquin Park	318
" Superintendent Quetico Park	136
" Superintendent Rondeau Park	135
Orders-in-Council	224
Telegrams	143
Northern Development Branch (figures supplied by them)	9,742
Loan Commissioner (figures supplied by them)	8,007
Forestry Branch (figures supplied by them)	20,494
Colonization Roads (figures supplied by them)	3,949
All other sources	33,597
Total incoming (Minister's Office not included)	97,996
Communications sent out:	
To Crown Lands Agents, Inspectors and Park Superintendents	28,567
" General public	23,891
Circular letters *re* timber sales	7,563
Maps and blue prints	5,500
Northern Development Branch (figures supplied by them)	11,002
" " " Seed Grain, (figures supplied by them)	404
Loan Commissioner Letters (figures supplied by them)	12,635
Forestry Branch, Letters (figures supplied by them)	9,344
" " Parcels by post (figures supplied by them)	484
" " Calendars (figures supplied by them)	10,000
Colonization Roads, Letters (figures supplied by them)	3,410
Total outgoing (Minister's Office not included)	112,800
Postage:	
Postage for the year, Records Branch	2,194 33
" " Loan Commissioner	410 00
" " Forestry Branch	350 00
" " Colonization Roads	250 00
Files:	
New Files issued, General	5,351
" " Accounts chargeable	647
" " Accounts free	282

S. K. BURDIN,
Chief Clerk, Records Branch.

W. C. CAIN,
Deputy Minister of Lands and Forests.

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 in Free Grant Townships during the year ending 31st October, 1922.

Township	District or County	Agent	No. of persons located	No. of acres located	No. of purchasers	No. of acres sold	No. of persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Baxter	Muskoka	J. B. Brown,	.....	.....	1	$\frac{87}{100}$	1	100	4	332
Brunel	"	Bracebridge	2	146½	...	.....	1	100	1	100
Cardwell	"	"	1	62	...	.....	1	62	1	200
Chaffey	"	"	.....	.....	...	.....	...	.....	2	151
Draper	"	"	.....	.....	...	.....	...	.....	...	.....
Franklin	"	"	3	902	2	45	4	402	3	492
Freeman	"	"	1	25	...	.....	...	.....	1	137
Macaulay	"	"	1	100	...	.....	1	100	...	.....
Medora	"	"	1	100	...	.....	1	100	1	195
Monck	"	"	.....	.....	...	.....	...	.....	...	.....
Morrison	"	"	.....	.....	...	.....	1	285	3	287
Muskoka	"	"	2	110	2	12½	2	76	1	12
McLean	"	"	1	100	...	.....	1	100	...	.....
Oakley	"	"	3	326	...	.....	3	239	...	.....
Ridout	"	"	.....	.....	...	.....	...	.....	1	200
Ryde	"	"	3	471	...	.....	1	100	...	.....
Sherbourne	Haliburton	"	2	251	...	.....	1	205	...	.....
Sinclair	Muskoka	"	2	174	...	.....	3	374	3	593
Stephenson	"	"	.....	.....	...	.....	...	.....	...	.....
Stisted	"	"	.....	.....	1	4	...	.....	1	104
Watt	"	"	.....	.....	...	.....	...	.....	2	197
Wood	"	"	1	100	9	38	3	399	2	234
Blair	Parry Sound	Miss I. M. Campbell, Parry Sound	1	100	2	99	...	.....	1	96
Burpee	"	"	1	102	...	.....	...	.....	1	193¾
Carling	"	"	5	610	4	119¼	5	610	5	496
Christie	"	"	3	281	...	.....	2	271	4	677
Conger	"	"	6	683	1	103	2	244	3	282
Cowper	"	"	.....	.....	...	.....	...	.....	...	.....
Foley	"	"	1	100	...	.....	...	.....	...	.....
Ferguson	"	"	.....	.....	...	.....	...	.....	1	200
Hagerman	"	"	2	359	...	.....	1	91	...	.....
Harrison	"	"	.....	.....	...	.....	...	.....	2	26
Henvey	"	"	3	264	1	7	1	103	3	541¼
Humphrey	"	"	.....	.....	1	73	1	99	2	186½
McConkey	"	"	3	287	...	.....	...	.....	3	377
McDougall	"	"	3	292	...	.....	...	.....	1	192$\frac{84}{100}$
McKellar	"	"	1	100	...	.....	1	200	...	.....
McKenzie	"	"	2	190	...	.....	1	100	4	437
Monteith	"	"	.....	.....	...	.....	...	.....	1	200
Shawanaga	"	"	.....	.....	...	.....	...	.....	...	.....
Wilson	"	"	12	2,030	1	10	1	81	1	145
Chapman	Parry Sound	Dr. J. S. Freeborn, Maganetawan	2	400	1	2	1	200	3	358
Croft	"	"	.....	.....	...	.....	...	.....	...	.....
Ferrie	"	"	.....	.....	...	.....	1	100	...	.....
Gurd	"	"	3	293	...	.....	2	300	6	1,016
Lount	"	"	3	477	1	4	...	.....	2	99
Machar	"	"	6	698	1	35	3	299	3	340
Mills	"	"	19	2,368	5	244	1	100	4	478
Pringle	"	"	7	710	3	122	...	.....	4	498
Ryerson	"	"	2	246	...	.....	2	245	1	200
Spence	"	"	3	202	3	151½	5	850	1	201
Strong	"	"	.....	.....	1	84	...	.....	3	596$\frac{3}{10}$

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Armour	Parry Sound	David Thaw,								
Bethune	"	Emsdale	2	194			2	194		
Joly	"	"	8	913	3	323	3	324	3	399
McMurrich	"	"			1	1			3	265
Perry	"	"								
Proudfoot	"	"	1	91	1	5	1	91	1	91
Hardy	"	H. J. Ellis,	1	201	4	104	1	200	1	202
Himsworth	"	Powassan	6	797	1	100	8	1,011	10	1,599
Laurier	"	"	2	200			1	100	1	100
Nipissing	"	"	3	500	3	88	4	485	4	783
Patterson	"	"	3	500	2	48			2	236
Bonfield	Nipissing	W. J. Parsons,	4	347			2	197	3	345
Boulter	"	North Bay	1	100	1	4			1	204
Chisholm	"	"	5	567	1	12	5	722	9	1,142
Ferris	"	"	4	500			5	500	11	1,190⅓
Anson	Haliburton	R. H. Baker,								
Glamorgan	"	Minden					2	198		
Hindon	"	"								
Lutterworth	"	"					1	156		
Minden	"	"	4	338			2	250	1	172
Snowdon	"	"	1	100			1	100		
Stanhope	"	"	1	66			1	66		
Anstruther	Peterborough	William Hales,	2	400	1	3	3	500		
Burleigh, N.D.	"	Apsley					1	175½		
" S.D.	"	"	1	100						
Chandos	"	"	1	100						
Methuen	"	"	1	134						
Cardiff	Haliburton	A. N. Wilson,	5	520			4	402	2	124
Cavendish	Peterborough	Kinmount	1	55	1	50			1	74
Galway	"	"	4	616	1	21	7	793	3	321
Monmouth	Haliburton	"	7	841	1	11	1	100	6	804
Bangor	Hastings	W. J. Douglas,	2	435	5	60	1	135		
Carlow	"	Maynooth	3	400					3	280
Cashel	"	"					1	100		
Dungannon	"	"	3	497			1	155	2	248½
Faraday	"	"	4	561			5	683	2	136½
Herschel	"	"	2	200	1	¼	2	200	3	319¾
Limerick	"	"	4	400	1	100	2	200		
Mayo	"	"	2	142½	2	71	2	197½	1	254
Monteagle	"	"	1	100			1	100	2	261
McClure	"	"	4	301			1	100	1	85
Wicklow	"	"	1	99			1	99	2	205
Wollaston	"	"			1	100			1	196
Algona, S.	Renfrew	Frank Blank,	1	100						
Brougham	"	Wilno					1	200	1	161½
Brudenell	"	"	7	427			2	191	5	657
Burns	"	"					1	101		
Grattan	"	"								
Griffith	"	"	1	37½						
Hagarty	"	"	3	399	1	8	2	179	1	112
Jones	"	"	11	1,032½	2	200	2	242		
Lyell	"	"	6	715½			3	310	1	200
Lyndoch	"	"	6	756	1	2	2	200	3	257

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Matawatchan	Parry Sound	Frank Blank, Wilno.	2	329	...	.....	1	87	1	216
Radcliffe	"	"	20	2,261½	1	51	7	788	10	1,810½
Raglan	"	"	4	367	...	.....	3	300	2	281
Richards	"	"	11	1,187	...	.....	6	593	2	331½
Sebastopol	"	"	2	200	1	1	...	.....	...	.....
Sherwood	"	"	6	589	...	.....	2	123½	3	150
Algona, N.	Renfrew	James R. Lockhart,	.....	.....	...	.....	...	.....	1	50
Alice	"	Pembroke	.....	.....	...	.....	...	.....	...	.....
Buchanan	"	"	2	200	1	8	3	391	5	695
Clara	"	"	.....	.....	...	.....	...	.....	...	.....
Fraser	"	"	1	115	...	.....	1	107	2	101 9/10
Head	"	"	3	255	...	.....	...	.....	...	.....
Maria	"	"	6	106	...	.....	...	.....	5	955½
McKay	"	"	.....	.....	...	.....	...	.....	...	.....
Petewawa	"	"	1	101	...	.....	...	.....	1	92½
Rolph	"	"	3	415	1	30	...	.....	4	868
Wilberforce	"	"	.....	.....	...	.....	...	.....	...	.....
Wylie (pt.)	"	"	2	341	...	.....	1	75	...	.....
Calvin	Nipissing	Robert Small,	2	170	...	.....	1	70	2	372½
Cameron (pt.)	"	Mattawa	9	1,086	...	.....	3	627	1	100
Lauder	"	"	2	214	2	22	2	312	1	210
Mattawan	"	"	22	3,387	...	.....	2	201	1	97
Papineau	"	"	.....	.....	...	.....	2	200	4	747
Korah	Algoma	Thos. Dean	.....	.....	...	.....	...	.....	...	.....
Parke	"	Sault Ste. Marie	.....	.....	...	.....	...	.....	...	.....
Prince	"	"	1	191	...	.....	2	351	1	160
Aberdeen	Algoma	Thos. Dodds,	.....	.....	1	3	...	.....	1	163
" ad	"	Thessalon	1	160½	...	.....	1	160½	3	329¼
Galbraith	"	"	.....	.....	...	.....	...	.....	...	.....
Lefroy	"	"	.....	.....	...	.....	...	.....	1	90
Plummer	"	"	.....	.....	...	.....	...	.....	2	277
" ad	"	"	.....	.....	...	.....	...	.....	...	.....
St. Joseph Is'd.	Algoma	W. E. Whybourne,	6	545	...	.....	5	445	2	200
St. Joseph Channel Is'd.	"	"	.....	.....	...	.....	...	.....	...	.....
Jocelyn	"	"	.....	.....	...	.....	...	.....	2	200
Baldwin	Sudbury	Edward Arthurs,	6	760	...	.....	4	620½	3	353½
Merritt	"	Espanola	11	1,201	1	10	3	515½	5	685
Blake	Thundred Bay	S. H. Wilson,	7	990	1	84	7	1,078	4	640
Conmee	"	Port Arthur	9	1,138	...	.....	4	428	6	867½
Crooks	"	"	5	648	...	.....	3	449½	2	305
Dawson Road	"	"	15	1,715	5	185½	5	552	7	846 3/10 3/10
Dorion	"	"	1	160	...	.....	1	160	4	628
Gillies	"	"	11	1,415	1	6	2	317½	1	161
Gorham	"	"	4	546½	4	345¾	...	.....	8	844¼
Lybster	"	"	10	1,427	4	318¾	3	456	2	318½
Marks	"	"	2	318	1	½	2	239½	6	934½
McGregor	"	"	15	2,336	2	77¼	6	894	...	.....
McIntyre	"	"	.....	.....	...	.....	...	.....	1	162
O'Connor	"	"	.....	.....	2	161	...	.....	4	641½
Oliver	"	"	5	724¼	...	.....	1	161	2	320
Paipoonge, N.R.	"	"	.....	.....	...	.....	...	.....	...	.....
" S.R.	"	"	.....	.....	...	.....	...	.....	1	100

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Pardee	Thunder Bay	S. H. Wilson,	2	320	1	67½	....	.....	2	320
Pearson	"	Port Arthur	8	1,224	1	1	4	652½	5	820
Scoble	"	"	14	1,954	1	½	5	704	1	161
Stirling	"	"	19	2,468	1	80¼	8	1,052¼	3	342¾
Strange	"	"	6	947½	4	6½	4	625½	1	161
Ware	"	"	7	776	....	.....	5	780½	9	1,506½
					4	218¾				
Atwood	Rainy River	Wm. Cameron,	.....	.....	....	.....	1	164	....	.....
Blue	"	Stratton	9	1,167½	....	.....	9	1,184½	2	324
Curran	"	"	4	644	....	.....	2	322	....	.....
Dewart	"	"	15	2,262	1	4	14	2,018¾	3	401
Dilke	"	"	.....	.....	....	.....	.....	.....	.....	.....
Morley	"	"	5	569	....	.....	....	569	1	162
Morson	"	"	28	4,087	1	141⅛	26	3,391	1	258
McCrosson	"	"	9	1,484	....	.....	11	1,723	3	543¼
Nelles	"	"	4	564	3	5	4	484	4	485
Patullo	"	"	12	1,360	4	208½	12	1,595	3	320
Pratt	"	"	8	1,299½	1	20	....	501½	1	160
Roseberry	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Shenston	"	"	1	160	1	4	....	.....	3	384
Sifton	"	"	19	2,766	1	2	12	1,939½	4	783½
Spohn	"	"	9	1,211	1	81	7	1,042½	2	178
Sutherland	"	"	12	1,935¼	2	40¼	9	1,480	5	657½
Tait	"	"	9	980	3	46½	4	333½	2	314
Tovell	"	"	8	1,092½	2	23	11	1,209	2	159
Worthington	"	"	.....	.....	.....	.....	.....	.....	3	574
Aylesworth	Rainy River	Alex. McFayden,	2	160	....	.....	....	.....	....	.....
Barwick	"	Emo	.....	.....	.....	.....	.....	.....	.....	.....
Burriss	"	"	.....	.....	.....	.....	.....	.....	2	335½
Carpenter	"	"	4	649	....	.....	1	163	4	566
Crozier	"	"	1	41	....	.....	.....	.....	.....	.....
Dance	"	"	7	1,126½	....	.....	7	1,126	1	159½
Devlin	"	"	1	164	.....	.....	.....	.....	.....	.....
Dobie	"	"	4	546¾	1	168	4	554½	....	745½
Fleming	"	"	1	160½	....	.....	3	481	....	.....
Kingsford	"	"	11	1,478	1	80½	11	1,442	2	342½
Lash	"	"	2	324	....	.....	2	241	1	40½
Mather	"	"	4	694	2	1½	4	694	1	161
Miscampbell	"	"	1	159½	1	½	....	.....	3	480½
Potts	"	"	4	56½	1	2	3	481½	2	322
Richardson	"	"	7	1,215	....	.....	6	1,054	2	368
Roddick	"	"	.....	.....	1	70	....	.....	1	230
Woodyatt	"	"	.....	.....	.....	.....	.....	.....	3	396
Aubrey	Kenora	J. E. Gibson	7	1,212½	2	12½	6	903½	6	729
Britton	"	Dryden	14	2,304	....	.....	11	1,606	....	.....
Eton	"	"	20	3,147	2	155¼	20	3,159¼	4	795
Langton	"	"	.....	.....	.....	.....	2	308½	....	.....
Melgund	"	"	7	1,008	1	27	6	878	....	.....
Mutrie	"	"	4	532½	1	1½	2	265	1	161½
Redvers	"	"	12	2,090	5	137½	5	672½	2	329
Rowell	"	"	1	153	....	.....	1	153	....	.....
Rugby	"	"	11	1,623	....	.....	6	960	....	.....
Sanford	"	"	13	2,004½	....	.....	8	1,361½	4	476½
Southworth	"	"	12	1,740½	1	4	11	1,538½	1	137
Temple	"	"	8	1,109	....	.....	8	1,182½	1	160
Van Horne	"	"	.....	.....	.....	.....	3	465½	2	169½
Wabigoon	"	"	6	661	1	80	6	741¼	6	1,010
Wainwright	"	"	9	1,182½	....	.....	6	953	9	1,300
Zealand	"	"	32	4,686	3	130	13	1,1793	3	538

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 persons cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Melick	Kenora	H. E. Holland,	8	886	2	81	11	1,701	....	.....
Pellatt	"	Kenora	6	642	1	42	6	653½	4	373½
Balfour	Sudbury	J. K. MacLennan,	1	71½	1	71½	3	479½	....	.....
Blezard	"	Sudbury	2	303½	...	.....	1	160	2	223
Broder	"	"	1	171	...	.....	...	.....	2	219
Capreol	"	"	4	506	...	.....	4	4,931¼	....	.....
Chapleau	"	"	6	991½	...	.....	1	209	....	.....
Dill	"	"	1	159½	...	.....	2	333	1	117¾
Garson	"	"	...	.....	...	.....	...	.....	...	.....
Hanmer	"	"	9	1,364½	1	6	7	1,078½	2	241¾
Lumsden	"	"	2	353½	1	½	4	644	....	.....
Morgan	"	"	2	235	1	½	.....	.....	2	235¼
Melon	"	"	...	.....	...	.....	...	.....	...	.....
Rayside	"	"	2	226	...	.....	1	124½	1	101
Appleby	Sudbury	John Brown,	18	2,946¾	2	9	8	1,286	....	490½
Casimir	"	Markstay	10	1,502	...	.....	6	842½	....	.....
Dunnet	"	"	6	805	1	1½	1	161	4	480
Hagar	"	"	11	1,743½	...	.....	14	1,970	1	160
Jennings	"	"	4	626½	...	.....	1	160½	2	264½
Kirkpatrick	"	"	4	630	...	.....	...	.....	1	160
Ratter	"	"	16	2,562	1	15	10	1,561	4	640
Caldwell	Nipissing	J. A. Philion,	3	307	1	15½	1	75½	5	597
Cosby	"	Sturgeon Falls.	6	957½	1	1	.....	.....	..	.....
Grant	"	"	11	1,540	2	4	5	800	2	159
Macpherson	"	"	1	160	...	.....	1	134	3	386¼
Martland	"	"	6	871	...	.....	2	323	1	161
Springer	"	"	3	216	1	86	..	.....	5	630
Abinger	Lennox and Addington	Chas. Both,	2	248	1	19	1	149	....	.....
Canonto, S.	Frontenac	Denbigh	.....	.....	...	.....	...	.....	1	73
" N.	"	"	.....	.....	...	.....	1	99	....	.....
Clarendon	"	"	2	203	...	.....	...	.....	...	.....
Denbigh	Lennox and Addington	"	1	90	...	.....	1	90	....	.....
Miller (pt.)	"	"	.....	.....	...	.....	...	.....	...	.....
Palmerston	"	"	.....	.....	...	.....	1	140	....	.....
McClintock	Haliburton	Unattached	.....	.....	...	.....	...	.....	1	100
Airy	Nipissing	"	1	101	1	10	1	100	2	304
Finlayson	"	"	.....	.....	...	.....	...	.....	...	.....
Murchison	"	"	.....	.....	...	.....	...	.....	1	267
Sabine	"	"	4	341	...	.....	1	76	3	599
Burton	Parry Sound	"	.....	.....	...	.....	....	.....	1	25
		Total	1,013	135656	177	5,954$\frac{9}{40}$	629	85,988½	460	64,813$\frac{8}{25}$

No. of lots assigned..... 255

No. of acres assigned..... 36,786

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

W. R. LEDGER,
Clerk of Free Grants.

Appendix No. 13—Continued

ISLANDS SOLD.

Part or Parcel.	Township.	District or County.	Agent.	No. of Acres Sold.
Island D	Harrison	Parry Sound	Miss I. M. Campbell.	.33
" 356	Carling	"	"	1.36
" B 408	Cowper	"	"	2.1
" 842 A	Harrison	"	"	.4
" B 358	Conger	"	"	4.
Pt. Palestine Is'd	Carling	"	"	9.50
Island B 430	Cowper	"	"	4.50
" C 309	Carling	"	"	3.64
" W. S. 89	Mowat	"	"	4.5
" Owakwashkesh Lake	McKenzie	"	"	2.
Island B 207	Conger	"	"	142.
" 30 A	Harrison	"	"	5.
" B 300	Conger	"	"	2.
Pt. McLaren Is'd	Cowper	"	"	3.
Island B 716	"	"	"	2.7
" B 281	Conger	"	"	1.1
" 110 A	Harrison	"	"	4.50
" A	"	"	"	6.3
" T P 3434 Low. French R.	"	"		.09
Island E	Shawanaga	"		1.3
" T P 3513 Pickerel River		"		5.
Crescent Island Three Mile Lk.	Armour	"	David Thaw	2.6
Island A	Hardy	"	H. J. Ellis	5.
W. D. 2523		Sudbury		.8
and F., Maskinonge Lake	Kelly	"		5.
Island T P 3142 Bear Lake		"		12.
Island T P 3272 Lake Penange		"		1.
Island T P 3271 Lake Penage		"		3.
Island T P 3149 Lake Penage		"		.22
Island T P 3237 Lake Penage		"		1.2
Island T P 3169		"		6.
Island H Weslemkoon Lake	Ashby	Lennox and Addington		6.
Island B Weslemkoon Lake	"	"		2.
Island A, Otter Lake	"	"		2.
Lyman Island, Weslemkoon Lk	Effingham	"		1.
Island in Otter Lake	S. Elmsley	Leeds		.80
Part Deer Island	Leeds and Lansdowne	"		10.
Joe's Island, Charleston Lake	Lansdowne	"		12.
Part of Buck Island	Leeds and Lansdowne	"		5.
Rabbit Island, Charleston Lake	Lansdowne	"		120.

Appendix No. 13—Continued

ISLANDS SOLD—Continued

Part or Parcel.	Township.	District or County.	Agent.	No. of Acres Sold.
Sheep Island in Charleston Lake	Lansdowne	Leeds		60.
Paudash Island, Loon Lake	Chandos	Peterborough	Wm. Hales	2.75
Island in Clear Lake	Cavendish	"	A. N. Wilson	4.
Island L	Cardiff	Haliburton	"	7.
Island A, West Lake	"	"	"	5.
Indian Island, Calabogie Lake	Blithefield	Renfrew		3.
Island S F 40, Canyon Lake		Kenora		3.7
Island T P 1939, Macgregor Bay		Manitoulin	W. E. Whybourne	.64
Island T P 1388, Macgregor Bay		"	"	1.3
Island 43, St. Josephs Chan'el		Algoma	"	1.
Edith Island, St. Josephs Chan'el		"	"	2.
Island 29, St. Josephs Chan'el		"	"	2.
Island E	Aweres	"	Thos. Dean	2.
Part of Island B Sharbot Lake	Olden	Frontenac		1.94
Cranberry or Island A, Kashe-shebogamog Lake	Morrison	Muskoka	J. B. Brown	.37
Part Island A 3 in Sesekinika Lake	Grenfell	Timiskaming		6.6
Buck Island	S. Crosby	Leeds	Unattached	10.
H 54 in Night Hawk Lake	Cody	Cochrane	"	.30
H 51 in Night Hawk Lake	"	"	"	.50
				526.16

Appendix No. 13—Continued

ISLANDS PATENTED.

Part or Parcel.	Township.	District or County.	Agent and P. O. Address.	No. of Acres Patented.
Island B 346....	Cowper.....	Parry Sound...	Miss I. M. Campbell, Parry Sound..	4.1–10
Island B 408....	"	" ...	" "	2.1–10
W.D. 2523.....	"	Sudbury.....	" "	8.
T.P. 3172.....	"	"	" "	8.
T.P. 3142.....	Berth 90....	"	" "	12.
Island E.....	Carling.....	Parry Sound...	" "	4.4
Island 34.....	Harrison....	" ...	" "	½
Island 30a.....	"	" ...	" "	5.
Island 347a.....	"	" ...	" "	.1–5
Pt. Deer Island.	Leeds and Lansdowne	Leeds.....	.....	4.5
Pt. Deer Island.	"	"	.....	10.
Joe's Island....	"	"	.....	12.
				69 9

Appendix No. 13—(Concluded)

List showing number and locations by Returned Soldiers in Sale and Free Grant Territory, respectively.

District.	Agency.	Number Locations.
	IN SALE TERRITORY	
Algoma	Hearst	22
"	Kapuskasing	21
"	Thessalon	1
"	Sault Ste. Marie	3
Temiskaming	Englehart	15
"	Cochrane	73
"	Elk Lake	3
"	Haileybury	1
"	Matheson	51
"	New Liskeard	4
Sudbury	Massey	3
"	Sudbury	5
"	Unattached	1
"	Markstay	2
Nipissing	North Bay	10
Thunder Bay	Port Arthur	4
		219

Statement showing number of lots resumed for non-performance of settlement duties by, or on behalf of returned soldiers.

		No. of lots.
	IN SALE TERRITORY.	
Temiskaming	Cochrane	67
"	Englehart	5
"	Matheson	14
"	Hearst	19
"	Elk Lake	1
Algoma	Massey	1
		107
	IN FREE GRANT TERRITORY.	
Nipissing	North Bay	2
Algoma	Sault Ste. Marie	1
		3

SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 14.

Statement showing the number of purchasers, acres sold, sales cancelled, acres resumed, patents issued, and acres patented in Townships other than Free Grant during the year ending 31st October, 1922.

Township	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Machin	Cochrane	S. J. Dempsay, Cochrane	3,707	27	27	3,938		
Blount	"	"	2,468	19	17	2,136	1	61½
Shackleton	"	"	1,635	12	25	3,713		
Brower	"	"	1,417½	10	16	2,502½	1	1
Pyne	"	"	1,124	7	11	1,769½		
Newmarket	"	"	3,215½	20	23	3,667		
Fauquier	"	"	1,202	9	24	3,451	2	300
Fox	"	"	2,214½	14	25	3,957		
Clute	"	"	1,425	10	22	3,238	9	1,291
Kennedy	"	"	1,974	13	15	2,826		
Calder	"	"	3,755	25	63	9,401	1	145½
Glackmeyer	"	"	1,873	13	26	3,754	11	1,640
Fournier	"	"	1,684	11	17	2,611½		
Leitch	"	"	1,342	10	33	4,461		
Colquhoun	"	"	150	1	1	150		
Lamarche	"	"	637	4				
Casgrain	Cochrane	J. L. O'Donnell, Hearst	3,450	24	29	4,335	2	293½
Devitt	"	"	7,473	50	1	150		
Eilber	"	"	5,103	34	24	3,665		
Hanlan	"	"	6,253	42	40	6,296	1	149
Kendall	"	"	5,294	36	39	5,786	4	534
Lowther	"	"	3,610	24	41	6,185		
O'Brien	"	H. E. Sheppard, Acting Agent, Kapuskasing	8,241	87	2	175	3	188
Owens	"	"	3,021	31	1	100		
Williamson	"	"	869	10				
Bayley	Temiskaming	Jos. Woollings, Englehart					1	158½
Blain	"	"			1	160½		
Catharine	"	"			5	801	3	479½
Chamberlain	"	"			2	317	2	356½
Dack	"	"	275½	2	1	158	4	501½
Davidson	"	"						
Eby	"	"	163	2			1	140
Evanturel	"	"	143	1			7	952¾
Gross	"	"	480	3				
Ingram	"	"	319½	2	10	1,574½	2	319
Marter	"	"	160	1	4	640½	3	481½
Marquis	"	"	160	1	11	1,734	4	478½
Otto	"	"	480	3	6	955½		
Pacaud	"	"	160	1	8	1,273½	5	597½
Pense	"	"			4	650½		
Robillard	"	"	406	3	1	135½	3	486½
Savard	"	"	319½	2	7	1,118½	6	942½
Sharpe	"	"			1	159½		
Truax	"	"	155½	1	7	1,108½		
Benoit	Temiskaming	J. E. Mills, Matheson	2,146	16	2	324	6	240½
Beatty	Cochrane	"	873	7	6	887	6	760½
Bond	"	"	1,723	14	19	2,849	3	468
Bowman	"	"	949	6	11	1,566	3	323

Appendix No. 14—Continued

Township.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of sales cancelled.	No. of acres resumed.	No. of patents issued.	No. of acres patented.
Calvert	Cochrane	J. E. Mills, Matheson	792	5	7	1,108	3	476
Carr	"	"	160	1			6	824½
Clergue	"	"	652	4	8	1,282	6	590
Currie	"	"	1,197	8	9	1,362	1	160
Dundonald	"	"	1,183	9	14	1,927		
Evelyn	"	"			1	160		
German	"	"	1,218	9	21	2,963	2	289½
Hislop	"	"	801	6	6	964	8	1,185
Matheson	"	"	1,499	11	40	6,006	3	389½
Mountjoy	"	"	1,394	10	15	2,460	1	162
McCart	"	"	949	7	16	2,492	2	318
Playfair	"	"	798	5	2	325	6	1,078
Stock	"	"	1,260	9	12	1,801	1	161½
Taylor	"	"	791	5	8	1,234	11	1,715
Walker	"	"	320	2	12	1,870	3	475
Armstrong	Temiskaming	J. W. Bolger, New Liskeard	240	2			5	758½
Auld	"	"	196	2	1	160	1	120
Beauchamp	"	"	158	1	3	482	2	320
Brethour	"	"	1,064	7	5	799	6	880
Bryce	"	"	479	3	9	1,371	1	160
Bucke	"	"	138	1	1	160	1	158½
Cane	"	"	319	2	3	361	5	736
Casey	"	"	78	1			7	905½
Dymond	"	"					1	76¾
Firstbrook	"	"			3	438	1	82
Harley	"	"					4	560
Henwood	"	"	162½	1	5	808	2	320½
Harris	"	"					2	201½
Hilliard	"	"	321	2	4	641	5	561½
Hudson	"	"			5	781	3	482
Kerns	"	"					3	398
Lundy	"	"	162	1	2	325		
Tudhope	"	"	83	1	1	153	3	318½
Smyth	Temiskaming	Mark Morgan, Elk Lake	158½	1				
Lorrain	Temiskaming	Neil J. McAuley, Haileybury	600	7	6	960	5	663
Mason	Nipissing	J. A. Philion, Sturgeon Falls	320	2			3	257½
Scollard	"	"	407	3	1	164	2	323½
Hugel	Nipissing	John Brown, Markstay	319	2	2	320	1	159
Loudon	"	"	164	1			1	161½
Widdifield	Nipissing	W. J. Parsons, North Bay	641	4	32	5,349	7	1,038½
Phelps	"	"	2,081	14	3	480		
Awrey	Sudbury	R. A. Tesdale, Massey	79½	1			1	160
Hallam	"	"					2	316¼
Harrow	"	"	140	1			1	140
May	"	"	616	4	1	163	3	479½
Salter	"	"	259	2	1	80	4	580
Shedden	"	"			1	150	1	30
Victoria	"	"	283	2	2	214	2	240

Appendix No. 14—Continued

Township	District or County	Agent	No. of acres sold	No. of purchasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Dowling	Sudbury	J. K. McLennan, Sudbury			1	158	2	326
McKim	"	"						
Loughrin	"	"	161	1			2	311
Delamere	"	"	478	3			1	.34
Drayton	Kenora	H. E. Holland, Kenora	151	3			3	298
Bright	Algoma	Thos. Dodds, Thessalon	160	1	2	352	2	236
Bright ad	"	"			1	151		
Day	"	"						
Gladstone	"	"						
Gould	"	"	123	1	1	160		
Houghton	"	"					1	157
Johnson	"	"			1	133	2	293½
Kirkwood	"	"						
Parkinson	"	"	161½	1	1	161	2	318⅛
Patton	"	"	157	1	2	327	4	552½
Rose	"	"			1	167		
Striker	"	"	221	2	4	397	1	151½
Thompson	"	"	159	1			1	160
Wells	"	"						
Aweres	Algoma	Thos. Dean, Sault Ste. Marie	98	1	2	308	2	100
Tarentorus	"	"	80	1	1	90	1	80
Vankoughnet	"	"			2	294	3	451
Forbes	Thunder Bay	S. H. Wilson, Port Arthur	2,078	15	4	582	3	471½
Lyon	"	"	223	2	4	613	1	158
Nipigon	"	"	453	3	2	315	6	1,099
Upsala	"	"	3,694	25				
Nairn	Sudbury	E. Arthurs, Espanola	185	1			2	330
Admaston	Renfrew	Unattached	100	1			3	275
Barrie	Frontenac	"	192	2	2	192	1	154
Badgerow	Nipissing	"	420	3	2	242	2	365
Bagot	Renfrew	"	685	5	1	100	4	600
Bigwood	Sudbury	"	1,198	9			6	115
Bastedo	Nipissing	"	320	2				
Crerar	"	"	1,268	9	1	160	5	795
Creighton	Sudbury	"	323	2	1	80½	1	162
Drury	"	"			2	240		
Dummer	Peterboro	"	100	1				
Fairbank	Sudbury	"	238	2			2	238
Field	Nipissing	"	667	6	1	204	6	587
Gibbons	"	"	198	2			2	198
Harvey	Peterboro	"	97	1	2	202	4	717
James	Temiskaming	"	42	1			4	157½
Kennebec	Frontenac	"	180	1			1	180
Kaladar	Lennox and Addington	"	128	1			2	322½
Laxton	Victoria	"	100	1	1	100	1	100
Lorne	Sudbury	"	856	6			4	387
Louise	"	"	223	2			2	273
Medonte	Simcoe	"	180	1	1	190		
Proton	Grey	"	199	2			2	199⅛

Appendix No. 14—Concluded

Township.	District or County.	Agent.	No. of acres sold	No. of purchasers	No. of sales cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Rutherford	Manitoulin	Unattached			1	164		
Sherbrooke, S.	Lanark	"	50	1			1	50
Shakespeare	Sudbury	"	85	2			2	89½
Somerville	Victoria	"	159	1			2	251
Tudor	Hastings	"	99	1	1	99	2	199
			121,222	894	935	140,775	328	43,119½

Number of Lots assigned.....549 Number of Acres assigned.....75.102

J. E. DRINKWATER,
Clerk in charge.
SELBY DRAPER,
Chief Clerk.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Statement showing the number of purchasers, acres sold and of patents issued in Townsites during the year ending 31st October, 1922.

Townsite.	District or County.	Agent.	No. of acres sold.	No. of purchasers.	No. of patents issued.	No. of acres patented.
Adolphstown	Lennox and Addington	Unattached	77.41	1	1	77.41
Alexandra	Cochrane	"	.24	1		
Belleville	Hastings	"	.12	1	1	.25
Capreol	Sudbury	"	1.02	9	9	1 .14
Foleyet	"	"	.17	2		
Frederickhouse	Cochrane	"	.20	2		
Gogama	Sudbury	"	.44	4	3	.44
Grant	Thunder Bay	"	.94	6	4	.80
Hornepayne	Algoma	"	.36	1		
Kirkland Lake	Temiskaming	"	1.21	13	8	.55
" extension	"	"	.60	8		
Lowbush River	"	"	.54	2		
Macfarlane	Kenora	"	.90	2	6	2.14
Minden	Haliburton	"	1.50	2	1	.75
Missinabie	Algoma	"	2.92	16	4	1.05
Moonbeam	Cochrane	"	1.57	2	1	1.40
North Capreol	Sudbury	"	.13	1	3	.39
Sioux Lookout	Kenora	"	.88	4	7	2.86
Swastika	Temiskaming	"	1.09	6		
Waldhof	Kenora	"	.65	1	1	.65
Winnipeg River Crossing	"	"	.69	2	1	.23
Wood	Muskoka	"	.65	1		
			94.23	88	50	90.06

SELBY DRAPER,
Chief Clerk.
J. B. PROCTOR,
Clerk in charge.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 15.

HONOURABLE BENIAH BOWMAN
Minister of Lands and Forests.

REPORT OF CROWN SURVEYS.

Sir,—During the past year surveys have been carried out on Crown Lands under instructions from this Department to the extent of 1,000 miles of Provincial boundary, base and meridian and township boundary lines, also covering 2,000 miles of lake, river and is and traverse.

INTERPROVINCIAL BOUNDARY BETWEEN ONTARIO AND MANITOBA.

This boundary survey commenced in 1921 was continued in charge of J. W. Pierce, Ontario and Dominion Land Surveyor, of Ottawa, and pushed forward to the twelfth base line on the system of Dominion Land Survey, this being the deflecting point in the boundary as described by the Act of Parliament of Canada of 1st April, 1912. The Commissioners appointed by the respective Governments will make a special report on this boundary survey when the final returns are completed.

INTERPROVINCIAL BOUNDARY BETWEEN ONTARIO AND QUEBEC.

In order to preserve and perpetuate the existing line it was found expedient to retrace and remonument the Ontario-Quebec Boundary from a point on the northerly bank of Lake St. Francis, near Baudette, to a point on the Ottawa River near Pointe Fortune. In compliance with an Order-in-Council dated 20th day of March, 1922, instructions issued to E. T. Wilkie, Ontario Land Surveyor, on behalf of this Province, and similar instructions issued to Paul E. Mercier, Quebec Land Surveyor, on behalf of the Province of Quebec, to carry on this joint survey. I am glad to report that this retracing of the line was carried on harmoniously and to the satisfaction of both representatives and the report on this work will be found herein.

BASE AND MERIDIAN LINES.

Phillips and Benner, Ontario Land Surveyors, and K. G. Ross, Ontario Land Surveyor, were engaged on base and meridian line work west of the Nipigon Forest Reserve, in the district of Thunder Bay.

TOWNSHIP BOUNDARIES.

The following surveyors were in charge of township boundary work:—

District of Sudbury, six-mile townships,—
J. W. Fitzgerald.
Chas. V. Gallagher.
McAuslan, Anderson & Moore.

District of Cochrane, nine-mile townships,—
Sutcliffe & Neelands.
Speight & Van Nostrand.

District of Algoma,—
H. J. Beatty.

Lake and River Traverse.

(1) Traver e of English River from Lac Seul westward, districts of Kenora and Patricia, J. S. Dobie.
(2) Traverse of shore and islands Lake Wabigoon, district of Kenora, R. S. Kirkup.
(3) Traverse of shore and islands Lake of the Woods, district of Rainy River, D. J. Gillon.
(4) Traverse of Abitibi River north from the township of Leitch, district of Cochrane, C. R. Kenny.
(5) Traverse of part of Severn River, County of Simcoe and district of Muskoka, J. T. Coltham.
(6) Traverse of Mississaga River, district of Algoma, T. J. Patten.
(7) Traverse of Reuben Lake, district of Nipissing, T. G. Code.
(8) Traverse of lakes and islands in township of Methuen, County of Peterborough, C. H. Wilkins.

Timber Limit Surveys.

(1) Burnt area near Jellicoe, district of Thunder Bay, Phillips & Benner.
(2) Timber lines in the townships of Afton, MacBeth and Sheppard, district of Sudbury, Mooney and Gill.
(3) Timber lines in Township 9, Z, district of Sudbury, Lincoln Mooney.
(4) Berth No. 25, district of Rainy River, D. J. Gillon.

Miscellaneous Surveys.

(1) Subdivision of park lots in Rondeau Park, county of Kent, C. E. Fitton.
(2) Survey of Pine Island, in St. Mary's River, into summer resort parcels, K. G. Ross.
(3) Additional town lots laid out at Alexandra, in the district of Cochrane, G. F. Summers.
(4) Survey of park lots in Presqu'ile Park, county of Haliburton, M. M. Gibson.
(5) Resurvey of certain township lots along the Timiskaming and Northern Ontario Railway extension in the township of Blount, district of Cochrane, G. P. Angus.

Inspection.

Inspection of work in the field was carried on during the year by Charles E. Fitton, and I am glad to be able to report that the work as a whole has been well performed. Detailed reports of the several surveys for which returns have been made during the year will be found in appendices 20 to 24, inclusive.

L. V. Rorke,
Director of Surveys.

Toronto, October 31st, 1922.

Appendix No. 16.

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1922.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.	Date when confirmed under Ont. Statutes 1920, chap. 48, sec. 11-18, inclusive.
1	Speight & VanNostrand.....	726	Aug. 18, 1921	To survey the limits of Durie Street in the City of Toronto, in the County of York, and to plant stone or other durable monuments to define the limits of said street....	Dec. 27, 1921.
1	James J. MacKay.	730	May 8, 1922.	To survey the original road allowance between the broken front and first concession of the township of Clinton, across lot 23, in said township.....	Aug. 31, 1922.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1922.

No.	Name of Surveyor.	No.	Date of Instructions.	Description of Survey.
1	J. H. Moore.....	729	Dec. 2, 1921	To survey the side road line between lots 20 and 21 in the 1st concession of the Township of Beckwith, and also the line between the 8th and 9th concessions in said township in front of lots 1 to 5 inclusive, and that iron monuments be placed to mark the said road allowance as set out herein.
2	James J. MacKay.	730	May 8, 1922	To survey the original road allowance between the broken front and first concession of the Township of Clinton, across lot 23, in said township.
3	Frank N. Rutherford.....	731	Aug. 24, 1922	To survey the road allowance between the Townships of Niagara and Grantham in the County of Lincoln, extending from the Queenston and Grimsby Provincial Road to the lake shore road, and to plant durable monuments to mark the said road allowance as set out herein.

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 18.

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
1	April 12, 1922	H. J. Beatty.....	Survey certain township outlines, district of Algoma.....	$7,237.50
2	Sept. 26, 1922	G. P. Angus.....	Resurvey of certain lots in the Township of Blount, district of Cochrane.....	1,000 00
3	April 27, 1922	Jas. T. Coltham....	Traverse of Severn River between the Townships of Matchedash, Baxter, Morrison, Wood.....	1,818 80
4	April 18, 1922	J. S. Dobie.....	Traverse the shores of the English River and the islands therein, district of Kenora and Patricia.....	8,600 00
5	April 12, 1922	J. W. Fitzgerald....	Certain township outlines south of the Canadian Pacific Railway, district of Sudbury.....	6,120 00
6	May 8, 1922	C. E. Fitton.....	Inspection of surveys, 1922.....	3,496 00
7	April 12, 1922	Chas. V. Gallagher .	Certain township outlines along the Canadian Pacific Railway, district of Sudbury.....	4,016 00
8	April 17, 1922	D. J. Gillon.....	Traverse of islands and part of shore lines Lake of Woods, district of Rainy River.....	4,800 00
9	April 18, 1922	C. R. Kenny.....	Traverse of portion of Abitibi River, district of Cochrane.....	2,950 00
10	April 18, 1922	Roy S. Kirkup.....	Traverse shores of Wabigoon Lake, etc., district of Kenora.....	2,700 00
11	April 12, 1922	McAuslan, Anderson and Moore.....	Certain township outlines along Canadian Pacific Railway, district of Sudbury...	5,790 00
12	April 1, 1922	Mooney & Gill.....	Certain lines in unsurveyed territory, district of Sudbury.....	3,000 00
13	April 21, 1922	Phillips & Benner...	Base and meridian lines, district of Thunder Bay.....	6,207 50
14	April 26, 1922	T. J. Patten.....	Traverse part of Mississaga River, district of Algoma.....	3,099 00
15	April 22, 1922	K. G. Ross.....	Base and meridian lines, district of Thunder Bay.....	7,973 50
16	April 12, 1922	Sutcliffe & Neelands	Certain township outlines on Abitibi River, district of Cochrane.....	3,700 00
17	April 12, 1922	Speight & VonNostrand.....	Certain township outlines on Abitibi River, district of Cochrane.....	7,492 50
18	April 5, 1922	E. T. Wilkie.....	Renewal portion boundary between Ontario and Quebec.....	1,400 00
19	April 27, 1922	C. H. Wilkins.....	Traverse certain lakes and rivers, Township Methuen.....	1,900 00

Appendix No. 18—Concluded

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
20	March 7, 1921	J. W. Pierce.....	Survey boundary between Ontario and Manitoba.....	12,900 00
21	June 5, 1922	M. M. Gibson.....	Certain survey work, Presqu'ile Park, County of Northumberland.....	600 00
22	July 25, 1922	T. G. Code.....	Traverse Reuben Lake, etc., district of Nipissing.....	800 00
23	Aug. 21, 1922	L. Mooney.....	Survey timber berth line, Township 9 Z, district of Sudbury.....	1,000 00
				$10,100 80

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 19.

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Survey.	Amount paid.
1	Oct. 3, 1921	R. M. Anderson....	Retracing and establishing the boundaries of land lying between Long Point and Walsingham Townships.....	$569 94
2	April 15, 1922	H. J. Beatty.....	Survey certain township outlines in district of Algoma.....	1,761 48
3	May 16, 1921	Jas. T. Coltham....	To traverse certain lakes and rivers in Townships of Wallbridge and Harrison	1,684 55
4	May 2, 1921	T. G. Code.....	Traverse certain lakes and streams in the Timagami Forest Reserve, district of Timiskaming and Nipissing.....	2,504 87
5	April 5, 1921	Jas. S. Dobie.....	Traverse the islands and shores of Lake St. Joseph and run certain base and meridian lines in Thunder Bay district	3,106 08
6	May 17, 1921	C. E. Fitton.....	Inspection of surveys, 1921.....	1,609 71
7	April 15, 1921	J. W. Fitzgerald....	Survey certain township outlines north of Canadian Pacific Railway in district of Sudbury and Algoma.....	2,513 14
8	May 18, 1921	D. J. Gillon.....	Survey islands and shore lines in part of Lake of the Woods in the district of Rainy River and Kenora.....	2,430 40
9	May 5, 1921	Chas. V. Gallagher	Survey certain township outlines north of Canadian Pacific Railway in the sidtrict of Sudbury.....	1,803 30
10	May 2, 1921	R. S. Kirkup.....	Traverse Kenogami River and its expansions in the districts of Thunder Bay and Algoma.....	2,253 96
11	April 22, 1921	Carmen R. Kenny..	To continue traverse of Missinaibi River in districts of Algoma and Timiskaming	1,943 88
12	Oct. 3, 1921	L. Mooney.....	Survey a meridian Township 44, along Canadian Pacific Railway, district of Sudbury.....	434 70
13	May 16, 1921	McAuslan & Anderson.....	Survey certain township outlines north of Canadian Pacific Railway, district of Sudbury.....	2,075 55
14	May 16, 1921	T. J. Patten.....	Survey traverse islands in French River districts of Parry Sound and Sudbury.	2,610 75
15	April 15, 1921	Phillips & Benner...	Survey certain base and meridian lines in district of Thunder Bay.....	2,556 37
16	Aug. 22, 1921	Phillips & Benner...	Survey outlines timber berth south of Ignace, district of Kenora.....	5,228 69
17	March 7, 1921	J. W. Pierce.....	Survey of portion of Interprovincial Boundary between Ontario and Manitoba.....	5,406 77
18	April 15, 1921	K. G. Ross.....	Survey base and meridian line, district of Thunder Bay.....	2,358 80

Appendix No. 19—Concluded

Statement of Crown Surveys completed and closed during the twelve months ending October 31st, 1922.

No.	Date of Instructions.	Name of Surveyor.	Description of Surveys.	Amount paid.
19	April 15, 1921	Speight & VanNostrand	Survey certain township outlines at head waters of Missinaibi River, districts of Sudbury and Algoma	2,763 34
20	Nov. 4, 1920	Bingham & Kirkup.	Resurvey certain lines in Township of Pardee, district of Thunder Bay	808 17
21	May 27, 1920	G. F. Summers	To survey a town plot and other lands in the vicinity of Kapuskasing, Township of O'Brien, district of Timiskaming	2,948 60
22	Dec. 3, 1921	D. J. Gillon	Survey of timber berth 25, district of Rainy River	372 00
23	March 2, 1922	C. E. Fitton	Survey in Rondeau Park	591 05
24	Aug. 18, 1921	McAuslan, Anderson & Moore	Survey of lots in town plot of Grant	249 45
25	Dec. 20, 1921	G. F. Summers	Survey additional lots in town plot of Alexandra	362 38
26	.....	Baines & David	Survey iron posts	170 00
27	Aug. 16, 1922	Phillips & Benner	Timber berths near Jellicoe Station	772 40
28	July 4, 1922	Thornton & Co.	Supplies	20 00
29	July 4, 1922	Surveyor-General	Supplies, Boundary Survey, Ontario and Quebec	96 24
30	Nov. 23, 1921	K. G. Ross	Salary, etc	48 00
31	May 12, 1920	N. B. MacRostie	Township outlines in Timiskaming	1,949 54
32	June 30, 1919	H. K. Wicksteed, executor A. L. Russell	Survey Shebandowan and Greenwater Lakes	725 80
	April 25, 1922	Pritchard, Andrews & Co.	Brass plates	26 00
			Total	$54,755 81

L. V. RORKE,
Director of Surveys.

W. C. CAIN,
Deputy Minister of Lands and Forests.

Appendix No. 20.

COBALT, ONT., February 1st, 1922.

SURVEY OF SMALL LAKES NORTH AND EAST OF LAKE TIMAGAMI, DISTRICTS OF TIMISKAMING AND NIPISSING.

Sir,—In obedience to your instructions dated May 2nd, 1921, to traverse certain lakes and canoe routes in the Timagami Forest Reserve, I have surveyed as much of my contract as was possible in a season, and beg to report as follows:—

1.—ROUTINE OF WORK.

On May 7th I left Cobalt with my party. We packed in supplies to Anima, Nipissing Lake and commenced survey thereof the following Tuesday, May 10th, carrying on through McLean, Carrying and Red Squirrel Lakes down to Sandy Inlet on Lake Timagami, surveying the small lakes Pickerel, Gull Rock, Breeches, Mountain and Clearwater from camps on Anima, Nipissing, finishing this section of the work on June 9th.

On June 10th we moved down through Lake Timagami, Snake Island, White Bear and into Rabbit Lake, reprovisioning the outfit and commencing the survey of Rabbit Lake on June 15th. The survey was carried on from here through White Bear, Snake Island, Obaskong, Net, Cedar and Thieving Bear Lakes, completing Thieving Bear Lake on the morning of July 28th, and moving a light camp the same day to Mountain Lake. As the route from Thieving Bear to Mountain Lake is through a very small winding creek, barely more than fifteen feet wide in low water, I did not feel that the time necessary to survey this would be well spent and, therefore, sketched the route and chained the portages, which are in fair condition. For driving logs, dams will be necessary to raise the water above the low flat banks of the present creek.

The survey of Mountain Lake was completed on July 29th and camp moved to mileage 76, T. & N. O. Ry., at Net Lake, on July 30th. A few days were spent making arrangements to have camp outfit picked up by the way freight and moved to Doherty Station, and in getting a new supply of provisions. However, with as little delay as possible the survey of Twin Lakes was commenced on August 4th. After surveying Upper and Lower Twin Lakes and Lowell Lake, we moved camp on August 12th to a small lake two and one-half miles south of Doherty. The water was very low and the canoe route through the northeast corner of Law township had not been in use for ten or twelve years, so we cut a new portage three-quarters of a mile south into Angus Lake. This we found to benefit others as well, probably more than twenty tourists passing through this way in the short time we were surveying Angus and Caribou Lakes. From here we continued survey through Angus, Jumping Caribou, Ingall, Brophy, Green, Wasaksinagama, Island, Herridge, Wilson and Christy Lakes, finishing this portion of the work on October 12th. On October 13th, I moved camp to Timagami Lake, arriving back in Cobalt and paying off the men on October 14th.

All the work allotted to me was not completed but I have tried to survey as many lakes as possible along the routes to save going over the same ground a second time.

The following is the mileage of traverse, calculated by wheeled scale, which though close, can only be approximate,—

	Miles.
Anima Nipissing and Pickere' Lakes	57.50
Islands	7.00
Gull Rock Lake	6.00
Breeches Lake	4.50
Clearwater Lake	11.75
McLean Lake	6.25
Mountain Lake	15.50
Carrying Lake	3.00
Red Squirrel Lake	14.00
Rabbit Lake	46 50
White Bear Lake	17.75
Snake Island Lake	6.50
Obaskong Lake	3.50
Net Lake	36.00
Cedar Lake	13.00
Thieving Bear Lake	8.50
Upper and Lower Twin Lakes	14.50
Lowell Lake	4.00
Angus Lake	6.00
Jumping Caribou Lake	20 00
Ingall Lake	19.50
Brophy Lake	6.75
Green Lake	1.00
Wasaksinagama Lake	35.00
Island Lake	7.50
Herridge Lake	13.00
Wilson Lake	8.00
Christy Lake	4.50
Wilson to Christy Lake route	3.00
	400.00

2.—Method of Survey.

(a) Instruments used.—Throughout the whole survey, traverse was made by stadia readings. Azimuth angles were carried through with the transit A. C. L. Berger instrument was used and gave perfect satisfaction, both for stadia distances and for azimuth. The only adjustment necessary at any time was for level bubbles.

Stadia rods used were made by myself and read direct to tenths of links. The accuracy of readings being checked from time to time by reading on measured lines.

(b) Field Notes.—One form of field notes were kept throughout the course of the work. The notes were transcribed in ink and carefully checked They show station, azimuth, angle right, bearing and under remarks, the point on which the reading was taken.

(c) Observations were taken frequently on Polaris for azimuth. The results are shown in the field notes.

(d) Posts and blazed trees.

Posts were planted and bearing trees marked at one chain back from the intersections of the several township boundaries with the shores of the different lakes.

Around the shores of the lakes at intervals of about a mile, trees were blazed and marked with a number. In almost every case the number given was the number of the station of the traverse, but where this was not found convenient, other numbers were used and are shown on the plans and in the field notes.

3.—Description of Lakes and Rivers.

In dealing with this heading, on account of the smallness of the lakes and the general features being the same, I am grouping the surveys similar to 1, Routine of Work.

(a) *Anima Nipissing Lake to Red Squirrel Lake Section.*

All these lakes have fairly high rocky shores. The land close to the shores is not suitable for agriculture, with the exception of a very few isolated spots where the overburden is sufficient to permit farming.

Timber.—The timber throughout this section consists of 8″-16″ red pine, 12″-18″ scattered white pine, 4″-8″ birch, 4″-8″ spruce, together with some cedar and balsam, in the low places. The timber at the northwest end of Anima Nipissing Lake is not quite as good as the rest of the area described.

Islands. —The islands are, with the exception of one or two small ones on which the timber has been destroyed by careless campers, well timbered.

(b) *Rabbit and White Bear Lake Section.*

Considerable timber has been destroyed on Rabbit, White Bear, Snake Island, and Obaskong Lakes. The standing dead trees do not contribute to the beauty of the place and give the impression that considerably more timber has been destroyed than is actually the case. The high shores taking up the rise in the water level. A fair estimate would be about one chain in width along the shores of the several lakes, say from six to seven hundred acres.

The timber along the shores of Rabbit Lake consists of jack pine, average 10″, red pine 12″-18″, birch and poplar, with cedar and balsam. Farthee north, around White Bear Lake, the timber consists of 4″-15″ red and whitr pine. Small poplar and birch, spruce and balsam.

(c) *Net Lake Section, including Cedar and Thieving Bear Lakes.*

The general physical features of this system are very similar to the previous lakes described. The shores, however, are not quite so precipitous.

The timber consists of 4″-16″ red pine, 4″-10″ white pine, 4″-18″ poplar, with cedar along the shores together with spruce.

(d) *Lake Section through Law and Strathcona Townships.*

The shores of these lakes are even more rugged than the lakes previously described. The country back of the lakes being very rough and rocky.

Considering the amount of rock exposed the timber is very good consisting of 8″-16″ red and white pine, balsam, birch and poplar, increasing to 6″-20″ red and white pine at Island Lake and carrying through with the same class of timber to Wilson and Christy Lakes. Very little of this has been destroyed by fire. The section around Angus, Caribou and Ingall Lakes being very old brule. The islands, however, are well timbered.

(e) *Remarks.*

Throughout the course of the survey it has been very noticeable that the brule area is confined to the T. & N. O. Railway. Apart from portions close to the railway, due probably to sparks from locomotives and possibly due to carelessness of the men in the employ of the different construction companies building the line, there is practically no timber destroyed by fire. This is probably due to the efficient staff of fire rangers at Timagami.

The section of the Timagami Reserve surveyed last summer is an ideal spot for tourists. The scenery is beautiful. The canoe routes are not hard. The lakes are excellent for fishing. At present a great number of people from points farther north spend their holidays there, as well as pleasure seekers from the south. There are several dangerous shoals in Timagami Lake even for canoes in bad weather. These, I feel, should be shown on future maps of the lake.

Accompanying this report are:

Plans—

Sheet No. 1—

Anima Nipissing, Pickerel, Gull, Rock, Breeches, Mountain, Clear-water, McLean, Carrying and Red Squirrel Lakes.

Sheet No. 2—

Rabbit, White Bear, Snake Island and Obaskong Lakes.

Sheet No. 3—

Net, Cedar and Thieving Bear Lakes.

Sheet No. 4—

Upper and Lower Twin Lakes, Lowell, Angus, Jumping Caribou, Ingall, Brophy, Wasaksinagama, Island, Herridge, Wilson and Christy Lakes.

Field Notes—

Three field books containing notes of all the above plans.
Diary of progress of survey.
Time Book.

The above is respectfully submitted,

I have the honour to be, Sir,

Your obedient servant,

T. G. Code,
Ontario Land Surveyor.

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

Appendix No. 21.

SURVEY OF MISSINAIBI RIVER, DISTRICTS OF ALGOMA AND TIMISKAMING.

SAULT STE. MARIE, ONT., January 16th, 1922.

SIR,—Under instructions from you dated April 22nd, 1921, to survey the Missinaibi River from the north boundary of the Township of Sankey to the Mattagami River, and to complete the survey of Opazatika River from the north boundary of the Township of Idington to its mouth, I commenced organizing for this survey May 13th, 1921, leaving Sault Ste. Marie with my outfit and four men and arriving at Mattice on May 18th. At this point I overhauled supplies and outfit, and proceeded down Missinaibi River on the twentieth, arriving below point of commencement the following day.

The problem of transportation on this portion of Missinaibi River is one of extreme difficulty, particularly at low water. From north boundary to Township of Sankey the river can be run all the way to Conquering Rapids by experienced canoemen using poles almost constantly as flow is rapid and boulders frequent.

Between head of Conquering Rapids and foot of the Long Rapids a distance of four and a half miles, is sixty per cent. portage. The old portages were re-cut out by my party as this was absolutely necessary. The approaches to the portages are hazardous and require careful use of pole and paddle.

At the north side of the Township of Sankey the river is divided into two channels by Skunk Island reuniting thirty chains north of the line. The elevation of surface of river here is 645 feet. Half a mile north of Township of Sankey, Isabell and Alice Islands commence. The river here from Skunk Island to Isabell Island is almost ten chains wide with easy flow. On either side of Alice Island the river runs through clay country, but the shores are marked by stones and occasional large boulders. From the north boundary of Sankey for about fourteen and one-half miles the river flows moderately swift, and with easy curves to the head of Conquering Rapids. Surface at head of rapids is 620 feet and at foot 609 feet with a length of about thirty chains. At the head of the rapids are four rocky islands, and rock is plainly visible on the shore.

Thunder House Falls is one-half mile below Conquering Rapids, and is comprised of three separate falls within twenty chains, elevations at head of first fall 604 feet, and elevation at foot of third fall being 565 feet. Below this is a gorge three to four chains wide falling four feet in a length of twenty chains. At the head of first fall is a solid rock island which seems a favourable dam site. I consider that a dam twenty feet high, elevation of crest 624 feet, would be 700 feet long, of which 300 feet would be of moderate height, and would drown out Conquering Rapids. The difficulty here is the existence of Coal River running eastward from near foot of Conquering Rapids to a point about ten miles farther down the Missinaibi River, being a sort of high water by-pass or channel; whether this could be easily blocked or regulated I cannot say. Photographs accompanying this report will indicate clearly the nature of possible dam site.

One mile and three-quarters below lower end of Thunder House Gorge is the head of Stone Rapids which consists of a series of rapids, chutes and falls with a total drop of thirty-one feet within a distance of thirty chains. The sides of the valley of Stone Rapids are clay banks perhaps seventy-five feet high. There was apparently no chance of favourable power development near

head of rapids, but possibly a dam could be constructed at or about position of Post No. 10 as shown on plan, though no natural dam site was noted.

Three-quarters of a mile below Stone Rapids is the head of the Long Rapids, surface elevation 494 feet. A fair natural dam site exists just below island "P." Total length of dam with crest at 520 feet would be about 700 feet. Another natural dam site exists half way down the rapids, marked surface elevation 451.5 and where there is a drop to elevation 408.3 in about five chains. This is perhaps the best way to develop power at this rapids as a dam thirty feet or more above elevation 451.5 feet would only be 400 feet long. Possibly a a two stage development would be more economic.

The total drop in the four rapids, Conquering Rapids, Thunder House Falls, Stone Portage Rapids and the Long Rapids is 255 feet. The distance from head of Conquering Rapids to foot of the Long Rapids is four and one-half miles by river, so that the total development by low impounding dam at head of Conquering Rapids and penstock lines would be a very expensive undertaking. The water shed area determination is an important factor. Whether it is possible to utilize Coal River as a power canal in whole, or in part, or to make development by canal in lieu of penstock or open flume cannot be stated now, but it appears doubtful. This water power location requires considerable survey and study to ascertain economic development. The water shed area common to Conquering Rapids, Thunder House Falls, Stone Portage Rapids and the Long Rapids is about four thousand square miles (noted as 6,500 square miles in 1911 Commission of Conservation Report).

(Note—Datum of elevations is base of rail at centre of bridge at Mattice as 750 feet.)

Below the Long Rapids there is no possibility of water power development on the Missinaibi River. The banks are fifty to one hundred feet high in clay as far as the Opazatika River, eighty miles from the north boundary of the Township of Sankey. Below this the banks of the river are fifteen to forty feet high in clay which is the same formation as throughout the clay belt.

From the foot of the Long Rapids to the mouth of the Mattagami River there are numerous rapids and gravel bars, work being arduous, both ascending and descending at all stages, except at high water period. This position is safe only for men expert with the pole and canoes cannot be loaded to full capacity.

Indications show that the greater part of the Missinaibi River region has been visited years ago by fire, destroying what was at one time a wonderful forest. Great areas of timber have since grown up, such as poplar to fourteen inches, spruce to twenty inches and balsam and birch, but there still remains many places of almost barren land covered only by heavy growths of small poplar.

Opazatika River.

The Opazatika River has throughout this survey an average width of five chains. From the north boundary of the Township of Idington the river runs almost direct north to Allan Lake about fourteen miles between clay banks. Allan Lake is about two miles long, east and west, and its area is about two square miles. A short stretch of about one mile east and west is the connection to Zadi Lake which is two miles long, east and west, and averages about one mile in width. All this distance is easy navigation for canoes or motor boats. Zadi Lake is partly in the Township of Neeley, District of Algoma, and partly in Township of Nixon, District of Timiskaming. From the foot of Zadi Lake for five miles down stream the river flows, east and north, to Eleanor Lake, and the water is swift with one portage.

Eleanor Lake is about three miles long varying in width from ten chains to one-half mile and lies east and west. About a mile easterly down stream is Neshin Lake about one and a half miles long, and lies northeast and southwest; from foot of Neshin Lake the river runs direct north three miles to the head of Opazatika Canyon with easy navigation for canoes. There is a fall twenty-eight feet in about thirty chains, a sort of chute. About two miles north is Indian Signs Falls, a drop of nineteen feet. From here the river runs westerly for about four miles, then turns sharply to the north and runs almost direct north from the point of the Missinaibi River. All this distance the water is swift, consisting of numerous rapids and chutes. About seventeen miles down stream from Indian Signs Falls is Mareva Falls a drop of 27.2 feet. Breakneck Falls as shown on plan has fifty-three feet of a drop, and is the best falls in the river, but does not appear to be a feasible water power proposition in the near future. Below this point the water is swift, with no marked falls to the Missinaibi River. The last thirty miles of the river are high clay banks from fifty to one hundred feet high.

There are some very good areas of timber along this river such as poplar to fourteen inches, spruce to twenty-four inches, balsam, birch and cedar. Similar to the Missinaibi River region the country has been fire swept years ago, destroying large tracks of virgin forests which have since grown up to a size to be of merchantable value. Great areas of almost barren land still remain covered only with small poplar.

I have the honour to be, Sir,

Your obedient servant,

C. R. KENNY,
Ontario Land Surveyor.

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

Appendix No. 22.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF SUDBURY.

SOUTH PORCUPINE, ONT., January 23rd, 1922.

SIR,—I have the honour to submit the following report on the survey of certain township outlines in the District of Sudbury, north of the Canadian Pacific Railway, made by me under instructions from your Department, dated May 5th, 1921.

The survey was commenced at the northwest angle of Township No. 3, as directed in your instructions, and from this point the first meridian was run north astronomically to the southerly limit of the Township of Vrooman, and the second meridian was run north astronomically from the northeast angle of the said Township No. 3, which is also the northwest angle of the Township of Muldrew, to the southerly limit of the Township of Westbrook.

From the six, twelve and eighteen mile points on this second meridian, base lines were run eastward, as chords of parallels of latitude, to the west limits of the Township of Shelley, Blewett and Hennessy. Between the first and second meridians the base line at the six mile point was run eastward from the first

meridian; at the twelve mile point the base line was run westward from the second meridian, and at the eighteen mile point the base line was run eastward from the first meridian, always as chords of parallels of latitude.

The survey was carried out in strict accordance with your instructions, the lines being well opened out and blazed, and carefully chained, a clinometer being used on all grades and the horizontal distance calculated. The iron and the wooden posts were properly placed at the designated points, and the required mounds constructed, the wooden posts being of the most durable wood obtainable, six inches square and properly carved.

The entire country enclosed by these outlines is rough and broken with high hills, there being many lakes, streams, swamps and muskegs, except in the northerly part of Inverness and Edinburgh, where the country is undulating.

Soil.

The soil throughout almost the entire area is a sandy loam, and not well adapted for agriculture.

Timber.

The southern part of Battersby Township has been recently burned, but there is a small stand of good red and white pine along the Spanish River. A dense growth of small jack pine, spruce and poplar covers the westerly part, and there is valuable spruce and poplar and jack pine in the northerly and southeasterly parts of this township.

There is a thick growth of small jack pine, spruce and poplar in the greater part of Dublin Township, apparently with some large scattered white pine in the northeast.

The Townships of Marquette, Baynes, Paudash, Brebeuf, Edinburgh and Inverness appear to be covered with a fair growth of spruce, jack pine, birch and poplar of valuable size, and scattered white pine up to twenty-four inches, except on the west side of Paudash where there is an old burn which is now covered with a dense growth of small timber of the same varieties, and in the northwesterly part of Inverness where there is a recent small burn.

Minerals.

Granite was encountered throughout the survey and no indications of economic minerals were observed.

Fish and Game.

Indications and works of fur-bearing animals were common, and the animals, bear, beaver, mink and muskrat were frequently seen.

Moose were very plentiful, and occasionally a red deer could be seen.

The lakes and streams seemed to abound with pike which were easily taken at any time.

I have the honour to be, Sir,

Your obedient servant,

Chas. V. Gallagher,
Ontario Land Surveyor.

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

Appendix No. 23.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF SUDBURY.

NORTH BAY, January 7th, 1922.

SIR,—We have the honour to submit the following report on the survey of certain township outlines in the District of Sudbury, made by us in accordance with instructions from your Department, dated May 6th, 1921.

Leaving North Bay on the 9th of June, with our party, we proceeded to Ramsay Station on the Canadian Pacific Railway, where we had previously sent out supplies and equipment. From this point we portaged along the east boundary of the Townships of Cavell and Edith to the northeast angle of the Township of Edith, which point had been established in our survey of 1920, as the adjacent angle of four townships, i.e., Edith, Fingal, Osway and Esther. This point is in a spruce swamp and is marked by a spruce post bearing the township names, referenced by two bearing trees and witnessed by an iron post and witness monument, thirty-six chains west astronomically therefrom. From this point we commenced the survey.

The first procedure was to get an astronomical observation on Polaris for azimuth. Having made certain of the bearing we ran west astronomically one mile and twenty-five chains between the Townships of Edith and Esther. From the same point of commencement, we then ran north astronomically between the Townships of Esther and Osway, six miles and nine links to the line run in 1920 forming the south boundary of the Township of Fenton. Returning to the line between the Townships of Esther and Edith, where we had left off, we continued this line west astronomically to the Woman River. Leaving this line we proceeded by way of the Woman River to the southwest angle to the Township of Edith. From this point we ran north astronomically between the Townships Number 18 and Edith, and intersecting our first base line at six miles two chains and ninety-nine and a half links, which point of intersection established the adjacent angle of the four Townships, 18 Edith, Esther and Fawn. We then continued the line north astronomically between the Townships of Esther and Fawn, six miles and forty-six links, where we intersected the south boundary of the Township of Garnet. Returning to our first base line, where we had discontinued it at the Woman River, we produced it west astronomically between the Townships of Fawn and 18, to the Meridian run by O. L. S. Speight in 1909. This completed this portion of the work, which had proceeded very slowly owing to the excessive heat and the difficulty of getting and keeping men at this time of the year.

We then travelled by way of the Woman River to the Woman River Station on the C. P. R. thence to Biscotasing Station and from there proceeded with a reinforced party by canoe via Biscotasing Lake and Flying Post Creek to the southeast angle of the Township of Arbutus, which was also established in our survey of 1920, and marked by an iron post, jack pine post, pits and mounds. From this point we ran a second base line east astronomically between the Townships of Yeo and Smuts a distance of six miles. At this six mile post we established the adjacent angle of the four Townships, i.e., Yeo, Smuts, Invergarry and Chester, from which we then ran south astronomically between the Townships of Smuts and Invergarry one mile. Returning to the southeast angle of Arbutus Township we ran south astronomically between the Townships of Alcona and Smuts six miles, and at this six mile post we established the southwest angle of

the Township of Smuts, from which we ran a third base line east astronomically along the south boundary of the Township of Smuts and continued east astronomically along the south boundary of the Township of Invergarry to the west boundary of the township of Vrooman. We then returned to where we left off on the line between the Townships of Smuts and Invergarry and continued running this line south astronomically six miles and eight links, where we intersected our third base line forming the south boundary of the Township of Smuts and Invergarry. We then returned to the northeast angle of the Township of Smuts and continued our second base line east astronomically between the Townships of Chester and Invergarry to the west boundary of the Township of Benneweiss. Again returning to the northeast angle of the Township of Smuts, we ran north astronomically between the Townships of Yeo and Chester. We then travelled across country to the northeast angle of the Township of Arbutus, from which point we ran east astronomically between the Townships of Yeo and Potier six miles and twenty-eight links, where we intersected our meridian between Yeo and Chester, and continuing thence east astronomically between the Townships of Chester and Neville to the west boundary of the Township of St. Louis. We then returned to our last mentioned meridian and continued running it north between the Townships of Potier and Neville. We then travelled across country to the southeast angle of the Township of Frater, from which point we ran a base line east astronomically between the Townships of Somme and Potier, and Somme and Neville to the southerly production of the west boundary of the Township of Jack, where we terminated our survey.

All lines were well opened out and blazed in the regulation manner. Iron posts were planted where shown on our plan of the survey and at each of these, pits and mounds were constructed, except where such iron posts were planted as witness posts, then circular trenches and mounds were constructed in the prescribed manner. Wooden posts of a good material, bearing the number of the mile carved thereon on the side of the post nearest the initial point of the line, were planted at each mile and when such mile point came in a lake they were planted in the line on the nearest shore and marked so as to show their position. The mileage, however, was not marked on the wooden posts at township corners, but the township names were inscribed. Where an iron post was planted a wooden post as also planted near the iron post, but in all cases the iron post was planted to mark the true point.

Frequent astronomical observations were taken, the records of a number of which are appended, for the purpose of verifying the course of our lines. All north and south lines were run as true meridians, while the east and west lines were run as chords of latitude passing through the township corners. The magnetic declination was frequently observed, the average being about seven degrees west.

The country embraced by both the east and west portions of the survey is, generally speaking, rolling or hilly with some hills reaching the height of two hundred feet.

Rivers.

No rivers of any size were met with, the Woman River, being the largest, which is very crooked and for the most part shallow and sluggish with many rapids and log jams. This river is shown on our plan running northerly through the Townships of 18, Edith, Fawn and Esther, and our line crosses it no less than ten times.

Lakes.

The lakes were very numerous in the country covered by the east portion of the survey. The principal ones being Biscotasing, in the southerly part of Smuts Township, Schist lying both in Potier and Yeo Townships, and Mesomekenda extending south across the Township of Neville and into the Township of Chester. Schist Lake is very shallow in most places and contains a great number of islands. Biscotasing Lake also contains a great number of islands and is apparently deep with rocky shores. Mesomekenda Lake is a beautiful body of deep water with high banks and has few islands. The water in this lake has been raised several feet by a dam, which accounts for some drowned timber along the shores.

Soil.

There is very little, if any, agricultural land in the whole of the territory covered by the survey. The soil is generally of a light sandy or gravelly nature and is in many places filled with boulders. Many rock outcrops are also in evidence.

Timber.

The only timber of commercial value met with was in the Township of Neville and along the nort part of the Township of Chester, also in the northeast corner of the Township of Potier and along the south boundary of the Township of Somme. The timber in this area consists chiefly of jack pine up to eighteen inches in diameter with spruce, birch, balsam and poplar from five to fourteen inches in diameter, while along the Mesomekenda Lake some red pine of good quality was observed. The balance of the country, with the exception of occasional swamps, which are timbered with spruce and cedar up to fourteen inches in diameter, has been run over by a very destructive fire, some twenty five or thirty years ago, and is now covered with a dense growth of small jack pine, birch, spruce and polar.

Minerals.

No precious minerals were observed, but considerable work of prospectors, now abandoned, was seen along the south shore of Schist Lake, where the formation is a schist rock with numerous veins of white quartz. The rock formation met with throughout the survey was generally of a granite gneiss.

Water Powers.

No water power capable of being developed was met with.

Game.

Moose were very numerous and an occasional red deer was seen. Bears were also plentiful. Considerable indications were seen of beaver and the smaller game also abounds. Fish were very plentiful in all the lakes we had the opportunity to try, but the only kind caught were pike and pickerel.

Accompanying this report, we submit a general plan on mounted paper, a timber plan on linen, field notes and our account in triplicate.

We have the honour to be, Sir,

Your obedient servants,

McAuslan, Anderson & Moore.

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

Appendix No. 24.

SURVEY OF TOWNSHIP OUTLINES IN DISTRICT OF SUDBURY.

TORONTO, December 27th, 1921.

SIR,—We have the honour to submit the following report on the survey of certain township outlines at the head waters of the Missinaibi River in the District of Sudbury, performed under instructions from your Department, dated 15th April, 1921, and supplementary instructions dated 14th July, 1921.

Upon receipt of the instructions, we proceeded with the purchase of supplies and the organization of the necessary party, and on the 4th June, two canoe loads of supplies were sent from Missinaibi Station on the Canadian Pacific Railway to Little Missinaibi Lake, which lay in the centre of the projected work. These supplies were sent in via Dog Lake, Crooked Lake, Missinaibi Lake and the Little Missinaibi River. On the ninth of the month the main party left Missinaibi by way freight for mileage 141½ on the C. P. R. From that point Bolkow Lake was reached over a half mile of waggon road, and through the courtesy of Messrs. Austin and Nicholson, the party and supplies were towed eight miles to the head of the lake, by one of the launches used by them on the lake. The southwast corner of the Township of Lang, where our work commenced, is about three miles east of the head of the lake, and by the night of the tenth the party was camped on the banks of Rock Creek, within reach of the corner.

The next day a commencement was made on the season's work, and the line between Townships Forty-one and Addison was carried south to the shores of Rock Lake, from the corner of the Township of Lang, defined by us the previous summer. The meridian between Townships Forty-one and Addison was continued south to intersect the north boundary of the Township of Buckland, run in 1920 by O.L.S. Fitzgerald. The intersection is eleven chains and thirteen and a half links (11.135 chs.) east of the northwest corner of that township.

Posts of the most durable wood obtainable were planted at the end of each mile and marked with the mileage from the north end of the line. At the end of the third mile, and at the north boundary of the Township of Buckland, the iron posts, supplied by your Department, were planted, and referenced with pits and mounds according to your instructions.

The boundary between the Townships of Missinaibi and Abbey was then run eastward a distance of six miles, from the northeast angle of the Township of Lang. The six mile point fell in the Little Missinaibi River, just where it leaves the lake of that name. Wooden witness posts were planted on the banks of the river, where they are intersected by this boundary and by the other boundaries run from the corner. The iron post was planted on the meridian between the Townships of Missinaibi and Admiral, six chains north of the corner. The boundary between the Townships of Abbey and Clifton was next run south from the six mile point to the intersection of the boundary between the Townships of Abbey and Addison, which was run eastward from the southeast angle of the Township of Lang. This corner also lay in water, there being at the point of intersection, a pond about five chains across. The iron post was planted south of the pond and wooden posts on the other three sides. The meridian was then continued south between the Townships of Addison and Chaplin to the north boundary of the Township of Ramsden. Returning to the southeast corner of the Township of Abbey, the line between the Townships of Clifton and Chaplin was run eastward as far as the three mile post.

The party then proceeded north across Little Missinaibi Lake to the northwest corner of the Township of Clifton, and ran the line between the Townships of Admiral and Clifton. From the eastern extremity of this line, the line between the Townships of Admiral and Busby was run north four and a half miles, and the line between the Townships of Busby and Brutus run eastward as far as O.L.S. Fitzgerald's meridian, a distance of somewhat more than three and one-quarter miles. Returning to the northwest corner of the Township of Brutus, the meridian between the Townships of Brutus and Clifton, and Chaplin and Manning, was carried south to the north boundary of the Township of Mageau. The line between the Townships of Clifton and Chaplin was completed, and the line carried eastward between the Townships of Brutus and Manning, to O.L.S. Fitzgerald's meridian.

The party then proceeded again to the northeast corner of the Township of Abbey and from there ran north between the Townships of Missinaibi and Admiral, to Missinaibi Lake. The base line between the Townships of Leeson and Brackin, run by us in 1920, was then picked up and carried east across Lake Missinaibi to begin the base line between the Townships of Baltic and Missinaibi. This line was run eastward to intersect the meridian between the Townships of Missinaibi and Admiral and that meridian was carried north between the Townships of Baltic and Barclay to Niven's base line of 1899 and 1900, from that intersection.

From the east end of the base line between the Townships of Baltic and Missinaibi, the line between the Townships of Barclay and Admiral was run eastward to the meridian between the Townships of Admiral and Busby. This meridian was continued north between the Townships of Barclay and Calais, to Niven's base line. From the northeast angle of the Township of Admiral, the boundary between the Townships of Calais and Busby was run eastward six miles. From the six mile post, the east boundary of the Township of Calais was run north to Niven's base line, and the meridian was then produced south to the north boundary of the Township of Racine, along the east limits of the Townships of Busby, Brutus and Manning, while the base lines between these townships were completed easterly to the meridian. This work was finished on 9th September.

All lines were well opened out and carefully blazed. Where possible, cairns of stones were built around the posts planted, and except in a few instances where suitable trees were not available, each post was referenced to two bearing trees. Wooden posts were selected from the most durable material available in the vicinity of the point to be marked, and the posts themselves were firmly planted. The iron posts were carefully placed and the trench or mounds witnessing each post were constructed, as far as possible, to conform with the letter and spirit of the instructions.

All the east and west lines were run as chords of the parallel of latitude passing through the corners of the respective townships. Frequent observations were taken on Polaris throughout the survey and the notes of a number of these are embodied in the field notes.

General Features.

The townships outlined during the summer's work are almost entirely in the territory drained by the head waters of the Missinaibi River. Arms of Missinaibi Lake fill the bottoms of two parallel valleys running northeasterly through the Townships of Baltic, Missinaibi and Barclay. The drainage basin

of the Little Missinaibi River occupies the central, southerly and westerly portions of the area surveyed, while Hay Creek and its tributaries drain the water from the northeasterly townships directly into the Missinaibi River, a few miles below the foot of Missinaibi Lake. Little Missinaibi Lake, a straggling sheet of water with numerous long winding bays, lies in the southwesterly portion of a broad depression running in a general northeasterly direction across the Townships of Addision, Clifton, Busby and Calais. A low divide separates the waters of this depression near the northeast corner of the Township of Clifton, and the waters to the southwest flow in a general northwesterly direction, through a gap in the ridges, to Missinaibi Lake. This stream is the Little Missinaibi River. The waters of the northeasterly part are the source of Hay Creek.

The terrain of the townships is of the character common to most of the lands along the height of land between the waters of the St. Lawrence and Moose Rivers. Ridges of Laurentian rock rise from two hundred to three hundred feet above the lakes, and the lower lands, where not exposing similar rock, are covered with coarse glacial deposits of sand and gravel.

The country abounds in lakes. Of these, the largest, exclusive of Missinaibi Lake, is Little Missinaibi Lake, mentioned above, which has an extreme length of about ten miles. There are several others, however, from three to four miles long.

Timber.

Fire swept through the Townships of Abbey, Missinaibi, the north half of Admiral, the south part of Busby, and part of Calais, about twenty years ago. In consequence, a large part of the timber in these townships has been destroyed, and there is now growing up a dense second growth. Much of this new growth is jack pine, and in time, provided the district is not again visited by fire, there will be much valuable tie timber produced. The three southerly townships, Addison, Chaplin and Manning, contain to-day the most valuable timber. Good stands of jack pine and spruce were found on each of the meridians bounding these townships, while scattered specimens of white pine were seen on the west boundary of the Township of Manning.

In general the quality of the timber over the rest of the area surveyed is not quite so good, but numerous more or less extensive groves of good spruce and jack pine were interspersed between areas sometimes heavily wooded with balsam, poplar and birch, but more often covered with somewhat scattered timber rising above a heavy growth of alder, maple and hazel underbrush.

Rock.

The rock formation is of Laurentian origin and is mainly granite, though occasional outcroppings of diabase, gneiss and feldspar were seen. The area did not seem quite so promising from a mining standpoint as that surveyed in the previous year, but the rock is of the same general character, and it is possible that thorough prospecting will disclose mineral bearing formations worthy of attention by the miner.

Soil.

These townships are entirely unsuitable for agriculture. Where the rock is not exposed, the surface is covered with sand, gravel and boulders. There are, however, extensive marsh lands on either side of Hay Creek, in Calais Township, which might possibly be utilized some day for the production of hay.

Water Power.

Little Missinaibi River is the only stream in these townships capable of power development. This stream drains about one hundred and fifty square miles of territory. It has a potential storage basin of considerable size in Little Missinaibi Lake, and in the five miles from that lake to its outlet in Missinaibi Lake, there are two falls and a long series of rapids to produce adequate head for power purposes.

Fish and Game.

Moose seem to be extremely plentiful, and in June were seen in all the lakes and streams. Sixteen of them were counted at one time feeding in one of the small lakes. The lakes and streams were well stocked with pike and pickerel, but so far as we were able to discover, no trout or bass are in the waters The central and westerly townships have been apparently thoroughly trapped during the past few years, but in the Townships of Calais, Busby and Brutus, many signs of beaver activities were seen and each creek and pond apparently had its colony.

Canoe Routes.

Missinaibi Lake, mentioned above, forms part of the historic route between Moose Factory and Lake Superior, and was, in the early days of this country, one of the main thoroughfares for the transports of the Hudson's Bay Company. Little Missinaibi Lake may be reached by the Little Missinaibi River, from either Peterbell on the Canadian National Railways, or Missinaibi on the Canadian Pacific Railway, in about a day and a half, or during high water, it may be reached with equal or greater facility via Bolkow and Angigaming Lakes from mileage 141½ on the Canadian Pacific Railway. There is a somewhat indifferent canoe route up Hay Creek, and by a chain of lakes south to Lake Seseginika, through the easterly tier of townships.

We have the honour to be, Sir,

Your obedient servants,

Speight & Van Nostrand,
Ontario Land Surveyors.

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

Appendix No. 25.

Survey of Base and Meridian Lines, District of Thunder Bay.

Port Arthur, Ont., December 31st, 1921.

Sir,—I beg to report that in accordance with your instructions dated April 15th, 1921, we have completed the survey of certain base and meridian lines in the District of Thunder Bay.

This survey was commenced on the easterly shore of Muskeg Lake at a birch post planted by O.L.S. Fawcett at a distance of twenty-nine chains east from the southeast angle of Grand Trunk Pacific Block No. 4. From this point

the first base line was run east to intersect the southerly production of the westerly boundary of the Black Sturgeon River Pulp and Timber Limit, surveyed by our firm in 1918. This line was run in six mile chords of a parallel of latitude.

From the sixth to eighteenth mile posts on the first base line the first and second meridians, respectively, were run north astronomically. From the twelve mile post on the second meridian the second base line was run east to intersect the westerly boundary of the Black Sturgeon River Pulp and Timber Limit, and from the same point was also run west to intersect the first meridian and continued west to intersect the easterly limit of Grand Trunk Pacific Block No. 5. This base line was also run in six mile chords of a parallel of latitude.

A standard iron post was planted at the point of commencement. The first mile post was planted at a distance of 51.00 chains east from this point. The numbering of the mile posts on the first base line is from one to six to the first meridian, from one to twelve between the first and second meridians and from 1 to 17M+78c.81 east of the second meridian. The meridians were numbered from south to north from one to twelve. The second base line was numbered from 1 to 17M+75c.50 east of the second meridian, from 1 to 11M+76c.86 between the second and first meridian, from 1 to 14M+68c.25 west of the first meridian. Iron posts were planted at the points indicated in your instructions. It was found necessary to erect seven witness monuments, and the unfortunate part of this is that four of these were for intersections.

Survey Lines.

The lines established by an Ontario Land Surveyor were the boundaries of Grand Trunk Pacific Blocks 4 and 5, and the west boundary of the Black Sturgeon River Pulp and Timber Limits. The former were surveyed by O.L.S. Fawcett in 1907, and the latter by ourselves in 1918. The south easterly corner of Grand Trunk Pacific Block 5 has been burned over since the lines were run, and we had some difficulty in locating it. The other lines are all in good condition.

We also found the trial lines of the survey of the Nipigon Savanne route of the Canadian Pacific Railway. These were crossed in the fifth and sixth miles of the first meridian. From here the general course of these lines is easterly to a point about three miles north from the easterly end of the first base line.

Topography.

The country generally is not rough, the hills seldom being over one hundred feet in height. From the heights of the hills shown in the field notes a fairly accurate profile of the lines could be plotted as these heights were obtained by calculation from the clinometer readings.

The westerly eleven miles of the second base line is nearly all level country, there being numerous shallow lakes and long stretches of muskeg and swamp. The roughest country is towards the easterly end of the second base line.

Soil.

The agricultural possibilities of the area covered are rather poor. The soil for the most part ranges from sand to sandy loam. The best soil is in the valleys of the Dog and Des Iles Rivers. The quality of the soil improves gradually towards the east. On the second base line west of the second meridian the soil is nearly all sandy loam and the subsoil in the swamps is of a sandy

nature. This belt extends through to the railway and should make good grazing land judging by the growth of grasses.

There are no outcrops of rock over extensive areas but the soil is shallow over the greater part of the ground covered and boulders are to be found in nearly all of it.

Rock Formation.

Granite and granite gneiss are the principal rocks. The only mineral found was magnetite. This was first indicated by the marked variation of the needle near the eleventh mile east of the first meridian on the first base line. Samples examined appeared to contain a good percentage of iron. We understand that several mining claims have been staked on iron formation in the region west of Little Pine Lake and that a favourable report has been made on the same.

Timber.

The timber plan accompanying this report shows the areas of burned country and the areas of green timber. The area shown as brule had been burned over at least twice and there now remains a very small amount of green timber. This area is now covered with a healthy growth of poplar and jack pine with a dense growth of underbrush. The area shown green comprises two distinct forest areas. One of these is covered with a stand about twenty-five to thirty years old. In this poplar and jack pine are the main species and there is about an equal amount of each. Birch and spruce are the other species. There are also considerable areas of swamps containing valuable spruce within the area above mentioned. The remaining portion of the area coloured green contains timber of sufficient size to be marketable. Of this the best timber is within a short haul of the Dog River and the west branch of the same. On the high ground jack pine is the predominant species and this is of sufficient size for the manufacture of ties. On the low ground is found good stands of spruce of sufficient size for pulpwood. This timber could all be brought down the Dog River, but it would mean a drive of two seasons to land it at the railroad as the lower stretch of the Dog River is flooded for several miles back from Dog Lake and there are several small lakes to be crossed.

The timber near and along the west boundary of the Black Sturgeon River Limit is larger than that along the Dog River, but at present is not very accessible to any good waterway. Spruce is the main species found here, and it ranges up to twenty-four inches in diameter, but there is a great amount of it that is decayed and much has been brought down by storms. In this section there was a considerable area burned over during this year. The fire that destroyed it was first noticed about July 4th, and from bearings taken would appear to have started up about midway between the two base lines. The fire continued to burn for about two weeks, but as there was very little wind during the time it is not likely that a larger area than that shown was burned. It has not worked as far south as the last base line by the time that we had completed this, but there is a chance that it may have crossed it later. The cause is unknown.

Routes, Waterways, Etc.

Our supplies were all taken in via Kelly on the G. T. P. division of the Canadian National Railways. From the railway a good portage of about one mile leaves at near the seventy-fifth mile board. This leads to Lower Kaogomok Lake (known locally as Canoe Lake). The route then is via Muskeg River to

Muskeg Lake and then to Dog River. There are no rapids on the Muskeg River between Kaogomok and Muskeg Lakes though there is a portage that saves considerable time when travelling light. From Muskeg Lake to Dog River there are numerous portages and this portion of the river would be very difficult to travel in the late summer.

Our main cache was established near the mouth of the Muskeg River, and from here supplies were carried to the main party via Des Iles River. The portages on the Dog and Des Iles Rivers are fairly well mapped, though on the latter it is necessary to make more portages during the dry months. Both the east and west branches of the Dog River were travelled and improved. There is a much greater volume of water coming down the west branch.

We did not use the canoe routes on the easterly eighteen miles of the two base lines. The routes on the first base line are in a north and south direction, and so of no use to us. The Muskrat River is about seven feet deep at high water, but at the time that we crossed it there was scarcely a foot of water, and the river is filled with driftwood. On the second base line the portage route to the east was found but was not used. The route from Lac Des Iles to the east branch of the Dog River was found and used. It is mapped fairly well though our men reported that there were new ones now used in some places.

Lac Des Iles is one of the finest lakes that we have seen in this district. There are over one hundred islands and the water is clear, though not of great depth.

The route we used in coming out was via Grassy Narrows, Ricetalk, Upper and Lower Kaogomok Lakes, Ricetalk Lake is very shallow and is completely filled with wild rice and forms a good feeding ground for wild fowl.

Moose, deer and bears are quite numerous as are also the smaller fur-bearing animals. Most of the country is trapped. The only fish caught were pike, though it is likely there are trout in Lac Des Iles. Partridge were particularly numerous.

The magnetic variation ranges from zero and one degree east. The only marked difference was as mentioned previously under "rock formation."

No falls of any size were found on the rivers, and it is unlikely that there are any water powers of any consequence within this work.

The heat during the months of June and July was excessive, especially as we were for a considerable part of this time in fairly open country. There was no frost during the months that we were in the field.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS AND BENNER.

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

Appendix No. 26.

SURVEY OF LOWER FRENCH RIVER, IN THE DISTRICTS OF PARRY SOUND AND SUDBURY.

LITTLE CURRENT, ONT., January 24th, 1922.

SIR,—I have the honour to submit to you the following report on the survey of the Lower French River, in the Districts of Sudbury and Parry Sound, which survey includes the western outlet, known as the Bad River, the Middle Outlet, or Main French River; the outlet known as Bass Creek; and the Eastern Outlet. The survey also includes the Pickerel River, and the large island 3382 T.P. which is bounded on the north and west by the Wahnapitae River. The survey extends from the Georgian Bay up to near the east boundary of the Township of Mowat. I also retraced the boundaries of the town plot of Copananing, as instructed.

Instructions for the above were issued from your Department, dated Toronto, May 16th, 1921.

Proceeding from here with my party on the 18th of June by motor boat, I arrived at Point au Girondine the same evening, and on the following Monday, 20th June, we arrived at our first camp, a short way up the Bad River. The work at the mouth of this outlet was commenced the following day.

The survey was made by means of a stadia. The rodman also used a stadia and checked the readings on all the main stations which eliminated almost entirely the chance of error in the main traverse.

Frequent observations of Polaris for azimuth were also made, and the bearings deduced for the purpose of checking the bearings as we proceeded. On the railroads we made several tests of the stadia readings on carefully measured distances with a steel tape, the results of which are shown in the returns of survey. The necessary correction has been applied in plotting the traverse.

Cedar posts, mostly about five or six inches square, were planted at prominent points, from about forty to eighty chains apart. Cedar posts were also planted on all islands where stones were convenient to mound them. The numbers were cut on them in Arabic numerals. These posts are shewn in the field notes and plan. On the large islands at several of the numbered posts, a post was also planted with the number of the island cut thereon, and shewn in the notes. Beside numbers posts on islands are marked T.P.

With only one or two exceptions, all posts were well mounded up with large stones, the mounds being from four to six feet at the base, and at least two feet high. The posts were planted well above the high water.

On account of the scarcity of cedar in several localities, it often required the services of an extra man to keep us supplied with posts.

Iron bars, one inch square, were also planted at the places indicated in the field notes and plan.

A peculiarity observed in the retracing of the boundaries of the town plot of Copananing, and several of the interior streets which we also retraced, was that no original posts or traces of them whatever could be found in the low lying places between the rocks.

The measurements shewn on the boundaries of the Indian Reserve in the Township of Mowat were made by me in a re-survey of the Reserve for the Department of Indian Affairs in 1912.

In the plotting of the Canadian Pacific Railway location from records furnished me across Island 3464 T.P., it will be observed that it closes fairly well

with my traverse when the bearings of the tangents have been adjusted to agree with what I found the actual bearings to be at the crossings of the French and Pickerel Rivers. The short spirals I have included with the tangents. The plotting of the Canadian National Railway location from records also furnished me closes fairly well also.

In one of the larger outlets of the Bad River, Stations 52 to 53, I have made a rough estimate of the horse-power at a fall. The other outlets of the Bad River are very broken and irregular, and until the water is much higher an attempt at an estimate would be a very rough approximation. I might say too that while working in that vicinity the water suddenly lowered considerably, caused no doubt by the holding up of the water on the Wahnapitae in driving saw-logs. An estimate was also made at the falls at Station 400, on the main French River. At Station 334, at the east end of the big island 3464 T.P., where there is some fall and volume in high water, there was a mere trickle of water. At Station 343 at Horseshoe Rapids, there was a small volume going through, but probably a much more accurate estimate could be made in high water. The estimate at this latter point was overlooked, however. At Station 203 on the fall near Copananing an estimate was also made. The above estimates accompany the field notes.

The whole country is Laurentian rock. In the lower levels adjoining Georgian Bay, it is a succession of parallel rocky ridges in a southwesterly course, and from about six to thirty feet high. In some of the Copananing vicinity the ridges are very tedious to travel through. Farther up it changes into a rolling country with a few precipitous hills.

Through the whole country there are small patches of tillable soil mostly sand of all grades of fineness and fertility, with occasionally gravel and boulders. In the clearings it was observed that fairly good crops were growing. In the valleys of the Wahnapitae River and Beef Tea Creek there is apparently good clay land, and mostly devoid of much rock. There are apparently no considerable tracts of tillable land. The settlers at the C.N.R. crossing on the Pickerel River mentioned that there are in that vicinity some large patches of good land on Island 3464 T.P.

The timber consists principally of jack pine ranging in size from a scrubby, two inches in diameter, adjoining Georgian Bay, and in other small tracts, to a general distribution through the region traversed of a diameter of from four to ten inches. Poplar and white birch, balsam, spruce, and an occasional thicket of cedar, all up to a diameter of about ten inches, are found generally throughout. In many places a new growth of white and red pine of from three to six inches diameter was observed. There will probably be in a few years a considerable amount of merchantable pine. There are groves of very good large white and red pine in several places. In the valleys of the Wahnapitae River and Beef Tea Creek, in addition to the timber mentioned, except jack pine, there is considerable soft maple, ash, Balm o' Gilead, elm and some red oak. There are a few patches of old brule, here and there, in the whole country traversed.

Accompanying the returns I have prepared a timber map on which I have shewn in colours the distribution of the various timbers. All the timber is of good quality, except that probably a great deal of the scattered large white and red pines are faulty.

Some hard maple bush was observed at Location D.B. 3 on Island 3464 T.P. This is a very fine location.

The country generally is very attractive to the tourist. With the exception of the immediate vicinity of Georgian Bay, and probably one-half at the most of

the north shore of the big island 3464 T.P. which is too precipitous, the shores of the whole country nearly are very suitable for cottage sites, a great proportion of them which would be especially attractive. On the French River between Stations 400 to 414 on the north side of the big island 3464 T.P. referred to on account of the rapids at those stations, that part of the river is inaccessible to motor craft.

Sand beaches so essential to summer cottages are very numerous, and in fact are to be found almost everywhere. For the greater part the Pickerel River and its expansions at Islands 3512 T.P. and 3520 T.P. is particularly desirable for cottages.

There are also a considerable number of nicely wooded islands very suitable for cottages. I have mentioned these specially in the index. There are a good many islands too, not so well favoured, that would be considered fairly desirable.

Black bass, pickerel and pike are very abundant.

A few rattlesnakes, apparently the Crotalus Horridus, were met with near the shores of Georgian Bay. They are perhaps the most numerous on the west side of the main outlet of French River at the mouth. On the east side at French River village they are very seldom found, it is said. A short distance up the several branches of the river there are apparently none at all.

I have the honour to be, Sir,

Your obedient servant,

T. J. PATTEN,
Ontario Land Surveyor.

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

Appendix No. 27.

SURVEY OF TIMBER BERTHS NEAR IGNACE, DISTRICT OF KENORA.

PORT ARTHUR, ONT., February 4th, 1922.

SIR,—In accordance with instructions dated August 22nd, 1921, and received September 9th, we beg to report that we left for Ignace on September 15th to survey certain timber berths.

The survey was started at the post planted by O.L.S. Stewart to mark the south limit of the right of way of the Canadian Pacific Railway on the west boundary of Township 22. An observation was taken here and the line run south, a traverse of the railway having first been made to connect this point with the four mile post on the Canadian Pacific Railway in order that the northeast angle of timber berth D could be fixed.

At a point on the west limit of Township 22, two miles and seventy chains south of the northwest angle thereof, a trial line was run east to connect with the southwest angle of location L.K. 84, the offset was measured and the true line run to form this portion of the north limit of the Walsh Tie Company's Limit.

At a point on the west limit of Township 22, five miles and twenty-six chains, fifteen and four-tenths links south of the northwest angle thereof, a line was run east thirty-two chains three and five-tenths links to the northeast

angle of timber berth D, this line was also run west two miles and forty-seven chains ninety-six and five-tenths links to the northwest angle of timber berth D, making a total distance of three miles. From the angles thus established lines were run south, the easterly limit being run south three miles and then west to intersect the west limit run south from the northwest angle as established above.

From a point on the west boundary of Township 22, five miles and thirty chains south of the northwest angle thereof, a line was run east to Ignace Lake forming the south limit of the Walsh Tie Company's Berth.

From a point on the west boundary of Township 22, six miles south of the northwest angle thereof, a line was run west six miles and seventy-four links to intersect the production south of the west boundary of Township 24.

The east limit of Township 22 was run by producing the line joining the iron bar planted on the north limit of the right of way of the Canadian Pacific Railway with the bar planted at the nine mile post by O.L.S. Stewart, it being impossible to get an observation at this point on account of cloudy weather.

At a point one mile and a half south of the nine mile post an observation was obtained and the line corrected.

At a point on the east limit of Township 22, three miles south of nine mile post, the southeast angle of the township was established and a line was run west to intersect the west limit of the township as run. From this latter intersection, being the southwest angle of Township 22, the west limit of the township was produced south two miles, thence a line was run west one and one-half miles, thence south four miles; thence east seven miles and forty-one chains and seventy-seven and seven-tenths links to intersect the production south of the east limit of Township 22.

From the southeast angle of Township 22 the east limit thereof was produced south six miles, two chains and fifty-eight links to the southeast angle of the Walsh Tie Company's limit.

From points on the production south of the east limit of Township 22, distant one and one-half miles and three miles, respectively, from the southeast angle of the said township, lines were run east; that run from the three mile point was run east two miles and forty chains and from this point a line was run north to intersect that run from the one and one-half mile point. Subsequently lines were run similarly from the half-mile and two mile points on the said production of the said limit, for the north and south limits of the W. J. Smiley Timber Berth and the line first run was used for that portion of the east limit covered by it, and this line was produced north to intersect the north limit of this berth.

From the northwest angle of Township 22 and the southeast angle of Township 24, a line was run west to intersect the west limit of Township 24, as established by O.L.S. Stewart and produced south. From this intersection a line was run south to intersect the line run west from a point in the production of the west limit of Township 22, distant six miles measured south thereon from the northwest angle of the said township.

Along the east limit of Township 22 and its production six miles south a line was found to have been run presumably by O.L.S. McMeekin, of Kenora; this is shown in the field notes, also a similar line along the south limit of Township 22 was found which is also shown in the field notes.

The lines were well cut out and blazed, those lines which formed part of the six-mile system being blazed on three sides and the others on two. The lines were posted every mile and at the corners of berths and the name of the

berth marked on the posts. Iron posts were planted as shown on the plan and field notes.

A timber plan is included in the returns which shows the nature of the timber as seen from the lines. Nearly all the area shown as having green timber on it has been cut over at some time, the country east and south of Ignace Lake particularly being full of old logging roads and lumber camps. Practically the only large area of timber which appears to be untouched is that portion lying south of Poplar Lake and an approximate line joining the east end of Poplar Lake to the two mile post on the east limit of Timber Berth D. These lumbering operations appear to have extended over a period dating from about twenty years ago up to the present time.

This area appears to be unsuitable for farming to any large extent, the soil being either swamp or sand and a large part is rocky. The portions shown as burnt on the timber plan are in general covered with a young growth of jack pine, poplar and spruce, and reforest themselves if not prevented by fires. The country is full of lakes of varying sizes and should be ideal from the point of view of the hunter and trapper, as it appears to be well stocked with game and fur-bearing animals.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS & BENNER,
Ontario Land Surveyors.

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

Appendix No. 28.

SURVEY KENOGAMI RIVER, DISTRICTS OF THUNDER BAY AND ALGOMA.

FORT WILLIAM, ONT., February 17th, 1922.

Sir,—I have the honour to report that in accordance with your instructions of date May 2nd, 1921, to traverse the Kenogami River and its expansions, in the Districts of Thunder Bay and Algoma, I started out from Fort William on the morning of July 19th, with three men, via Canadian Northern Railway, having secured the necessary supplies and shipped them in advance to Long Lac. I wish to say, in explanation of the late start, that I was held here in connection with the straightening up of my late father's estate, and so was unable to start out at an earlier date.

I had made arrangements to secure the services of three Indians through the courtesy of one of the fur companies at that point, but when I arrived they were waiting to be paid their treaty money. This necessitated a further delay of two days, which we spent in getting supplies and outfit in shape to the pack, and in testing out the stadia.

On the morning of July 22nd we started downstream, and after we had covered the first mile from the outlet (which is very swampy, flooded in places and hard to get solid ground for stations), we found the traversing very good.

We ran across a Canadian Northern Railway location party during this first day's work, who were running trial lines across to the C. G. Ry.

The country tributary to the Kenogami, between Long Lac and Pine Lake, is low, fairly level and swampy back from the river. The soi is clay and clay loam covered with, on an average, a foot of moss and spruce of small diameter. Along the banks, the timber grows heavier, but this is noted on the plan, so I will not refer further to it here.

As we neared Pine Lake the country became rather undulating and fairly rocky along the banks of the river. We reached Pine Lake on the 3rd of August. This lake is divided into two,—the upper half is about nine miles long and runs, in a general way, in a northerly direction; the lower half is about five miles long and runs, in a general way, northeasterly. They are both fairly deep, with rocky bays and beaches, being most noticeable in its southerly portion of the upper half, where we ran across an old mining location, in fact there are indications of iron in all this formation.

The country surrounding Pine Lake is very hilly and rocky for about half a mile, and then level, swampy country, being densely covered with spruce of 6 inches to 12 inches diameter; near Pine Lake and Lower Kenogami,—balm of gilead, poplar, B. pine, spruce, W. birch and scrubby cedar are mostly noticeable. The soil is mostly clay and clay loam with sandy loam on the ridges, mixed with gravel in many cases and rocky for the most part. Back from the lake the clay is covered with one foot of moss.

The country in the vicinity of Arm Lake is much the same as around Pine Lake, only not quite so rocky. Proceeding downstream it is fairly swampy and open and on the north side is a brule which possibly extends to the C. G. Ry.

The country around the next lake expansion, in the vicinity of Fernow River, is very low and swampy. Spruce of three to twelve inches diameter growing rather densely around the lake.

As we approached the C. G. Ry., it became airly rocky and we ran across several falls, the details of which I have set out in Schedule "A," attached hereto. We brought the traverse to the C. G. Ry. track on the 23rd August. Here my three Indians decided to quit. However, we carried the traverse on to the north boundary of Barlow Township. I was unfortunate enough to injure my only transit in a rapid above the track, so took the opportunity to run into Winnipeg and have it fixed, as my supplies for northern part of trip had not yet turned up, and I had, in addition, to replace three men.

On September 1st, we continued the traverse downstream, arriving at the Pagwachuan River on the 16th of September. The country tributary is, generally speaking, low and level and swampy, back from the river, clay soil covered with one foot of moss and spruce one to five inches diameter. After we leave the C. G. Ry., the banks become higher, forty to fifty feet in some instances, and are composed of clay and gravel, The river is very much wider, swift and shallow, although we had more water than in the Pagwachuan last season. There is some spruce of good diameter along the banks, and in places a very old brule with second growth timber, poplar and dense growth of willows. We ran into the big brule about Mile 110.

We started back upstream on the 18th September, arriving at the Flint River on the evening of 19th. The next day we started up the Flint River. This river has been well named by the Indians, "Pewahahasibi" (Crooked River), it certainly is crooked and narrow, necessitating short stations, which slowed up the work considerably. Between the Moose River and the C. G. Ry. we had to fairly cut our way through the overhanging and intertwining cedar.

There is some very good spruce on this river, mostly in a small belt extending back about ten chains on an average from the river bank, then the spruce swamp with spruce one to five inches diameter.

On arrival at the C. G. Ry. my two transport men quit, and I continued on with the remainder of the party and two canoes.

The country from here to Flint Lake is level and swampy for the most part, and the great portion of it has been burnt over. We reached Flint Lake on Saturday, the 15th of October, after quite a strenuous trip, there being nineteen portages between the C. G. Ry. and the lake, the majority of which we had to open up. I do not believe this river is used even by the Indians as a canoe route. As we neared the lake we ran into a big marsh and it was exceedingly difficult to get solid ground for stations.

We had also run short of provisions, so I decided, in view of this fact and that ice had been forced in the marsh for several days, to return to the railroad, which we did, and entrained for Fort William on the 18th of October, arriving here the following day.

The notes of soil and timber, I have put on the plans in detail. I have not made a summary of the bearings and distances of courses as I had already put them on the plans using azimuth angles only for intermediate readings. I have summarized the report on water power and islands, with their descriptions and acreages, in Schedules "A" and "B," respectively, attached hereto. In my preliminary report on water power in the Townships of Goodwin and Barlow, I used my local cross sections for calculating the run off and the discharge was found to be excessive. The revised list, which I calculated on the basis of 4-10 c.f.s. average minimum discharge per square mile, I hope will be found satisfactory.

Game.

The country between the C. N. Ry. and the C. G. Ry. abounds with game of every description, moose, bears and muskrats were plentiful; a few beaver, otter and mink were also encountered.

North of the C. G. Ry. although moose and caribou were numerous, we met with very few of the other fur-bearing animals. I, however, had the pleasure of seeing a white fox while making a trip up Caribou Creek. Speckled trout and pike also abound south of the C. G. Ry.

It will be noticed that on the plan there are a few islands without any designating letter. These are really only sand and gravel bars covered with a dense growth of long grass.

We suffered no severe mishap throughout the trip, although the canoes always suffer a good deal when readings are being given on the shores of the various lakes, which are invariably rocky. This is more especially realized when the lake is at all rough. We had quite a lot of rain during the season, but lost very little through it.

The plots of traverse of the Kenogami and Flint Rivers are now complete and are being forwarded to you with observations, accounts and vouchers in triplicate, all of which I hope will be satisfactory.

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

Roy S. Kirkup,
Ontario Land Surveyor.

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

Appendix No. 29.

CERTAIN BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

SAULT STE. MARIE, ONT., September 30th, 1922.

SIR,—I beg to submit the following report on certain base and meridian lines in the District of Thunder Bay surveyed during the summer of 1921, in accordance with instructions from the Department of Lands and Forests, dated April 22nd, 1922.

Base Line, Thunder Bay District.

I left Sault Ste. Marie by boat, on May 17th, with an assistant, two chainmen and four Indians, and was joined at Fort William by four Indians from Chapleau. We took the C. N. R. train to Tannin on May 19th. I had arranged to have eight local Indians join me at this point but not one was there. I hired

a Russian and Swede and commenced work on the 22nd May with this small party. A week later I returned to Tannin and endeavoured, without success, to get men in that district, and was forced to telegraph to the Sault for six Indians. These men joined us on the 12th of June.

Our place of beginning was a point in the east boundary of the Grand Trunk Pacific Railway Block No. 7, at a distance of six miles north from the southeast angle of that block. This point was established by running east astronomically from a witness post on a point in Palette Lake and offsetting eleven chains and forty links south. I ran my base line east astronomically on six mile chords from the end of the third mile. The first three miles being considered as the easterly half of a chord passing through the 96 mile post on O.L.S. Niven's meridian. I intersected my meridian of 1921 at 32 miles 46 chains 16 links on the base line. I continued my base line east astronomically 41 miles 64 chains 16 links, to the west boundary of the Nepigon Forest Reserve, run by Phillips & Benner in 1920. My posting from the west to east ran, respectively, zero to 32 miles 46 chains 16 links, 0 to 24 miles, 0 to 17 miles 64 chains 16 links, in accordance with the marked plan accompanying my instructions. From the point 24 miles east of my meridian of 1920, I ran north astronomically 37 miles 43 chains and 26 links to the Canadian Government Railway and arrived back in Sault Ste. Marie on the 5th of August.

A bush fire from the southwest was burning the territory traversed by the first eighteen miles of my base line during the progress of the work, and had it not been for the proximity of large lakes all along this section, it would have been much too dangerous to carry on. Heavy rains extinguished the fire at the time when it threatened to block me completely.

The party consisted of twenty-one in all, made up as follows:—

1 Surveyor.
1 Assistant,
2 Chainmen,
1 Cook,
1 Cookee,
5 Axemen,
5 Packers on line,
4 Packers with freighting canoes,
1 Geologist attached to party.

This distribution was maintained throughout the whole course of the survey except for the last twenty-five miles of the meridian, when I put on two extra choppers and sent two men out to the railway with the canoe.

Soil.

There are no areas in the country traversed by these lines suitable for agriculture. The covering is ninety-five per cent. gravel and boulders and five per cent. solid rock.

Minerals.

I found no trace of valuable minerals. The formation along the base line and the southerly twenty miles of the meridian is Laurentian, and the northerly seventeen miles of the meridian is Kewatin and schists.

Timber.

From our starting point to the 25th mile of our base line a bush fire was raging through the second growth timber of this area. This fire was reported to have started somewhere in the neighbourhood of the C. P. R. west of Fort William and travelled through to the Canadian Government Railways east of Allenwater. Heavy rains extinguished it about the 12th June. The timber in this section is of no great commercial value, at present being about fifteen years old. From the 25th mile on my base line to the western boundary of the Nepigon Forest Reserve and through the southerly twenty-five miles of my meridian there is a uniformly good stand of spruce, poplar, birch and banksian pine, ranging from four inches to sixteen inches in diameter. The northerly twelve miles of my meridian runs through mixed second growth small timber.

Water Powers.

The Gull River is the only waterway which presents any possibilities in the way of commercial water power. There is a falls on the river about twenty miles north of my base line, with a drop of one hundred feet in a quarter of a mile. The flow in this river in July, 1922, was about three hundred and fifty cubic feet per second. The drainage area is approximately 1,000 square miles and storage possibilities are excellent.

Game.

Moose are plentiful over this entire area. There are also red deer and caribou. All fur-bearing animals seem to be plentiful, more particularly beaver and martin. There are a great number of partridge.

Fish.

Pickerel, pike, whitefish, perch and suckers are to be found in abundance in all lakes.

This is my report.

I have the honour to be, Sir,

Your obedient servant,

K. G. Ross,
Ontario Land Surveyor.

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

Appendix No. 30.

CERTAIN LINES IN THE UNSURVEYED TOWNSHIPS OF MACBETH, AFTON, ARMAGH, CLARY AND SHEPPARD.

SUDBURY, ONT., September 11th, 1922.

SIR,—In accordance with your instructions dated April 12th, 1922, to survey certain lines in the unsurveyed Townships of MacBeth, Afton, Armagh, Clary and Sheppard, this we have done and respectfully submit the following:—

We left Sudbury on May 4th, 1922, and arrived at Washagaming Lake same day; next day we proceeded up Washagaming and Maskinonge Lake, and thence by portage to Sturgeon River to the south limit of the Township of MacBeth.

The country in general is extremely rough and rocky, the soil on the whole is sand and gravel; we found a few places suitable for agriculture.

The timber in the Townships of MacBeth, Afton and Armagh is composed chiefly of large white and red pine and the stand is very heavy.

The timber in the Township of Clary is mostly jack pine with light stands of red and white pine.

In the Township of Sheppard, on the south half the pine is young and vigorous, while on the north part the pine is large and over-matured, with patches of jack pine. The spruce within a radius of about two miles from the Sturgeon River has been cut many years ago.

As to the minerals, we saw no economic minerals, excepting in the Township of Afton. We ran across the Golden Rose properties, the formation here is an "iron formation."

The only water powers encountered were on the Sturgeon River, Upper and Lower Goose Falls, which may each develop about 700 h.p.

Your obedient servants,

MOONEY & GILL,
Ontario Land Surveyors.

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

Appendix No. 31.

BOUNDARY LINE BETWEEN ONTARIO AND QUEBEC.

TORONTO, November 13th, 1922.

SIR,—On receipt of your instructions No. 2610, dated April 5th, 1922, to renew the line of boundary between the Provinces of Ontario and Quebec, from Point Beaudette on Lake St. Francis to Pointe Fortune on the Ottawa River, I got in communication with Mr. Paul E. Mercier, of Montreal, who was appointed by the Province of Quebec, to work with me in the interests of that province, and we went on the ground and commenced work on May 8th and finished the field work on June 24th, and I beg to submit the following report.

We commenced at Lake St. Francis and worked northerly and with the aid of copies of Fletcher's plan and a copy of his field notes furnished Mr. Mercier we had no difficulty in following the line and finding all the monuments Fletcher planted in 1860, except three. We found that Fletcher had divided the line into three parts, which he called Novelle Longueuil, Newton and Rigaud, and gave separate chainages for each part, and we followed the same plan so as to be able, if necessary, to locate missing monuments or other features the more easily from his chainage. We found that he had marked the divisions between these parts or sections as well as each end of the line by a larger monument than generally used along the line, they being 9″ x 13″ dressed 27″ at top. The league or mile monuments were 6″ x 9″ dressed 24″ and the deflection or angle monuments were triangular about eight inches on each side dressed 24″, all cut stones and set about three or four feet in the ground. A detailed description of each monument is given later.

Monument No. 38A
Ontario-Quebec Boundary.

We found the country through which the line runs generally cleared and cultivated, there being only a few patches of bush, mostly second growth, and that the line was mostly fenced, generally barbed wire, or had a ditch on it in accordance with French practice.

We ran the line through from the south to north, chaining and taking notes as we went, all being shown in the foregoing field notes.

The deflection monument at chainage 674+30 from Lake St. Francis No. 19, being in Concession VII Lancaster Township, was found lying on the side of a ditch in a field used for pasturage this season, we decided to move it to the southerly side of the Canadian Pacific Railway right of way, main line from Smith's Falls to Montreal, a distance of 5.93 chains, and so be out of the way for cultivation of the field, and not be liable to damage or destruction. By doing this we moved the actual line where the monument is built into Ontario less than

seven links, but as the boundary line is not a property line at this place, we felt the change was of no consequence. Again at the south branch of the La Grassie River, the deflection monument, No. 34, being in Concession VI West Hawkesbury Township, at about chainage 221 on the third or Rigaud section, had been on the north bank of the river where a considerable slide had recently taken place, was found lying on the southerly bank of the river, we carried it up on the north bank and set it on the forward line about 1.75 chains from the top of the bank, and made it a deflection point, then we went back to monument No. 33, at chainage 206+78 and made that a deflection point also, with a very small angle, this made no appreciable difference to the line except that there is one more angle in it than Fletcher had.

Two monuments Nos. 42 and 44 could not be found. We were not able to find any person who had seen them that could find them again, nor could we find them from chainage, but built new ones at places so located.

Monument No. 2
Ontario-Quebec Boundary.

At Pointe Fortune we found buildings on the line as shown on the enlargement on the plan.

On the return we check chained with a 200 foot chain, by different men, my assistant and I doing it, straightened up, moved and mounded up the stone monuments and built new concrete monuments at points shown. The check chainage showed a difference of 2.4 feet in 53,447 feet in the north or Rigaud section and a slightly greater difference in the other two sections. Four stone monuments, which had the tops broken off and were in cultivated fields, were not touched, as they would be in the way for cultivation.

At certain places as shown on the plan and field notes, new concrete monuments were built, these being a two feet square shaft about four feet long and being pyramided to eight inches at top in a height of two feet, as shown on detail attached. Generally a two-foot hole was dug in the ground as deep as re-

quired, where boulders did not interfere, then filled with concrete, using "plums"; small boulders were available, and carried up eight or nine inches above ground with a form and then the pyramidal top built on, after the form was removed this was mounded up to within eighteen inches of the top. Eight pairs of brass plates were supplied having "Ontario" and "Quebec" on them, these were set in the forms with the bolts supplied and built in the concrete. Five monuments each having a pair of plates were built, one at each of the five railways crossed, and the others at the three principal roads crossed. The plates had a space number on them, but no numbers were put on for the reason that they were sandwiched in among the stone monuments and we could not see how we could put numbers on them only and have the line symmetrical; consequently we did not put any numbers on at all, but they can be numbered at any time if it is considered advisable to do so.

No blazing of trees was done, because there were very few trees close enough to the line to be within the regulation distance, the exception being shade trees in fences.

The following is a list of the several monuments found and as left together with the new concrete monuments built, the numbers being the same as numbers in report of Messrs. Hutcheon and Mills in September, 1921, with the letters A and B added for new ones built or ones omitted in said report.

(List of monuments follow.)

Underneath is a drawing of the concrete monuments that were built, in places as described, all being the same size and built with the same forms.

All of which is respectfully submitted,

Your obedient servants,

E. T. Wilkie,
Ontario Land Surveyor.

Paul E. Mercier,
Quebec Land Surveyor.

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

Appendix No. 32.

Outlines of Townships, District of Timiskaming.

Toronto, Ont., October 18th, 1922.

Sir,—We have the honour to submit the following report of the survey of certain township outlines in the District of Timiskaming, lying along and adjacent to the Abitibi and Mattagami Rivers, north of the Canadian Government Railways. This work was done under instructions from your Department dated April 12th, 1922.

Upon receipt of the instructions we proceeded with the purchase of supplies and the organization of the necessary party. On the 15th June the party

assembled at Clute, twelve miles northwest of Cochrane, and that afternoon reached, by a waggon road recently opened, the foot of the rapids on the Frederick House River. This point is about a mile north of the south boundary of the Township of Leitch.

A descent of ten miles down the Frederick House River brought us to its junction with the Abitibi River. We found the line between the Townships of Colquhoun and Leitch without difficulty and about thirty chains north of the Abitibi River located the iron and wooden posts planted to mark the northwest corner of the Township of Leitch, at which point the season's work commenced.

From this corner of the Township of Leitch we ran a meridian north eighteen miles and fifty-two links, to O.L.S. Niven's base line in 1899, which we intersected six chains and thirty-three and a half links east of his nine mile post.

From the nine mile post on our meridian we ran eastward eight miles, seventy-six chains and thirty-six links to the meridian run in 1898 by O.L.S. Niven, and from the same post we ran westward across the Abitibi River. Meanwhile a sub-party ascended Driftwood Creek to the north boundary of the Township of Colquhoun, and travelling westward along that boundary, reached the northeast angle of the Township of Kendry. There they commenced a second meridian which was also carried north to O.L.S. Niven's base line of 1899. Our base line run westward across the Abitibi River, intersected this meridian at eight miles seventy-nine chains and thirty-nine links north of the Township of Kendry. The base line was then carried westward to intersect a third meridian which we ran north from the northeast angle of the part of the Township of Alexandra lying south of O.L.S. Speight's base line of 1905. This meridian was run north to O.L.S. Niven's base line. Our base line was then carried westward to the west boundary of the Township of Beardmore, intersecting that boundary at one chain and fifty-seven links north of the southeast corner of the township.

The remainder of the work lay north of O.L.S. Niven's base line and commenced at the northeast angle of the Township of Beardmore. This point was reached from the Poplar Rapids River by means of a canoe route, leaving that river about a mile above its mouth. From the township corner we ran north slightly more than eighteen miles, to the base line run last year by O.L.S. Sutcliffe and Neelands. We picked up the line for the north boundary of the Township of Tucker, run by ourselves in 1911, and continued it eastward twenty-six chains and sixty-six links to intersect our meridian, and then continued eastward eight miles, forty-nine chains and seventy links, to a meridian run last year by O.L.S. Sutcliffe and Neelands. This completed the season's work. The party then ascended the Mattagami River and reached rail head at Smooth Rock Falls on 11th August.

All lines were well opened out and carefully blazed. Wooden posts were planted at the end of each mile and iron posts were planted at the end of each third mile and at the township corners, or as witness posts for those points.

On each line carried across more than one township the chainage was recommenced at the intersecting township outlines.

Wooden posts were selected from the most durable material available in the vicinity of the point to be marked, and the posts themselves were firmly planted. We found it impossible in any instance to build a cairn of stones, as we encountered very little rock and none of it was reasonably close to a point where it could be used in this way. Owing to the flat nature of the country and the presence of considerable areas of swamp, a number of the iron posts

had to be planted as witness posts at some distance from the points they were intended to mark. The iron posts were in all cases carefully planted and the trench or pits, dug to reference each, were made of full width and depth. Except in a few instances where suitable trees were not available, each mile post and witness post was referenced to two bearing trees.

We intersected in several places lines run by O.L.S. Speight in 1905, and noted our chainage to those lines as well as to the distance to his nearest post.

Timber.

Fire swept through the country east of the Abitibi River, apparently about twenty years ago, and destroyed about eighty-five per cent. of the timber in the area covered by it. What timber remains is in the swamps or protected by stretches of muskeg. The burnt area seems to include most of the townships of Menapia and Ireland east of the river and the northern part of the Township of Marvin. A second growth of spruce and poplar is now springing up, but is not yet of any considerable size. West of the Abitibi River we found that the timber on the boundary between the Townships of Beniah and Webster was quite young, not more than forty to fifty years old, except in isolated spots. The country had been evidently burnt over probably fifty years ago. The growth, however, seems to be vigorous. The timber encountered on other lines run, south of O.L.S. Niven's base line, was of a good average quality, being, of course, mainly spruce, with some balsam, poplar, balm of gilead and birch, on the higher lands. Much of the land is swampy, but most of it is capable of being drained and cleared. North of O.L.S. Niven's base line the country was inclined to be flat and wet, muskegs were more extensive and the timber, on the whole, smaller.

Minerals.

Practically no rock was seen during the course of the survey, and none at all on the lines of survey.

Soil.

The soil is mainly the white clay common to this part of Ontario, with occasional ridges of sandy loam or coarse sand, and the townships south of O.L.S. Niven's base line seem suitable for agricultural development. The large areas of muskeg encountered on the lines north of O.L.S. Niven's base line suggest that these townships are not so largely composed of good agricultural land.

Water Powers.

The Abitibi and Mattagami Rivers are both fast flowing streams. Plans are now under way for the development of water power on the Abitibi River at Three Carrying Places Rapids and also at a point lower down. Though there are numerous small rapids on the Mattagami River, within the townships outlined, there is no point within their boundaries suitable for power development on any considerable scale. At Cypress Falls, with a drop of about thirteen feet, just below our last crossing, there is a possible site.

Fish and Game.

Moose were comparatively scarce and few signs of them were seen. Beaver, too, were not plentiful. Of the other game and fur-bearing animals, it is diffi-

cult to speak from observation in the summer, though this area is said to be a good martin country. The lakes and smaller streams contained considerable numbers of pike and pickerel. The Mattagami and Abitibi Rivers apparently are not particularly well supplied with fish.

Canoe Routes.

The Abitibi River is for the most part broad and deep through these townships and is at present much travelled in connection with surveys and construction work for the Timiskaming and Northern Ontario extension. From our observation, the Mattagami River is, generally speaking, swifter and shallower than the Abitibi River. From the railway at Smooth Rock Falls to Cypress Rapids there are three short portages. There are, however, numerous flat rapids. The Poplar Rapids River, from our crossing on the north boundary of the Township of Alexandra to its mouth, is readily navigable by canoes, except at extreme low water. Driftwood Creek, which we ascended from its mouth to the north boundary of the Township of Colquhoun, is also easily travelled in normal stages, with one or two short portages.

All the east and west lines were run as chords of the parallels of latitude passing through the corners of the respective townships. Frequent observations were taken on Polaris throughout the survey and the notes of a number of these are embodied in the field notes.

General Features.

The townships outlined during the summer's work are part of the northern clay belt and conform in general to the characteristics associated with that area. The surface is for the most part flat, or gently undulating, except in the immediate neighbourhood of the rivers and larger creeks, where it is broken by the ravines cut by these streams. These ravines and the river valleys are seldom wide, the banks as a rule rising almost to the level of the interior country within a few chains of the water. The Abitibi and Mattagami Rivers drain the area surveyed. Tributary to these rivers are the Driftwood and Red Sucker Creeks and the Poplar Rapids River. The latter empties into the Mattagami River at O. L. S. Niven's base line, where there is a small clearing and some buildings have been erected by John Shabatese, an Indian Chief. The Driftwood and Red Sucker Creeks flow into the Abitibi River.

No large lakes were seen. The lakes crossed by our lines were shallow and the shores were, in most cases, swampy.

We have the honour to be, Sir,

Your obedient servants,

Speight & Van Nostrand,
Ontario Land Surveyors.

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

Appendix No. 33.

RESURVEY OF SEVERN RIVER AND LAKE EXPANSIONS.

PARRY SOUND, ONT., October 21st, 1922.

I have the honour to report that in compliance with instructions dated April 27th, 1922, I proceeded to make a resurvey of the Severn River and its lake expansions, from the south boundary of the Township of Matchedash, near the head of Sparrow Lake, down stream to the Government dam at Port Severn.

I left Parry Sound on May 31st with three men and assistant, by way of the Canadian National Railways, arriving at Sparrow Lake the same evening, where we were joined by another rodman. Loading our canoes, we proceeded down Sparrow Lake about four miles to the scene of our operations, where we pitched camp. The following day, after making the usual tests of our instruments, I commenced the traverse of Sparrow Lake at the south boundary of Matchedash Township.

Severn River and its lake expansions form the boundary between the District of Muskoka and the County of Simcoe as it wends its way to Port Severn on the Georgian Bay, and has been greatly improved as a water route by the construction of the Trent Canal. Sparrow Lake, owing to its location on the Canadian National Railway, lies in easy access of approach by those who love the great outdoors. The shores are mostly rocky, but not exceedingly high, thus permitting of better building sites. Numerous large hotels have been erected along the shores of this lake, and appear to be doing a lucrative business.

Wending our way down the river, we came to the dam, about two miles below the Canadian National Railway crossing. A large power plant has been erected below this dam, supplying the town of Orillia with light and power. Before we reach Gloucester Pool on our way to the Georgian Bay, we come to the Big Chute, where another large dam has been erected. A power plant has also been erected here, supplying a great deal of light and power to different towns. Besides the dam at Port Severn, at the Severn River entrance to the Georgian Bay, there are several concrete and earth dams blocking the different by-passes from the river. The shores all along the river are generally rocky, with occasionally a level stretch of land. At several places near Ragged Rapids, the banks are high and precipitous. Owing to the dam construction and the height the water has been raised, several of the older islands have been partially submerged, and a great deal of the mainland flooded, causing many new islands. These islands range in size from a mere rock to thirty or forty acres. Apparently, in some places the timber was felled before the land was flooded, as all trace of the original shore is obliterated, while in many of the bays the dead timber still stands, thus making it very difficult for traversing the shores.

TIMBER.

As these townships have been timbered over many years ago, very little of the original forest remains. Fire has also done its deadly work, leaving in its wake the charred remains.

Clinging by their roots to the shallow soil among the rocks, scrub oak four inches to twelve inches, pine six inches to thirteen inches, and scattered small poplar, birch, maple and hemlock have sprung up, while in the low land there is scattered, ash, elm and cedar. No timber in quantities large enough for commercial purposes to any extent was met with, although if the timber was protected for a few years, the pine would grow.

Soil.

The country around the Severn waters in this locality is mostly high and rocky, thus making farming out of the question. However, a few settlers have braved the hardships of pioneer life, following the pursuit of farming, both in the Townships of Morrison in the district of Muskoka, and Matchedash, in the County of Simcoe. When land exists, the soil is a clay loam, sandy in places. Not much farm land was met with until we reached Gloucester Pool. Several settlers in the Township of Baxter, on the west shore of Gloucester Pool, appeared to be making a good living. Some had settled along Go-Home Bay, White's Bay and up near Six-Mile Lake. Excepting the land occupied by these sparsely-settled agriculturists, a considerable portion of the remainder lying along the water front is in the hands of the tourists.

Minerals.

As the rock here is granite of the Huronic era, no minerals at all were seen. There were a few small outcrops of feldspar, but not of any commercial value.

Fish and Game.

No deer or bear were seen at all. A few otter, beaver and mink were seen, and scattered broods of partridge were met with. While no doubt the grassy, weedy bottom of Sparrow Lake has been for years the mecca for maskinonge, they appear to be getting scarcer. Several fine specimens of the pike and small-mouth black bass were caught, but generally speaking the fishing was only fair.

In reference to the water powers, it will be unnecessary for me to dwell upon them in detail, as they have been all developed to a great extent, and any information can be obtained much more accurately.

While the townships through which our work extended have been surveyed many years ago, most of the different monuments were found. Many of the different concession lines in Matchedash and Baxter have been resurveyed under instructions from the Crown, and in the Townships of Morrison and Wood the old monuments have been perpetuated through the local surveys.

In reference to the tourist sites, the same does not hold. True it is, in a few cases, posts were planted on the ground, but in the majority of cases no posts were planted. I have shown on the plans all posts, or nearly so, that were found planted.

Owing to the presence of the dams on this river, it covers a wider area than formerly. Our plan of traverse will show this, and the different matters that I have mentioned in detail.

I am enclosing with the report, observations, descriptions of islands met with and area of same, along with the bearing of the courses, and distances from station to station.

All of which is respectfully submitted.

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

Jas. T. Coltham,
Ontario Land Surveyor.

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

Appendix No. 34.

BASE AND MERIDIAN LINES AND ISLANDS IN THE EAST END OF ST. JOSEPH LAKE, DISTRICT OF THUNDER BAY.

THESSALON, ONT., March 29th, 1922.

SIR,—In accordance with your instructions dated April 15th, 1921, I have made a survey of certain base and meridian lines in the Districts of Patricia and Thunder Bay, and have made a traverse of the eastern part of the Lake St. Joseph and beg to submit the following report:—

The base line was started from the 66th mile post on the meridian line run by myself in 1919, was run east astronomically on a series of six-mile chords of a parallel of latitudes for a distance of twenty-eight miles and twenty-nine chains. At this point it was intersected by a production of the westerly boundary of the Indian Reserve on the south side of Lake St. Joseph, near the Hudson's Bay Company's post at Osnaburgh. The west boundary of this Indian Reserve was produced south a distance of seventy-three chains, sixty-four links.

From the end of each six-mile chord, a meridian line was run north astronomically to the shore of Lake St. Joseph.

The base and meridian lines were well cut out and blazed. A substantial wooden post of the best timber available was placed at the end of ~~each mile~~, excepting where this point occurred in a lake or stream, and was surrounded wherever possible by a substantial mound of stones. Bearing trees were marked with the letters "B. T." after being blazed in a prominent manner, at every post where possible and the distances and bearings of these trees from the various posts, were recorded in the field notes.

The number of the mile was marked with a scribing iron on the side of the post facing the point from which the line was started. When the end of a mile came in a lake or stream, the post was planted on the nearest shore, and the chainage from the nearest mile was marked on the post with a scribing iron.

At the end of every third mile, wherever possible, a standard iron post of the type recently adopted by your department was planted. At these iron posts two pits were dug, and the earth from the pits was formed into two square pyramidal mounds, in the manner described in the general instructions relating thereto. In some cases it was impossible to plant an iron post and dig the pits and erect mounds, on account of the end of the mile coming in water or on unsuitable ground. In each of such cases, a standard iron post surrounded by a witness trench and accompanied by a conical mound was planted at the nearest even chain where suitable ground could be found, from the correct position of the point to be established.

These witness posts, trenches and mounds were placed at the following points:—

At 14 M.	76.00	chains to indicate the	15th mile.
" 17 M.	73.00	" "	18th mile.
" 21 M.	8.00	" "	21st mile.
" 26 M.	62.00	" "	27th mile.

On the third meridian no iron post was planted at the third mile, on account of the ground being unsuitable, but a witness post was planted at 3 M., 60.00 chains, near the shore of Lake St. Joseph.

Astronomic observations were taken whenever possible to determine the bearings of the lines run, and the results of these observations are recorded in the field notes on the proper pages.

The traverse of the eastern part of lake St. Joseph was started at a point on the south side of the narrows on Lake St. Joseph, 59.00 chains north of the sixty-first mile post on the meridian line run by myself in 1919. This is the same point from which I started the traverse of the western part of Lake St. Joseph surveyed in 1920, only this year the traverse was made towards the east.

The whole of the south side of Lake St. Joseph lying east of this meridian was traversed as far east as a point about six miles in a direct line east from the meridian of 1919. The traverse of the north shore was also conducted westerly from the east end of the lake, to a point about two miles west of where it would be intersected by a northerly production of the third meridian. This leaves an unfinished portion on the north shore of the lake, about ten and a half miles across in a direct line. This unfinished portion includes a large bay with numerous islands, some of them quite large. It was not possible to traverse this portion of the lake owing to lack of time. The prevailing rock formation in this section appears to be Laurentian and the opportunities for successful prospecting do not appear to be so great as in other sections, so it was decided that it was more important to complete the traverse of the other portions of the lake.

The traverse was tied to the base line wherever possible and to each of the meridian lines run north from the base line. It was continued on the south side of the lake as far east as the Indian Reserve south of Osnaburgh. On the north side of the lake at the eastern end, the traverse was carried sufficiently far to tie in the Hudson's Bay Co.'s property at Osnaburgh, and also the Indian Reserve north of this point. At the east end of Lake St. Joseph the only portion not traversed is the large island between the northerly and the southerly outlets of the lake, and a number of small islands adjacent to this large island and to the northerly Indian Reserve.

In the traverse all angles were measured with a transit, and the distances were obtained by stadia or micrometer. The bearings of the traverse courses were checked by astronomical observations at frequent intervals and also by ties to the base and meridian lines.

Every night the traverse work of the day was plotted on cross section paper to a scale of twenty chains to an inch. By this means any error in the traverse was at once located and corrected. The closing errors in the traverse were never more than twenty-five links to the mile, and were usually much less than that.

As in the previous season, at intervals of about a mile on the shore, prominent trees were plazed on four sides, and marked on the side next the water with the letter "P," followed by the number of the tree, thus, P. No. —. Similarly the islands were marked by having the letter "I" following by the number of the island. In cases where no suitable tree was available, a substantial post was planted in a mound of stones and marked as indicated above. These trees and posts were all tied to the nearest transit station, and the bearing and distance to the tree or post from the transit station recorded in the field notes.

The details on the traverse showing all measurements, all posts and trees marked as monuments, and all information necessary for the proper interpretation of plans, have been plotted on a scale of ten chains to an inch, and tracings of these detail sheets have already been sent to your department. A plan on a scale of one mile to an inch has also been prepared on mounted drawing paper. This plan shows the base and meridian lines and their relations to the sur-

rounding country. The shore line of Lake St. Joseph and of all the islands within the limits of the survey have been reduced by a pantograph, and plotted on this plan, which accompanies this report.

The country as a whole is rolling and rocky, the valleys being filled with the muskegs typical of this section of Northern Ontario. There is very little agricultural land, and what there is occurs for the most part in small isolated tracts. There are several fairly large areas of gravelly and stony land, particularly near Lake St. Joseph, from the commencement of the base line up to about the fourth mile, and again near the twenty-third and twenty-fourth miles on the base line and on the fourth meridian. There is a fairly large area of sandy land near the Hudson's Bay Co.'s Post at Osnaburgh, and some sections of this are capable of being successfully cultivated. There is a good garden at Osnaburgh, and potatoes and other vegetables appeared to grow very well. Some of the Indians have small gardens scattered about on some of the islands, but they do not appear to grow anything but potatoes. The potato patches were usually very well cultivated and gave evidence of considerable care and attention. On the whole, however, the amount of land suitable for cultivation is relatively very small.

The prevailing timber is spruce, white birch, jack pine and balsam, with considerable scrubby cedar close to the shores. No red or white pine was seen.

Forest fires have wrought great destruction throughout the greater part of this territory. A very great portion of the country adjacent to the south shore of Lake St. Joseph has been burnt over only a very few years ago, and extensive areas are now covered with masses of fallen timber, which make travelling very difficult. On the areas which have been burnt for some time, a healthy second-growth of jack pine, spruce, white birch, etc., is growing very nicely, and if fires are kept out in the future, will eventually form a considerable addition to the forest wealth of this country.

Between the fourteenth and fifteenth miles on the base line, there is a striking example of what the timber resources of this country might have been had the fires been prevented. For a distance of about half a mile along the base line in this locality there is an area which has apparently never been touched by fire, and there is a stand of splendid spruce, balsam and white birch of large size. This is the largest and best timber seen during the season. Another splendid example of what is apparently original forest is found on a large island in Pashkokogan Lake, near the twenty-eighth mile on the base line.

There is a considerable quantity of good spruce, etc., scattered throughout the country, as there are still large areas which have escaped the many fires. It is difficult to estimate the proportion of the total area that has been burnt over, but I would venture to say that in the neighbourhood of fifty per cent. of the country seen from the lines, and from the south shore of Lake St. Joseph, has been burnt over within comparatively recent years. Notwithstanding the great destruction that has been caused by fire, however, there is still a great quantity of timber suitable for pulpwood, which will some day be a very valuable asset to the Province. It is not impossible that the timber resources of this territory are greater than one would at first be led to believe. The desolation caused by a forest fire stands out so prominently on the landscape, that there may well be a tendency to estimate the damage done by it as being greater than it really is.

Most of these fires are caused by carelessness on the part of the local Indians, and I would suggest that some effort be made to impress on the Indians the necessity for care in the use of fire. If arrangements were made to have

the Hudson's Bay Co. put up notices where the Indians congregated around the various posts in the summer, it might have some effect. These notices should be printed in the Indian language, using the syllabic characters which all these Indians read and understand. I would also suggest that an effort be made to have the importance of this matter impressed upon the Indians by the Indian Agent who goes into Lake St. Joseph to pay them their treaty money every summer. If the chief of the band of Indians at Osnaburgh were appointed a fire ranger at a very small salary, I firmly believe that a great improvement would result.

The country north of Lake St. Joseph does not appear to have been burned over to nearly the same extent in recent years as that south of the lake, and there is a large amount of pulpwood in this section of the country. North of Lake St. Joseph the country is not so hilly. There are not nearly as many rock exposures and muskeg areas are larger and more frequent.

Regarding the geology of this section of the country, I have very little to say. Dr. E. L. Bruce, professor of mineralogy at Queen's University, spent the summer with several assistants making a geological survey of the country adjacent to Lake St. Joseph, and his report, which will be made in the Department of Mines, will give complete information as to the geology of this whole region.

I would merely say in this connection that on the south side of Lake St. Joseph there are several large Keewatin areas which would appear to be well worth prospecting. From a point about three miles east of the second meridian, and extending as far east as the Indian Reserve south of Osnaburgh, there is a very large area where local magnetic attraction is most pronounced. In many places along the shore there are indications of iron ore. Along the third meridian, particularly near the second mile, local attraction is very strong, and this condition extends for a long distance both east and west of this line. Unfortunately the portions of this territory that I was able to see, are covered with a heavy growth of deep moss with muskeg in places, and there is very little rock exposed. All the indications point to the continuation easterly of the iron range which exists in the westerly portion of Lake St. Joseph and which was mentioned in the report of the survey of that portion of the lake in 1920.

Lake St. Joseph is the predominating feature of the topography of this section of the country. The shore line of this lake is very irregular, with many deep bays and long points. There are numerous islands, ranging in size from bare rocks to some of several hundred acres in extent. The largest island, No. 606, has an area of 1,827 acres. The first island surveyed was numbered 472, the numbers being continued from the previous year, and the last one, near Osnaburgh, was numbered 925. A detailed description of each of these islands is given separately. The data given regarding the islands gives the number of the island, the area, the nearest transit station, and the number of the detail sheet on which the details of the survey of the island are shown.

The shores of Lake St. Joseph are generally rocky and stony, but many of the bays run back into fairly extensive marshes where the exact location of the shore line is hard to determine with any degree of certainty. A peculiar feature of the portion of Lake St. Joseph surveyed this season, is the large number of stretches of almost straight shore, the shore consisting entirely of boulders and the land behind being composed of boulders and gravel. This was particularly noticeable for a few miles east and west of the third meridian and on some of the large islands north of this section.

There are very few streams of any size flowing into Lake St. Joseph from

the south. The largest stream enters the lake in a deep bay east of the fifty-ninth mile on the meridian line run by myself in 1919. This bay joins the main lake about four miles east of the sixty-fourth mile on the meridian of 1919. This is a fairly large stream and drains an exceedingly intricate system of lakes with shore river stretches between. These lakes extend south to about the twenty-fifth mile on the meridian of 1919 and forms part of a very good canoe route to the Canadian Government Railway near Fowler Station. This canoe route is shown on the plan which accompanied the report of the survey of the meridian run by myself in 1919.

Another stream enters Lake St. Joseph near the twenty-third mile on the base line run this season, and drains a number of small lakes lying to the south. This stream is not very large, but forms part of a canoe route by which access is obtained to a considerable area to the south.

There are a couple of streams entering Lake St. Joseph on the north side which are navigable for canoes, but not for any great distance, as the divide between the waters flowing towards Lake St. Joseph and those tributary to the Attawapiskat River is not far from Lake St. Joseph. A route which was used by myself for transporting supplies to the meridian run in 1919, enters the deep bay on the north shore, which it was not possible to traverse this year. A sketch of this route, by which one can travel by canoe from Lake St. Joseph to Cat Lake, is also shown on the plan of the meridian run by myself in 1919.

Fish and game of the varieties common to this country are fairly plentiful.

Accompanying this report is a mounted plan on a scale of one mile to an inch, as previously mentioned; also my accounts in triplicate, which I trust that you will find satisfactory. The field notes of the lines run, and the tracings showing the details of the traverse, were forwarded to your department some time ago.

I have the honour to be, Sir,

Your obedient servant,

JAMES S. DOBIE,
Ontario Land Surveyor.

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

Appendix No. 35.

SURVEY TOWNSHIP OUTLINES, DISTRICT OF ALGOMA.

PEMBROKE, ONT., January 28th, 1922.

SIR,—I have the honour to submit the following report of the survey of the township outlines in the District of Algoma, made by me under instructions from your Department, dated April 15th, 1921.

I proceeded from Pembroke via Canadian Pacific Railway to Franz, and then up Algoma Central Railway to Tatnall Station, thence via canoes from

Oba Lake up small stream, the outlet of Cat Lake, from which there is a chain of lakes and portages to lake near the northeast corner of Moorhouse Township, which was my starting point. Here I planted new jack pine post alongside the old iron post and from this corner ran the line between Townships of Moorhouse and Makawa south astronomically a distance of nine miles and established the corner of Mildred, Makawa, Nebotik and Hook Townships. From this corner I ran north between Townships of Hook and Mildred to intersection with south boundary of Legge Township, I then cut a trail to southwest corner of Irving Township, where I found an old line which I retraced thirty-three chains and ninety-eight links easterly to old wooden and iron posts marked Mildred on the southeast, and Martin on the southwest. I produced this line easterly to intersection with my meridian between Mildred and Hook Townships. I then returned to my base line and ran south between Makawa and Nebotik Townships a distance of nine miles. I again returned to my base line and ran easterly to intersection with southerly production of boundary of Hayward. From southeast boundary of Hayward I ran south astronomically a distance of fourteen miles, seventy-seven chains and seventy-nine links to intersection with Niven's base line.

To run between Farquhar and Alderson Townships I proceeded to MacDuff Station on the Canadian Northern Railway, which is only a short distance east of three mile post on Patten's base line, my starting point, from which I ran north astronomically, a distance of nine miles, six chains and fifty-eight links to intersection with line run east astronomically from southeast corner of Dowsley Township.

Returning to the railway, I went east to Minnipuka Lake and proceeded to the northeast corner of Legge Township along north boundary of that township, and from this corner I ran eight miles, seventy-six chains and twenty-two links east astronomically to intersection with Speight's meridian at a point two chains and seven links north of his thirty-third mile post. I then returned to northeast corner of Legge Township and ran north between Minnipuka and Byng Townships a distance of eight miles, seventy-seven chains and seventy-two links, intersecting south boundary of Doherty Township at a point five chains and thirty-two links east of its southwest corner, from which I ran west astronomically between Minnipuka and Pelletier Townships a distance of eight miles, sixty-nine chains and twenty-eight links, to intersection with east boundary of Township of Walls, at a point three chains and fifty-nine links south of its northeast corner; then starting at northeast corner of Walls Township, I ran north astronomically a distance of eight miles, seventy-eight chains and fifty-eight links, intersecting south boundary of Schofield Township at a point nine chains and eighty-five links east of post between lots twenty-five and twenty-six, concession one.

East and west lines are run on chords of latitudes and meridians were run north or south astronomically, frequent observations for azimuth were taken. Wooden posts properly marked were planted at every mile, and iron posts alongside wooden posts at every third mile, and pits dug and mounds constructed where required so to do in accordance with instructions.

Soil.

I did not see any land suitable for agricultural purposes in sufficient areas to warrant the belief that it could be developed in to farm lands. The best soil is along Fire River, in the Township of Makawa, Mildred and Hook, where there is some clay loam, but not of sufficient quantity for agricultural purposes.

Timber.

There is considerable brule in the Townships of Makawa, Moorhouse and Martin, the only timber large enough and suitable for commercial purposes being some jack pine on the line between Townships of Moorhouse and Makawa between the first and third mile posts. There is also some spruce and jack pine along the line between Makawa and Mildred, tributary to Fire River, which does not appear to extend easterly on line between Nebotik and Woolrich beyond second mile post, and along line between Mildred and Hook Townships there is fairly heavy timber consisting principally of spruce, jack pine, poplar and balsam, from six to twenty inches in diameter, and on line between Mildred and Marjorie timber is also fairly heavy, mostly spruce, poplar, balm of gilead, from six to twenty inches in diameter. Along east boundary of Nebotik and Abigo Townships the country is heavily timbered with spruce, poplar, balsam, jack pine and balm of gilead up to twenty inches in diameter, this latter is all tributary to the Greenhill River along which lumbering operations are being carried on, principally in taking out ties for railroad purposes.

On the line between Farquhar and Alderson I did not encounter any burned country, but this timber is small, consisting principally of spruce from four to eight inches in diameter, with scattered areas of jack pine up to ten inches in diameter on the higher ground.

On that portion of my contract lying north and northeast of Lake Minnipuka, the lines between the Townships of Byng and Puskuta, between Minnipuka and Byng, and between Minnipuka and Pelletier, is all green country covered with a dense growth of spruce, balsam, poplar and birch, four to ten inches, with occasionally some jack pine four to eight inches on the ridges, and appears to have been all burned over about eighty years ago, and will have some valuable timber possibilities providing fire is kept out of it. The line between Roche and Pelletier is practically all through brule, apparently burned over about forty years ago, with areas more recently burned over, and the country is quite open in places. This brule extends to the southwest and northeast from about twenty chains south of the first mile post.

Minerals.

No indication of economic minerals were found, there being rocky ridges scattered generally throughout whole area covered by this survey. The highest and most prominent rock outcrop being between chainage fifty and seventy on the fourth mile of the south boundary of Byng Township. From top of the ridge one can see a great distance in all directions, Brunswick Lake being seen to the east.

Streams and Lakes.

The main branch of Fire River is navigable by canoe through northeast corner of Makawa Township, but through southeast part of Mildred it is very crooked and blocked by logs and brushwood and with very little water flowing in it this summer. From Mildred east there are numerous shallow rapids. Report on Greenhill River has already been made to your department, it having been surveyed in 1920.

Goat River is a fair-sized stream, from a chain to two chains in width and is navigable by canoes through Township of Minnipuka, that being only portion I am acquainted with, it flows through a lake from ten to thirty chains wide and about two and a half miles long, located about two miles north of Minnipuka Lake.

There are no water powers capable of development that I know of.

GAME, ETC.

Large game is very scarce. The fishing in lakes was only fair, but we did not have many opportunities of investigating. I understood from the Indians there is good speckled trout fishing in lake on Goat River, and we took some fine specimens of from ten to fifteen inches long in the river at its crossing of north boundary of Minnipuka Township, also in the creek which crosses same boundary on the fourth mile.

Speaking generally, the area covered by survey this season is valuable only for its timber possibilities, which depend on the success in keeping down forest fires.

Accompanying this report are a plan, field notes, timber plan, with usual affidavits and account in triplicate.

I have the honour to be, Sir,

Your obedient servant,

HERBERT J. BEATTY,
Ontario Land Surveyor.

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

Appendix No. 36.

RESURVEY OF PART OF THE TOWNSHIP OF BLOUNT, DISTRICT OF TIMISKAMING.

NORTH BAY, ONT., December 5th, 1922.

SIR,—I have the honour to submit the following report on the survey of part of the Township of Blount, in the District of Timiskaming, performed by me under instructions from your Department, dated September 26th, 1922.

I left North Bay on October 4th with a party of seven men and travelled to Cochrane, remaining over night at Cochrane, and the next morning hired a motor truck which carried men and supplies to where the Timiskaming and Northern Ontario Railway crosses the south boundary of the Township of Blount, where we made camp and commenced work in the afternoon. Survey work was carried on continuously till the completion on November 3rd, arriving at North Bay on November 4th.

The party consisted of eight men, made up as follows: one surveyor, two chainmen, four axemen and one cook.

Observations for azimuth were taken on the centre line of the Timiskaming and Northern Ontario Railway and bearing carried on side lines between every sixth lot to the east and west boundaries of Concessions "A" and "B."

Traverse of the Abitibi River was made by chaining along the north shore and taking stadia readings to the south shore. Also traverses of lakes were made by chaining on the ice along the shore and taking stadia readings to the opposite shore.

Iron posts were marked and planted, and pits and mounds made at the points shown in accordance with the instructions.

The soil is well adapted for agricultural purposes, being clay, and several of the lots have already been settled on and small clearances made.

Fire has run through the district and destroyed the timber on the high land, and the only green timber is in the spruce swamps, except a portion on the east boundary, lots twelve and thirteen, Concession "A," and on the west boundary of lots twenty-eight to thirty-two, Concession "B."

The road along the southerly limit of Concessions "A" and "B" has been opened and graded, also road between original lots eighteen and nineteen from the southerly limit of township northerly as far as the Abitibi River.

Accompanying this report are plan, field notes and accounts, all of which I trust will be found complete and satisfactory.

I have the honour to be, Sir,

Your obedient servant,

G. P. Angus,
Ontario Land Surveyor.

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

Appendix No. 37.

Township Outlines in District of Sudbury.

Peterborough, Ont., October 23rd, 1922.

Sir,—I beg to report that, agreeably to your instructions dated April 12th, 1922, to survey certain township outlines in the district of Sudbury, I have completed this work and beg to submit herewith my plans, field notes and report, all of which I trust will be found complete and satisfactory.

The survey was commenced at an iron post planted by myself in 1916, to mark the intersection of the line between concessions four and five in the Townships of Hall and Joffre with the line between these townships. After a delay of a few days at this point in getting an astronomical observation, the line between the Townships of Hall and Joffre was produced south to O.L.S. Patten's base line and from the sixth, twelfth, eighteenth and twenty-fourth mile points. Lines were run due west on six-mile chords to O.L.S. Niven's base line. My meridian six miles west of my first meridian was run due south from a point six miles west of the southeast angle of the township of Hall to O.L.S. Patten's base line. Wooden posts made of the most durable wood in the locality, and at least six inches square and three feet high, were planted at the end of every mile, excepting when that point fell in a river or lake, in which case the post was planted on the line at the nearest shore. At the end of every third mile, where possible, the iron posts supplied by your Department were planted and pits and mounds made according to Department instructions. Where it was not possible to plant these posts at the exact points, they were planted according to instructions and witness mounds and trenches made.

On the hills and uplands of the eight townships outlined by me the country is broken and rocky and has been repeatedly overrun by fire, so there is practically no timber now remaining on the uplands, which are covered with small poplar, white birch and banksian pine. In the vicinity of Upper Green Lake there still remains considerable scattered white and red pine of good size and quality.

In the lowlands between the hills are found the usual swampy tracts covered with spruce, dead and decaying tamarac with alder and willow underbrush and considerable windfall; the average size of this timber ranges from two to ten inches in diameter. Probably eighty-five per cent. of these townships is high and rocky, the remaining fifteen per cent. being low and swampy.

I am very sorry to have to report there is absolutely no agricultural land in any of the townships outlined by me, nor does there appear on the surface any indication of the existence of economic minerals. The whole country is traversed by numerous rivers, creeks and lakes, containing considerable very good fish, particularly pike and lake trout. Moose and red deer are also very plentiful in this locality. While the country cannot be called exactly mountainous, it is very rough and broken throughout.

All the survey was carried out under my personal supervision, and at only one or two points did I find it necessary to depart from the instructions with respect to having angles opposite the base over ten degrees in triangulation work.

There is a considerable tourist traffic passes through the townships, this being the chief waterway leading south from the Canadian Pacific Railway to the Mississaga Forest Reserve. Many of these parties were met with during the progress of the survey.

I have the honour to be, Sir,

Your obedient servant,

J. W. FITZGERALD,
Ontario Land Surveyor.

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

Appendix No. 38.

CERTAIN TOWNSHIP OUTLINES IN THE DISTRICT OF SUDBURY.

NORTH BAY, ONT., November 21st, 1922.

SIR,—We beg to report on the survey of certain township outlines in the District of Sudbury, surveyed by us under instructions from your Department dated the 12th day of April, 1922.

We left North Bay on the 14th of June, arriving at Roberts Station on the Canadian Pacific Railway the same day with a small number of our party; the balance of the party, being Indians, were hired at Biscotasing.

We commenced our survey at a post planted by E. Stewart, O.L.S., in 1891 on the north side of the Canadian Pacific Railway, between townships number

12 and Joffre. The original notes for this point show a wooden post and a gas pipe planted, but the gas pipe had disappeared, the wooden post and a cairn of stones remaining, as was the case on the opposite side of the railway and at all other points with one exception, where the original notes showed a wooden post and gas pipe. From this post we ran north astronomically between the Township of Joffre and Township 12, and continued north astronomically between the Township of Carew and the Township of Alcona to the south boundary of the Township of Fingal, which boundary had been run by us in 1920.

Again, starting at a post planted by E. Stewart in 1891 on the northeasterly side of the Canadian Pacific Railway between the Townships of Joffre and Carew, we ran east astronomically between those two townships to our meridian line and continued thence east astronomically between Township Number 12 and Alcona to the southerly production of the west boundary of the Township of Smuts, which boundary had been run by us the previous year. Producing the said west boundary of the Township of Smuts we ran south astronomically between the Township of Biskotasi and Township Number 12 to a point, where we established the southeast angle of Township 12 due east astronomically from the northeast angle of Township Number 10, which we found marked by a wooden post in a stone cairn planted by E. Stewart in 1891. This completed our work on the north side of the Canadian Pacific Railway. We then proceeded to the southwest angle of Township 12, which had also been established by Mr. Stewart in 1891, but as this country had been burned over since 1891, we found it necessary to run a line south astronomically the distance shown on Mr. Stewart's original field notes from the post we had already found between the Township of Joffre and Township Number 12 on the north side of the Canadian Pacific Railway, and after searching nearly half a day we succeeded in finding the original iron post (gas pipe) and the point of the wooden post, though a four or five inch spruce tree had grown exactly on the top of it. From this point we ran south astronomically six miles between Townships 10 and 11, and at this six-mile point we established the adjacent angles of the four Townships 10, 11, Kelso and McPhail. From the same point we ran west astronomically between the Townships of Joffre and Number 11 to the east boundary of the Township of Hall, which was run this summer by O.L.S. Fitzgerald. From the said adjacent angles of the Townships 10, 11, Kelso and McPhail, we ran west astronomically between Township Number 11 and Township of Kelso to the east boundary of the Township of Abney, which was also run this summer by O.L.S. Fitzgerald, east astronomically between Townships Number 10 and McPhail to the west boundary of Township Number 9, run this summer by O.L.S. Gallagher, and south astronomically between Townships of Kelso and McPhail six miles and twenty-seven links, where we established the adjacent angles of the Townships of Kelso, McPhail, Ivy and Earl. From this point we ran west astronomically between the Townships of Kelso and Ivy to the east boundary of the Township of Cortez, which was also run this summer by O.L.S. Fitzgerald, east astronomically between the Townships of McPhail and Earl to the west boundary of Township Number 8, run this summer by O.L.S. Gallagher, and south astronomically between the Townships of Ivy and Earl six miles, where we established the adjacent angles of the four Townships, Ivy, Earl, Durban and Jasper, and from this point we ran west astronomically between the Townships of Ivy and Durban to the east boundary of the Township of Ethel, which was also run this summer by O.L.S. Fitzgerald, east astronomically between the Townships of Earl and Jasper to the west boundary of Township Number 6, which was also run this summer by O.L.S. Gallagher, and south astronomically between the Town-

ships of Durban and Jasper to the north boundary of the Mississaga Forest Reserve run in 1908 by O.L.S. Patten.

A wooden post not less than six inches square and of the most durable wood obtainable was planted at the end of each mile, or where such point came in a lake the post was planted on the nearest shore and the chainage carved thereon. The posts were all set firmly in the ground and around many of them were built cairns of stones. On the side of the post facing the initial point of the line, the number of the mile was marked by carving deeply in the wood with a sharp knife, as 1 M., 2 M., etc. At the township corners and at the three-mile point on the township boundaries an iron post of the standard pattern was planted flush with the surface of the ground, and at each of these the required pits and mounds were made, or in the case of a witness post a circular trench and mound were made. Where an iron post was planted a wooden post was also planted a foot from the iron post, but in all cases the iron post was set at the true point.

Two bearing trees were marked wherever they were available by blazing the tree and carving thereon the letters "B.T." The distance and astronomic bearing from the post to the face of the blaze was noted and shown in our field notes.

The lines were well opened out and the trees adjacent to the lines and on each side thereof were blazed on three sides in the usual manner.

All lakes across which we could not chain in the usual manner were triangulated and the angles of such triangles were invariably read twice or more to insure accuracy and the bases of such triangles measured with great care.

On the north boundary of Township 11, between four and a half and five and a half miles, we encountered considerable difficulty and the morals of our party suffered much, when we ran into about a mile of drowned land so densely wooded with standing and fallen timber that it was impossible to bring a canoe in, yet the water was from four to eight feet deep. We finally succeeded in getting it cut through and chained with the loss of some time.

The measuring was all done with tapes two chains in length, which were carefully tested with a standard of measure before we commenced operations. On sloping ground the clinometer was used to measure the vertical angle and the horizontal distance derived therefrom.

Frequent astronomical observations were taken on Polaris, records of most of which are attached to our field notes. North and south lines were run as true astronomical meridians. East and west lines were run as chords of latitude passing through the township angles. The magnetic readings were taken frequently and found to be nearly constant at seven degrees west of north.

Soil.

No agricultural land was met with in the whole country traversed by the survey. The soil is composed of sand, generally underlaid with gravel and strewn with boulders. Many rock outcrops occur.

Physical Features.

The country for the most part is hilly and dotted with innumerable small and large lakes, most of which contain very clear water, particularly so in the south part of the survey. The principal lakes are Ramsay, Biscotasing and Indian Lakes. Ramsay Lake extends through the Townships of Joffre, Number 11, and Kelso, and extends into the northeast angle of Ivy, the northwest angle of Earl and the southwest angle of McPhail. The water of this lake has been

raised several feet by a dam at its outlet into Biscotasing Lake. Owing to this increased height of water there is a great deal of drowned land around its shores. There are several small rivers or creeks coming into this lake, two running north through the Township of Kelso, one running east in the southwest angle of Township 11 and one running southeast in the northwest angle of Township 11.

Biscotasing Lake extends through the Townships of McPhail, Number 10, Number 9 and Biskotasi. This lake in most places has rocky shores and is made up of long bays running in all directions, which makes it difficult to travel on without an accurate map.

Indian Lake is a long narrow lake lying north and south in the Townships of McPhail, Earl and Jasper. It has also rocky shores and many bays.

While the presence of so many lakes made life in the bush more pleasant and were very helpful for transportation purposes, they were usually more of a hindrance than an advantage to running a line.

Timber.

The timber in the Townships of Carew, Alcona, Joffre, 12, 10 and 11 and the north part of Kelso and McPhail is of little importance as it is nearly all second growth, having been burned over some twenty or twenty-five years ago, and this area is now grown up with jack pine, poplar, birch, balsam and spruce averaging six to eight inches in diameter. The Townships of Ivy, Earl, Durban and Jasper and the south part of Kelso and McPhail are fairly well timbered with jack pine, spruce, poplar and birch of merchantable size. In this area there is also an occasional red and white pine of good size.

Game.

The large game is quite plentiful throughout the area covered. Moose, red deer and bears were often seen. Partridge and rabbits were seen in abundance and the small fur-bearing animals were also numerous. The only fish we were able to catch were pike and pickerel and were plentiful in all the lakes of any size.

Rock.

The rock formation is of granite and feldspar and no evidence of valuable minerals were seen.

Accompanying this report we are forwarding general plan on mounted drawing paper, timber plan on linen, field notes, accounts in triplicate and the usual affidavits, all of which are respectfully submitted, and we sincerely trust the same will meet with your approval.

We have the honour to be, Sir,

Your obedient servants,

McAuslan, Anderson & Moore,
Ontario Land Surveyors.

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

Appendix No. 39.

BASE AND MERIDIAN LINES, DISTRICT OF THUNDER BAY.

PORT ARTHUR, November 9th, 1922.

SIR,—Under instructions from your Department dated April 21st, 1922, to survey certain base and meridian lines in the District of Thunder Bay, we beg to report that we have completed the work.

Our party, accompanied by Mr. W. L. Swanson, Geologist for the Department of Mines, left Port Arthur on June 7th for Mack on the Lake Superior branch of the Canadian National Railway. From Mack the route was by way of a chain of small lakes and short portages to Cedar Lake, where O.L.S. Ross's base line was located and followed to the thirty-sixth mile post which was our starting point.

From this point a base line was run twelve miles east, and from this twelve mile point a meridian line was run twelve miles north and produced south eleven miles and sixty-seven chains and ninety-eight links to intersect the second base line run by us in 1921. The base line was then continued for a total distance of forty-two miles and four chains and thirty-nine links to intersect the west limit of the Black Sturgeon Pulp and Timber Limit run by us in 1918. From the twenty-fourth mile post on the base line a meridian was run south eleven miles, sixty-six chains and sixty-three and four-tenths links to intersect the second base line run by us in 1921. This meridian was also run north twelve miles and thence a base line was run east seventeen miles, seventy-nine chains and seventy links to intersect the west limit of the Nepigon Forest Reserve run by us in 1920. The instructions in regard to the details of the performance of the work were followed carefully. Where a closure was obtained the actual chainage checked very closely with the theoretical, showing that the chaining was well done. In one case, viz., at the end of the first base line, the pits and mounds were omitted owing to the ground being composed of boulders for a considerable distance from the corner. The iron post was, however, well planted.

The country passed through was in general well timbered except for a portion approximately between the seventeenth mile and the twenty-sixth mile on the first base line and all of the second meridian south of the first base line. This area in parts has been burnt several times and is bare of trees, while in other parts it is covered with a dense growth of poplar, birch and jack pine. There is good spruce in the swamps in this area, but these do not appear to be of any great extent. Other areas which have been burnt within recent years are, an area extending from the fifteenth mile on the second base line to the end of the line, and for a distance of about one-half a mile on each side of the four mile post on the first base line. The remainder of the country was well covered with timber, the varieties being as shown on the accompanying timber plan. Spruce is the principal species. There is also a good stand of jack pine extending along the second meridian north from about the fourth mile to the end and along the second base line to the burnt area near the fifteenth mile post, although the timber gets smaller as we travel east. There are also a few small stands of jack pine as shown on the plan.

The country along and adjacent to the first twelve miles of the first base line appears to contain a large number of good sized lakes not shown on any map. No effort was made to make a survey of these, any information shown on the plan being approximate and from information given by the freighters.

The land is generally level or rolling, and the soil sandy or rocky or boulders. Near Lac des Isles, on the second meridian south of the first base line, there are high rocky hills and the country is very rough and broken. On the second meridian north of the first base line where the jack pine is found, the country is very hilly and broken, being full of dry sloughs and small lakes which apparently have neither inlet nor outlet. This is the only portion of the country which shows any agricultural possibilities at all, the soil being sandy loam; the area, however, is insignificant.

On account of the party being accompanied by a geologist, Mr. W. L. Swanson, M.A., sent out by the Department of Mines, no attempt was made to note the geology.

There were no well defined water routes within the limits of the survey. There is a well travelled route from Mack to Cedar Lake. From Cedar Lake supplies were brought to the lake on the fifth mile of the first base line by a series of small creeks which were said to be very indifferent travelling. From this lake a good route was obtained to Sucker Lake and the river running out of Sucker Lake to where it crosses the first base line. The next route used was via Kelley and Dog River to the lake shown on the plan about three miles west of the second meridian and thence north and following the dotted line shown on the plan. This river was said to be very rapid in places and no portages or other signs of use were found except for a short distance north and south of the first base line where it had been used by trappers who have another route branching off to the west, south of the first base line. From this river, which crosses the second base line on the eighth mile, a portage was made along the line to the small lake shown on the fifteenth mile and the lake and river running out of it were followed to Kavitotikwia Lake. This river is full of rapids and extremely crooked and at this time of the year (September) was very poor travelling on account of low water. The whole district covered does not appear to be travelled to any extent except in the winter by trappers, of whom frequent signs were seen.

The usual animal life was present in the shape of moose, deer, bears, beaver, wolves, etc. The most common fish was found to be pike, although it was stated by the Indians that some of the streams contain trout.

With this report are the usual plan, field notes, etc.

We have the honour to be, Sir,

Your obedient servants,

PHILLIPS & BENNER,
Ontario Land Surveyors.

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

Appendix No. 40.

TOWNSHIP OUTLINES IN DISTRICT OF SUDBURY.

SOUTH PORCUPINE, ONT., December 1st, 1922.

SIR,—I beg to submit the following report of the survey of certain township outlines in the District of Sudbury, made by me during the past summer under instructions from your Department, dated April 12th, 1922.

The survey was commenced on the 29th July at the northwest angle of Township No. 4, which point was, and is, marked by an iron and a wooden post. From this point a line was run west six miles between Townships No. 6 and Alton, an observation having been taken the night of July 27th, and from the same point a meridian was run north between Townships Nos. 5 and 6, 7 and 8, Chalet and 9, and Arden and Biscotasi, a distance of twenty-four miles four chains and twenty-seven and seven-tenths links, to the south limit of the Township of Smuts, intersecting the latter limit, four chains and fifty-one links, west of the southeasterly angle of the said township.

From the six mile point on this meridian a line was run east between Townships 5 and 7 to the westerly limit of the Township of Battersby, intersecting this limit 45.7 links south of the northwest angle, and west six miles between Townships Nos. 6 and 8. Near this six mile point, which is now the corner of four townships, only one iron post, planted by O.L.S. Stewart in his survey of townships along the Canadian Pacific Railway, is in place, and its location with reference to this corner is shown in the field notes accompanying this report.

From the twelve mile point on this meridian a line was run east between the Townships of Chalet and No. 7 to the northwesterly angle of the Township of Marquette, and west six miles between Townships Nos. 8 and 9, crossing the Canadian Pacific right of way. Near this point of crossing posts had been planted by O.L.S. Stewart in his survey mentioned above, but they have been removed and the only evidence of their location is a cairn of stones which is referenced in the field notes of this line, page fifty-two.

From the eighteen mile point on this meridian a line was run east between the Townships of Chalet and Arden to the west limit of the Township of Paudash, and west between Townships No. 9 and Biscotasi to the easterly limit of Township No. 10, intersecting this latter limit 2 chains and 99.6 links south of the northeasterly angle of the said township.

A second meridian was run south from a post planted by O.L.S Stewart, in his survey mentioned above, south of the Canadian Pacific Railway on the line between Townships Nos. 9 and 10, this post being a piece of gas pipe marked 9 on the east, and 10 on the west side, to the northerly limit of Township H in the Mississaga Forest Reserve, forming the west boundary of part of Township No. 9 and of Townships Nos. 6, 8 and Alton.

Your instructions, including the general instructions relating to the planting of iron posts, were rigidly adhered to in every particular. The base lines were, in all cases, run in the direction indicated as chords of parallels of latitude, passing through the township corners, and the meridians north and south astronomically, observations on Polaris being taken whenever possible. The lines were well opened out and well blazed. Posts of the most durable wood obtainable, at least six inches square, well made and well carved, were planted at all points ordered, each in a cairn of stones where the latter were procurable, and two carefully selected bearing trees marked near each. The iron posts furnished by your

Department were placed where directed in your instructions, and the mounds, pits and trenches well formed in the proper position that applied to each case, except at the point of intersection of the line between Townships No. 9 and Chalet with the westerly limit of the Township of Marquette. This point was 4.5 links south of the northwest angle of the latter township, and as the placing of another iron post, and the making of the necessary pits and mounds, would interfere with those already there, the latter angle was made the point of intersection, and the old posts marked accordingly.

The chainmen were instructed as directed by you, the steel tapes compared with the standard before, and during, the survey; a clinometer used on all grades, and every precaution taken to insure accurate measurements.

Timber.

A great part of the area included in the outlines has been timbered over many years ago, but at the present time pulpwood is being taken out in places, and some stands of jack pine adjacent to the Canadian Pacific Railway have been cut quite recently. There is considerable timber of pulpwood size along the first meridian, excepting the last five miles, and along the south boundaries of Chalet and part of No. 7. The timber along the north boundary of Alton, the west boundaries of Alton and 6 and 8, and the east half of the north limit of 6 and 8 is of good quality, much of it being suitable for pulp, with several good stands of jack pine well suited for ties. Along the north and west limits of Alton there is a considerable number of white and red pine, big and apparently of good quality. Two large areas were recently burned over, one between the Hog's Back Channel and the west branch of the Spanish River, on both sides of the line between Townships 8 and 9; the other between the east and west branches of the Spanish River on either side of the line between Townships 5 and 6.

Water Courses.

In this district is a network of excellent water courses. East of the C. P. R. the three branches of the Spanish River, and the Dead River, with their connecting lakes, furnish good routes for canoe traffic and river driving, the portages being well cut out and comparatively short. West of the C. P. R. the Indian Lake and the Hog's Back Channel provide a fine route to the Mississaga Forest Reserve.

Rock Formation.

The predominant rock in this area is reddish coloured biotite granite of Laurentian age. It is well exposed on the shores of many of the lakes, and on the steep slopes of some of the hills. On the north limit of Township No. 5 inclusions of Keewatin schist were observed in the granite. On the north boundary of Township No. 8 where the rock is well exposed in the brule area there are several diabase dykes, and on the east shore of Indian Lake a big dyke, similar in nature, some chains wide, on which have been staked a number of claims, was noted, but no mineralization was detected. No indications of economic minerals were observed during the entire survey.

Physical Features and Soil.

The area as a whole is very hilly, and the granite ridges and the lakes have a general north and south direction. The soil of nearly the entire area is a sandy

loam, mostly shallow, with a few small areas of clay, the whole country being unsuitable for agriculture.

Fish and Game.

Big pike were taken from many of the lakes and from the Spanish River, and they seemed to be plentiful; no other kinds of fish were seen, but Winnie Lake on the north boundary of Alton Township is locally reported to abound in trout.

Moose and red deer, and indications of them were frequently seen in all parts of area, as were also signs of bear and beaver.

Partridge of two distinct varieties were very plentiful.

Water Powers.

The only water power, worthy of consideration, encountered during the survey is on the west branch of the Spanish River, two chains north of the north limit of Township No. 8, where there is a fall of twelve and one-half feet, which could be, with a short dam, increased to twenty-five feet. There are three rapids on the west branch below this point with a combined fall of about eight feet.

Accompanying this report are the township plan on mounted drawing paper, a timber plan, field notes, the required affidavits, and account in triplicate. I am also returning the set of dies furnished by your Department.

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

Chas. V. Gallagher,
Ontario Land Surveyor.

The Honourable the Minister of Lands and Forests,
Toronto, Ontario

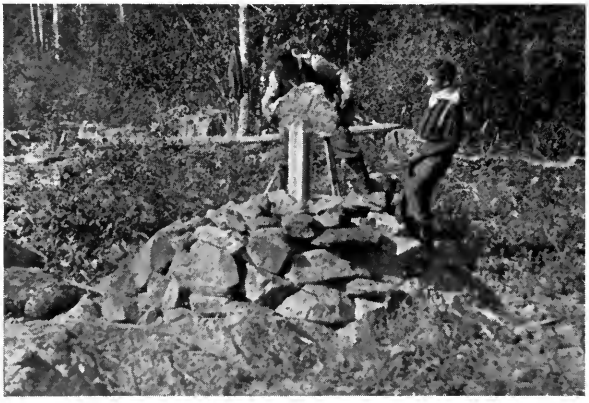
Sturgeon caught in the Abitibi.

Appendix No. 41.

SURVEY OF THE ABITIBI RIVER.

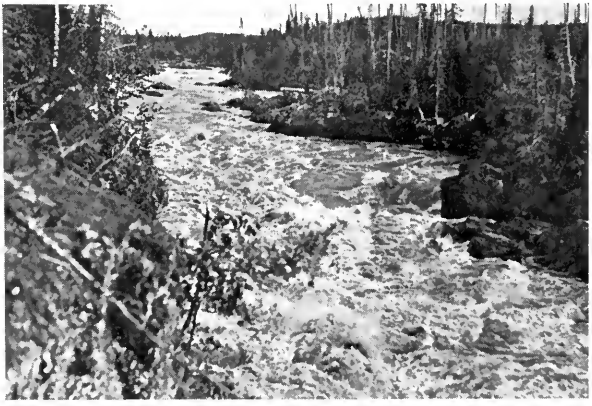
SAULT STE. MARIE, December 23rd, 1922.

SIR,—Acting on instructions from you dated 28th March, 1922, to survey the Abitibi River from the north boundary of the Township of Leitch to its mouth, I commenced organizing for this work on May 25th, 1922, leaving Sault Ste. Marie via North Bay and Cochrane with five men and arriving at



Mounding post on Niven's Base Line.

Clute on May 29th. At Clute I bought supplies, etc., and after overhauling same, had part of them together with outfit and canoes teamed to the landing at the Frederick House River, a distance of about four miles. To attempt taking my whole outfit and supplies down the river in one trip in three canoes



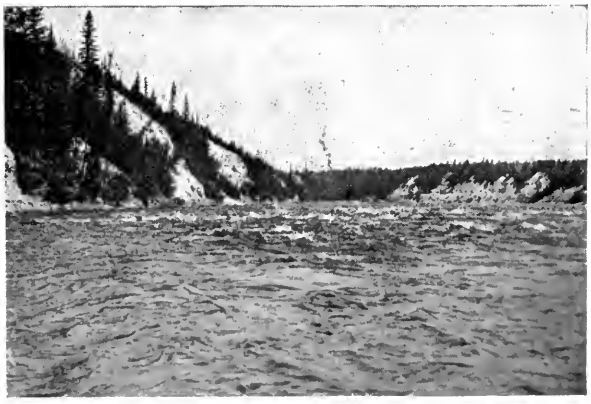
Lower Otter Canyon, looking upstream from near foot.

was almost impossible, which made it necessary to make a trip with half the load as far as Island Portage. On June 6th, arrived back at Clute, and after getting remainder of supplies, etc., proceeded down the Frederick House River to its mouth, or its junction with the Abitibi.

From the north boundary of the Township of Leitch (below Kettle Falls) the point of commencement to the Three Carrying Places, a distance of about twenty miles, the river has a strong current but is easily navigable for loaded launches or scows, there being a depth of from ten to twenty-five feet at low water stage. From the Three Carrying Places to Island Portage Rapids, a distance of about four miles, is swift and generally wide and shallow with occasional narrows

Abitibi Canyon, looking up stream to near head of canyon.

of heavy fast water. About the centre of this stretch is the T. & N. O. Railway Crossing, the right of way having been cleared to this point. Following down stream from the foot of Island Portage Rapids to the Lobstick, a distance of about twenty miles, the river is a series of sweeping curves with a width of about twelve chains, almost free from boulders and is good motor boat navigation, considerable portion of the width of the river.



Sextant Rapids, Abitibi River.

From the Lobstick to the foot of the Abitibi canyon (taking in Burntwood Chutes, Clay Rapids, Birch Rapids and Oil Can Rapids) a distance of about seven miles, the river has a very heavy current, with almost continuous rapids, chutes and falls, and can only be navigated by expert canoemen making at least five portages. From the foot of the Abitibi canyon to the Otters, a distance of about twenty-two miles, the river is swift and rapid for the first three miles,

the remaining distance being moderately swift, but could be navigated by loaded launches or scows.

The navigable parts of the three stretches of river heretofore mentioned traverse between banks of clay, generally sloping gently back from the river to a height of from about twenty to one hundred feet or more. Along the unnavigable parts, such as rapids, falls, chutes and canyons, the shores are rocky and in some places precipitous.

The Lobstick, looking down stream towards Burntwood portage from foot.

Continuing down stream from the foot of the Otters to where the river empties into the Moose, a distance of about seventy-five miles, the river becomes wide, shallow and swift, having a fall of about 245 feet, mostly taken up in the Sextant, the Corals, the Nine Mile Rapids and Allan Rapids. The river bed, most noticeable at the above mentioned rapids, is of limestone shale, the

Burntwood Chutes, looking up stream, both channels.

banks are of clay with occasional outcroppings of limestone shale, sloping back to a height of from twenty to sixty feet. In many places along the river's shore will be seen large deposits of oil shale, pieces of which when thrown into a fire will give off heavy black smoke and strong gases. Lignite outcrops are frequent along this part of the river which when dried burns well and gives off

a blue flame with coal-like gas. I am of the opinion that in the lower regions of this and other rivers which I have surveyed there is great inducements for prospecting for oil and coal. One of my party found a float of coal on the Little Abitibi River near its mouth.

Water Power.

At the Three Carrying Places the fall at mean water level is twenty-three feet. The site is not especially adapted for water power development as the gorge is wide and flat at this point and it will be discussed hereafter with Island Portage Rapids.

Island Portage Rapids is about thirty chains in length and has a fall of 6.5 feet. Slightly below head of rapids is an island which is a satisfactory location for a dam. A dam has been proposed to give a head of fifty feet; the length would be about twelve hundred feet. This is being investigated by Messrs. Kerry and Chace, engineers. A fifty foot head would flood out the

Burntwood Chutes, west channel.

Three Carrying Places and back up the river as far as the foot of the Long Sault Rapids, flooding out Kettle Falls.

At the Lobstick there is a drop of about thirty-six feet at mean water in a distance of forty chains. To develop this a dam could be placed down stream near the foot of the portage where the gorge, which is rocky and canyon like, is about five chains wide with a small island in the centre. This could be developed in conjunction with Burntwood Chutes, the head of which is about twenty-five chains below high rock above noted.

Burntwood Chutes has a fall of twenty-one feet. The foot of this chute is a satisfactory dam site. It would appear easy to place a dam of sufficient height at this point to flood back to the head of the Lobstick, and such a dam would be about four hundred feet long and could develop a head of about fifty-seven feet. A short distance below this the river widens to about ten chains.

The Abitibi Canyon has a fall of ninety-two feet and is about one and three-quarter miles in length, whose walls of rock run up to an elevation of about one hundred and sixty feet. Its width at the water's edge averages about three chains. Water power for this stretch of river could most cheaply be developed by a dam in the lower part of the canyon. The length of spillway required to pass maximum floods might be a controlling factor in location of dam. It would be possible to construct a dam to flood back to the head of the Lobstick develop-

ing a head of 210 feet. The length of dam required for this head would be nearly one thousand feet. A proposed dam is indicated about one mile below head of Canyon, creating a head of 150 feet by flooding water back to foot of Burntwood Chutes, such dam would have a crest length of about three hundred feet. There appear to be several alternative ways of making this development, and it

Abitibi Canyon, looking down stream to near foot of canyon.

requires much detail study. The watershed area at this point is about 8,575 square miles. The flow of the river at the Abitibi Paper Company's development at Iroquois Falls is known and the watershed area at that point is also known, and the additional flow for the total area can be computed, thus giving total flow with fair accuracy.

The Otters is a series of rapids and chutes and in places canyon like and falls over a distance of one and three-quarter miles with a total drop of eighty-

Upper Otter.

seven feet. There is a good dam location at the foot, where the width is about four chains, including a rocky island. A dam to develop the full head of the Otters would be required to be a considerable length, but would be founded on exposed rock for the greater part. Depth of overburden might be considerable at the extreme ends. The river widens out considerably at the foot of the rapids.

TIMBER.

The timber along the river consists chiefly of poplar, spruce, balsam, birch and cedar. In many places the country has been fire swept years ago, but since the timber has grown up to a fair size, such as poplar to sixteen inches, and spruce to fourteen inches. There still remain areas of land with small poplar and birch, also other numerous stretches of river banks with almost virgin forest timbered with spruce to thirty inches and poplar to twenty inches. On the whole taking the above into consideration the timber along the Abitibi River from a pulp standpoint is very good.

Below foot of Upper Otter.

Comparing the Abitibi River with rivers which I have surveyed and travelled, it is the most dependable water route to James Bay, there being at all stages water enough to carry loaded canoes.

I have the honour to be, Sir,

Your obedient servant,

C. R. KENNY,
Ontario Land Surveyor.

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

Appendix No. 42.

SURVEY OF TOWNSHIP OUTLINES, DISTRICT OF ALGOMA.

PEMBROKE, ONT., January 6th, 1923.

SIR,—I have the honour to submit the following report of the survey of Township Outlines in the District of Algoma, made by me under instructions from your Department, dated April 12th, 1922.

I proceeded from Pembroke via the Canadian National Railway to Oba,

and then down the Oba River to a point nearly opposite the southwest corner of the Township of Hawkins, my starting point, where I found cedar post marked Hawkins on the northeast and Irving on the southeast sides and to which I added Ermine on the southwest and Derry on the northwest sides, and ran my first base line west nine miles, one chain and forty-seven links between Township of Derry and Ermine, to establish the southwest corner of the Township of Derry in accordance with instructions, and owing to this point coming in Lake Kabinakagami I located the point of commencing of line between Derry and Lipton by latitudes and departures on an island and continued west along the south boundary of Township of Lipton about nine miles; then returning to the point of commencement of line between Derry and Lipton, I ran north astronomically to intersection with south boundary of Township of Woolrich, which came in Lake Kabinakagamisis and I established the commencement of line between Townships of Lascelles and Lipton by offsets from south boundary of Woolrich and proceeded to run my second base line west a distance of nine miles from the southwest corner of Woolrich, thus establishing the corner of Lascelles, Lipton, Beaton and Larkin Townships; from this corner I ran north between Lascelles and Larkin Townships to intersection with south boundary of Haig Township, and south between Lipton and Beaton Townships to intersection with the south boundary of Lipton, I then ran west along the south boundary of Beaton Township about nine miles and returning to my second base line, I ran west between Townships of Larkin and Beaton a distance of nine miles to the corner of Larkin, Chelsea, Bayfield and Beaton Townships; as this point came in a lake I ran an offset around northwest side of lake and established the point of commencement of line between Larkin and Chelsea which I ran north to intersection with south boundary of Township of Wickstead. I then returned to my second base line and ran south between Townships of Beaton and Bayfield to intersection with south boundary of Beaton on my first base line; returning again to my second base line I ran west between the Townships of Chelsea and Bayfield a distance of nine miles and established township corner from which I ran south along west boundary of Bayfield a distance of nine miles, then returned to my second base line and ran north along west boundary of Chelsea to its intersection with south boundary of Lessard. I also re-ran south boundary of Township of Marjory, part of my contract of 1921. I removed and destroyed all posts, mounds and pits on the abandoned line and am forwarding field notes of new line herewith.

The east and west lines were all run on chords of latitudes, and meridians north or south astronomically as recorded in the field notes; frequent observations for azimuth were taken, the records of which are enclosed in the field notes. The lines were cut out and blazed, wooden posts properly marked planted at every mile, with standard iron posts, pits and mounds at every third mile, as shown in field notes, and in accordance with instructions.

Soil.

I did not see any land suitable for agricultural purposes, the soil being mostly sandy with stones or boulders, the surface generally being rolling with very few hills.

Timber.

Along the south boundary of the Township of Derry east of Lake Kabinakagami the timber is small, principally spruce, jack pine, beech and poplar from four inches to eight inches in diameter with some jack pine and spruce up to

ten inches, but there is some spruce, jack pine, white birch and balm of gilead up to fifteen inches in diameter on the seventh and eight miles of this boundary. Along the first four miles of the south boundary of Lipton, line runs through old brule with small poplar and white birch, but from the fourth mile post west along this boundary and the south boundary of Beaton the country is fairly well timbered, there being some good jack pine and spruce up to fifteen inches in diameter. On the line beween Lipton and Derry the southerly three miles is mostly in lake and from end of fourth mile north timber is small as is also that along line between Lipton and Lascelles. The west boundary of Lipton is fairly well timbered with spruce and jack pine and balsam and birch from six to ten inches in diameter, but the west boundary of Lascelles and the north and west boundaries of Beaton run through old brule with poplar, birch, spruce and jack pine from two to six inches in diameter. There is some fairly good jack pine and spruce along the southerly five miles of the west boundary of Larkin, but from there north the timber is smaller and large spruce and jack pine is scattered. On the south and west boundaries of Chelsea the timber is mostly spruce, balsam, birch and poplar from four to fourteen inches in diameter, while along the west boundary of Bayfield there is some fairly good jack pine and spruce from five to fifteen inches in diameter with balsam and white birch from four to twelve inches. The southeast part of Beaton and the northeast part of Bayfield contains the best timber and on the balance of the area within the limits of this survey the timber is, as yet, not suitable for lumbering operations excepting scattered areas whose timber is suitable for pulpwood; the southeast part of Bayfield and Larkin, northeast part of Beaton and nearly all of the Township of Lascelles has been badly burned over, and is now covered with second growth poplar, white birch, spruce and jack pine from two to six inches in diameter. The only sign of fresh fire that we saw this season was in the southeast corner of Lascelles and appeared to be about one mile north of Kabinakagami Lake.

Minerals.

I saw no indications of economic minerals.

Streams and Lakes.

The largest body of water encountered was Kabinakagami Lake which extends for about six miles north into the Township of Derry and about five miles into Lipton; in it there are many islands, some of which are of considerable area and nearly all well timbered. The next lake of importance is Kaginakagamisis Lake, in the northeast corner of Lipton. There are smaller lakes scattered throughout, varying in length from a few chains up to two or three miles, the larger ones being as a rule not more than twenty or thirty chains wide.

The most important stream being Kabinakagami River, the outlet of lake of that name, and on this there are only three or four short portages between north end of Lake and Canadian National Railway; the next in importance is Shekak River, flowing through Chelsea and Larkin Townships and the northwest corner of Lascelles. This stream is not navigable by canoes in low water as it is badly blocked by logs and driftwood and is not used as a canoe route now that the railroad affords transportation facilities for trappers and hunters. The Little Ground Hog River has its source in the Township of Beaton, flows northerly through southwest corner of Lascelles and the easterly part of Larkin, again enters Lascelles and joins the Shekak, is very shallow in places in low water, but there are only two short portages north of the north boundary of Beaton Township.

There is also a small stream which crosses the south boundary of Lascelles near the five mile post and flows westerly into the Little Ground Hog.

I did not see any falls capable of development.

GAME.

Moose are fairly plentiful; there are also some small deer. In Kabinakagami Lake pickerel are very plentiful, and speckled trout in the Shekak River, the Little Ground Hog and the stream flowing into it in the southwest corner of Lascelles Township, the fire rangers reporting that they have caught them up to three pounds in weight.

The area covered by this survey is not of any value for agricultural purposes, and if fire is only kept out it will yield a considerable revenue from its timber resources in time.

Accompanying this report are a general plan, timber plan, field notes and usual affidavits, with account in triplicate.

I have the honour to be, Sir,

Your obedient servant,

HERBERT J. BEATTY,
Ontario Land Surveyor.

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

Appendix No. 43.

QUETICO PROVINCIAL PARK.

KAWENE, P.O., October 31st, 1922.

HONOURABLE SIR,—I beg to submit my report on Quetico Provincial Park for the fiscal year ending October 31st, 1922.

During the year our staff consisted of an average of seven rangers and a superintendent. This staff is, I think, very inadequate to properly patrol an area the extent of Quetico Park. Unfortunately we lost one ranger by drowning on May 13th, 1922. This is the first serious accident to our staff in the Park. Ranger Stubbs was a strong swimmer and a fairly good canoe-man, but the water being ice-cold, he succumbed before getting ashore. The body has not been recovered, although every means was taken to do so.

As by your advice and authority some preparations were made for the taking alive of some fur-bearing animals, but on account of the drowning accident all available men were engaged in searching for the body for a considerable time, the proper time for taking such animals passed without our having secured any.

In the matter of bush fires we have, considering the weather, been very fortunate, there being only one small fire on White's Island, Basswood Lake.

This burnt over about forty acres covered with scrub and some balsam, containing in all about fifty cords of pulpwood. This speaks well for the care taken by tourists and others passing through the park.

The threatened railway strike hindered many tourists from visiting the park this season, it being mostly Americans who travel here.

Excellent work has been done by the rangers in cutting new trails, cleaning old ones and improving waterways, in order to have easier and quicker access to places, which are threatened by fire. I would strongly recommend that a pump and engine and about one thousand feet of hose, such as is supplied to fire rangers, be supplied to headquarters for fire protection. The buildings at headquarters are without any protection except what might be rendered by the one or two men usually there, but with such equipment they would be reasonably safe. This equipment could be carried by our own gasoline boat down French River and over Pickerel Lake, thus, if necessary, rendering double service.

I find that two new canoes will be necessary for the coming summer.

I would strongly recommend the taking of a number of beaver from certain parts of the park. These animals have become so numerous that in places they have become a nuisance by building their dams across canoe-ways, flooding portages, etc., also along the boundary between Quetico Park and The Superior National Forest, Minnesota, where permits are granted to trap. The American trapper gets the full benefit of the protection afforded by us in so far as the natural overflow from a protected territory is concerned. A good number might be taken each year without any detriment to the park whatever, and also form a nice revenue.

Fur-bearing animals, deer and partridge are very numerous, but the moose apparently have moved to later burns for fresh feeding grounds.

The roofing on some of our shelter huts has been destroyed by hail, but has since been repaired. I also find that about 500 feet of lumber will be required for general repair purposes.

I have the honour to be, Sir,

Your obedient servant,

HUGH MCDONALD,
Superintendent.

The Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.

Appendix No. 44.

ALGONQUIN PROVINCIAL PARK OF ONTARIO.

HONOURABLE SIR,—I have the honour to submit my annual report for the fiscal year ending October 31st, 1922.

In some respects the fiscal year just drawn to a close proved to be somewhat of an eventful one, in that it witnessed the superannuation of Mr. G. W. Bartlett on April 10th, 1922, who retired after an active and meritorious career of a quarter of a century. The following day, April 11th, the writer assumed the duties of Acting Superintendent.

In order that the Government might possess first-hand knowledge concerning conditions and the extent of its holdings in Algonquin Park, it was found necessary to take an inventory of all buildings, machinery, horses, wagons, furniture, fire-arms, traps, blankets and shelter house equipment in use by the Park Ranging Staff. Much difficulty was encountered in making an accurate inventory, for the reason that no books could be found at headquarters which might prove helpful in this respect. Therefore, it was found necessary to have a personal interview and obtain an affidavit from each ranger, covering a list of articles furnished by the Government.

In due course the inventory was completed and submitted to the Department, the total value of which being $37,802.20, and includes all buildings at headquarters, forty-eight shelter houses, contents of the whole and all park equipment.

FISHING.

Notwithstanding the past tourist season was short, cold and disagreeable from a weather standpoint, the anticipated number of tourists did not arrive, and at no time were the hotel facilities taxed, while forty per cent. of reservations were cancelled before the season was half over. The revenue received from the sale of fishing licenses, however, exceeded by far the cash receipts of any season heretofore recorded. The sale of domestic and non-resident fishing licenses amounted to $2,805.00.

There is no sport in our Provincial Park which appeals to visitors more than good fishing and a permanent fish hatchery would be a great acquisition. In this connection I would recommend the building of a hatchery at the lower end of Source Lake, where a never-failing flow of cold spring water is assured and where it could be so easily controlled.

If a hatchery in the park was an established fact, the fry could be kept until one year of age before releasing them in the lakes. The fingerlings, one year of age, would have a fighting chance to survive and are better able to take care of themselves.

Fishing in the waters of Algonquin during the past season was exceptionally good. In the early part of the season, irrespective of the mosquito and black-fly nuisance, several fine catches of speckled trout were taken from Rock, Louise and Bruff Lakes and the white water streams in the locality. From Cache and Big Island Lakes some record catches of grey and land-locked salmon were taken, varying in weight from twelve to sixteen and seventeen pounds. In an effort to keep the waters of the park supplied with fish, some 500,000 trout fry were distributed in the following waters,—Rainy, Brule, Joe, Canoe, Cache and Rock Lakes.

Forest Fires.

Although the past summer was very dry and numerous small fires broke out within the park, we should consider ourselves fortunate in escaping with only one serious fire, viz., that of Rock Lake, which burned over an area four miles in length along the G. T. Ry. by an irregular width of three and a half miles.

In the early part of the season, when the section men are engaged in dead-grass burning along their right-of-way, many small fires were started. However, the railway employees, who are usually near at hand, together with the park rangers, joined forces and extinguished these fires before they made much headway or assumed dangerous proportions. The railway sectionmen need some stern education in regard to bush fires. They are in the habit of applying the torch, touching off the dead grass close to the tracks and allowing the fire to burn backward towards the woods.

This is a dangerous practice and a man caught in the act should be expelled from the park.

The erection of two steel observation towers, one at White Trout Lake and one at Cache Lake, connected up by telephone with headquarters, will prove of inestimable value in detecting fire. I must also mention the erection of two wooden observation towers at Little Nipissing and on the Bonnechere River, respectively, It is expected that all towers will be manned and equipped this coming season and splendid results are anticipated. Constant vigilance with regard to bush fires is absolutely necessary.

Owing to the prompt action of park and fire rangers, equipped with the small gas engine, the majority of fires were quickly extinguished and the damages were confined to a few acres.

Trails and Roads.

Guides to the number of sixty-five were employed in the park during the season of 1922 and the majority of them report that the trails and portages are in fairly good condition. The trails leading from headquarters are in excellent condition and in some instances are clean enough to permit the passage of horse and buggy. As every wind storm causes trouble, many of the trails in constant use must be cleaned out several times during a season and outlying trails made passable.

This season, all guides were required to keep a diary, giving the names of parties guided, duration of trip, route travelled, number of fish taken and the serial number of fishing license in possession of each tourist. Guides must return the diaries, properly filled out to the Superintendent at the end of each week or on completion of a trip. No province in the Dominion of Canada equips a guide with a license to do a lucrative business as cheaply as our Provincial Parks. Not only does Algonquin furnish a license for one dollar, but extends the privilege of travelling over portages and trails, cut out and kept clean by the rangers. The fee should be $2.00, which seems inadequate.

It may be of interest to note that the extension of a trail or the cutting of a new road to a lake heretofore unfrequented, has an important bearing upon the question of game protection.

As soon as a road or trail is constructed in a new district, the wild animals make use of it to come and go.

It is advisable to have more trails and roads throughout the park. It is a well-known fact that wild animals will follow the trails, travelling along the lines of least resistance, the same as humans. Poachers will avoid all well-worn trails for fear of detection.

Poaching.

Complaints by the score arrived at the Department, to the effect that the park was frequently invaded by outside trappers, creating the impression that portions of the park boundary were unprotected and poachers could come and go at will.

These conditions led to much adverse criticism, that the rangers were remiss in their duties and reflected strongly against the Superintendent.

A new plan was introduced in an endeavour to control the outlaw element, and with the assistance of the rangers the enforcement of the park regulations was rigidly carried out.

In the course of a fortnight, ten poachers were brought to headquarters. Fines were imposed to the extent of $540.00. Rifles, canoes, traps, camp outfits were confiscated and one particularly vicious culprit was incarcerated at North Bay.

Ranger's Shelter House, Big Island Lake, Algonquin Park.

The result of concerted action, assisted by a flying squad of rangers, became apparent almost immediately. The public took considerable interest and gave the matter wide publicity, and I am of the firm opinion that, for a time, Algonquin Park was absolutely free from poachers.

Algonquin Park Telephone System.

There are twenty-six or twenty-eight telephones installed and in use by rangers and park headquarters, hotels, lumber companies, physicians and cottagers. The line is connected with the Bell Company at Huntsville, thus affording communication with Toronto and points outside of the park.

Mr. Fraser, proprietor of Mowat Lodge, had on many occasions explained

the urgent need of telephonic connection with the outside world, not only for the important part it would play in case of forest fires, but the hundreds of visitors to Mowat Lodge would be very thankful for the convenience. Mr. Fraser volunteered to cut, haul out and stand the poles if the Department would run the wires. This arrangement appeared satisfactory and the line was completed on October 2nd, 1922, at a cost of less than one hundred dollars to the Department.

From Rock Lake Station to Menwahtay the old wire, which had been in use for some ten years, was taken down and replaced with new No. 9 wire.

It is advisable that arrangements should be made with the telephone subscribers, so that the Department may collect the regular annual rental on each 'phone in addition to the tolls on long distance calls.

A great many new applications were received during the past year for camping and cottage sites. The revenue received in rentals and accompanying new applications, amounted to $1,562.67.

Received from rental of team of horses, $112.50.

It is a well-known fact that there are persons who visit the park every summer for the purpose of collecting eggs, and a regulation should be enacted forbidding the taking or destroying of any nest or eggs of game birds, insectivorous or song birds, without a permit from the Minister of Lands and Forests.

I am very sorry to report the sudden death of Ranger Henry Foy, who died in Eganville, May 2nd, 1922.

I am also very sorry to report a fatal accident which occurred at Whitney, June 4th, 1922. Jos. Davis, a young aviator, went out in a small motor boat to guide one of the new big planes to anchorage. Misjudging the distance, he approached too close and the wash of the plane upset the boat, throwing Davis into the Lake. Davis left a wife and four small children.

Game and Predatory Animals.

Notwithstanding the perpetual menace of the timber wolf, the deer are everywhere abundant.

The rangers have had a large measure of success in the destruction of predatory animals. In addition to the increase of big game, the valuable fur-bearing animals, such as beaver, fisher marten, mink and otter are increasing in the park.

Algonquin Park is serving well one of the great purposes for which it was created. A wonderful fountain of wild life which overflows its invisible boundaries to the benefit of the border hunters and trappers.

Revenues.

The Department of Lands and Forests is not, nor has it been, receiving the revenue from Provincial Parks to which it is entitled. Many sources of revenue remain untouched and in order to secure the control which is necessary to the proper administration of the park, regulations should be enacted to govern and license every business now carried on, or which may be introduced in the future. In this connection I am mentioning the sources from which revenue is derived at the present time, viz.:

Resident Fishing License.
Non-resident Fishing License.
Guides' License—(should be two dollars instead of one).

Timber License.

Wood-cutting License.

Boarding and Tourist Houses.

Hotels and Resorts.

Lease of Lots, Rentals, etc.

Campers' License.

Tolls collected from Algonquin Park Telephone Line.

The following suggestions are worthy of consideration:—

License to take gravel.

Annual charge to telephone subscribers.

Beaver dam above White's Lake, Algonquin Park.

License to graze live stock within the park.

Retail store of every description.

Horse liveries.

Boat and launch liveries.

Carpenter contractors, builders, living and doing business in park.

Pool and bowling alley license.

Pedlar's license—the man with a pack should be licensed.

Egg collectors.

Taxidermists. Make it a misdemeanour to take any animal or bird license within the park for the purpose of mounting, without a permit.

License to take sphagnum moss.

The Department should have the entire revenue from live animals secured for breeding stock, and the sale of skins from all animals taken in the park.

I have the honour to be, Sir,

Your obedient servant,

JOHN W. MILLAR,
Acting Superintendent.

The Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.

Provincial Parks' Exhibit, Toronto Exhibition, 1922.

Appendix No. 45.

RONDEAU PROVINCIAL PARK,
MORPETH P.O., ONT., October 31st, 1922.

HONOURABLE SIR,—I beg to submit my report for the fiscal year ending October 31st, 1922.

Rondeau Provincial Park is becoming more popular every year as a summer resort, a greater number of visitors coming here this last year than ever before. Lying as it does, between Rondeau Bay and Lake Erie, the park, with

Road in Rondeau Park.

its 5,000 acres, affords great interest to lovers of nature. The forest itself is the only one of its kind in Western Ontario, and as most of it is in its natural state, the beauty of its wildness is unsurpassed. It is densely wooded with most valuable timber, considerable pine, walnut, whitewood and all the varieties of hardwood being found here. The trees are tall, straight and well proportioned.

In these beautiful woods may be seen any number of deer. They have

become very numerous of late years and threaten to destroy all chances of reforestation as they destroy all the young growth. Steps are being taken to lessen their number, nearly two hundred having been shot this last winter for venison, which was sold at the park by the carcase, bringing in a revenue of over $1,600.00. Plans are being made to confine a certain number of the deer in an enclosure of perhaps 100 acres and if this is done, reforestation would not be impeded as it is, under present conditions.

Black squirrels are very numerous. The beaver colony is thriving and they are evidently very energetic little animals as shown by their work. There are plenty of muskrats throughout the marshes. The wild duck season, from the sportsman's point of view, has been very good, ducks having been just as numerous as in other years.

The Canadian geese and wild turkeys have not increased in numbers as in other years on account of the racoons and skunks breaking up their nests and destroying their young.

Pheasant rearing has been very successful with the different varieties we have here. We have a good stock of reeves, goldens, Lady Amhersts, silvers, Chinese and English pheasants. Many of the English pheasants have been liberated, and a large number of eggs have been supplied to those who are interested in the rearing of these beautiful birds.

Over forty new cottages were built on the park this year, ranging in price from $1,000.00 to $3,000.00. Lots are still very much in demand. Last spring a new survey was made of ninety-one lots and the greater number of these are already taken. Many communications are received every year asking for hotel accommodation and we hope in the near future to see a modern summer hotel erected, which will provide ample accommodation for the public.

Tenting is very popular. The grounds are ideal and the beautiful oaks furnish shade and shelter.

Some new roads have been constructed this year, at an expenditure of about $1,700.00. Bowman Avenue, at the east end of the park, has been levelled and clayed, as has also a road known as the Lake Shore Road, connecting Bowman Avenue and the "Loop." These roads will be gravelled this coming winter.

One of the greatest improvements the park has ever had or could have, is that of the installation of the Hydro-Electric, which was completed about the middle of July last. It is greatly appreciated by the public and is a wonderful boon to the place, which was formerly in dense darkness.

A large modern ice-house was built on the park this year. The lessees of the public stand have control of it and they supply ice at a moderate price to all who require it.

Angling has been good on the bay this year, and the addition of a boat livery fills a long-felt need.

Another convenience this year has been the establishing of a gasoline and oil station. This convenience has indeed been greatly appreciated by the travelling public.

I have the honour to be, Sir,
Your obedient servant,
GEORGE GOLDWORTHY,
Park Superintendent.

The Honourable Beniah Bowman,
Minister of Lands and Forests,
Toronto, Ontario.

Appendix No. 46.

TORONTO, ONT., October 31st, 1922.

Honourable Beniah Bowman, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit my report of the work performed by the Colonization Roads Branch of the Department of Lands and Forests for the fiscal year ending October 31st, 1922.

This report is presented in tabulated form. On its final page is shown a summary of the total expenditures on the various classes of work performed.

Mining Road, Frontenac County.

The total expenditure for the year was $671,184.48. Of this amount $414,863.74 was expended directly by this department upon roads and bridges in approximately three hundred townships. The expenditure for inspection, engineering and miscellaneous services was $33,710.19. The remainder, $222,610.55, was

distributed as grants towards the expenditures made by one hundred and ninety-nine municipalities, who passed Road, Machinery, and Road Overseer by-laws, in accordance with the provisions of the Colonization Roads Act.

The inspectors in nearly every district have acted as paymasters, and while this has increased the burden of their duties, nevertheless, it is proving more satisfactory than appointing overseers to handle the money and make the expenditures.

Road Construction in Muskoka.

The efficiency could be further increased by providing clerical assistance for the inspectors, and furnishing them with light motor cars to supervise their work.

More attention was given during the past fiscal year to the proper surveying and locating of new roads and diversions from roads previously constructed. Municipalities and district organizations are co-operating with this department more than ever before, but there is still room for marked improvement.

I would strongly urge that legislation be enacted, making all grants conditional on those benefited being compelled to assume some of the burden of, and responsibility for, the cost in every expenditure.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

C. H. FULLERTON,

Superintendent Colonization Roads.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
1	Aberdeen Township roads								
2	Aberdeen and Galbraith Township rds.								
3	Addington road	1,600	66	1200	40	gravel	1,116	16	2,400
4	Airy Township roads								
5	Admaston Township roads								
6	Albemarle Township roads								
7	Algona North Township roads								
8	Algona South Township roads								
9	Alice and Fraser Township roads								225
10	Allan Township roads	400	20	240	20	gravel	40	7	25
11	Anson and Hindon Township roads								12
12	Anstruther Township roads								
13	Appleby Township roads	78	14	78	12	gravel	20	6	156
14	Armour Township roads	60	30	130	16	gravel	130	6	20
15	Armstrong Township roads	290	50	160	28				
16	Assiginack Township roads	90	40	90	24	gravel	20	7	
17	Aweres Township roads	1,710	66	1570	30	gravel	540	6	1,600
18	Awrey Township roads	236	66	212	22				
19	Badgerow Township roads	684	16	468	12				
20	Bagot Township roads								
21	Baldwin Township roads	390	40	280	20	gravel	50	7	20
22	Balfour Township roads								
23	Bangor, Wicklow and McClure Tp. rds.								
24	Barber and Tudhope Township roads	160	30	160	30				
25	Barrie Township roads								
26	Barrie Island Township roads								
27	Barry's Bay and Madawaska road	2,240	66	400	30				
28	Bastedo Township roads								
29	Baxter Township roads	80	16	80	16				
30	Bedford Township roads								240
	Bedford Tp. Richardson Mine road	600	60	640	22	stone	640	12	1,280
31	Beauchamp Township roads								
32	Bethune Township roads	100	20	100	16	gravel	100	8	200
33	Bexley, Carden and Laxton Tp. roads								
34	Bidwell Township roads	150	20	150	20	gravel	10	6	150
35	Bigwood Township roads	250	40	380	14	gravel	204	6	237
36	Billings Township roads	910	40	75	20	gravel	110	8	220
37	Blezard Township roads								
38	Bonfield Township roads	375	40	495	18	gravel	20	10	400
39	Boulter Township roads	465	40	465	20	gravel	40	8	930
40	Bracebridge-Baysville road								400
41	Brethour Township roads	303	35	210	30	gravel	60	6	640
42	Bright Township roads								
43	Broder Township roads	560	33	800	30	gravel	1,105	9	1,402
44	Bromley Township roads								
45	Brougham Township roads								
46	Brudenell Township roads	350	40	350	20	gravel	100	10	1,000
47	Buchanan Township roads								
48	Bucke Township roads								
49	Burleigh Township roads								
50	Burpee Township roads (Manitoulin)								180
51	Burpee Township roads (Parry Sound)								20

COLONIZATION ROADS BRANCH.

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-Brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
1	12	wood	5	iron	stone	400	15	18	460	22	gravel	540	6	2.00	1,000.37	1
..	...	.....	.....	.....	.....	.....	.....	..	30	20	gravel	140	5	.50	200.47	2
..	...	.....	14	metal	stone	400	960	20	50	18	gravel	130	9	8.50	14,100.00	3
..	...	.....	11	wood	.....	.....	.....	..	1,735	14	gravel	65	8	.50	1,607.24	4
..	...	.....	.....	.....	.....	.....	.....	..	750	25	gravel	550	8	2.50	502.75	5
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	stone	380	5	1.19	600.00	6
..	...	.....	7	cedar	.....	.....	470	15	1,550	16	gravel	575	10	5.25	1,121.08	7
..	...	.....	6	cedar	.....	.....	150	35	2,515	20	gravel	300	12	8.25	1,715.00	8
..	...	.....	2	cedar	.....	.....	275	18	1,695	18	gravel	700	8	5.50	1,375.98	9
..	...	.....	11	metal	stone	25	410	12	130	24	gravel	545	7	3.00	1,549.94	10
1	9	cedar	4	cedar	earth	72	.....	..	180	18	gravel	345	6	2.00	598.70	11
..	...	.....	2	stone	stone	11	.....	..	527	12	gravel	701	6	3.75	300.00	12
..	...	.....	11	cedar	.....	.....	.....	..	758	14	gravel	48	6	3.00	950.10	13
..	...	.....	11	cedar	clay	190	.....	..	240	18	gravel	320	8	1.50	1,205.18	14
..	...	.....	2	cedar	clay	2,930	.....	..	254	24	gravel	1,031	6	5.15	4,278.48	15
..	...	.....	4	wood	.....	.....	.....	..	.....	..	gravel	450	8	1.68	1,093.10	16
4	25	cedar	5	cedar	earth	4,339	.....	..	.....	..	.....	.....	..	8.00	9,554.79	17
..	...	.....	8	wood	earth	360	.....	..	.....	..	.....	.....	..	.75	500.00	18
1	10	cedar	12	cedar	rock	20	.....	..	1,263	14	gravel	246	6	5.75	4,056.27	19
..	...	.....	4	cedar	.....	.....	400	40	2,140	18	gravel	800	5	6.75	1,117.17	20
..	...	.....	4	wood	earth	590	.....	..	300	22	gravel	100	6	2.25	1,504.82	21
..	...	.....	1	wood	stone	920	160	10	80	30	gravel	230	10	1.00	1,446.35	22
..	...	.....	8	cedar	stone	350	40	20	1,474	18	gravel	136	7	5.00	998.23	23
..	...	.....	4	t'm'r'c	.....	.....	200	20	620	30	clay	80	8	2.50	1,150.00	24
..	...	.....	5	stone	stone	50	35	10	52	14	gravel	216	9	.75	451.54	25
..	...	.....	4	wood	.....	.....	.....	..	280	20	gravel	790	7	2.60	1,298.41	26
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	.....	.....	..	7.00	990.00	27
..	...	.....	8	cedar	.....	.....	.....	..	462	14	gravel	416	8	2.00	751.18	28
..	...	.....	14	cedar	.....	.....	80	30	200	18	.....	.....	..	1.00	800.15	29
..	...	.....	13	wood	stone	540	180	20	812	14	gravel	571	8	5.00	2,640.63	30
3	12	cedar	5	metal	rock	25,735	.....	..	.....	..	.....	.....	..	2.00	21,759.27	
..	...	.....	9	t'm'r'c	clay	600	.....	..	900	20	gravel	565	6	4.00	1,900.00	31
1	16	cedar	16	cedar	.....	.....	150	16	400	12	gravel	455	5	2.50	1,001.86	32
..	...	.....	3	tile	stone	191	.....	..	225	18	gravel	432	6	4.00	999.40	33
..	...	.....	7	wood	earth	1,029	1,980	20	840	30	gravel	1,350	10	9.00	3,950.83	34
1	16	wood	5	wood	earth	75	.....	..	.....	..	gravel	82	7	1.50	1,546.96	35
..	...	.....	10	rock	stone	500	680	20	240	22	gravel	890	7	7.00	3,351.63	36
..	...	.....	2	cedar	earth	1,000	.....	..	160	33	.....	.....	..	.50	199.71	37
..	...	.....	25	wood	earth	340	.....	..	1,755	16	gravel	215	6	7.52	3,496.52	38
..	...	.....	11	wood	.....	.....	.....	..	460	18	gravel	55	6	3.00	1,510.62	39
1	24	rep'd	2	stone	rock	5,447	200	12	80	16	gravel	320	7	2.00	5,007.51	40
..	...	.....	3	t'm'r'c	clay	200	530	24	50	30	gravel	175	6	2.75	2,940.00	41
..	...	.....	4	wood	.....	.....	180	14	80	18	gravel	700	6	2.05	999.57	42
3	12	cedar	10	cedar	earth	370	1,200	33	1,600	20	gravel	1,004	8	12.66	4,607.63	43
..	...	.....	.....	.....	.....	.....	640	20	1,550	15	gravel	600	8	5.00	642.00	44
..	...	.....	3	cedar	.....	.....	200	20	450	18	gravel	400	6	2.10	501.80	45
..	...	.....	11	stone	stone	1,745	940	30	2,190	20	gravel	200	7	8.25	2,420.85	46
..	...	.....	4	cedar	.....	.....	.....	..	.....	..	gravel	100	8	.37	150.00	47
..	...	.....	.....	.....	.....	.....	.....	..	300	20	gravel	294	6	1.00	2,400.00	48
..	...	.....	3	cedar	.....	.....	.....	..	3,227	10	gravel	738	8	11.00	1,710.75	49
..	...	.....	6	wood	earth	555	440	12	960	24	gravel	660	7	4.00	2,158,21	50
1	12	cedar	4	cedar	.....	.....	350	25	200	16	.....	.....	..	1.10	402.50	51

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
52	Burwash Township roads	78	18	78	14				
53	Calabogie and Wilson road	1,600	50	640	20				1,280
54	Caldwell Township roads								
55	Calvin Township roads	275	40	145	20	gravel	35	16	105
56	Campbell Township roads	750	66	450	20				590
57	Cameron Township roads	245	40	345	15	gravel	27	10	
58	Cane Township roads								378
59	Capreol Township roads								160
60	Carden Township roads								
61	Cardiff Township roads								
62	Cardwell Township roads	80	30	80	16				
63	Carling Township roads	100	45	160	16	gravel	40	6	30
64	Carlow Township roads								
65	Carnarvon Township roads	240	60	160	24	gravel	160	7	80
66	Cartier Township roads	40	66	80	10	gravel	160	8	
67	Casey Township roads	280	20	280	20				
68	Casimir Township roads	198	16	198	12				12
69	Cavendish Township roads								
70	Chaffey Township roads	40	20	40	20				
71	Chandos Township roads								
72	Chapleau Township roads					gravel	333	17	500
73	Chapman Township roads								
74	Chisholm Township roads	275	40	335	15	gravel	45	10	85
75	Christie Township roads	137	40	120	16	gravel	80	6	160
76	Clarendon Township roads	90	50	90	18	gravel	90	8	180
77	Cobden Township roads								
78	Cobden, Patten and Parkinson road	3,930	66						
79	Cockburn Island roads	200	50			gravel	230	7	200
80	Cosby Township roads	404	16	391	14	gravel	18	6	390
81	Cosby and Delamere Tp. roads (Bdy.)								
82	Cosby and Martland Township roads	140	16	140	14				
83	Creighton Township roads	40	16	40	16				
84	Crerar Township roads	78	16	78	12				
85	Crosby North Township roads			110	14	gravel	110	7	
86	Crosby South Township roads			640	12	gravel	100	5	640
87	Dalhousie Township roads								
88	Dalton Township roads								
89	Darling Township roads								
90	Dawson Township roads	60	40	60	22	gravel	180	6	
91	Day Township roads								
92	Delamere Township roads	80	16	80	12	gravel	17	6	65
93	Denbigh Township roads	10	30	10	30	gravel	10	8	20
94	Digby Township roads								
95	Dill Township roads	140	20	295	18	sand	75	10	340
96	Dowling Township roads	70	60						
97	Draper Township roads								
98	Dryden Township roads	100	24	66	12	gravel	100	10	260
99	Dungannon Township roads								
100	Dunnett Township roads								
101	Dymond Township roads								
102	Eastnor Township roads	464	66	684	24	gravel	100	6	684
103	Elzevir Township roads								

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
			3	wood					200	14	gravel	30	6	1.00	499.17	52
					stone	1,500								5.00	4,950.00	53
			8	wood	rock	5			534	16	gravel	1,211	7	3.70	2,488.98	54
			13	wood					865	16	gravel	435	8	3.61	2,007.12	55
			5	wood	earth	625	380	30	180	20	gravel	1,060	7	6.20	3,930.21	56
			10	wood					370	15	gravel	10	10	2.20	1,629.87	57
			3	t'm'r'c			60	12	1,050	30	gravel	445	6	3.20	2,839.90	58
2	16	wood			sand	1,400	160	16	1,120	33	gravel	960	12	3.50	1,196.16	59
			3	stone	earth	18	245	30	319	22	gravel	548	6	2.00	1,214.55	60
			9	wood	earth	167	260	20	360	20	gravel	155	6	2.00	602.59	61
			14	wood	rock	195	280	20	230	18	gravel	20	5	1.18	1,000.64	62
			6	cedar	stone	60								.50	501.40	63
			3	cedar	earth	160	40	20	330	18	gravel	172	5	1.02	499.80	64
			10	wood	earth	200	80	12	380	26	gravel	920	7	4.39	2,604.90	65
														.50	150.25	66
			4	t'm'r'c			240	40	560	30	gravel	469	6	3.94	3,670.00	67
			2	pine					117	12				1.00	731.76	68
			1	cedar			316	12	1,435	12	stone	13	7	4.50	200.24	69
			4	cedar	stone	215					gravel	190	5	.75	702.88	70
			5	cedar			310	40	515	10	gravel	385	7	2.61	706.65	71
1		rep'd	9	wood										1.12	2,000.00	72
			4	cedar			400	24	320	14	gravel	240	7	1.25	380.00	73
			22	wood					1,285	15	gravel	611	8	5.18	3,578.70	74
			9	cedar	clay	2,406	400	12	560	16	gravel	480	7	2.18	3,028.30	75
			11	stone	earth	400	320	20	1,075	14	gravel	1,095	8	6.41	2,146,58	76
			1	wood			40	16	50	20	gravel	140	6	.50	298.36	77
					earth	100	360	55	240	30				13.40	5,999.78	78
1	10	wood	2	wood	earth	400	90	12			gravel	100	7	.93	653.75	79
			16	cedar	rock	10			867	14	gravel	400	6	3.90	2,608,82	80
															240.00	81
														.44	202.55	82
			1	cedar	earth	550			180	16				.75	240.00	83
2	16	cedar	7	cedar			10	20	1,095	14	gravel	620	6	3.94	2,000.00	84
			9	cedar			50	20	388	14				1.49	793.21	85
									105	14	gravel	458	9	4.10	1,583.15	86
			2	cedar			400	30	1,000	20	gravel	575	10	3.10	901.98	87
			2	tile	stone	40	45	20			gravel	576	6	1.80	1,103.25	88
			5	cedar			600	25			gravel	600	8	1.85	850.69	89
														.56	589.37	90
									80	22	gravel	90	6	.25	200.00	91
			7	cedar					87	14	gravel	48	6	.52	603.13	92
			6	cedar	earth	45	30	20	295	14	gravel	210	8	1.13	870.00	93
			2	cedar	stone	38	85	30	22	16	gravel	93	6	.30	300.25	94
			10	wood	stone	47								.92	1,002.50	95
			1	cedar	cord'y	500								.30	100.00	96
			6	stone	rock	100	60	16	140	18	gravel	660	5	2.07	1,203.11	97
2	16	cedar	8	pine	earth	400	50	35	160	15				.80	777.40	98
			7	cedar	earth	256	187	20	626	18	gravel	428	5	2.10	1,311.65	99
			8	wood	rock	11	25	20	827	14	gravel	370	6	3.40	1,361.81	100
1	20	wood	2	wood	clay	25			320	28	gravel	990	6	3.70	4,810.00	101
1	10	cedar	11	metal	earth	400	600	12	535	22	gravel	637	7	4.70	808.41	102
											gravel	140	7	.44	151.75	103

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
104	Espanola-Lee Valley Old Trunk road								
105	Espanola-Lee Valley New Trunk road	300	30	480	20				
106	Fairbank Township roads								320
107	Falconbridge Township roads	354	30	354	12	gravel	194	9	503
108	Faraday Township roads			500	18	gravel	275	5	500
109	Fenwick Township roads			51	30	gravel	51	6	102
110	Ferris Township roads	630	40	430	16	gravel	135	10	860
111	Field and Springer Bdy. road	69	16	69	12				
112	Field and Grant Township roads								
113	Firstbrook Township roads								
114	Franklin Township roads	165	30	70	16				
115	Freeman Township roads								
116	Frontenac Trunk road								
117	Galbraith Township roads								8
118	Galbraith and Aberdeen Tp. roads								40
119	Galway Township roads	300	50	23	14				
120	Garson Township roads								350
121	Garson and Falconbridge Tp. road								25
122	Gladstone Township roads								
123	Glamorgan Township roads	800	8	158	15	gravel	65	6	
124	Gordon Township roads								20
125	Gould Township roads	290	66	50	30	gravel	60	6	160
126	Grattan Township roads								
127	Griffith and Matawatchan Tp. roads								
128	Gurd Township roads								
129	Haddo Township roads								60
130	Hagar Township roads	1,340	66	320	22				320
131	Hagerman Township roads	20	45	20	18				
132	Hagerman and Ferguson Tp. roads								
133	Hagarty Township roads	425	40	425	20				
134	Hallam Township roads	60	50	110	18	earth	45	6	110
135	Hallam and Merritt Township roads								
136	Hallam and Shakespeare Tp. road								40
137	Hanmer Township roads								160
138	Harley Township roads								70
139	Harris Township roads								175
140	Harvey Township roads								
141	Hawley Township roads	80	15	180	12	gravel	12	10	180
142	Head Township roads	60	40	60	16	gravel	25	10	60
143	Henwood Township roads	80	30	60	24				120
144	Hilliard Township roads	80	24	80	24				160
145	Hilton Township roads								80
146	Himsworth North Township roads	480	40	200	18				28
147	Himsworth South Township roads	290	45	155	16		80	6	160
148	Hinchinbrooke Township roads								290
149	Hodgins and Gaudette Tp. roads	400	40	375	20				150
150	Horton Township roads								
151	Howland Township roads								
152	Hudson Township roads								72
153	Hugel Township roads	312	16	226	12				452
154	Humphrey Township roads	80	60	80	18	gravel	80	8	190
155	Hungerford Township roads								

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	.....	.....	earth	300	600	12	340	22	gravel	150	7	2.00	599.25	104
..	...	.....	17	metal	earth	105	.....	..	195	22	gravel	182	7	2.12	1,002.75	105
..	...	.....	12	cedar	.....	.....	90	30	320	12	.....	.....	..	1.00	248.95	106
1	30	wood	6	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.70	804.05	107
..	...	.....	2	cedar	earth	1,140	.....	..	95	20	gravel	200	6	2.16	799.49	108
4	20	wood	.....	.....	sand	300	264	16	514	24	gravel	196	6	1.76	1,990.41	109
1	18	pine	35	wood	stone	120	200	5	2,045	16	gravel	1,532	8	9.40	6,488.07	110
..	...	.....	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.21	206.40	111
..	...	.....	3	cedar	clay	30	.....	..	320	14	gravel	140	6	1.00	780.00	112
..	...	.....	9	wood	clay	592	.....	..	310	22	gravel	180	6	1.00	700.00	113
..	...	.....	14	cedar	earth	240	200	16	525	16	gravel	25	5	2.10	1,501.09	114
..	...	.....	2	stone	earth	60	80	25	80	18	gravel	100	5	.31	500.65	115
..	...	.....	14	metal	stone	2,053	75	20	592	18	gravel	600	10	2.40	5,440.70	116
..	...	.....	.....	.....	.....	.....	80	16	280	16	gravel	565	6	1.80	801.65	117
..	...	.....	.....	.....	rock	10	80	16	160	12	gravel	40	5	.50	300.00	118
1	12	cedar	10	cedar	.....	.....	149	10	815	12	gravel	392	8	3.83	1,208.55	119
..	...	.....	4	cedar	.....	.....	.....	..	410	16	.....	.....	..	1.28	302.20	120
..	...	.....	3	cedar	.....	.....	960	10	640	20	gravel	480	10	3.00	995.70	121
..	...	.....	1	wood	earth	60	.....	..	139	18	gravel	419	6	1.40	750.00	122
..	...	.....	17	metal	stone	97	200	20	600	18	gravel	245	6	4.40	900.79	123
1	18	rep'd	8	wood	earth	80	80	30	260	24	gravel	755	7	2.36	1,727.28	124
..	...	.....	6	wood	earth	250	.....	..	250	18	gravel	130	6	1.70	805.37	125
..	...	.....	2	cedar	gravel	900	600	20	950	18	gravel	250	10	2.97	807.37	126
..	...	.....	5	cedar	.....	.....	300	20	950	18	gravel	700	8	2.97	752.89	127
1	10	cedar	8	cedar	.....	.....	1,440	20	1,280	16	gravel	300	6	5.00	1,198.05	128
..	...	.....	4	cedar	.....	.....	.....	..	90	14	gravel	26	6	.28	309.10	129
..	...	.....	9	cedar	earth	294	.....	..	310	16	gravel	337	7	5.22	1,357.86	130
..	...	.....	1	cedar	.....	.....	100	20	120	16	gravel	70	6	2.00	298.20	131
..	...	.....	8	cedar	.....	.....	1,000	25	1,000	12	.....	.....	..	3.13	301.50	132
..	...	.....	7	cedar	earth	1,200	975	25	2,700	16	gravel	875	10	9.76	2,527.55	133
..	...	.....	9	wood	earth	540	300	14	540	20	gravel	80	5	2.04	604.12	134
1	16	wood	.....	.....	stone	250	.....	..	320	22	gravel	100	6	1.00	299.99	135
..	...	.....	.....	.....	stone	68	.....	..	70	24	gravel	80	5	.25	300.03	136
1	75	cedar	.....	.....	earth	60	385	50	320	33	earth	65	33	2.20	344.80	137
1	16	cedar	6	cedar	clay	1,613	370	16	448	24	gravel	483	6	2.70	3,640.00	138
1	re	paired	10	cedar	.....	.....	215	28	215	28	gravel	1,222	6	4.24	3,320.00	139
..	...	.....	13	stone	.....	20	929	20	.....	..	gravel	560	8	3.70	1,107.44	140
..	...	.....	2	cedar	earth	450	.....	..	.....	..	.....	.....	..	.56	506.75	141
..	...	.....	3	wood	.....	.....	.....	..	225	16	gravel	55	10	.89	802.00	142
1	14	pine	5	wood	clay	3,400	.....	..	660	30	gravel	490	6	3.34	3,020.00	143
..	...	.....	.....	.....	clay	3,400	.....	..	.....	..	gravel	190	6	.90	3,030.00	144
..	...	.....	.....	.....	.....	.....	60	30	80	20	gravel	130	6	.41	302.56	145
..	...	.....	4	t'm'rc	.....	.....	.....	..	.....	..	.....	.....	..	1.50	799.00	146
1	10	cedar	10	cedar	stone	449	320	50	410	22	gravel	390	6	2.20	1,308.07	147
..	...	.....	3	conc'r	stone	115	10	10	120	16	gravel	465	8	1.50	1,060.00	148
2	42	cedar	13	cedar	earth	5,400	.....	..	560	28	gravel	250	6	2.92	3,092.39	149
..	...	.....	.....	.....	.....	.....	150	35	.....	..	gravel	475	10	1.50	404.20	150
..	...	.....	1	wood	stone	320	.....	..	30	26	gravel	70	8	.25	667.74	151
..	...	.....	12	cedar	clay	200	440	15	840	28	gravel	1,006	6	5.50	3,950.22	152
..	...	.....	13	cedar	.....	.....	.....	..	704	14	gravel	172	6	3.29	1,554.55	153
..	...	.....	5	metal	earth	220	300	20	210	14	gravel	210	7	.90	1,099.87	154
..	...	.....	2	cedar	stone	50	120	16	512	18	gravel	682	5	2.13	979.98	155

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIP	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
156	Huntingdon Township roads								
157	Janes Township roads	280	12	280	12				560
158	Jennings Township roads								
159	Johnson Township roads								
160	Johnson and Aberdeen Tp. road								
161	Johnson and Tarbutt Township road								155
162	Kehoe Township roads			350	18	gravel	350	6	
163	Kennebec Township roads								
164	Kerns Township roads								100
165	Kirkpatrick Township roads	78	18	78	14				
166	Kirkpatrick and McPherson Tp. roads								
167	Kirkwood and Grasett Township roads	25	60	25	20	gravel	25	5	60
168	Korah Township roads								
169	Laird Township roads								40
170	Lake Township roads								
171	L'Amable to Maynooth Trunk road								
172	Lanark Township roads								
173	Laurier Township roads	88	40	88	14	gravel	48	7	
174	Lavant Township roads	600	40	600	30				
175	Laxton Township roads								20
176	Laxton and Bexley Township roads								
177	Lefroy Township roads								
178	Lefroy and Thessalon Township roads								
179	Limerick Township roads								
180	Lindsay Township roads								
181	Lorne Township roads	520	35	700	16	gravel	180	7	730
182	Loughborough Township roads								
183	Loughrin Township roads	1,150	60	750	30				160
184	Louise Township roads	300	30	200	16				
185	Lount Township roads								
186	Lount and Machar Township roads								
187	Lumsden Township roads								400
188	Lutterworth Township roads								12
189	Lyell Township roads								
190	Macaulay Township roads								
191	Macaulay and Draper Townline road								490
192	Machar Township roads								
193	Madoc Township roads								
194	Mara Township roads	650	66	668	27	sand	14	8	
195	Marmora Township roads								
196	Martland Township roads								
197	Martland and Cosby Township roads								
198	Martland and Falconer Township roads	70	16	70	14				
199	Martland and Scollard Township roads	434	16	434	12				
200	Mason and Scollard Township road	110	16	110	12				
201	Matchedash Township road	50	16			gravel	45	8	
202	Mattawan Township roads	60	40	55	18				
203	May, Salter and Harrow Township roads								70
204	Mayo Township roads								
205	McDonald Township roads								100
206	McKellar Township roads								
207	McKenzie Township roads								

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1922-1923.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	4	cedar	.....	.....	.....	..	409	20	gravel	171	5	1.28	505.40	156
..	...	.....	4	pine	.....	.....	.....	..	.....	..	.....	.....	..	.87	316.13	157
..	...	.....	3	cedar	.....	.....	.....	..	480	14	gravel	440	6	1.50	801.23	158
..	...	.....	2	wood	earth	350	160	30	120	20	gravel	170	5	.53	300.59	159
..	...	.....	2	wood	.....	.....	40	12	200	22	gravel	160	6	.63	301.07	160
..	...	.....	4	wood	.....	.....	.....	..	77	20	gravel	160	5	.65	349.90	161
..	...	.....	4	wood	.....	.....	.....	..	.....	..	.....	.....	..	1.10	522.50	162
..	...	.....	11	cedar	earth	148	30	40	57	14	gravel	301	8	.94	901.66	163
..	...	.....	1	t'm'rc	.....	.....	100	20	.....	..	gravel	798	6	2.49	3,480.80	164
..	...	.....	4	wood	.....	.....	.....	..	742	14	gravel	575	6	2.72	1,403.00	165
1	12	cedar	3	wood	.....	.....	.....	..	306	14	gravel	580	6	1.80	749.08	166
..	...	.....	7	wood	stone	530	40	10	.....	..	gravel	320	6	1.08	875.62	167
..	...	.....	.....	.....	clay	1,696	.....	..	.....	..	gravel	37	7	.13	1,000.00	168
..	...	.....	1	cem'nt	earth	550	.....	..	110	22	gravel	190	6	.60	599.62	169
..	...	.....	.....	.....	stone	12	.....	..	162	10	.....	.....	..	.52	100.50	170
..	...	.....	12	cedar	earth	768	110	20	2,199	20	gravel	899	6	6.87	3,002.99	171
..	...	.....	4	cedar	.....	.....	200	30	1,575	25	gravel	950	8	4.90	1,259.82	172
..	...	.....	5	cedar	.....	.....	100	20	130	14	gravel	90	6	.67	550.10	173
..	...	.....	.....	.....	earth	100	450	18	500	16	gravel	500	8	3.43	854.73	174
..	...	.....	8	wood	stone	68	50	30	233	16	gravel	228	6	.87	614.45	175
..	...	.....	2	metal	earth	49	40	30	720	18	gravel	235	8	2.20	803.15	176
..	...	.....	2	c'ment	earth	280	.....	..	210	20	gravel	270	6	.86	743.86	177
..	...	.....	1	metal	earth	1,600	.....	..	.....	..	gravel	20	5	.10	200.62	178
..	...	.....	.....	.....	stone	254	64	25	25	20	gravel	64	6	.22	201.10	179
..	...	.....	.....	.....	stone	20	.....	..	.....	..	stone	555	6	1.70	900.82	180
2	16	wood	10	wood	earth	170	100	12	660	20	gravel	85	8	4.25	1,975.37	181
..	...	.....	4	tile	.....	.....	.....	..	60	16	stone	605	8	1.90	908.80	182
1	16	pine	4	cedar	stone	100	320	20	380	16	earth	320	10	6.60	899.90	183
..	...	.....	6	wood	rock	20	.....	..	400	20	gravel	100	6	1.88	692.96	184
..	...	.....	1	cedar	rock	18	20	20	100	16	gravel	100	7	.31	200.80	185
..	...	.....	2	cedar	.....	.....	113	50	103	16	gravel	153	7	.47	598.45	186
..	...	.....	8	wood	earth	100	500	60	640	16	.....	.....	..	2.00	706.65	187
1	re	paired	5	stone	rock	4	245	20	260	18	gravel	296	6	.94	602.15	188
..	...	.....	13	wood	.....	.....	.....	..	1,010	16	gravel	85	10	3.15	998.61	189
..	...	.....	2	cedar	rock	27	.....	..	100	16	gravel	100	5	.31	602.23	190
..	...	.....	6	stone	rock	320	100	10	240	16	gravel	233	7	.75	2,605.02	191
..	...	.....	6	cedar	stone	48	380	16	360	18	gravel	480	7	1.50	1,000.00	192
..	...	.....	3	cedar	.....	.....	.....	..	82	20	gravel	85	5	.27	202.58	193
..	...	.....	.....	.....	.....	.....	.....	..	357	24	gravel	294	7	3.19	2,094.88	194
..	...	.....	1	metal	stone	60	.....	..	142	22	gravel	112	5	.43	199.73	195
1	12	cedar	3	cedar	.....	.....	.....	..	742	14	gravel	85	6	2.30	1,269.82	196
..	...	.....	.....	.....	.....	.....	.....	..	280	14	gravel	118	6	.87	299.60	197
..	...	.....	1	cedar	.....	.....	.....	..	160	14	.....	.....	..	.72	256.94	198
1	226	wood	2	pine	.....	.....	.....	..	160	14	gravel	116	6	1.85	859.62	199
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	.....	.....	..	.35	250.50	200
..	...	.....	.....	.....	stone	29	166	16	.....	..	gravel	175	8	.79	511.37	201
1	10	pine	8	wood	.....	.....	.....	..	1,015	18	gravel	365	10	8.25	1,508.45	202
..	...	.....	6	wood	earth	170	70	20	200	20	gravel	582	5	2.00	1,050.10	203
..	...	.....	2	cedar	earth	110	.....	..	510	20	gravel	310	6	1.60	500.48	204
..	...	.....	3	wood	earth	105	.....	..	100	24	gravel	450	6	1.50	907.61	205
..	...	.....	4	cedar	earth	94	320	30	480	16	gravel	480	6	1.50	800.00	206
..	...	.....	4	cedar	.....	.....	100	12	300	16	gravel	280	6	.93	499.00	207

10 L.F.

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
208	McKenzie and Burpee Township roads.	20	40	20	16				
209	McMurrich Township roads	100	45	370	18	gravel	370	6	40
210	McPherson Township roads	55	16	150	12				10
211	McPherson and Loudon Tp. roads	234	16	78	12	gravel	100	6	
212	Medonte Township roads			30	22	gravel	172	8	114
213	Merritt Township roads	720	30	540	16				
214	Methuen Township roads								
215	Mills Township roads (Manitoulin)	200	60	160	24				
216	Mills Township roads (Parry Sound)	170	30	170	16	gravel	37	6	37
217	Minden and Stanhope Township road								
218	Minden and Snowden Township roads								
219	Monmouth Township roads								
220	Monteagle and Herschel Tp. roads								
221	Monteith Township roads	480	26	480	20				
222	Morgan Township roads								
223	Morrison Township road								
224	Murchison Township roads								
225	Murchison Tp. road to Barry's Bay	1,280	50						
226	Muskoka Township roads								80
227	Nairn Township roads	600	30	320	16				
228	Neelon Township roads			180	14	earth	180	14	180
229	Nipissing Township roads								20
230	Oakley Township roads	125	24	125	16				
231	Olden and Oso Bdy. road								
232	Orillia Township roads	100	20						110
233	Oro Township roads								
234	Oso Township roads								
235	Palmerston Township roads								170
236	Papineau Township roads	40	40	45	16				100
237	Parkinson Township roads								
238	Parkinson and Grasett Tp. roads								
239	Patterson Township roads								
240	Patton Township roads	300	50	100	20				40
241	Pedley Township roads	462	20	462	14				
242	Perry Township roads								
243	Petewawa Township roads								
244	Phelps Township roads	960	40						
245	Plummer Township roads	100	30	260	24				100
246	Plummer Add'l, etc., Township roads	280	60	240	12				
247	Port Carling road								
248	Prince Township roads								12
249	Pringle Township roads	160	60	40	20				
250	Radcliffe Township roads								
251	Raglan Township roads								
252	Rama Township roads	160	30	40	26	gravel	14	6	80
253	Ratter Township roads	78	16	78	14				
254	Ratter and Henry Township roads	156	20	156	14	gravel	20	6	156
255	Ridout Township roads	400	30	400	14				
256	Robinson Township roads								30
257	Rolph, Buchanan and Wylie Tp. roads								
258	Ross Township roads								
259	Ryde Township roads								

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	4	cedar	.....	.....	300	12	150	16	gravel	375	6	1.30	599.00	208
..	...	.....	3	wood	sand	69	.....	..	.....	..	.....	.....	..	1.15	624.55	209
..	...	.....	16	wood	.....	.....	.....	..	860	14	gravel	486	6	3.22	1,600.00	210
..	...	.....	2	cedar	.....	.....	.....	..	468	14	gravel	20	6	2.18	792.13	211
..	...	.....	4	metal	earth	3,535	20	10	143	18	gravel	141	8	1.00	2,260.00	212
..	...	.....	9	wood	earth	80	.....	..	.....	..	.....	.....	..	2.25	796.86	213
..	...	.....	8	cedar	stone	52	.....	..	205	10	stone	203	8	.64	488.50	214
..	...	.....	4	wood	stone	1,206	280	20	130	24	gravel	345	7	1.69	1,682.87	215
..	...	.....	9	cedar	.....	.....	.....	..	180	14	gravel	100	6	1.09	806.21	216
..	...	.....	4	wood	stone	90	135	8	215	16	gravel	68	6	.67	301.33	217
..	...	.....	3	cedar	stone	25	35	20	120	16	gravel	69	6	.43	199.87	218
..	...	.....	2	stone	stone	138	12	20	43	18	gravel	16	6	1.50	300.60	219
..	...	.....	17	cedar	earth	318	600	20	1,248	18	gravel	117	7	3.90	1,193.49	220
..	...	.....	16	wood	stone	25	.....	..	240	16	.....	.....	..	2.25	2,001.13	221
..	...	.....	.....	.....	stone	200	.....	..	.....	..	gravel	500	12	1.56	425.60	222
..	...	.....	2	stone	stone	300	.....	..	200	16	gravel	160	5	.62	502.75	223
..	...	.....	3	wood	.....	.....	.....	..	480	12	gravel	15	10	1.50	499.75	224
..	...	.....	1	wood	.....	.....	.....	..	.....	..	.....	.....	..	4.00	1,499.12	225
..	...	.....	11	stone	stone	116	150	10	125	18	gravel	240	5	.75	1,000.14	226
..	...	.....	6	wood	earth	100	100	20	.....	..	gravel	90	7	2.08	708.87	227
2	12	wood	7	cedar	.....	.....	50	16	.....	..	gravel	160	8	1.06	452.35	228
..	...	.....	4	cedar	.....	.....	337	20	300	16	gravel	650	7	2.03	1,203.33	229
..	...	.....	7	cedar	rock	295	240	16	140	18	gravel	100	5	1.15	1,004.39	230
..	...	.....	3	tile	stone	36	.....	..	127	14	gravel	83	8	.50	200.01	231
..	...	.....	.....	.....	clay	325	.....	..	180	30	gravel	198	8	1.00	1,050.00	232
..	...	.....	3	metal	earth	4,497	.....	..	539	22	gravel	606	8	2.00	1,973.18	233
..	...	.....	6	metal	.....	.....	.....	..	87	14	gravel	267	8	.85	300.78	234
..	...	.....	17	metal	stone	100	85	40	310	18	gravel	415	8	1.30	1,270.07	235
..	...	.....	8	wood	.....	.....	.....	..	1,325	12	gravel	240	7	4.50	2,112.05	236
..	...	.....	.....	.....	stone	20	.....	..	190	18	gravel	170	6	.61	499.00	237
..	...	.....	3	wood	.....	.....	.....	..	120	22	gravel	210	5	.65	349.87	238
..	...	.....	4	stone	stone	30	160	12	250	18	gravel	15	7	.80	297.09	239
..	...	.....	5	wood	earth	490	60	16	.....	..	gravel	80	6	1.25	499.98	240
..	...	.....	1	cedar	.....	.....	.....	..	.....	..	.....	.....	..	1.40	798.91	241
..	...	.....	4	cedar	.....	.....	160	18	160	18	gravel	100	7	.50	296.10	242
..	...	.....	.....	.....	.....	.....	100	18	675	15	gravel	175	5	2.10	400.50	243
..	...	.....	5	wood	.....	.....	.....	..	.....	..	.....	.....	..	3.00	1,538.49	244
1	20	wood	4	cem'nt	stone	210	.....	..	320	22	gravel	587	5	2.80	1,599.75	245
..	...	.....	.....	.....	earth	640	40	26	320	20	gravel	300	6	2.90	749.82	246
..	...	.....	2	cedar	stone	200	.....	..	.....	..	gravel	30	5	.12	500.95	247
..	...	.....	3	cedar	earth	1,344	240	40	140	28	gravel	135	6	.75	984.65	248
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	.....	.....	..	.50	250.63	249
..	...	.....	5	cedar	.....	.....	1,150	35	1,175	20	gravel	300	6	5.55	916.37	250
..	...	.....	7	cedar	.....	.....	675	30	1,575	18	gravel	500	7	5.85	941.16	251
..	...	.....	3	tile	earth	3,710	20	17	259	28	gravel	374	6	1.75	2,398.55	252
..	...	.....	9	cedar	.....	.....	.....	..	410	14	gravel	60	7	1.80	893.80	253
..	...	.....	6	cedar	.....	.....	.....	..	.....	..	.....	.....	..	.50	299.98	254
..	...	.....	10	stone	earth	105	.....	..	.....	..	.....	.....	..	1.25	500.00	255
1	10	wood	4	wood	rock	150	700	30	140	20	gravel	730	7	4.09	1,531.17	256
..	...	.....	1	cedar	.....	.....	.....	..	1,900	20	gravel	200	8	6.00	708.00	257
..	...	.....	1	cedar	.....	.....	.....	..	.....	..	gravel	150	9	.47	200.10	258
..	...	.....	15	cedar	stone	50	.....	..	290	16	gravel	460	5	1.70	1,001.37	259

DEPARTMENT OF LANDS AND FORESTS, ONTARIO,

ANNUAL STATE

NUMBER	TOWNSHIPS	NEW CONSTRUCTION							DITCHED
		Cleared and Stumped		Graded and Shaped		SURFACED			
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet	Length, rods
1	2	3	4	5	6	7	8	9	10
260	Ryerson Township roads								
261	Sabine Township roads	800	40	150	20				
262	St. Edmunds Township roads	20	66	120	24	gravel	120	6	240
263	Salter Township roads	240	50	240	20				
264	Sandfield Township roads	300	24	700	20				20
265	Sebastopol Township roads								250
266	Shakespeare Township roads								
267	Shedden Township roads	300	60	160	17	gravel	120	6	70
268	Sheffield Township roads								
269	Sheguiandah Township roads								
270	Sherwood Township roads	600	28	600	22				
271	Snowden Township roads								
272	Snowdon and Minden Township road								
273	Somerville Township roads								
274	Spence and Monteith Township roads								
275	Springer Township roads								
276	Stafford Township roads								90
277	Stanhope Township road								
278	Stanhope, Dorset-Minden Trunk road	3,200	45	426	14				860
279	Stephenson Township road								
280	Stisted Township roads								
281	Striker Township roads								100
282	Strong Township roads	100	40	220	22	gravel	200	6	440
283	Sunnidale Township roads								
284	Tarentorous Township roads			840	30	gravel	36	6	216
285	Tay Township roads	236	66	326	36				8
286	Tehkummah Township roads								30
287	Thessalon Township roads								
288	Thompson Township roads								140
289	Tiny Township roads								24
290	Torbolton Township roads								
291	Tudor and Cashel Township roads	30	40	90	24	gravel	20	6	180
292	Vankoughnet Township roads	323	50	147	20				294
293	Vespra Township roads	120	66	30	22				43
294	Victoria Township roads								15
295	Waters Township roads	225	22	100	16				250
296	Wells Township roads								60
297	Westmeath Township roads								
298	Widdifield Township roads	170	40	105	20	gravel	90	10	230
299	Wilberforce Township roads								
300	Wollaston Township roads								
301	Wood Township roads	1,400	30						
	Total	48,499		32,110			6,378		31,417

COLONIZATION ROADS BRANCH.—*Continued.*

MENT, 1921-1922.

BRIDGES			CULVERTS		CUT AND FILL		MAINTENANCE							MILEAGE	EXPENDITURE	NUMBER
							Side-brushed		Graded and Shaped		SURFACED					
Number	Span	Material	Number	Material	Material	Cubic Yards	Length rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet			
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
															$ c.	
..	...	.....	6	cedar	earth	200	100	16	260	18	gravel	640	7	2.25	669.65	260
..	...	.....	2	wood	.....	.....	.....	..	150	16	.....	.....	..	3.00	1,000.50	261
..	...	.....	.....	.....	clay	375	.....	..	.....	..	.....	.....	..	.38	1,106.48	262
..	...	.....	4	wood	earth	300	.....	..	160	20	gravel	160	6	1.25	499.41	263
..	...	.....	6	stone	stone	285	50	20	50	20	gravel	150	8	2.65	1,196.43	264
..	...	.....	2	cedar	.....	.....	300	20	750	20	gravel	400	10	3.28	831.88	265
..	...	.....	.....	.....	rock	100	.....	..	100	22	gravel	250	6	.77	400.00	266
..	...	.....	.....	.....	earth	200	.....	..	.....	..	.....	.....	..	.93	500.00	267
..	...	.....	.....	.....	.....	.....	.....	..	15	14	gravel	165	8	.51	200.00	268
..	...	.....	.....	.....	rock	10	40	26	60	24	gravel	380	7	1.19	700.05	269
..	...	.....	1	cedar	earth	1,800	800	18	1,150	22	gravel	150	15	5.47	1,240.26	270
..	...	.....	4	cedar	.....	.....	55	30	.....	..	gravel	122	6	.38	200.10	271
..	...	.....	3	cedar	earth	13	60	16	330	20	gravel	210	6	1.03	398.95	272
..	...	.....	1	metal	stone	79	36	12	159	18	gravel	386	8	1.20	800.92	273
1	14	cedar	3	cedar	.....	.....	.....	..	20	14	gravel	500	7	1.56	421.13	274
..	...	.....	3	wood	.....	.....	.....	..	120	14	gravel	303	6	1.04	757.10	275
..	...	.....	1	cedar	earth	230	90	50	90	28	.....	.....	..	.28	399.80	276
..	...	.....	1	cem'nt	stone	108	10	20	25	18	.....	.....	..	.08	300.50	277
2	12	stone	4	stone	earth	7,497	.....	..	.....	..	.....	.....	..	10.00	19,944.59	278
1	16	wood	3	wood	earth	100	80	16	340	16	gravel	250	5	1.06	1,000.64	279
..	...	.....	3	cedar	stone	118	80	20	100	16	gravel	370	5	1.15	702.75	280
..	...	.....	.....	.....	earth	150	200	14	.....	..	gravel	220	5	.69	495.62	281
1	10	cedar	16	cedar	.....	.....	.....	..	580	18	gravel	290	7	2.50	1,024.13	282
..	...	.....	.....	.....	sand	100	.....	..	.....	..	gravel	40	16	.14	450.00	283
..	...	.....	3	cem'nt	rock	28	.....	..	.....	..	.....	.....	..	2.62	999.95	284
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	.....	.....	..	1.02	1,515.16	285
..	...	.....	9	wood	stone	80	380	15	380	26	gravel	1,300	7	4.06	2,299.09	286
1	40	wood	2	wood	earth	360	160	20	400	20	gravel	260	6	1.25	602.98	287
..	...	.....	2	wood	stone	50	.....	..	.....	..	gravel	465	6	1.45	703.15	288
..	...	.....	.....	.....	sand	350	.....	..	285	22	gravel	222	5	1.08	649.48	289
..	...	.....	.....	.....	earth	250	.....	..	.....	..	gravel	250	10	.78	500.52	290
..	...	.....	3	stone	stone	550	.....	..	.....	..	stone	159	7	.78	748.31	291
1	12	cedar	4	cedar	earth	1,521	78	20	230	24	gravel	154	6	2.10	1,973.10	292
..	...	.....	.....	.....	sand	200	.....	..	.....	..	gravel	175	8	.93	880.00	293
..	...	.....	.....	.....	earth	100	.....	..	460	20	gravel	570	6	1.80	960.46	294
2	22	stone	7	cedar	earth	1,300	30	8	50	12	gravel	305	8	2.10	1,250.10	295
..	...	.....	4	wood	earth	467	180	16	390	20	gravel	300	5	1.34	947.50	296
..	...	.....	.....	.....	stone	50	150	20	575	22	gravel	404	10	2.58	804.95	297
..	...	.....	26	wood	.....	.....	.....	..	1,716	16	gravel	669	10	6.33	3,835.82	298
..	...	.....	4	tile	earth	500	1,400	15	3,640	18	gravel	2,285	10	12.72	2,905.00	299
..	...	.....	.....	.....	.....	.....	.....	..	.....	..	stone	120	8	.38	200.00	300
2	16	wood	5	stone	.....	.....	.....	..	.....	..	.....	.....	..	4.38	1,001.05	301
67	..	.....	1,504	.....	.....	127,370	41,806	..	121,220	..	.....	88,774	..	721.20	414,863.74	...

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
1	Admaston, By-law No. 256	300	25	3,375	25	gravel	1,975	15
2	A bermarle, By-law No. 600	...	...	...	...	gravel	1,675	5
3	Albermarle, By-law No. 611	...	...	...	...	gravel	1,485	6
4	Alberton, By-law No. 1	166	66	506	25	gravel	1,097	6
5	Algona, North, By-law No. 25	100	40	650	18	gravel	300	8
6	Algona, South, By-law No. 82	300	20	1,500	20	gravel	500	10
7	Algona, South, By-law No. 77	...	...	1,625	14	gravel	175	8
8	Alice and Fraser, By-law No. 4	220	30	1,695	28	gravel	1,025	10
9	Armour, By-law No. 414	400	20	380	17	gravel	90	6
10	Assiginack, By-law No. 447	100	12	310	24	gravel	905	7
11	Assiginack, By-law No. 444 (grader)	...	...	...	...	...	...	...
12	Atwood, By-law No. 118	696	66	287	34	gravel	429	6
13	Bagot and Blythfield, By-law No. 345	1,250	40	3,200	30	gravel	2,150	10
14	Balfour, By-law No. 67	1,120	18	8,330	33	gravel	460	8
15	Belmont, By-law No. 631	215	10	54	10	gravel	603	8
16	Billings, By-law No. 261	400	20	810	24	gravel	500	7
17	Blezard, By-law No. 136	...	...	320	33	gravel	410	10
18	Blezard, By-law No. 128	229	12	785	12	stone	366	8
19	Blue, By-law No. 61	484	66	525	28	gravel	140	6
20	Brethour, By-law No. 20 (overseer)	...	...	...	...	...	...	...
21	Bromley, By-law No. 323	...	...	2,420	20	gravel	4,625	10
22	Bromley, By-law No. 309	...	...	1,700	18	gravel	1,305	8
23	Bromley, By-law No. 313 (grader)	...	...	...	...	...	...	...
24	Brougham, By-law No. 721	700	20	900	20	gravel	400	7
25	Burleigh, By-law No. 1	...	...	...	...	stone	154	6
26	Burleigh, By-law No. 2 (grader)	...	...	...	...	...	...	...
27	Burpee, By-law No. 121	...	...	220	24	gravel	450	7
28	Cardiff, By-law No. 608	280	20	943	18	gravel	288	6
29	Caldwell, By-law No. 308	...	...	...	...	gravel	1,325	6
30	Carling, By-law No. 134	640	16	800	20	gravel	430	6
31	Carlow, By-law No. 139	160	20	865	18	gravel	216	7
32	Carnarvon, By-law No. 351	100	12	540	22	gravel	755	7
33	Casey, By-law No. 365 (overseer)	...	...	...	...	...	...	...
34	Casimir, Jennings and Appleby, By-law No. 98	...	...	915	14	gravel	624	6
35	Chamberlain, By-law No. 91	320	28	160	28	...	...	...
36	Chamberlain, By-law No. 87	...	...	320	28	gravel	160	6
37	Chamberlain, By-law No. 76 (overseer)	...	...	...	...	...	...	...
38	Chandos, By-law No. 70	502	40	646	10	stone	214	7
39	Chandos, By-law No. 72 (machinery)	...	...	...	...	...	...	...
40	Chandos, By-law No. 59 (overseer)	...	...	...	...	...	...	...
41	Chapman, By-law No. 5	...	...	865	22	gravel	990	6
42	Chapple, By-law No. 307	1,485	50	1,936	24	gravel	3,936	6
43	Conmee, By-law No. 58	614	25	680	16	gravel	174	7
44	Conmee, By-law No. 54	820	30	720	18	gravel	400	8
45	Cosby and Mason, By-law No. 62	...	...	1,594	14	gravel	503	6
46	Cosby and Mason, By-law No. 52	...	...	2,230	14	gravel	218	8
47	Crosby, South, By-law No. 899	...	...	90	16	gravel	518	8
48	Dalhousie, By-law No. 848	...	...	605	22	gravel	275	10
49	Day and Bright, By-law No. 3	...	...	...	...	gravel	8	6
50	Dilke, By-law No. 104 (overseer)	...	...	...	...	...	...	...
51	Dilke, By-law No. 106	421	40	765	32	gravel	337	6
52	Draper, By-law No. 411	60	20	370	18	gravel	985	5
53	Drury, Denison and Graham, By-law No. 208	...	...	175	20	gravel	3,060	8
54	Dungannon, By-law No. 92	...	...	321	18	gravel	102	7
55	Dysart, By-law No. 665	5,035	20	2,186	22	gravel	5,471	7
56	Eldon, By-law No. 527	160	18	896	20	gravel	1,514	7

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
										$ c.	
.....	.....	.....	.....	.....	.....	.....	.....	.55	10.00	1,299.87	1
.....	.....	.....	.....	.....	.....	2	tile	.....	5.25	735.92	2
.....	rock	40	.....	.....	.....	.....	.....	.....	4.65	849.75	3
25	clay	191	.....	.....	.....	2	tile	2.66	1.50	1,095.62	4
.....	.....	.....	.....	.....	.....	1	cedar	.....	2.15	200.00	5
.....	.....	.....	.....	.....	.....	7	cedar	.....	4.70	500.00	6
.....	.....	.....	.....	.....	.....	8	cedar	.....	5.08	499.62	7
150	.....	.....	.....	.....	.....	2	cedar	.....	5.30	499.97	8
.....	.....	.....	1	10	cedar	3	cedar	.....	1.25	300.00	9
.....	concr't	120	.....	.....	.....	4	wood	.12	2.82	1,497 90	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	103.39	11
.....	clay	1,150	.....	.....	.....	2	wood	2.50	.95	1,325.00	12
.....	.....	.....	1	10	wood	36	metal	.....	10.00	2,306.83	13
90	stone	1,340	5	20	cedar	11	cedar	.....	29.10	1,500.00	14
.....	stone	500	.....	.....	.....	5	metal	.....	1.88	600.00	15
.....	.....	.....	.....	.....	.....	9	stone	.....	3.75	700.00	16
.....	earth	3,840	.....	.....	.....	.....	.....	.....	2.00	300.00	17
.....	stone	103	.....	.....	.....	.....	.....	.....	2.93	375.00	18
95	earth	120	.....	.....	.....	4	wood	3.16	.....	1,063.50	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	99 60	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	16.30	3,250.00	21
.....	earth	300	1	10	wood	18	wood	.....	5.80	2,700.00	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	150.00	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.81	300.00	24
.....	.....	.....	.....	.....	.....	3	cedar	.....	.48	200.00	25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41.25	26
20	stone	110	.....	.....	.....	8	stone	.....	1.65	500.00	27
.....	stone	50	.....	.....	.....	18	cedar	.....	3.00	800.00	28
.....	.....	.....	.....	.....	.....	8	metal	.....	4.15	1,171.28	29
.....	.....	.....	.....	.....	.....	8	metal	.50	2.00	600.00	30
.....	.....	.....	.....	.....	.....	7	cedar	.....	2.70	400.00	31
.....	stone	15	1	12	repaired	3	wood	.....	3.08	700.00	32
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85.90	33
25	.....	.....	.....	.....	.....	4	wood	.....	4.00	1,700.00	34
.....	.....	.....	.....	.....	.....	2	wood	.....	1.00	250.00	35
.....	.....	.....	.....	.....	.....	8	metal	.....	1.25	500.00	36
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100.00	37
.....	.....	.....	.....	.....	.....	3	cedar	.....	2.15	200.00	38
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46.00	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.80	40
.....	clay	175	.....	.....	.....	17	cedar	.....	3.15	500.00	41
521	clay	5,791	1	12	wood	28	wood	12.60	4.50	7,499.98	42
228	earth	200	.....	.....	.....	5	wood	1.00	2.92	959.05	43
.....	earth	3,060	1	10	cedar	18	cedar	.25	3.50	1,000.00	44
.....	.....	.....	.....	.....	.....	14	wood	.....	5.00	562.31	45
110	.....	.....	.....	.....	.....	10	wood	.....	7.00	599.56	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.62	399.56	47
.....	.....	.....	.....	.....	.....	3	stone	.33	1.56	450.00	48
.....	gravel	586	.....	.....	.....	1	cement	.03	.....	290.00	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18.00	50
.....	earth	684	.....	.....	.....	.....	.....	1.00	1.85	500.00	51
10	earth	495	.....	.....	.....	67	cedar	.....	3.30	1,249.89	52
654	earth	1,292	3	12	cedar	13	cedar	.....	9.56	1,474.56	53
100	earth	200	.....	.....	.....	6	cedar	.....	1.32	296.75	54
927	stone	448	3	10	cedar	94	wood	2.24	20.35	6,458.08	55
47	earth	94	4	16	cement	12	metal	.....	4.75	2,499.54	56

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION

Number	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
57	Eldon, By-law No. 523 (overseer)							
58	Elzevir and Grimsthorpe, By-law No. 64			386	18	gravel	486	7
59	Emo, By-law No. 265	2,604	50	622	30	gravel	2,786	6
60	Evanturel, By-law No. 140	410	24	1,680	20	gravel	628	8
61	Evanturel, By-law No. 140A	320	24	160	25	gravel	80	8
62	Evanturel, By-law No. 142	140	66	140	24			
63	Faraday, By-law No. 132			474	20	gravel	410	6
64	Freeman, By-law No. 11 (grader)							
65	Gillies, By-law No. 14	1,698	40	3,374	20	gravel	531	7
66	Glackmeyer, By-law No. 17	468	30	6,700	25	gravel	1,118	12
67	Gordon and Allan, By-law No. 171			110	24	gravel	1,230	7
68	Gordon and Allan, By-law No. 169 (grader)							
69	Hanmer, By-law No. 114	169	24	2,400	33	gravel	1,747	6
70	Harris, By-law No. 73	80	15	160	28	gravel	225	7
71	Harris, By-law No. 70			240	24	gravel	185	6
72	Harvey, By-law No. 380	81	40	61	20	gravel	96	8
73	Harvey, By-law No. 375	389	20	927	12	gravel	2,116	8
74	Hilton, By-law No. 414	164	17	280	24	gravel	772	6
75	Himsworth, South, By-law No. 79B	80	16	1,310	22	gravel	1,440	5
76	Hinchinbrooke, By-law No. 4	35	20	420	16	gravel	2,110	8
77	Hinchinbrooke, By-law No. 8			400	16	gravel	850	8
78	Howland, By-law No. 178			350	12	gravel	1,220	8
79	Hudson, By-law No. 92			160	22	gravel	1,310	6
80	Humphrey, By-law No. 376	20	20	96	16	gravel	61	7
81	Hungerford, By-law No. 262			120	20	gravel	334	6
82	Huntingdon, By-law No. 446	20	10	160	20	gravel	285	6
83	Jaffray and Melick, By-law No. 116	560	40	480	24	gravel	560	16
84	Jocelyn, By-law No. 315			215	20	gravel	560	6
85	Johnson, By-law No. A-110			170	22	gravel	435	6
86	Kerns, By-law No. 192			105	30	gravel	1,294	6
87	Laird, By-law No. 138			100	22	gravel	915	6
88	Lavallee, By-law No. 232	743	66	2,219	26	gravel	1,997	6
89	Lavallee, By-law No. 226 (overseer)							
90	Limerick, By-law No. 1			62	20	gravel	62	7
91	Lindsay, By-law No. 335			125	16	stone	1,157	6
92	Loughboro, By-law No. 163A			70	16	stone	650	8
93	Loughboro, By-law No. 120A			760	16	stone	1,350	8
94	Macaulay, By-law No. 88	480	16	690	18	earth	350	5
95	Machar, By-law No. 585	128	12	565	18	gravel	511	8
96	Madoc, By-law No. 56			673	20	gravel	888	6
97	Mara, By-law No. 592	520	21	1,795	26	stone	511	6
98	Marmora and Lake, By-law No. 564			279	20	gravel	541	5
99	Martland, By-law No. 153	40	16	334	14	gravel	471	6
100	Matchedash, By-law No. 216	27	12	53	18	gravel	1,066	8
101	Mayo, By-law No. 256	60	25	395	18	gravel	296	8
102	McDonald, etc., By-law No. 160	100	35	270	20	gravel	925	6
103	McDougall, By-law No. 187	2,000	8	524	16	gravel	2,415	8
104	McMurrich, By-law No. 289	696	12	936	16	gravel	528	7
105	McIrvine, By-law No. 243					gravel	480	6
106	McIrvine, By-law No. 233	88	66	360	24	gravel	50	5
107	McKim, By-law No. 190			1,120	18	gravel	1,120	8
108	McLean, By-law No. 465	300	30	609	18	gravel	1,003	5
109	Medonte, By-law No. 588	57	24	78	22	gravel	506	8
110	Medonte, By-law No. 581			649	22	gravel	1,615	7
111	Medora and Wood, By-law No. 374	850	16	925	18	gravel	751	5
112	Medora and Wood, By-law No. 368 (machinery)							

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.—*Continued.*

DITCHED	CUT OR FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in cubic yards	Number	Span, feet	Material	Number	Mrterial				
10	11	12	13	14	15	16	16				
										56.00	57
	earth	200				4	cedar		1.53	499.87	58
140						9	wood	9.12	7.10	3,671.23	59
42	earth	400	1	12	wood	4	wood	1.06	5.00	2,978.30	60
320									1.00	150.00	61
200						2	wood	.44		299.93	62
	stone	420				6	cedar		1.48	449.96	63
										94.25	64
159	earth	3,120	1	18	wood	36	metal	2.30	10.60	1,450.57	65
309	earth	900	1	85	rep'd	12	tamarac		21.80	1,999.08	66
	stone	20				5	cedar		3.85	1,249.91	67
										103.26	68
						31	wood		7.50	724.92	69
						1	cement		1.23	499.21	70
100	stone	40				4	cedar		1.50	548.80	71
						1	stone	31		150.00	72
						11	metal		7.75	683.32	73
264						1	wood		2.66	643.12	74
	stone	55				6	cedar	3.00	2.60	835.00	75
						12	tile		6.20	1,743.42	76
240	stone	130				14	metal		3.50	1,500.00	77
	rock	180				16	wood		3.77	1,100.00	78
						2	cedar		4.24	400.00	79
	rock	40				6	stone		.30	200.00	80
	rock	3,332				1	cedar		1.10	690.90	81
						5	metal		1.00	299.55	82
240	earth	1,010				26	cedar	1.25	1.50	1,333.34	83
110	earth	560				6	wood		1.75	600.00	84
						2	wood		1.36	400.00	85
160	earth	1,928	5	20	wood	12	wood		4.37	1,328.55	86
	earth	178				1	cement		2.86	999.77	87
93	earth	526	1	16	wood	11	wood	7.72	2.60	3,125.00	88
										86.40	89
124	stone	898				1	stone	.19		250.00	90
	stone	150				12	wood		3.62	1,096.00	91
									2.03	811.27	92
						9	tile		4.22	1,459.12	93
	earth	705				27	cedar		3.48	1,000.00	94
100	earth	2,573	1	10	wood	8	wood		1.89	584.25	95
	earth	70				9	metal		2.77	800.00	96
						2	cement		5.60	1,419.38	97
	earth	942				5	cedar		1.95	774.96	98
151						33	wood	.26	1.46	1,006.96	99
54	stone	38				6	metal	.08	3.33	752.61	100
	earth	349				8	cedar		1.54	399.40	101
	earth	80				1	tile	.31	2.90	923.52	102
25	stone	500	2	40	wood	37	cedar		8.65	3,200.00	103
2			1	12	wood	17	cedar		2.92	400.00	104
									1.50	500.00	105
168						3	wood	3.76	.78	500.00	106
			3	12	wood				5.00	1,500.00	107
	earth	580	1	20	wood	15	cedar	.13	3.88	1,998.37	108
80	stone	2,150				13	metal		1.64	1,500.00	109
79	earth	1,924				6	metal		5.34	1,199.90	110
	earth	2,679				66	cedar		3.84	3,500.00	111
										296.56	112

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	TOWNSHIPS	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
113	Minden, By-law No. 365	441	16	1,475	14	gravel	533	6
114	Minden, By-law No. 344	798	16	2,145	16	gravel	487	6
115	Monck, By-law No. 486	15	30	945	18	gravel	400	5
116	Monmouth, By-law No. 256	703	16	1,390	16	gravel	232	6
117	Monmouth, By-law No. 265 (overseer)							
118	Monteagle and Herschel, By-law No. 526	459	20	885	20	gravel	160	7
119	Morley and Pattullo, By-law No. 242	900	66	1,830	28	gravel	1,253	6
120	Muskoka, By-law No. 302	630	16	365	18	gravel	605	5
121	Nairn, By-law No. 132	120	40	120	28	gravel	20	7
122	Neebing, By-law No. 406	3,110	50	3,286	24	gravel	2,476	8
123	Neelon and Garson, By-law No. 156			720	16	gravel	1,780	8
124	Nipigon, By-law No. 203	1,362	20	1,482	20	gravel	338	7
125	Nipigon, By-law No. 204 (machinery)							
126	Oakley, By-law No. 213	50	16	240	18	gravel	110	5
127	O'Connor, By-law No. 200	1,345	20	1,990	20	gravel	330	7
128	Olden, By-law No. 65-B	340	30	900	16	gravel	1,700	8
129	Olden, By-law No. 62B (overseer)							
130	Oliver, By-law No. 200	1,085	16	1,180	24	gravel	1,316	7
131	Orillia, By-law No. 1118			974	18	gravel	1,457	8
132	Orillia, By-law No. 1001			671	22	stone	1,797	6
133	Oro, By-law No. 468	55	20	697	22	gravel	1,019	10
134	Oso, By-law No. 181	60	30	210	16	gravel	2,200	8
135	Oso, By-law No. 173			451	12	gravel	1,014	8
136	Paipoonge, By-law No. 185	140	66	1,460	24	gravel	3,521	7
137	Palmerston, By-law No. 256	70	30	310	16	gravel	1,615	8
138	Palmerston, By-law No. 250	310	20	566	14	gravel	2,612	8
139	Palmerston, By-law No. 257 (overseer)							
140	Perry, By-law No. 164	324	40	1,220	18	gravel	280	8
141	Plummer, additional By-law No. 175	320	20	595	20	gravel	1,721	6
142	Prince, By-law No. 89	40	10	360	30	gravel	758	6
143	Rama, By-law No. 397	615	27	81	22	stone	247	6
144	Ratter and Dunnet, By-law No. 34	52	16	585	14	gravel	811	6
145	Ratter and Dunnet, By-law No. 32 (overseer)							
146	Ratter and Dunnet, By-law No. 29	182	16	684	14	gravel	1,350	6
147	Rayside, By-law No. 263	80	12	7,700	33	gravel	1,770	10
148	Rayside, By-law No. 251 (overseer)							
149	Rayside, By-law No. 246	640	25	8,360	16	gravel	540	12
150	Rear of Yonge, By-law No. 604							
151	Ridout, By-law No. 48	560	16	140	18	gravel	825	5
152	Ridout, By-law No. 44	700	16	1,600	18	gravel	2,680	5
153	Ross, By-law No. 380			1,165	12	gravel	1,910	8
154	Ryerson, By-law No. 469	125	10	40	20	gravel	140	8
155	St. Edmunds, By-law No. 273					gravel	509	6
156	St. Joseph, By-law No. 454			648	22	gravel	1,388	7
157	Sandfield, By-law No. 256			50	24	gravel	305	7
158	Sandfield, By-law No. 257 (grader)							
159	Sarawak, By-law No. 8			245	22	stone	1,027	7
160	Sheffield, By-law No. 625			90	16	gravel	1,428	8
161	Sherwood, By-law No. 20	1,475	25	870	15	gravel	100	10
162	Sherborne, By-law No. 290	220	18	2,044	18	gravel	572	6
163	Sherborne, By-law No. 296	137	24	296	18	gravel	408	6
164	Shuniah, By-law No. 460	3,131	40	2,000	20	gravel	5,095	7
165	Snowdon, By-law No. 216	663	16	1,108	16	gravel	567	6
166	Snowdon, By-law No. 209	420	20	663	16	gravel	309	6
167	Somerville, By-law No. 740	266	30	931	18	stone	1,046	6
168	Springer, By-law No. 321			1,540	14	gravel	515	6

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURES	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
						31	cedar		4.60	1,200.00	113
	stone	38				32	cedar		6.73	1,200.00	114
6	earth	670	1	15	wood	20	cedar	.05	3.15	1,719.35	115
			1	16	wood	20	cedar	.31	5.00	800.00	116
										61.20	117
	earth	566				18	cedar		3.07	748.45	118
118	earth	230				5	metal	4.85	8.65	2,218.02	119
22	earth	185	2	26	wood	21	wood		3.04	999.98	120
	earth	40							27.00	199.55	121
592	clay	1,400	1	30	wood	39	wood	8.71	8.39	7,013.87	122
160			2	12	cedar	14	cedar		6.81	1,000.00	123
18						5	cedar	2.26	3.00	1,400.00	124
										100.00	125
30	rock	61				18	cedar		.78	299.96	126
80	clay	2,900	2	16	wood	31	cedar	2.68	4.16	1,970.80	127
						27	metal		5.31	1,250.00	128
										78.00	129
64	clay	480				7	cedar		6.68	2,365.75	130
260	stone	179				1	metal		6.13	2,100.00	131
30	clay	694				1	cement		5.90	2,083.25	132
81	gravel	702	1	repa	ired	13	wood		3.21	1,498.42	133
	earth	70				7	metal		6.87	1,600.00	134
	stone	60				27	metal		3.57	1,400.00	135
168	earth	500				13	cedar	2.50	12.08	4,487.61	136
						16	cedar		5.05	1,500.00	137
						15	stone		8.35	1,300.00	138
										60.00	139
						8	cedar	1.31	3.00	500.00	140
			2	repa	ired	15	wood	.25	5.30	1,450.00	141
470	earth	104	1	12	wood	4	wood		2.37	584.15	142
						2	metal		2.09	600.00	143
686	earth	25				29	cedar		2.77	1,250.00	144
										89.00	145
925			1	10	cedar	30	cedar		4.44	1,250.00	146
110	stone	50	1	10	cedar	78	cedar		24.40	2,165.56	147
										80.00	148
1,090	earth	3,020	2	12	cedar	50	cedar		28.00	2,318.28	149
	stone	398								400.00	150
	stone	713				22	cedar		3.10	1,000.00	151
	earth	440				20	cedar		8.40	2,500.00	152
			1	10	cedar	5	cedar		6.20	1,500.00	153
125						3	cedar	.43		450.00	154
						2	cedar		1.59	500.00	155
180	earth	330				6	wood		4.93	1,600.00	156
	rock	52	2	15	cedar	4	wood		.98	400.00	157
										96.75	158
123	rock	614				3	cement		3.30	1,000.00	159
									4.45	1,000.00	160
						5	cedar		5.84	700.00	161
	rock	200				11	cedar		6.65	800.00	162
	stone	35				22	cedar		1.28	500.00	163
882	earth	100	6	18	cedar	55	wood	2.09	20.25	7,803.25	164
			3	16	wood	33	cedar		3.51	999.97	165
	earth	58	1	16	cedar	23	wood		2.35	790.82	166
	earth	346				12	cedar		4.55	1,500.00	167
									6.35	895.19	168

SCHEDULE SHOWING THE AMOUNT OF WORK OF ROAD CONSTRUCTION,

NUMBER	MUNICIPALITY	CLEARED AND STUMPED		GRADED		SURFACED		
		Length, rods	Width, feet	Length, rods	Width, feet	Material	Length, rods	Width, feet
1	2	3	4	5	6	7	8	9
169	Stafford, By-law No. 719	...	...	2,150	20	gravel	1,475	10
170	Stanhope, By-law No. 378	332	20	830	16	gravel	290	6
171	Stisted, By-law No. 265	...	...	200	18	gravel	381	5
172	Stisted, By-law No. 255	80	16	240	18	gravel	410	5
173	Storrington, By-law No. 499	...	...	40	16	stone	1,127	8
174	Strong, By-law No. 434	480	35	260	16	gravel	330	7
175	Strong, By-law No. 623	150	40	230	22	gravel	120	6
176	Sunnidale, By-law No. 506	...	...	736	24	gravel	634	9
177	Sunnidale, By-law No. 497	...	...	329	22	gravel	1,425	6
178	Tarbutt and Tarbutt, additional By-law No.6-A	...	...	...	...	gravel	791	6
179	Tarentorus, By-law No. 217	81	40	2,305	28	gravel	323	6
180	Tay, By-law No. 813	30	20	914	24	gravel	1,366	8
181	Tay, By-law No. 798	51	24	724	22	gravel	1,709	6
182	Thessalon, By-law No. 11	60	20	160	20	gravel	210	6
183	Tiny, By-law No. 639	...	...	324	20	gravel	881	8
184	Tiny, By-law No. 620	...	...	661	22	gravel	860	6
185	Tisdale, By-law No. 235	...	...	...	...	gravel	593	12
186	Tisdale, By-law No. 237	...	...	...	...	gravel	652	9
187	Tudor and Cashel, By-law No. 5	235	20	2,081	18	stone	301	7
188	Tudor and Cashel, By-law No. 12 (grader)	...	...	...	...	...	...	...
189	Vespra, By-law No. 643	...	...	306	22	gravel	1,863	8
190	Watt, By-law No. 550	90	12	770	18	gravel	1,785	5
191	Watt, By-law No. 545	300	16	1,750	18	gravel	2,230	6
192	Westmeath, By-law No. 292	950	20	3,800	25	gravel	2,860	10
193	Westmeath, By-law No. 298 (grader)	...	...	...	...	...	...	...
194	Whitney, By-law No. 191	231	40	231	24	gravel	862	10
195	Widdifield, By-law No. 323	645	16	375	24	gravel	2,170	10
196	Wilberforce, By-law No. 507	600	20	3,065	18	gravel	1,625	10
197	Wilberforce, By-law No. 494	375	20	4,105	18	gravel	2,340	8
198	Wollaston, By-law No. 1	1,146	20	1,427	18	stone	323	7
199	Worthington, By-law No. 113	367	66	660	28	gravel	118	6
	Total	58,761	...	169,505	...	...	170,147	...

COLONIZATION ROADS BRANCH, MUNICIPAL BY-LAWS, 1922.

DITCHED	CUT AND FILL		BRIDGES			CULVERTS		NEW ROAD MILEAGE	OLD ROAD MILEAGE	GOVERNMENT EXPENDITURE	NUMBER
Length, rods	Material	Amount in Cu. yards	Number	Span, feet	Material	Number	Material				
10	11	12	13	14	15	16	17	18	19	20	21
.....	.....	.....	.....	.....	.....	4	cedar	.....	6.72	950.00	169
.....	.....	.....	.....	.....	.....	24	cedar	.....	2.60	622.15	170
.....	rock	130	.....	.....	.....	12	cedar	.....	1.53	450.00	171
.....	.....	.....	.....	.....	.....	14	wood	.....	1.28	550.00	172
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.54	1,050.00	173
450	earth	100	.....	.....	.....	14	cedar	1.47	.53	573.81	174
20	.....	.....	1	11	cedar	6	cedar	.47	.48	542.00	175
24	earth	1,030	.....	.....	.....	9	cement	10	3.28	2,468.35	176
62	clay	378	.....	.....	.....	1	wood	.....	4.38	1,000.00	177
.....	.....	.....	.....	.....	.....	2	wood	.....	2.47	497.87	178
839	rock	151	2	14	wood	24	metal	.....	8.00	771.20	179
71	stone	563	.....	.....	.....	14	metal	.....	4.59	1,998.87	180
70	earth	1,810	.....	.....	.....	4	metal	.16	6.00	1,874.95	181
.....	stone	540	1	11	cement	3	wood	.....	1.00	450.00	182
43	clay	1,570	6	repa	ired	5	metal	.....	2.90	1,500.00	183
94	earth	620	.....	.....	.....	6	metal	.....	3.76	1,496.97	184
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.83	2,250.00	185
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.03	762.87	186
.....	earth	955	.....	.....	.....	6	cedar	.13	6.39	748.20	187
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42.97	188
7	stone	20	.....	.....	.....	5	metal	.....	5.88	2,099.19	189
.....	earth	511	2	19	cedar	30	wood	.06	5.58	2,000.00	190
.....	rock	50	.....	.....	.....	73	cedar	.....	7.39	1,985.25	191
.....	.....	.....	1	12	cedar	3	cedar	.....	13.82	1,899.35	192
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	137.77	193
35	.....	.....	1	44	wood	6	metal	.72	2.69	1,485.70	194
800	stone	661	.....	.....	.....	17	wood	.13	7.40	1,500.00	195
.....	.....	.....	.....	.....	.....	3	cedar	.....	9.47	1,000.00	196
.....	.....	.....	.....	.....	.....	5	cedar	.....	12.83	1,750.00	197
.....	earth	1,250	.....	.....	.....	12	cedar	.....	6.57	890.48	198
.....	.....	.....	.....	.....	.....	2	wood	1.74	2.90	800.00	199
14,897	.....	73,180	82	.....	.....	2,126	.....	87.29	808.19	222,610.55	

MISCELLANEOUS.

Inspection of Roads and Bridges	$18,956.67
Engineering, Surveying and Locating Roads	9,008.87
Road Machinery	3,251.32
Compensation for Workmen injured	863.97
Storage of Machinery and Tools	141.45
Balances Road Accounts, 1921	1,296.91
Parke Township Accountable	190.00
Southworth Township, C.P.R. Right-of-Way (Rental)	1.00
	$33,710.10

No.	Recapitulation	Cleared and Stumped	Graded and Shaped	Surfaced	Ditched	Cut and Fill	Bridges	Culverts	New Road	Old Road	Expenditure	
		rods	rods	rods	rods	cu. yds.	number	number	miles	miles	$ c.	
1	Direct Grants	90,305	153,330	95,152	31,417	127,370	67	1,504	171.92	549.28	$414,863.74	1
2	By-law Grants	58,761	169,505	170,147	14,897	73,180	82	2,126	87.29	808.19	222,610.55	2
3	Miscellaneous	.....	.....	.....	.....	.....	.....	.....	.....	.....	33,710.19	3
	Total	149,066	322,835	265,299	46,314	200,550	149	3,630	259.21	1,357.47	$671,184.48	

Appendix No. 47.

TORONTO, ONT., Oct. 31st, A.D. 1922.

To the Honourable Beniah Bowman, Minister of Lands and Forests, Ontario.

SIR,—I have the honour to submit to you the report on the construction and maintenance of highways and bridges, under the provisions of the Northern and Northwestern Ontario Development Act, 1912, and amendments during the season ending 31st October, 1922.

The rapidly increasing volume of traffic on the trunk roads under the jurisdiction of the Northern Development Branch called for a large expenditure during the past year, and "Maintenance Patrols" have been established on all the principal roads. These "patrols" have proven to be very satisfactory and, well organized, they are executing a maximum amount of road work at a minimum expense.

Where a trunk road requires attention beyond the powers of the maintenance patrol, construction parties have been organized, either on a contract basis or by day labour, and in this way the efficiency of the patrol has not been impaired.

Severn to North Bay road widening.

The road from Severn to North Bay, for example, was maintained in good condition, but widening, grading, and surfacing being necessary at certain points, as between Severn and Gravenhurst and between Gravenhurst and Bracebridge, this was looked after by construction parties, without interference with the maintenance arrangements.

Branching from the foregoing, the Gravenhurst-Bala-Parry Sound, Huntsville-Dwight, Burks Falls-Magnetawan, Sundridge-Magnetawan, Trout Creek-Loring, Powassan-Loring and Powassan-Chisholm Roads, were taken care of by both maintenance and construction parties as well as the road from Parry

Sound northerly in the direction of Magnetawan, and the expenditure in the Districts of Muskoka and Parry Sound was practically all on the roads referred to.

Work on the Pembroke-Sault Ste. Marie Road was better organized than ever before, the maintenance patrols performing effective work, while the construction parties on the gap between Mattawa and Chalk River opened up approximately fourteen miles which makes it very probable that during the season of 1923 the gap will be removed and the road graded all the way. Extensive betterments and improvements were made on the sections between North Bay and Sudbury and between Sudbury and Sault Ste. Marie, the whole road being maintained in very fair condition.

Surveys were commenced in the fall with a view to the location of a road to connect Temiskaming District with the roads in Southern Ontario and the survey parties are still engaged on the work.

The work on the Latchford-Cochrane Trunk Road, progressed very satisfactorily, the section connecting Swastika, and the Kirkland Lake gold area

International Highway, Thunder Bay District.

with the Cobalt silver camp being advanced so near completion that it will only be a short time until vehicular traffic can move over the entire road without difficulty. Seven miles of the previously unopened portion lying immediately south of Cochrane was cut out, and many miles of gravelling done on the already opened portions.

On the Porquis Junction-Timmins Road, a distance of about three miles was cut out and about six miles graded, and the heavily travelled section between South Porcupine and Timmins was maintained in fair condition and considerably improved.

In addition to the foregoing the following roads in the Temiskaming District, received considerable attention:—North Cobalt to South Lorrain, Milberta to Elk Lake, Elk Lake to Gowganda, Englehart to Charlton and Elk Lake, Swastika to Kirkland Lake and extension into Lebel and Gauthier townships, Dane to Larder Lake, Boston Creek to Skead Township, Boston Creek to Round Lake, Kirkland Lake to Goodfish, Lightning River Road through townships

Grading new road, Northern Ontario.

McKenzie River Bridge, Northern Ontario.

of Munro, Michaud, and McCool, Matachewan Road, Munro Road, Matheson-Shillington Road, Monteith-Shillington Road and Porquis Junction-Iroquois Falls Road.

In the Thunder Bay District the policy inaugurated the previous year was again followed with success and the principal roads then mentioned were maintained in good condition. The Eastern Highway between Port Arthur and Nepigon was further cut out a distance of nearly six miles.

The leading roads in Kenora and Dryden Districts were well taken care of, the principal work being the cutting out of a road from Keewatin to the Manitoba boundary, a distance of over thirty miles, and the cutting out of the road to Redditt, a distance of over ten miles.

The expenditure in the Rainy River District was mainly taken up by betterments and improvements on the Trunk Road, Fort Frances to Rainy River and the main roads leading to it. There was, of course, the systematic maintenance of the roads, and extensions to the leading roads referred to so as to reach outlying settlers.

The Consolidated School Routes were given special attention, and the co-operation of this branch has assisted materially in the success of this system.

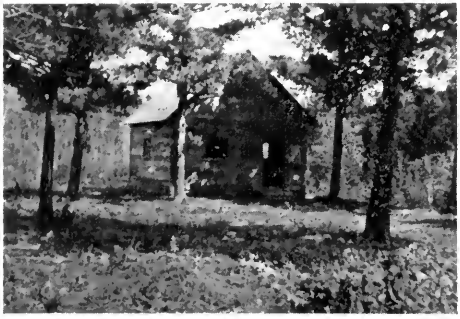
In conclusion last year I referred to the increase of expenditures on road drainage and I would now point out that this increase—again in evidence this year—is already showing a marked improvement in the condition of the roads.

All of which is respectfully submitted. I have the honour to be, sir,

Your obedient servant,

C. H. FULLERTON,
Director, Northern Development Branch.

Motor truck with fire-fighting equipment and hose reel.



Rangers' cabins.

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	ALGOMA DISTRICT.														
	Trunk Road, Sudbury to Sault Ste. Marie.														
1	Sault Ste. Marie to Day Mills, Section I											58200	clean'd	66	9669
2	Day Mills to Cutler... Section II.	.25 22.0	66 si	.25 debrus	66 he	.25 d	40	.25	30			1200	3x1	51	4672
3	Cutler to Copper Cliff Section III.	11.0	do					7.75	30			2410 500 900 400	3x2 3x1½ 3x2½ 2x1½	78	6991
4	Bet. Webbwood and Massey	1.0	20					3.75	34			1450 1200 1200	2x1½ 2x2 3x2		
5	Victoria Mine Diversion	1.0	66	1.0	66	1.0	33	1.5	30			250	2½x1½	1.5	1480
6	Garden River Indian Reserve							3.5	36						
7	At Ladouceur Creek														
8	At Harmon Creek														
9	At Naughton														
10	Goudreau Mine Rd.	4.0	50	4.0	50	3.5 1.5	30 25	3.0 1.5	20 re	.23	20	2600 1500 1515	3x2 5x3 3x1	5.0	2300
11	Lorne-Louise Rd.					1.0	33	1.5	18			2178	2½x1½	1.5	1335
	St. Joseph's Island & Campement D'Ours.														
12	General Maintenance	2.5	s.	brushe	d	1.0	8	2.25	26			170 2828 800	2x15 3x1½ 3½x1½	4.0	1572
13	Richards Landing, Hilton	.75		do				1.5	26			420 330	2x2 2x1	1.5	301
14	"A" Line											6600 1650	4x2 2½x1¼	3	435
15	"W" Line & Trainor's Side Road	1.0		do								1320	2x2	.66	219
16	"C" Line, west of Richards Landing	2.0		do								1320	3x2½	.5	263
17	"PV" Line & 5th Side Road	2.5		do				1.25	24			200	2x1	1.25	113
18	Pine Island Ferry Rd.	1.88	66	.75	66	1.88	33	1.75	30			228 3552	3x2½ 3x2		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		281		1			15″				1
						2	18″				
						2	12″				
						1	15″				
		145				2	18″	1	Repaired.	400 c.yd. rock fill.	2
						2	24″				
		504				21	18″				3
						12	24″				
						3	30″				
				2			4′x6′				
				2			5′x2½′				
8198	4.5			2			18″				4
						3	18″				
						3	12″				
						1	30″	2	Concrete 16′	2560 c.yd. clay fill.	5
						2	24″				
						2	18″				
5631	2.3										6
								1	Concrete 16′		7
								1	Concrete 16′		8
								1	Concrete 16′		9
				2			3x2x20	1	16x4x16	1500 c.yd. rock excav.	10
				4			1x1x16			15000 c.yd. earth fill.	
				2			5x3x20			7800 c.yd. gravel fill.	
				1			2x2x22				
				4			2x4x22				
				1			7x3x22				
				1			6x2x20				
				1			4x2x20				
		3		1			2½x2½				11
					2		1x1				
					1		2½x2½				
		225		13			2x2	1	Repaired.	1 new ferry landing.	12
				3			3x2				
				1			2x2½				
				1			6x2				
				1			2x2				13
					1		2x2				
		7.5						1	20′ span.		14
											15
											16
				1			2½x2½	1	Repaired.		17
				2			4x3			100 c.yd. rock excav.	18
					9		3x3			3454 c.yd. earth fill.	

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	ALGOMA DISTRICT.—*Continued.*														
	Manitoulin Island.														
19	CoreBay-Silverwater-Meldrum Bay Rd..	3.0 2.25	66 60	2.0 2.25	66 60	3.5	30 ..	4.83 3.5	30 24	.....	..	300	3x2	8.63	5043
20	Gore Bay-Kagawong Road.....	.....	..	.....	..	.....	..	1.44	24	.....	..	1760	3x2	.....	.....
21	Gore Bay-Providence Bay-Road	.13 4.75 1.25 .25	66 60 s. 10	3.25 ..... brushe .25	60 .. d 10	1.25 1.13 1.88 .25	35 30 40 10	..... 11.13 .5 2.0	.. 30 34 26	....	.. ..	..... 165 2200	..... 2x2 4x1½	8.75	7690 .....
22	Providence Bay-Mindemoya Rd....	.06	60	.....	..	.....	..	6.50	30	.....	..	.....	.....	7.25	3928
23	West Bay-Sheguindah Rd....	.5	60	.....	..	.....	..	.25	30	.....	..	.....	.....	.25	150
24	Manitowaning-Little Current.....	.63 1.5	12 66	..... 1.5	.. 66	.63 1.5	20 30	2.0 5.18	12 30	.....	..	.....	.....	10.25	7857
25	Little Current-West Bay.....	.5	s.	brushi	ng	.....	..	.5	30	.....	..	.....	.....	2.5	1415
26	Gore Bay-Barrie Is...	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.5	250
27	Mindemoya-West Bay.....	2.0	s.	brushi	ng	.25	40	.5	26	.....	..	.....	.....	2.33	1656
28	Manitowaning-Mindemoya.....	1.0 2.5	66 60	.....	..	.25 .56 1.25	30 24 28	1.63 .25 .5	24 28 30	.....	..	.....	.....	8.75	6473
29	West Bay-Kagawong.....	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.75	567
	COCHRANE DIST.														
30	Brower Township....	3.7 2.0	66 s.	3.7 brushi .5	66 ng 24	1.0	24	.23	33	.04	10	1341	3½x3½	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	....	33	.....	2	.....	....	4x1½	..	.....	200 c.yd. earth fill.	19
				1	.....	....	6x2			140 c.yd. earth fill.	
				7	.....	....	3x2				
				1	.....	....	3x1½				
				1	.....	....	2x1½				
				1	.....	....	4x2½				
				3	.....	....	6x3				
					1	....	2x1				
				4	.....	....	4x3				
1363	.88	3	.....	1	repa	ired	.....	..	.....	.....	20
				1	.....	....	9x2				
2794	2.0	3	.....	1	.....	....	6x3	1	Repaired.	1230 c.yd. earth fill.	21
		3½		5	.....	....	3x2			730 c.yd. stone fill.	
		11½		2	.....	....	5x2			800 c.yd. earth and stone fill.	
				1	.....	....	10x2				
.....	....	.....	.....	1	.....	....	5x9	..	.....	.....	22
					1	....	3x3				
				1	.....	....	4x4				
				1	.....	....	4x3				
						1	24"				
.....	....	.....	.....	1	.....	....	4'x4'	..	.....	150 c.yd. stone fill.	23
.....	....	1	.....	1	.....	....	6x2	..	.....	500 c.yd. earth fill.	24
				1	.....	....	6x3				
				2	.....	....	2x1				
					2	....	2x1				
					1	....	1x1				
				2	.....	....	4x2				
				2	.....	....	4x3				
				1	.....	....	4x4				
.....	....	4	.....	1	.....	....	4x2	..	.....	.....	25
				1	.....	....	4x1				
				1	.....	....	6x2				
				1	.....	....	7x5				
.....	....	.....	.....	2	repa	ired	.....	..	.....	.....	26
.....	....	4	.....	....	2	....	2x1	..	.....	.....	27
					1	....	6x2				
.....	....	4	.....	2	.....	....	3x1½	..	.....	50 c.yd. stone fill.	28
				2	.....	....	2x2½				
				3	.....	....	2x1½				
					1	....	1x1½				
				1	.....	....	4x4				
.....	....	.75	.....	2	.....	....	10x3	..	.....	.....	29
.....	....	.....	.....	3	.....	....	2x2x20	..	.....	.1 mile clay covered with 42 c.yd.	30

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	COCHRANE DISTRICT. —*Continued.*														
31	Calder Township....	4.13	s.	brushi	ng	.34	6	3.10	24	.1	16	990	clean'd	....	.....
		1.13	do									1800	5x3		
		.92	66									4356	3x2		
				.35	66	.5	8					7128	3½x2		
						1.02	24					330	5x2½		
32	Clergue Township...	1.	66	.....	..	1.7	24	.7	24	.....	..	3700	3½x2	.....	.....
33	Clute Township.....	3.0	66	3.0	66	3.64	24	3.0	30	.....	..	19030	3½x2	1.88	1300
		1.23	s.	brushe	d							300	cleane	d	
				.64	24							380	5x2½		
												1000	3x1½		
												680	4x2		
												695	6x3		
34	Township of Fournier	3.38	66	5.38	66	3.25	24	.....	..	.....	..	.....	.....	.....	.....
35	Fox Township.....	2.5	66	4.5	66	2.5	24	.....	..	.....	..	22790	3½x2	.....	.....
				2.5	24										
		.23	66	.23	66	.23	24								
36	Kennedy Township..	.75	66	.75	66	.75	24	.5	24	.....	..	2500	3½x2	3	2554
		.47	40	.47	40	.47	30					1500	3x2		
		.17	20	.17	20										
37	Lamarche Township.	.....	..	1.0	66	.....	..	.04	24	.....	..	225	3½x2	.87	610
												1037	4x3		
38	Leitch Township....	2.43	66	.5	24	2.14	24	.75	24	.06	18	2640	3½x2	.....	.....
				1.30	66										
39	McCart Township...	2.5	66	2.5	66	1.0	24	.....	..	.....	..	.....	.....	.....	.....
40	Pyne Township.....	7.0	66	.5	24	.5	24	.....	..	.....	..	1900	5½x4½	.....	.....
				7.0	66							2540	3½x2		
	Township Boundary Lines.														
41	Blount-Glackmeyer, Lots 19-28 inclusive	2.25	42	2.25	42	.....	..	2.5	24	.....	..	305	2½x1½	.....	.....
								.5	33			880	2½x2		
								.25	26			500	3x2½		
												75	3x1½		
												125	3x1¾		
												92	6x3		
												225	4x2½		
												50	4x2		
												100	2x2		
												435	3x2		
												1320	5x3		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
			.75	3			4x3x16	1	16′ span.	150 c.yd. earth fill.	31
				1			3x3x16				
				6			2x2x16				
				2			4x3x16				
				3			4x2x16				
				1			6x2½x16				
				2			4x2½x16				
				2			3x2x16	1	Repaired.		
				4			1½x1½x18	1	12x5x16	240 c.yd. clay cut.	32
				1			4x4x16	1	Repaired.	180 c.yd. clay fill.	
				5			4x4x20				
				4			3x3x20				
				1			2x1½x16	1	20x16	2237 c.yd. earth cut and fill.	33
				1			2x2x16	1	Repaired.		
				1			5x4x22				
				2			4x3x20				
				1			5x4x23				
				3			5x4x32				
				2			5x5x32				
				2			4x2x20				
				7			repaired				
										Ferry built and installed	34
				3			6x16	1	30x14	175 c.yd. earth fill.	35
				3			4x16	1	20x16		
				1			5x16				
				1			6x2x16				
				1			7x16				
				1			12x16				
				3			2x16				
				1			4x16				
				1			4x4x28	1	16x35	900′ creek cleared 30′ wide.	36
				1			5x5x28				
				1			4x4x20			750 c.yd. earth fill.	
				1			5x5x40				
				1			5x5x20				
								3	Repaired.	50 c.yd. earth fill.	37
			1					1	34x18x5		38
								1	20x18x5		
											39
											40
				11			2x2x18	2	Repaired.	300 c.yd. earth excav.	41
				1			2x1½x18			1500 1 ft. road clay covered.	
				4			3x3x18				
				2			6x3x25				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	COCHRANE DISTRICT. —*Continued.*														
42	Blount-Leitch, Cons. 1 to 6 inclusive	2.25 2.25	33 21	2.25 2.25	33 21	.....	..	4.5	24	.....	..	6650 600	3x2 6½x3	.....	.....
43	Brower-Kennedy, Lot 5	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
44	Brower and Lamarche Cons. 5 and 6.....	.43	33	.43	33	.....	..	.43 .45	24 30	.....	..	2361 561 770 2256 436	3½x1½ 6x3 5x2 3½x2 4x4	.....	.....
45	Calvert - Teefy, Cons. 1, 2, and 3.....	3. 0	66	3.0	66	3.0	24	.5	24	.....	..	2640	3½x2	.....	.....
46	Clute - Fournier, Lots 1 to 16 inclusive...	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	3.42	2559
47	Clute-Glackmeyer, Cons. 3 to 6 incl...	.....	..	.....	..	.....	..	3.0	8	.....	..	.....	.....	3.0	2300
48	Clute-Ottaway at Buskego River. ...	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
49	Fournier-Lamarche, Cons. 1 to 5.	2.5	50	.....	..	.....	..	1.5	24	.....	..	7900 1900 940 950	3½x2 5x2 5x3 5x2½	2.9	2370
50	Glackmeyer-Brower and Glackmeyer-Lamarche.	4.35	33	4.35	33	.....	..	5.83 1.22	30 24	.....	..	526 11780 11250 945 1643	4½x3 3½x1½ 3x3½ 4x4 4x3	1.44	593
	DRYDEN DISTRICT.														
51	Aubrey Township...	1.0	66	1.0	66	1.0 .25	35 50	.5 1.63	24 22	.....	..	2240 3570 600	4x2 5x2 cleaned	.....	.....
52	Browning Rd. - Eton Township.....	.06 .26 3.0	66 16 50	2.0	50	3.0	28	2.0	24	.....	..	470 3892 250 2932	4x1½ 4x2 4x2½ 4x3	.....	.....
53	Dryden - Richan Rd., Wainwright Twp. .	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....

NORTHERN DEVELOPMENT BRANCH

DONE, YEAR 1921.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
				8			18x1½x1½			1.75 miles covered with 800 yd. clay.	42
				2			18x3x3				
				5			18x2x2				
				1			24x2x2				
										Ferry dock filled and paired.	43
				1			2x2x18				44
				1			2x3x18				
				1			2x4x18				
				1			2x1x18				
				1			3x5x18				
				1			2x3x20				
				1			2x6x22				
				1			2x2x20				
				1			4x4x20	1	392x15	5541 c.yd. cut and fill.	45
				1			4x4x24				
				1			3x3x20				
		3		1			2x2x20			Ferry constructed and installed.	46
		3		1		re paired					47
				1			2x3x20				
								1	152'x14'		48
		3.5		1			4x2½x24			310 c.yd. earth excav.	49
				4			4x2x20			Ferry constructed and installed.	
				3			4x3x20				
		7		2		re paired		1	Repaired.		50
				2			2x2x20				
				1			2x2x18				
				3			3x2x18				
				2			2x3x20				
				1			2x5x20				
				3			2x4x20				
				1			2x6x24				
				1			3x5x24				
				1			4x7x22				51
						1	2'x24'				
				1			4x2x20				
				1			4x6x22				
				2			4x4x22				
				3			4x4x22				52
				2			3x2x22				
				2			4x2x22				
				3			3½x2x24				
						1	14"x22'				
						1	18"x22'				
		3	3							Approaches to bridge repaired.	53

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	DRYDEN DISTRICT.—*Continued.*														
54	Eton Township.....	1.5	66	1.0	66	2.17	35	2.33	22	.....	..	36	3x1½	.....	.....
												200	4x3		
												1320	4x2		
55	Finn Settlement Rd., Wabigoon Twp....	3.75	66	3.5	66	1.75	33	4.0	22	.13	18	2550	3x2½	.25	168
						2.5	35					2540	3x2		
56	Ignace-Ossaquin Rd..	3.5	66	3.0	66	3.0	33	.5	22	.13	16	2145	3x2	.....	.....
								1.5	24						
57	Melgund Township..	.13	33	.....	..	.....	..	5.25	22	.....	..	450	3x3	.....	.....
												378	3x1½		
58	Mutrie Township....	.56	40	.5	40	.56	24	3.4	22	.....	..	1050	5x2½	.....	.....
												2755	4x2		
												220	5x1½		
												2640	cleaned		
59	North Rd.-Rugby Township	.25	66	.5	66	.06	33	.....	..	.....	..	5876	4x1½	.....	.....
						.04	33					60	8x3½		
												200	5x2		
60	North Waldhof Rd., Mutrie Township..	1.5	66	1.0	66	1.38	35	1.75	22	.....	..	1625	4x2	.....	.....
												900	cleaned		
61	Rice Lake Rd.-Zealand Township.	1.0	66	1.0	66	1.0	33	1.83	22	.....	..	264	3x2	.38	300
						.25	35					96	3x1½		
62	Sanford Township...	5.58	66	4.15	66	2.83	35	.6	22	.....	..	5955	5x2	.....	.....
						2.0	33	3.5	24			2088	4½x2		
												530	4x2		
												390	3½x1½		
												900	4x1½		
												900	3x1½		
												700	5x1½		
63	Vermilion-Quibell Rd.	8.0	30	12.0	30	.....	..	.5	22	.....	..	900	4x3	.17	135
64	Wabigoon - Vermilion Rd.	1.0	32	1.0	32	.....	..	2.0	24	.....	..	450	4x1½	8.5	7138
												600	cleaned		
65	Wainwright Twp....	.5	32	.16	44	.94	35	1.06	22	.....	..	330	4x3	.....	.....
		.16	44	.44	66							1120	18x4		
		.94	66									1980	4x2		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1921.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		1		1			2x1½x18			Grade reduced on three hills.	54
				1			2½x1½x20				
				10			4x2x24				
				1			3x3x20				
				1			4x12x18			Grade reduced on two hills.	55
				16			3x3x18				
				1			3x3x24				
				1			3x7x18				
				2			4x6x18				
				6			2x3x18				
				1			2x2x18				
				1	repaired						
				3			3x5x20			Grade reduced on three hills.	56
				3			2x3x22			Rock and boulders removed from 2 miles of road. 2850 c.yd. earth fill for covering.	
				7			3x2x20	2	16x6		57
				1			3x4x20	2	Removed.		
				1			2x4x20	1	Repaired.		
				8			2x2x20				
		3.4		1			5x1½x20	1	16′ span.		58
				1			4x1½x20				
				9			3x3x18				
				1			4x6x18				
				1			3x8x20			Grade reduced on two hills.	59
				1			6x1½x20				
				1			4x2½x20				
				8			2x4x20	1	7x20x18	Grade reduced on one hill.	60
		.47		5			4x3x20			Grade reduced on four hills.	61
				8			4x3x22				62
				4			2x2x22				
				4			2x4x24				
				2			4x4x18				
				4			2x2x18				
				1			3x3x20				
				1			4x4x22				
				1			1½x1½x22				
		14		1			3x3x16	1	14x16	111 c.yd. rock excav.	63
								1	16x18	Grade reduced on one hill.	
		63	2½	2	repaired					Grade reduced on one hill.	64
				1			4x4x22			20 c.yd. rock excav.	
				4			2x2x20				65
				1			4x2x18				
				1			4x2x24				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

	Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
DRYDEN DISTRICT.—*Continued.*														
66 Zealand Township...	1.0 .69	40 66	1.0 .69	40 33	1.0 .3	32 33	1.71 .5	22 re	.09 .05	16 14	1180 220 938 2480	4x2½ 4x2 4½x2½ 3x2	1.38	1040
67 Wainwright-Zealand Boundary.....	1.75	66	1.75	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
ENGLEHART DISTRICT														
68 Beauchamp Twp.....	.....	..	.....	..	2.0	20	1.42	18	.....	..	.....	.....	.....	.....
69 Bryce Township.....	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.04	40
70 Buck Township.....	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
71 Chamberlain Twp....	.25 .5	12 66	.25	12	.25 .5	12 20	.25 .5	12 18	.....	..	.....	.....	1.0	726
72 Dack Township.....	.....	..	.....	..	.....	..	1.5	re	.....	..	.....	.....	.31	244
73 Evanturel Township.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	3.5	661 293
74 Ingram Township...	1.25	66	1.25	66	3.25	20	3.25	18	.....	..	.....	.....	.....	.....
75 Lorrain Township...	3.75	66	3.75	66	3.75	33	.....	..	.....	..	.....	.....	.....	.....
76 Marter Township....	1.5 1.5	66 br	1.0 ushing	66 ..	2.0 1.0 .5	20 24 28	4.0 1.0	18 20	.06	10	660	2x2	.06	44
77 Otto Township.....	2.0	66	2.0	66	1.0	18	.....	..	.....	..	.....	.....	.....	.....
78 Pacaud Township...	1.5	br	ushing	..	2.5	20	1.5	20	.....	..	.....	.....	.....	.....
79 Robillard Township..	3.0	66	3.0	66	4.25	20	3.0 3.75	re 18	.....	..	660	2x3	.....	.....

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		.62		1			3x3x20	1	7x6x22		66
				6			4x2x18	2	4x6x20		
				1			5x7x18				
				2			2x3x18				
				1			4x4x18				
				2			4x2x20				
				2			3x1½x20				
				1			3x2x20				
				1			4x4x20				
											67
				6							68
			1					1	Repaired.		69
								1	50′ span.		70
				2			3x4x16				71
				3			3x4x16	1	22x16	Grade reduced on 11 hills.	72
				2			4x5x16	1	21x16		
				1			4x5x20				
				2			4x4x16				
						1	20″x40′				
					1		3x4x40				
		3	3			1	18″x65′	1	60′ span.	Grades to bridge improved	73
								1	Repaired.		
					2		3x4x16				74
	2.0			6				1	15′ span.		75
				4							76
				1			2x3x16				
				4			3x4x16				
				4			3x4x16				77
				1			3x4x20			Grade reduced on four hills.	78
				1			8x6x20				
				4			3x4x16				
				1			4x12x18			Grade reduced on 25 hills.	79
				2			5x5x18				
				1			3x6x18			.98 mile covered with 59 c.yd. clay.	
				1			5x8x18				
				2			3x3x16				
				1			5x12x16				
				1			5x5x22				
				1			5x5x20				
				1			3x4x16				
				1			5x6x30				
				1			5x3x16				
				1			5x8x16				
				1			14x6x16				
				1			4x5x22				
				1			5x3x22				
				1			6x4x22				
				1			5x3x22				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	ENGLEHART DISTRICT. —*Continued.*														
80	Savard Township....	2.0	br	ushing	..	2.0	20	2.0	18	.....	..	.....	.....	.5	391
81	Sharpe Township....	.5	66	.5	66	4.31	20	.....	..	.....	..	.....	.....	.....	.....
82	Chamberlain-Dack Boundary.	.25	66	.25	66	.25	20	.25	18	.....	..	.....	.....	.....	.....
83	Chamberlain-Pacaud Boundary.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
84	Chamberlain-Savard Boundary.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
85	Dack-Evanturel Boundary.	.....	..	.....	..	.....	..	1.0	re	.....	..	.....	.....	.....	.....
86	Evanturel-Marter Boundary.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
87	Marquis-Savard Boundary.	2.0	br	ushing	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
		1.0	66	1.0	66	1.0	20								
88	Robillard-Truax Boundary.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
	HEARST DISTRICT.														
89	Casgrain Township..	1.68	66	2.0	24	.33	24	.33	24	.....	..	.....	.....	.83	664
90	Casgrain-Hanlan Boundary.	.....	..	.....	..	1.60	24	.....	..	.....	..	2874	3½x2	.....	.....
												233	4x2		
91	Eilber Township.....	2.0	66	2.0	66	3.25	28	.....	..	.....	..	.....	.....	.....	.....
92	Hanlan Township...	4.12	66	4.12	66	3.15	24	.....	..	.....	..	6300	3½x2½	.....	.....
												522	3x2		
93	Hanlan-Way Bdry...	.....	..	.....	..	.....	..	.....	..	.....	..	2664	3½x2½	.....	.....
												1450	4½x2		
94	Kendall Township...	2.45	66	2.45	66	.....	..	.13	re	.....	..	14845	2x3½	6.5	5194
												975	2x4½		
												1320	cleaned		
95	Kendall-Way Bdry...	1.5	66	.75	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
96	Lowther Township...	6.12	66	6.12	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
97	Lowther-Way Bdry..	4.13	66	4.13	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
98	Way Township.....	5.0	66	5.0	66	.....	..	.06	re	.....	..	600	3½x1	.....	.....
	KAPUSKASING DIST.														
99	Fauquier-Township..	10.55	66	1.59	24	3.46	24	.....	..	.....	..	2000	cleaned	.....	.....
				6.55	66							1500	4x2		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
			$2\frac{1}{2}$	6			16x3x14	1	Re-covered and	approaches filled.	80
				2			5x6x25	1	Repaired.	Grade reduced on 23	
				5			3x4x16			hills.	
				2			4x4x16				
				2			3x6x20				
				2			2x3x16				
				1			4x3x18				
				1			6x6x30				
				1			4x4x20				
				1			3x5x16				
				1			8x6x16				81
				3			3x4x16				
				1			4x4x16				
										.25 mile covered with 244 c.yd. clay.	82
			6								83
				1			4x6x20	1	30′ span.	Fill 300′x22′x5′	84
								2	Rebuilt.		85
				1			3x4x20	1	80′ steel.	Approaches improved.	86
			2	3			3x4x16				87
				1			6x6x30			Grades reduced on 2 hills.	88
		3.5		5			3x3x18	2	Partly built on only.	Grade reduced on 1 hill.	89
											90
											93
		6.75	1	2			3x3x18	1	Partly built	.88 mile covered with	94
				2			2x3x18		only.	2305 c.yd. clay.	
				2			3x3x17				
											95
											96
											97
		2.5						1	Partly built only.	1.5 mile covered with 1160 c.yd. clay.	98
										790 c.yds. cut and placed on one mile of road.	99

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	KAPUSKASING DIST.—*Continued.*														
100	Fauquier-Machin Boundary	2.0	66	1.0	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
101	Fauquier-Nansen Boundary.	.....	..	.....	..	1.5	24	.....	..	.....	..	.....	.....	.....	.....
102	Haggart-Shackleton Boundary.	1.75	66	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
103	Machin Township...	1.5	66	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
104	Nansen-Shackleton Boundary.	2.45	66	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
105	O'Brien Township...	1.0	66	.....	..	1.0	24	1.0	24	.....	..	525	4x3	.....	.....
106	Shackleton Twp.....	6.11	66	2.67	66	.....	..	.....	..	.....	..	19134	2x3½	.....	.....
107	Trunk Road along C. N. Railway. ...	.....	..	.75	..	.....	..	1.25	25	.....	..	850	6x2	.....	.....
								2.78	24	.....	..	1500	4x3	21.0	8887
								1.73	26	.....	..	5500	cleaned		
	KENORA DIST.														
108	Charlesbois Rd.....	2.0	36	2.0	36	.25	36	.75	22	.....	..	3960	3x1½	1	999
109	East Melick Rd.....	.....	..	.....	..	.5	36	.25	24	.11	18	1300	4x1½	2.75	2700
								.7	20			5600	4x2		
								.2	16						
110	Keewatin-Manitoba Boundary Rd.	31.31	66	31.31	66	5.0	33	.6	16	.04	14	2000	6x2	.25	349
								.37	20			5200	4x2		
111	Kenora-Redditt Rd..	4.25	66	4.25	66	.4	50	2.4	24	.64	16	2700	4x1½	4.88	6175
		1.08	20	1.18	20	1.18	40	1.23	22	.46	18	7800	3x1½		
		.23	10	2.0	40	.74	33	.51	20			4500	3x16		
		4.0	40	.37	45	.85	20	.12	26			6300	3x2		
		1.4	45	.57	8			.45	30			330	2x1		
		2.25	33	3.25	33			.4	33			1200	4x2½		
112	Muriel Lake Rd.....	2.5	20	1.0	20	1.5	20	1.5	20			10560	3x1½	1.38	2200
				2.0	12			.5	18						
113	Round Lake Rd.....	.75	40	.75	40	.5	30	.5	30	.....	..	2640	4x2	.25	100
114	West Melick Rd.....	.08	30	.05	30	.08	6	.05	30	.....	..	699	3x2	1.0	726
		.5	10	.5	10			.56	5			1200	2x1		
								.11	20						

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
											100
											101
											102
											103
											104
				6	tempo	rary		1	Re-covered.		105
				2	tempo	rary				Scow repaired.	106
		15	1	4	repa	ired		1	46′ span.	Half mile of clay road, earth covered.	107
				2			7′	1	20′ "		
				2			8′	2	10′ "	200 c.yd. rock fill.	
				2			4′	2	12′ "		
				1			6′	3	7′ "		
				1			8′				
				13	tempo	rary					
				1			16x3				
				1			16x4				
				3			23x3				
		1.25	.5	1			16x2x2				108
					1		22x2½x2½				
					1		26x2x3				
					1		16x1½x1				
				1			18x4x4				109
				1			12x8x20			522 c.yd. rock excav.	110
					1		20x3x3			1446 c.yd. fill.	
					1		20x2½x2½				
					1		20x4x4				
				1			24x3x2	1	Repaired.	952 c.yd. rock excav.	111
				2			24x4x2				
				10			20x1x1¼				
				1			18x2x1				
				1			20x2x1¼				
				3			22x1½x1¼				
				7			18x2x3				
				1			14x12x3				
				5			14x2x2				
		1			7		26x1½x1½	1	18x20		112
					4		24x4x2				
					6		22x2x2				
				4			18x4x4				
					1		48x1½x1½				113
					1		45x2x2				
					2		24x2x2				
				3			22x2x2				114

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	MATHESON DIST.														
115	Beatty Township	3.5	66	3.5	66	3.5	26	4.5	24						
116	Beatty-Carr Bdry														
117	Beatty-Hislop Bdry														
118	Benoit Township	1.0	66	1.0	66			1.0	20						
119	Bond-Currie Bdry	.13	12			1.5	26	2.0	26	.08	12	2075	4x2½		
						.28	4					4980	4x1½		
												6920	cleaned		
120	Bowman Township	.11	66			.11	50	.95	24						
121	Bowman-Currie Bdry							2.0	re						
122	Carr Township	1.0	66	1.0	66	1.25	26	.5	24						
								1.25	22						
123	Carr-Taylor Bdry							1.0	re						
								1.0	24						
124	Carr-Wilkie Bdry							2.0	20			900	3x2		
												100	4x3		
												4416	off	take	
125	Currie Township	2.0	66	2.0	66	2.0	26	1.0	20						
126	Hislop Township	3.0	66	1.0	26	4.7	26	1.5	re			50	2x1		
				3.0	66			.08	30			74	3x1		
								3.25	20			830	3x2		
												3595	off	take	
127	Hislop-Playfair Bdry	.28	66	.28	66	.28	26	1.2	20			3600	off	take	
128	Playfair Township							1.25	20			1347	3x2		
												5388	off	take	
129	Stock Township	1.0	66					.75	20			1085	2x1		
								.5	24			1627	off	take	
								.25	re						
130	Taylor Township	1.0	66	1.0	66	2.43	26	6.61	20			60	6x3		
								.88	26			1073	3x2		
												242	3x1		
												184	2x2		
												154	2x1		
												30	7x4		
												6433	off	take	
131	Taylor-Walker Bdry														
132	Walker Township	1.5	66	1.5	66	2.0	26	3.39	20			120	3x1		
												225	3x2		
												1140	off	take	

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
				1			2x4x18	1	15′ span.	3600 c.yd. clay removed.	115
								1	Repaired.		
		3.5									116
		3									117
							2x4x18				118
		9.75		1			4x6x19			1067 c.yd. clay fill.	119
				1			3x4x18			1.7 mile covered with 1484 c.yd. clay.	
				1			3x4x35				
				1			4x2½x22				
				1			2x3x18	1	105′x 18′	2644 c.yd. earth excav.	120
				8			2x4x20	1	16′		
				4			2x2x20			.36 mile muskeg covered with 315 c.yd. clay.	121
		6.5		6			2x2x18	2	Repaired.	12 c.yd. gravel fill.	122
				3			2x2x16	1	Two 15′ spans.	2068 c.yd. clay used in covering muskeg, 888 c.yd. clay fill.	123
				2			4x4x20				
				4			2x3x20				
				12			2x4x18				124
				9			3x4x18				125
				2			2x4x18				
				7			4x4x16	1	30′ and two 16′	72 c.yd. clay and 50 c.yd. rock fill.	126
				3			2x2x16				
				1			6x6x16				
				2			1x12x16				
				12			2x4x16				
				4			1x4x16				
				7			2x4x16				127
				3			4x4x16				
				1			6x6x16				
				3			2x4x16	1	16′ span.		128
				1			1x4x16				
				1			4x4x16				
				4			2x4x16				129
				1			1x4x16				
				2			6x6x20				
				6	repaired						130
				34			2x4x16	2	16′ span.		
				23			3x4x16				
				2			6x6x16				
				2			3x4x22				
				1			4x5x20				
				1			4x4x20				131
				15			2x4x16	1	104′ long.		132
				16			4x4x16				
				1			6x10x16				
				2			6x16x16				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	MUSKOKA DIST.														
133	Gravenhurst-Bala-Parry Sound Rd...	..45 .8	40 br	..... ushing	..	.....	..	2.36	16	.....	..	1700 14000	3x1 2x1	5.1	4680
134	Huntsville-Dwight Rd.....	.....	..	.....	..	.....	..	11.5	re	.....	..	225 40 30 400	3x1½ 2½x1 3x2 creek	.....	.....
135	Severn - North Bay Road, Severn to Novar Section.....	12.38	s.	brushi	ng	.25 2.5 .35 .44	20 24 30 50	30.30	re	.....	..	1500 1125 125 2000 450 2000 3545 15 160 175 5676	2x1 2x1½ 2x2 2x2½ 3x1 3x1¼ 3x1½ 3x2 3x2½ 4x4½ cleaned	36.5	6584

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	....	6	.....	2	.....	....	1x3x14	..	.....	350 c.yd. earth fill.	133
				6	.....	....	4x4x16			200 c.yd. rock fill.	
				2	.....	....	2x2x16				
				6	.....	....	1x1x16				
				6	.....	....	1½x1½x16				
				2	.....	....	3x3x24				
.....	....	.....	.....	1	.....	....	4½x5x20	..	.....	129 c.yd. stone fill.	134
						2	1½x18			104 c.yd. earth fill.	
						1	32"x20'				
						1	10"x20'				
						1	25"x20'				
675 placed piles	675 d in for	105.91	.....	1	.....	....	5x5x18	2	10'x 14'	11,210 c.yd. rock excav.	135
				1	.....	....	8x12x30	1	15'x 24'	44,600 c.yd. earth excav.	
main	ten-			1	.....	....	10x10x16	2	Temporary.	524 c.yd. stone fill.	
ance.				1	.....	....	2x2x20			1315 c.yd. earth fill.	
				1	.....	....	1x2x24				
					1 Co	nc.	7' span				
					1 Co	nc.	10' span				
					3 St	one	18"x24'				
						1	8"x18'				
						1	12"x18'				
						1	16"x18'				
						4	18"x18'				
						2	24"x18'				
						5	12"x20'				
						1	20"x20'				
						1	24"x20'				
						4	18"x22'				
						1	20"x22'				
						12	12"x24'				
						4	18"x24'				
						1	20"x24'				
						9	24"x24'				
						1	30"x24'				
						1	38"x24'				
						1	10"x26'				
						5	18"x26'				
						1	20"x26'				
						6	24"x26'				
						1	24"x27'				
						1	34"x27'				
						10	12"x28'				
						6	18"x28'				
						2	20"x28'				
						5	24"x28'				
						1	36"x28'				
						1	30"x35'				
						1	12"x36'				
						2	24"x36'				
						1	30"x36'				
						1	20"x40'				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	NIPISSING-SUDBURY-RENFREW DIST.														
136	Balfour-Dowling Boundary	1.25	66	1.25	66	.5	24								
137	Callander-Mattawa Road	6.25	br	ushing				4.15	re					40.0	8946
138	Hagar-St. Charles Road	.41	40			1.0	30	.5	16			5280	3x1½	1.0	156
139	Larchwood-Phelan Road	2.75	66	2.75	66	2.0	24	2.75	24			300	4x1½		
140	Mattawa-Pembroke Road	12	brush'g	4.14	44	11.02	24	11.69	24			300	1½x1½	36.13	4440
		4.14	44	1.8	40							100	1½x2		
		3.3	40	4.23	24							225	6x3		
		4.23	24	2.55	45							225	2x5		
		2.55	45									40	2x2		
												25	2x3		
141	North Bay-Callander Road							.25	re			300	cleaned	8.0	1428
												50	do		
142	North Bay-Sudbury Road	19.5	s.	brushing				1.0	18			12540	cleaned		
		.25	40	.25	40							3860	do	85.35	17114
												228	3x1½		
												264	3x3		
								49.75	re			2050	2x1¼		
												400	2x2		
												20	4x3		

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
											136
		172		2	repaired						137
				1			$1\frac{3}{4}$x1x24	1	Recovered.		
				1			2x2x18				
				1			2x1x12				
					1 Stone		$1\frac{1}{2}$x1$\frac{1}{2}$x18				
					2 Stone		2x4x20				
					1 Stone		1x1x24				
				1			2x4$\frac{1}{2}$x16				
				3			2x2x24				
				8			4x4x16			2000 c.yd. stone in Rip-Rap.	138
				1			4x8x16				
				3			2x3x16				
				1			2x6x24				139
				5			2x4x21				
		106.83		1			3x6x18	1	Railing repaired	1347 c.yd. earth cut. 4489 earth fill.	140
				2			2x2x18				
				15			2$\frac{1}{2}$x2$\frac{1}{2}$x18				
				3			3x3x18				
				5			3$\frac{1}{2}$x3$\frac{1}{2}$x18				
				1			7′x18′x18′				
				1			1$\frac{1}{2}$x1$\frac{1}{2}$x18				
				4			2x6x18				
				1			6x2$\frac{1}{2}$x18				
				8			5x5x18				
						1	32″x24′				
						1	replaced				
				1			1$\frac{1}{4}$x1$\frac{1}{2}$x18				
				1			8″x8″x18				
				1			3x3x20				
						3	24″x18′				
				3			repaired				
		77		1			2x2x16				141
					2 Conc.		1$\frac{1}{2}$x20				
					2 Conc.		2x20				
						1	replaced				
				1	repaired						
				6	cleaned						
								1	King truss, 200′ long.	830 c.yd. rock fill. 1150 earth cut and fill.	142
		272	8.25			1	27″x20′	1	Rebuilt.		
						3	27″x20′	4	Re-covered.		
					1 Conc.		30″x20′				
					6	repaired					
				5	repaired						
				1	rebuilt						
				1	lengthened						
				1			10x14″x22′				
				1			2x3x18				
				1			2$\frac{1}{2}$x4x16				
				2			3x4x16				
				7			2$\frac{1}{2}$x6x16				
				2			1x1$\frac{1}{2}$x20				
				1			1x1$\frac{1}{2}$x24				
				1			1$\frac{1}{4}$x1$\frac{1}{2}$x18				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	NIPISSING-SUDBURY-RENFREW DIST.—*Continued.*														
143	North Bay-Widdifield Road.	3.0	br	ushing	..	3.5 1.0	24 20	4.16	re	.....	..	30	3x3	12.0	1205
144	Noelville-Rutter Rd.	.....	..	.....	..	.....	..	8.0	24	.....	..	1800	1½x3	4.5	3002
145	St. Charles-Noelville Road.	5.0	66	5.0	66	4.25	30	.75 1.5 6.25	20 18 16	.08	14	2000 2000	3x1½ 2½x1½	7.0	588
146	Sturgeon Falls Field Road.	4.66	si	debrus	hi	ng		9.4	re			100	2x3	4	2504
147	Sturgeon Falls-Smoky Falls Road.	.....	..	.....	..	.....	..	.....	..	.....	..	200	2x1½	.....	60
148	Sudbury-Capreol Rd.	.....	..	.....	..	.....	..	7.0	re	.....	..	.....	.....	14.80	4996
149	Sudbury-Chelmsford Road.	.....	..	.....	..	.....	..	5.0	re	.....	..	2000 1100	3x1½ 2x3	10.00	2472
150	Warren-St. Charles Road.	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	95
151	West Tree - Shining Tree Road.	2.0 .25	40 50	1.0	40 ..	1.0 .25	40 16	1.5 .25	20 12	.5 .04	16 10	2640	2x3	3.5	2684
	PARRY SOUND DIST.														
152	Burks Falls-Magnetawan Rd.	.97	24	.....	..	.....	..	.36 .35 .25	re 24 36	.....	..	3200 850 400	cleaned 3x1 2x1½	..... 8.3	 3259
153	Chisholm-North Bay Road.	.....	..	.....	..	.....	..	.25	18	.....	..	8430	2x1	.13	190

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
....	....	16.5	.....	5	.....	....	2x5x18	..	.....	465 c.yd. earth fill.	143
				1	.....	....	2x3x18				
				4	.....	....	6x2x18				
				2	.....	....	5x2x18				
				2	.....	....	4x2x18				
					6 Co	nc.	1½'x 18				
....	....	.....	.....	3	.....	....	2x3x16	..	.....	2000 c.yd. earth cut and fill.	144
				1	.....	....	3x3x16				
				1	rec-ov	ered				50 c.yd. rock repair to Rip-Rap.	
....	....	.....	.....	5	.....	....	2x4x16	..	.....	3020 rock fill.	145
				1	re-cov	ered					
					7 St	one	4x2½x16				
				18	.....	....	3x4x16				
....	....	16.66	.....	....	1 repa	ired		3	Repaired.	18 c.yd. stone fill.	146
				14	.....	....	1½x1½x18	3	Re-covered.		
					1 St	one	1½x1½x20	1	24'x 16'		
				1	.....	....	1½x2 x20	1	16x8		
						1	3x20				
....	....	10	.....	....	.....	....	.....	..	.....	.....	147
....	....	18	.....	1	.....	....	4x8x16	..	.....	.5 mile clay road covered with 300 c.yd. earth.	148
....	....	4	.....	....	.....	1	10"x20'	..	.....	300 c.yd. rock fill.	149
				1	.....	....	1¼x2'x20'				
....	....	.....	.....	....	.....	....	.....	..	.....	.....	150
....	....	.....	19	25	.....	....	2x4x16	3	Repaired.	.....	151
....	....	9.5	.....	1	exten	ded	2'	..	.....	4125 c.yd. earth fill.	152
				1	.....	....	5'x 18'				
				7	.....	....	6x18				
				1	.....	....	4x16				
				2	.....	....	4x18				
				1	.....	....	12x18				
				1	.....	....	4x6x18				
						2	30"x24'				
						2	24'x20'				
						2	18 'x20'				
						4	12"x20'				
						1	20"x24'				
....	....	.....	.....	1	.....	....	3x3x20	..	.....	.....	153
				1	.....	....	1½x3x18				
				1	.....	....	2x3½x16				
				1	.....	....	1x2x16				
				1	.....	....	1½x2x16				
				1	.....	....	1x3x18				
				1	.....	....	2x4x18				
						1	8"x18'				
						1	12"x18'				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	PARRY SOUND DIST. —*Continued.*														
154	Parry Sound - Magnetawan Road..... (Waubanik-McKellar Section).	.....	..	.....	..	.....	..	4.29	18	.....	..	4050	3x1	4.0	1711
155	Powassan-Chisholm Road.....	.1	br	ushing	..	.....	..	.....	..	.....	..	2500 1300	cleaned 4x1½	7.5	268
156	Powassan to Loring, (via Christian Valley)	.5	42	½ .07	66	.55 .56 .07	30 35 66	4.25 2.25	24 24	.....	..	396 6627 4138 4820 1275 260	2x1 2½x1½ 3x2¾ 3x2 3½x1¼ 1½x1	4.0	3235
157	Powassan - Nipissing-Restoule Road.....	.....	..	.....	..	.....	..	16.0	re	.....	..	300	2x8	9.14	831
158	Cross over Road from Powassan - Loring Rd., to Trout Creek -Loring Rd. in Twp. of Pringle.....	1.25	66	1.25	66	.....	..	.....	..	.....	..	.....	.....	.....	.....
159	Severn - North Bay Road..... (Novar - Callander Section).	.25	br	ushing	..	.....	..	11.25	re	.....	..	2006 11757 2220 200 160 66 21300	3x2 2x1 3x1½ 2x ½ 2½x1 5x1½ cleaned	63.0	9977

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
					6	Stone	18″x18′				154
					5	Stone	24″x18′				
						9	12″x18′				
						8	18″x18′				
						3	24″x18′				
				1			6x3x18			4 c.yd. stone fill.	155
				1			2x4½x16				
		4.25		1			2x3x24			50,441 c.yd. earth cut and fill.	156
		3.25		1			3x3x25				
				1			3x3x20			4,387 c.yd. stone wall.	
				5			2½x3x20			2,005 c.yd. stone fill.	
				2			4x4x20			1,500 lin. ft. fencing.	
				4			2x3x20			50 c.yd. rock excav.	
				2			2x3x30			4½ miles creek cleaned.	
				1			2x2x20				
				1			4x8x20				
				12			2x3½x20				
				1			2x4x20				
				2			2½x3½x18				
				2			2x4x30				
				1			2x3x40				
				2			2x3½x18				
				2			1x3x18				
					1	Stone	1x4x20				
					1	Stone	2x3x20				
					1	Stone	2½x3x16				
					1	Stone	1x3x18				
		8		1			4x3x18			705 c.yd. rock excav.	157
				1			3x6x14			227 c.yd. earth fill.	
					1	Stone	2x4x16			50 c.yd. stone fill.	
					1	Stone	1x2½x16				
				14	repaired						
											158
		208.8		1			21x16	1	Repaired.	994 c.yd. earth fill.	159
				1			2x4x18	1	Re-covered.	229 stone fill.	
				1			1x3x16			70 c.yd. cinders placed on road.	
				2			3x4x18				
				3			2x3x18			85 c.yd. stone removed from road.	
					2	Stone	2x1x20				
					1		4x6x20			36 c.yd. rock excav.	
					1		3x4x18				
				16	cleaned						
				2	re-covered						
				1	repaired						
						2	20″x24′				
						1	20″x20′				
						1	36″x20′				
						2	24″x20′				
						4	12″x20′				
						4	18″x20′				
						1	14″x20′				
						1	10″x20′				
						1	24″x20′				
						1	24″x26′				
						1	24″x24′				
						1	18″x19′				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	PARRY SOUND DIST. —*Continued.*														
160	Sundridge - Magnetawan Road.	.20	br	ushing				2.7	14			2862 20229	3x2 2x1	16.0	2365
161	Trout Creek - Loring Road. (via Golden Valley.)	2.88	66	2.88	66	.25	18	.5 1.25	24 18	.02	12	60 5247 80 40 140	2x12 3x1 4x2 2x2 2½x1		
	PORCUPINE DIST.														
162	Anchorite Mine-Timmins Road.	.4	66	.4	66	.4	30	3.25 .5	26 22			2112 420	3x2 4x3	2.25	1831
163	Delora-Ogden Bdry.													.25	150
163	a German Township.											5280	3x2		
164	Mattagami River, Mountjoy Twp. (Along North side.)							.09	22	.04	16			3.31	1425
165	Mattagami River, Mountjoy Twp. (Along East Side.)													.75	576
165	a. Matheson Twp.											21120	3x2		
166	Mountjoy-Tisdale Boundary.					.75	30	.25	26			475	2x2	.5	450
166	a. Peninsular Mine Rd Cody Township.	4.0	20	4.0	20										
167	Whitney Township.	1.5	24	1.5	24	1.5	24								
	RAINY RIVER DIST.														
168	Barwick Consolidated School Route, Twps. of Dobie, and Shenston and Boundary Line.	2.38 .5	66 20	.5	66	2.38	30	1.62	30	.06	12	720 329	4x2 4x1	1.34	1313
169	Burriss Township.							.5	32					4.0	1722
170	Carpenter Township.	.31	66			.32	30	.75	26			84	3x3	.5	326
171	Dance Road, Burriss and Dance Twps.					.4	10			.39 .22	9 10	1200	4x3	.55	345
172	Devlin-Lash Bdry.							1.0	28			660	3x2½	2.0	1060
173	Devlin Road, Burriss Township.													2.0	1300

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	.....	14	.....	1	.....	.....	2x4x16	1	5′x14′x16′	1098 c.yd. earth fill.	160
				17	.....	.....	1½x3x14			138 c.yd. stone fill.	
				12	.....	.....	1½x2½x14				
						1	14″x18′				
						2	10″x20′				
.....	.....	29	.....	1	.....	.....	3½x5½x18	1	45′ span.	6270 earth fill.	161
				1	.....	.....	4x10x21	1	12′ span.	1236 lin. ft. fencing.	
.....	.....	.....	.....	8	.....	.....	2½x5x18			52 c.yd. stone fill.	
				3	.....	.....	2x4x18				
						1	2x20				
						1	1x22				
1184	1.75	.....	.....	1	.....	.....	14x6x22	..	.....	1246 c.yd. earth fill.	162
				1	.....	.....	10x3x22				
				3	.....	.....	6x2x22				
						1	12″x24′				
.....	.....	.....	.....	.....	.....	.....	.....	1	38′x20′	.....	163
								1	75′x20′		
.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	163a
143	....	10	.....	.....	.....	.....	.....	1	Repaired.	1000 c.yd. earth fill.	164
								1	96x16		
.....	.....	.75	.....	.....	.....	.....	.....	1	Repaired.	.....	165
.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	165a
.....	.....	.....	.....	12	vario	us	.....	1	54x22	200 c.yd. earth fill.	166
								1	24x22		
								1	20x22		
.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	166a
.....	.....	.....	.....	.....	.....	.....	.....	1	Log 30′x 18′	.....	167
.....	.....	33	.....	2	.....	.....	2x3x22	..	.....	.....	168
				1	.....	.....	4x4x22				
				1	.....	.....	2x2x20				
				3	.....	.....	3x3x22				
				1	.....	.....	2x4x16				
				1	.....	.....	4x12x16				
				1	.....	.....	4x5x22				
.....	.....	45	.....	1	.....	.....	3′x2′x16′	..	.....	.....	169
.....	.....	.....	.....	1	.....	.....	8″x12″x16′	..	.....	180 c.yd. earth fill.	170
				1	.....	.....	3′x 4′ x16′				
.....	.....	36	.....	1	.....	.....	3x2x16	..	.....	.....	171
				1	.....	.....	3x5x16				
.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	172
.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	173

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	RAINY RIVER DIST. —*Continued.*														
174	Emo-Off Lake Road							1.25	28					4.25	2514
175	Finland Road, Potts Township							1.75	30					.31	207
176	Fort Frances - Rainy River Road	5.31	br	ushed				4.70	re			1100 1980 1940 2230 2390 17700	5x3 5x2½ 6x2½ 3x3 3x2½ 5x2	46.0	12934
177	Frog Creek Road, Crozier Township													2.0	450
178	Grassy River Road, West Branch, Twp. of McCrosson	1.5	66			1.5 .78	33 30	1.0	26			1073	4x2		
179	Indian Mission Road							1.38	26			600	4x2		
180	Lash Township													1.0	400
181	Miscampbell Twp													1.0	650
182	Morley Twp., Consolidated Sch. R'te.	1.0	66					1.31	28					2.2	1437
183	McGinnis Creek Rd													.5	320
184	McIrvine Township											2640	3x2		
185	Nelles Township	2.0	66	2.0	66	2.0	33								
186	Nelles Pattullo Bdry											5280	3x2		
187	Pattullo-Tait Bdry	.25	66	.25	66			.31	26			235 4950	5x2 4x2	.15	96
188	Pratt Township	1.0	66	1.0	66										
189	Richardson Twp													2.5	1625
190	River Road, Aylesworth Twp.													4.0	731
191	Sleeman-Bergland Rd													19.00	1515
192	Sleeman-Bergland Road, Minahico-Morson Ext'n.	2.0	66	.5	66			.62 1.52	28 26			561 1568	4x2 4½x2	1.45	963
193	Spohn Trunk Road											330	4x2	2.5 12.0	1625 1600
194	Spohn Township	2.0	66	2.0	66							2640	5x2		
195	Spohn River Road											13200	4x2		
196	Stratton - Sifton Rd. and North Branch Road	.13	66			.25	30	1.0 1.0 1.0 .09	34 40 36 20	.03	8	2910 5034 247	5x2 5x3 3x1½	7.0 .44	1210 272
197	Tank Road	3.78	66	2.28	66	.78 .38 .5 .5	66 36 20 28	1.5 .5	36 26			325 1300 1500 4010	4x2 4x1 5x2½ 5½x2	2.0	1300

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		80		1			4x3x20			35 c.yd. stone fill.	174
				8			rebuilt				
		8		4			2x2x16				175
				4			3x16"x16				
				1			3x1x16				
		24.56		4			3x4x20	3	Re-covered.	A small portion of this work was executed on the Devlin Road and the Lavallee Road.	176
				1			1½x3x40				
				1			4x6x24				
				1			4x5x24				
				1			4x4x20				
				1			3x4x24				
				1			2x2x24				
				1			2x3x20				
				1			4x4x16				
				4	repa	ired					
											177
				2			2x4x18				178
				1			2x4x16				
		58									179
											180
											181
		1		1			3x3x16				182
											183
											184
											185
											186
											187
											188
											189
		12									190
											191
				2			4x3x18				192
				1			3x4x16				
		216									193
											194
								2	Repaired.		195
		252		2			4x3x16				196
				2	re-cov	ered					
		4		4			3x4x16				197
				5			4x4x18				

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	TEMISKAMING TRUNK ROAD														
198	Boston Creek-Round Lake Road	1.47	66	.93	66	.56	26								
199	Boston Creek-Skead Road					.93	22	.62	18			4500	2x3		
200	Charlton-Englehart	3.0	br	ushed				4.0	re						
201	Charlton-Elk Lake	2.0	br	ushed						.01	14			.75	597
202	Dane-Larder Lake							10.0	re			5280	3x2	15.0	1263
203	Elk Lake-Gowganda	5.1	br	ushed				2.3	re			3960	2½x1½	12.11	6439
												3230	2 x1½		
												750	1½x1½		
204	Elk Lake - Milberta Road	2.5	br	ushed											
		2.9	66	2.9	66	1.85	33	3.6	22			594	2 x2½		
												264	2½x1		
205	Kirkland-Goodfish														
206	Kirkland-Lebel Road	.15	66			1.40	33	4.45	18	.13	18	5280	2x1	3.0	694
												2220	3x2		
												2700	2x1½		
												750	2x2		
207	Latchford - Cochrane Trunk Road:—														
(a)	Cobalt-New Liskeard Section.	3.5	br	ushed		.3	12	10.0	re			7920	3x2	9.5	5281
						.4	16					1650	4x3		
(b)	Dane-Swastika Sec.	.85	10					5.0	22			400	1½x1½		
		.5	16									2000	3x2		
												2100	4½x4½		
												500	2 x2		
												2500	7 x2½		
												5280	3 x3		
(c)	Ramore-Matheson Section							5.75	re			1000	2x3	3.0	2486

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Drag-ging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crush-ed	L cov-ered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
											198
				4			6x3x16	1	22x14	100 c.yd. earth cut.	199
				1			9x6x16			100 c.yd. earth fill.	
				4			3x4x16				
				2			3x4x16				200
				2			3x2x16				
				1			4x4x23				
						5	20″x20′				
			4	5			3x4x16	3	Repaired.		201
				16			3x2x16				
860	1.5	6		3			2x2x16				202
		10.5		1			14′x 14′	2	Repaired.	799 c.yd. earth cut.	203
				1			4x16			1676 c.yd. earth fill.	
				8			1½x16				
				3			3x16				
				1			1x16				
						5	18″x14′				
						11	12″x14′				
						1	12″x16′				
				5			1x21	1	32x16	535 c.yd. earth cut.	204
				1			4x21	1	45x16	773 c.yd. earth fill.	
				2			4x6x20			896 c.yd. rock fill in piers.	
824	2.5							1	Repaired.		205
				5			4x2x20				206
				2			4x2x16				
				2			2x2x16				
				1			2x2x20				
				3			2x4x16				
											207
		5		1			6x4x24			2086 c.yd. cut and fill.	(a)
						17	18″x22				
						2	24″x22′				
				2			3x2x20	1	54 x 16 cement piers.	200 c.yd. gravel fill.	(b)
				4			4x2x20	1	Timber.	3255 c.yd. earth cut.	
				2			3x8x20	2	16′ pile bents.	780 c.yd. earth fill.	
				2			18x19x25			4032 c.yd. rock excav.	
				5			2x2x16				
				2			4x2x16				
				1			7x8x16				
				4			2x4x16				
				2			3x4x16				
				2			4x5x16				
				6			2x2x24	2	Rebuilt.	6815 c.yd. earth cut and fill.	(c)
				3			1x2x20				
				1			3x4x20				
				1			2x4x20				
						1	48″				

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	TEMISKAMING TRUNK ROADS—*Continued.*														
(d)	Matheson-Monteith Section													7.5	6912
(e)	Monteith-Porquis Section							2.8	33			2800 700 1200 500	3½x2 6 x2½ 6 x3 4 x3		
(f)	Porquis Jct.-Holland Section													1.65	1134
(g)	Holland-Cochrane Section	7.0	66	7.0	66	1.5	33	.5	33			300	3½x3	1.5	25
208	Lightning River Rd., (Munro-McCool & Michaud Twps.)	12.0	br	ushed	..	12.0	10							4.0	1442
209	Matachewan to Island Rapids	1.25	66	1.25	66										
210	Matheson-Shillington-Porcupine Road.	.5	br	ushed	..			1.08	26			4575	3x1½	3.75	3366
211	Monteith-Shillington-Road														
212	Munro Road							7.0	re					2.0	452
213	Porquis Jct.-Iroquois Falls Road							1.55 .87	24 33			9880 2900 900	3½x2 2 x4 4 x4		
214	Porquis Jct. - Timmins Road	2.45	66	11.45	66	2.89	30	5.61 .38	26 24			310 3000 1524 500 1550	3 x3 3½x1½ 3x2 6x3 2x2	1.58	2501
215	South Lorrain Road	3.76 1.17	66 br	3.76 ushed	66	4.43 4.0 .5	33 8 12	5.17	22			9290	3x1	5.0	1453
216	Swastika-Kirkland Road														223
	THUNDER BAY DIST.														
217	Arthur St. Road	3.43	br	ushing	&	wideni .75	ng 30					7062 450	4x2 3x1	1.8	734
218	Conmee Road, Oliver Township	.75	br	ushing	..									.5	432
219	Conmee Township													1.55	1209
220	Current River Road							.25	24					.25	200
221	Dawson Road	1.0 1.25	40 br	1.0 ushing	40	.75	26	1.0 1.0	25 re			8560 2000	2½x1½ 3 x1½	5.38	3656
222	Dawson Road Lots Township	1.0	66	1.0	66	1.0	26	.5	24			5280 300	2x1½ 3x2		
223	Dog Lake Road	3.75	br	ushing	..							3590	cleaned	3.5	1385

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		4.5						2	Rebuilt.	2527c.yd. earth cut and fill.	(d)
		1		2			20x20"x16			1000 c.yd. earth cut and fill.	(e)
				3			1½x1½x16				
											(f)
		2	2	1			2x2x20				(g)
				4			4x4x18			1 mile roadway cleared of boulders.	208
				2			2x6x18				
											209
			15	3			2x4x18				210
		7			1 Conc.		42"x35 Double				211
		11			1		2x2x16				212
				1			4x4x18	2	18x12x24	356 c.yd. earth cut and fill.	213
				3			1½x1½x16				
				5			3x4x20				
				1			2x2x24				
500	.57	2		14			3x4x24	4	Timber.	1575 c.yd. earth fill.	214
				1			4x2x22	1	Concrete abutments.	15673 c.yd. earth cut.	
				4			2x2x16				
				1			1½x1½x16				
						2	20"x22				
						16	18"x22				
		2		3			4x4x22	1	Re-covered and repaired.		215
				1			4x2x22				
						13	18"x22				
						1	24"x22				
						18	12"x22				
936	2		5					1	Timber.	275 c.yd. rock fill. 313 c.yd. gravel fill. 1.9 miles tarred, 12' wide.	216
		67.25			2		18"x25'	1	Repaired.		217
											218
		12									219
											220
		26		4			16x3x3	4	Re-covered.	1000 c.yd. rock excav. 800 c.yd. earth excav.	221
					2		25x18"				
					1		22½x18"				
				5			18x2½x2				222
				5			18x2x1				
		3.5		3			18x4x2	1	30' truss on cribs.	625 c.yd. earth and stone excavation.	223
				1			16x4x4	1	Re-covered.		

DEPARTMENT OF LANDS AND FORESTS.

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	THUNDER BAY DIST. —*Continued.*														
224	Dog River Road.....	.....	..	.....	..	.5	24	.33	18	.....	..	325	2 x1	.5	388
												865	2 x1½		
225	Dona-Forbes Road..	.5	66	1.75	66	1.25	26	3.0	24	.....	..	3600	2½x1	.....	.....
						1.5	24					150	2 x1		
226	Dorion Township....	4.75	br	ushing	..	1.0	24	2.13	18	.....	..	580	3x2	3.57	1425
		2.13	40	2.13	40	.63	26								
						.5	20								
227	Dorion-Sterling Bdry.	1.04	66	1.04	66	1.04	24	.....	..	.....	..	1320	2 x1½	.....	.....
228	Gillies Township....	2.0	br	ushing	..	1.25	8	3.5	24	.....	..	2243	2½x1½	.03	60
												197	3 x1⅓		
												205	3 x1		
229	Gillies-Scoble Bdry...	.25	br	ushing	..	.....	..	.5	re	.....	..	.....	.....	.13	57
230	Gorham Township...	7.0	br	ushing	..	.....	..	.75	16	.....	..	10140	cleaned	.....	.....
		1.50	25	1.5	25	3.0	20	.75	18	.....	..	2640	2½x1	4.20	2136
								.5	20			600	3 x2		
		1.5	40	1.5	40										
231	Gorham-McIntyre Boundary.....	.2	40	.2	40	.2	26	.....	..	.....	..	1037	cleaned	1.0	242
		3.0	br	ushing											
232	Gorham-Ware Bdry..	.5	br	ushing	..	.....	..	.5	24	.....	..	.....	.....	.25	30
233	International High'y.	4.96	br	ushing	..	.06	26	1.0	24	.....	..	160	3½x2½	.....	.....
												520	2½x1½	9.0	5717
												3000	cleaned		
234	Kakabeka-Hymers Road.....	.....	..	.....	..	.....	..	7.25	re	.....	..	700	cleaned	2.5	2520
235	Lybster Township...	.75	40	.75	40	.75	20	.75	20	.....	..	200	2x1	.33	250
		8.0	br	ushing	..	1.0	24								
						.5	26	7.0	18						
236	Lybster-Marks Bdry.	.5	40	.5	40	.5	20	.....	..	.....	..	.....	.....	.....	.....
237	Lybster-Strange Rd..	1.25	40	1.25	40	.75	26	.75	20	.....	..	2650	2x1	.....	.....
238	Marks Township....	3.57	br	ushing	..	1.0	24	2.51	22	.....	..	7350	2x1	.31	250
												500	3x2		

NORTHERN DEVELOPMENT BRANCH.

DONE. YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
		2		1			18x2½x1¼				224
				3			24x3x2½			5000 c.yd. earth cut and	225
				3			24x2x1½				
				5			24x3x2				
				2			20x3½x2				
					2		18x2x1				
				3			16x4x3	1	Repaired.	700 c.yd. earth cut and fill.	226
				3			16x3x3				
				5			16x3x2			Retaining wall, 250'x4' x3'.	
											227
					2		22½x1½			6500 c.yd. earth cut and fill.	228
					5		22½x1				
					1		20x1¼			377 ft. retaining wall, 3'x 4'.	
					1		25x1½				
					1		20x1				
				7			18x2x2			60 c.yd. earth cut and fill.	229
				4			16x2x2			190 c.yd. earth cut and fill.	230
				9			16x3x2				
				3			18x4x3				
				3			18x3x2				
				2			18x2x2				
				2			16x5x2				
				1			20x3x2				
					3		16x3x2				
				2	repaired						
				6			18x4x2				231
				1			20x14x8				
				3			18x3x2				232
				1			20x3x2				
		342				1	20x12"	2	30' temporary.	5471 earth cut.	233
				2			24x4x2	2	20' span.	3704 earth fill.	
				4			24x4x2½			385 c.yd. rock excav.	
				1			22x4x2½				
				1			25x4x2½				
				1			25x3½x2½				
				1			25x4x3				
		48		2	re-covered					1365 c.yd. earth cut and fill.	234
				2			18x6x2	1	Removed.	3300 earth cut and fill.	235
				7			18x2x1				
				18			18x3x1				
				1			18x4x3				
				3			18x3x1				
				1			18x6x3				
					1		45'x2'				
				1			18x3x2				236
				5			18x3x2				237
				36			18x3x2				238

DEPARTMENT OF LANDS AND FORESTS,

ANNUAL REPORT OF WORK

		Cutting		Burning		Stumping and Grub'g		Grading		Cross Lay		Ditching		Gravelling	
		L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L mls.	W ft.	L ft.	W & D	L mls.	Yards used
	THUNDER BAY DIST. —*Continued.*														
239	Nepigon Highway...	8.88 .25 3.5 .5 6.75	br 66 10 35 40	ushing .25 1.75	.. 66 40	5.63	26	5.13	24	.....	..	12500 4770 2970 300	2x1½ 3x2 3x1½ cleaned	10.94	8006
240	Oliver Township.....	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
241	Oliver Road.....	13.5	br	ushing	..	.....	..	.....	..	.....	..	1254 225 2298	2½x1 3 x1¼ cleaned	3.37	2355
242	O'Connor Township .	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.14	110
243	Pearson Township...	.25 2.6	60 40	.25 2.6	60 40	.25 1.6 1.0	26 24 20	2.38 1.0	20 18	.....	..	6090	2x1½	.24	140
244	Pearson-Pardee Road	.75	50	.75	50	.75	26	.75	24	.13	10	10110 8460	3x2 2x2	1.25	1368
245	Schreiber Roads.....	.5	br	ushing	..	.....	..	.1	24	.....	..	630	3x1½	3.19	2486
246	Scoble Road.....	.....	..	.....	..	.....	..	.....	..	.....	..	.....	.....	.....	.....
247	Scoble Township....	.5 .5 .13 1.0	br 40 15 20	ushing .5 .13 1.0	.. 40 15 20	..... .25 .33 .13	.. 16 26 24	.5 .75 1.38	18 16 20	.08	12	300	2x1	.5	400
248	Silver Mountain Rd..	1.5	br	ushing	..	1.5	12	3.5	24	.....	..	.....	.....	5.63	4397
249	Sterling Township...	1.13	66	1.13	66	1.13	24	1.0	20	.....	..	2032 6578 4620	2½x2 3 x2 cleaned	1.63	1194
250	Sunshine Road, Conmee Township.	.31	br	ushing	..	.25	16	.63	24	.....	..	2200 2160 600	3x1½ 3x2 3x1	1.5	1179
251	Ware Township.....	6.0 1.0 .5 1.5	br 66 40 50	ushing 1.0 .5 1.5	.. 66 40 50	3.38 .50	24 20	1.0 .5 3.00	24 20 re	.1	10	2310 2340 6699	3x1½ 2x1 cleaned	.33 .25 .33	204 254 277
	TOTALS.....	344.13 229.61	.. br	307.97 ushing		225.14		340.77 217.06	re	4.05 -gradi	ng	984818		976.45	316287

NORTHERN DEVELOPMENT BRANCH.

DONE, YEAR 1922.

Crushed Rock		Dragging	Other Rep'rs	Culverts				Bridges		Remarks	
Yds. crushed	L covered	Miles	Miles	Wood	Stone or Conc.	Metal	Size	No.	Description		
.....	....	32.66	.33	....	.....	1	40'x10"	8	Whitewashed.	500 c.yd. rock excav.	239
						1	30'x15"			7426 c.yd. earth cut and fill.	
						2	20'x18"				
				5	.....	....	40x4x3			530 c.yd. burrow for fill.	
				13	.....	....	24x3x2			Retaining wall 110'x12" x4½'.	
				16	.....	....	various			190 ft. lineal, guard rail.	
.....	....	.....	.....	....	.....	....	.....	..	.....	465 ft. lineal, iron guard rail erected at Kakabeka Falls.	240
.....	....	1.43	.....	....	6	....	25'x18"	..	.....	.....	241
					1	....	20'x18"				
						1	20'x14"				
						5	24'x15"				
.....	....	.....	.....	....	.....	....	.....	2	22' span.	.....	242
								1	20' span.		
.....	....	.....	.....	3	.....	....	18x4x1½	..	.....	.....	243
				10	.....	....	20x3x2				
				3	.....	....	18x1½x1½				
					3	....	18x2x2				
				2	.....	....	18x2½x2				
				6	.....	....	18x2x2				
.....	....	1	.....	1	.....	....	18x5x2½	..	.....	1200 c.yd. earth cut and fill.	244
				2	.....	....	18x5x3			420 c.yd. clay surfacing.	
				2	.....	....	18x3x2			485 c.yd. rock excav.	245
.....	....	12	.....	1	.....	....	18x4x4	1	Re-covered.	.....	246
				4	.....	....	18x2x2	1	15' span.		
								1	12' span.		
.....	....	.....	.....	1	.....	....	14x2½x1½	..	.....	.....	247
				1	.....	....	15x2x1				
				6	.....	....	18x3x2				
				3	.....	....	18x3x1½				
				7	.....	....	18x2½x1½				
.....	....	.....	.....	1	.....	....	18x4x2	1	30' span.	2430 c.yd. earth cut and fill.	248
				14	.....	....	22x4x2				
				2	.....	....	22x3x2				
.....	....	.....	.....	2	.....	....	18x5x3	1	16' span.	.....	249
								1	14' span.		
.....	....	.....	.....	2	.....	....	18x3x1½	1	Re-covered.	1700 c.yd. cut and fill.	250
				1	.....	....	20x6x2				
				1	.....	....	20x4x2				
				3	.....	....	18x3x2				
.....	....	.....	.....	1	.....	....	18x8x4	1	28' span.	.....	251
.....	....	.....	.....	4	.....	....	18x3x3	1	12' span.		
				3	.....	....	18x2x2				
				3	.....	....	18x1½x1				
				8	.....	....	18x3x2				
				3	.....	....	16x2x2				
				3	.....	....	20x2½x2				
23108	20 mls.	3851.84	77.83	1762	139	335	1	105	Built.		
								80	Repaired.		

14 L.F.

Appendix No. 48.

NORTHERN DEVELOPMENT BRANCH.

STATEMENTS FOR REPORT FOR THE YEAR ENDED 31ST OCTOBER, 1922.

SECTION 1 (D).

THE ASSISTANCE OF SETTLERS.

Re Feed Shortage.

The indifferent growing season of 1921 necessitated assistance being given to the farmers of Manitoulin Island and in the neighbourhood of Mattawa during the summer of that year; and during the succeeding fall and winter the same shortage of feed became evident in those parts of Northern Ontario west of Mattawa, and extending along the main line of the Canadian Pacific Railway to Sudbury, and along the Soo Branch as far as Walford; north from Sudbury along the Canadian Northern Railway to Hanmer; south from Sudbury along the Canadian Pacific Railway to Rutter; and south from North Bay along the Grand Trunk Railway to Powassan. This territory embraces numerous excellent farming communities, the produce from which, in normal seasons, is sufficient not only to provide for local requirements, but for considerable sale to outside points. The poor growth during 1921, however, produced such a reduced crop that fodder was not available in sufficient quantity to feed the stock which the farmers had on hand. The assistance which had been provided by the Branch to the farmers of Manitoulin Island was, therefore, extended to meet the additional needs. Sixteen distribution centres were established in the area of the shortage, at Mattawa, Eau Claire, Rutherglen, Bonfield, Rankin Siding, Warren, Markstay, Nairn Centre, Webbwood, Massey, Walford, Blezard Valley, Hanmer, Rutter, Callander and Powassan; to these points hay was shipped for sale to farmers, from other sections of the Province, at a considerable saving in cost over the prevailing local rate. The total quantity supplied amounted to 1,307 tons of hay, and 3,070 bushels of corn. Part of this was paid for in cash; the remainder was sold on guaranteed promissory notes payable in 12 months, with interest at 6 per cent. per annum. The feed supplied was of great benefit to the farmers, as it enabled them to retain their stock during the winter, instead of being compelled to dispose of them at sacrifice prices, as would otherwise have been the case.

Refunds were received during the year for cash sales and for feed previously supplied on promissory notes to the amount of $24,287.08.

SECTION 1 (E)—CREAMERY.

NEW LISKEARD, ONT.,
November 10, 1922.

To The Honourable Beniah Bowman,
Minister of Lands and Forests,
Parliament Buildings,
Toronto.

DEAR SIR,—I beg to enclose report of the operations of the Government Creamery for the year ending 31st October, 1922.

For the past year we took in 347,856 lbs. of cream, made 119,278 lbs. of butter, and paid farmers for cream delivered $35,896.83, at an average price of 38.6 cents per lb. fat. The quantity of cream received in 1922 represents an

increase over 1921 of 50,289 lbs., which would be equivalent to a gain of over 500,000 lbs. in milk produced by the dairy farmers of the district over the preceding year. The number of patrons was increased from 236 in 1921 to 319 in 1922. This development was very gratifying indeed, and our increase in butter and cream would have been somewhat greater but for the disastrous fire of October 4th, which destroyed a number of cows as well as farm buildings and feed. This year I think the farmers of this part of the district had the best crops they have had in the history of the north country, both in hay and grain. Although the latter part of the season up until the time of the fire was dry, yet the grass was quite plentiful, and the second growth of clover was nearly as good as the first. A great many of our patrons were burnt out and some even lost their lives in the fire. This will no doubt affect our winter business, which promised to be the greatest in the history of this institution. We had been working toward this end for the last five years; encouraging and educating our patrons to go in for winter dairying, and just when our hopes seemed to be fully realized with abundant crops and a great number of fresh cows, on October 4th our prospects were shattered by the great calamity that befell our district.

SUMMARY OF OPERATIONS.

From August 17th, 1917 to October 31st, 1922.

Pounds of Cream received	1,483,599
Pounds of Butter manufactured	484,156
Value of Butter	$222,848.18
Paid to Patrons	$195,076.31

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

(Sgd.) A. MacLachlan,
Manager.

Section 2 (1)—Seed Grain.

The shortage of the grain crop in Northern and Northwestern Ontario during 1921 necessitated an increase in the quantity of seed grain distributed in that area for spring seeding in 1922. Applications were received for upwards of 32,000 bushels of oats and 1,700 bushels of wheat. Considerable difficulty was experienced in obtaining seed oats of the necessary high quality, as the crop shortage in Ontario during the previous season had the effect of reducing the available quantity of seed grain to a minimum. This necessitated supplies being purchased from the Western Provinces, which was a departure from the usual practice of the Branch in supplying seed grain for distribution in Northern Ontario. Wherever possible, local supplies were obtained in preference to importation of Western grain.

Sixteen distribution centres were established in co-operation with the representatives of the Department of Agriculture or of this Branch. The seed was supplied either for cash or upon promissory note secured by a lien placed upon the land of the applicant. The results, in spite of the difficulties above alluded to, have on the whole proved very satisfactory, although experience has shown the advisability of sowing Ontario seed when it is available.

In some districts, particularly Manitoulin Island and in the vicinity of Sudbury, grasshoppers made their reappearance during the past season, and seriously affected the crops. A large quantity of arsenic was provided by the Branch and used in the affected areas under the superintendence and with the co-operation of the Agricultural Representatives. In other districts, however, the season proved to be an excellent one, and satisfactory crops were raised.

The total expenditure incurred in the purchase and local costs of distribution of the seed amounted to $37,174.84.

Section 2 (2)—Cattle Purchase.

The purchase of cows by the Branch for resale to farmers in the northern part of Temiskaming district was so successful in the year 1921, that it was found advisable to repeat the procedure this year. A further car-load was purchased in the Powassan section, consisting of an excellent grade of cattle, viz.: 19 cows, 1 bull, 3 heifers and 3 calves. The bull was sold for $75.00, the three calves produced $25.00; the heifers and cows realized from $35.00 to $115.00 each; the total returns being sufficient to repay the cost of the cattle and distribution. The advantage of this method of purchasing cows for the northern settlers by car-load lots ensures their obtaining the cattle at the lowest cost, and brings the expert judgment of the Superintendent of the Monteith Experimental Farm to the assistance of the farmers in procuring the best and most suitable type of animal for the locality.

SUMMARY OF EXPENDITURE.

FOR THE ELEVEN YEARS ENDED 31ST OCTOBER, 1922.

Northern and Northwestern Ontario Development Fund.

SECTION.	Summary of Expenditure 23rd May, 1912, to 31st Oct., 1921.	Expenditure for year ended 31st October, 1922.	Total Expenditure to 31st October, 1922.
Section 1 (a) Works and Improvements	$2,100.00	.....	$2,100.00
Section 1 (b) Roads	8,369,576.78	$1,603,148.53	9,972,725.31
Section 1 (d) Farms	79,968.37	30,278.16	110,246.53
Section 1 (d) Assistance of Settlers	60,056.87	57,841.20	117,898.07
Section 1 (e) Creamery and Grain Elevators	45,844.67	11,305.86	57,150.53
Section 2 (1) Seed Grain	190,612.63	37,174.84	227,787.47
Section 2 (2) Cattle Purchase Account	20,094.61	1,523.38	21,617.99
Section 2 (4) Schools and Public Buildings	.....	17,353.85	17,353.85
Section 2 (6) Fire Protection	3,773.45	.....	3,773.45
Returned Soldiers' and Sailors' Settlement Act, 1917	1,177,913.16	3,169.35	1,181,082.51
	$9,949,940.54	$1,761,795.17	$11,711,735.71
Settlers' Loan Acct., Clause 9 (Amend. Act 1916)	665,176.81	248,358.12	913,534.93
	$10,615,117.35	$2,010,153.29	$12,625,270.64

STATEMENT OF EXPENDITURE.

UNDER NORTHERN AND NORTHWESTERN ONTARIO DEVELOPMENT ACTS, 1912 AND 1915 AND AMENDMENTS.

FOR THE YEAR ENDED 31ST OCTOBER, 1922.

Districts and Sections.	Expenditure, year ended 31st October, 1922.
1. Kenora	$63,629.48
2. Dryden	72,615.36
3. Port Arthur	65,747.90
4. Fort William	98,215.42
5. Rainy River	94,961.19
6. St. Joseph Island	11,581.08
7. Sault Ste. Marie	169,625.13
8. Sudbury	74,343.23
9. Nipissing	85,253.19
10. Parry Sound	76,824.11
11. Muskoka	103,673.80
12. Renfrew	17,899.82
13. Manitoulin Island	76,127.87
14. Temiskaming	565,100.34
15. General Administration	27,550.61
	$1,603,148.53
16. Farms	30,278.16
17. Assistance of Settlers	57,841.20
18. Creamery	11,305.86
19. Seed Grain	37,174.84
20. Cattle Purchase	1,523.38
21. Schools and other Public Buildings	17,353.85
22. Returned Soldiers' and Sailors' Settlement Account	3,169.35
23. Settlers' Loan Account	248,358.12
TOTAL	$2,010,153.29

STATEMENT OF EXPENDITURE.

YEAR ENDED, 31ST OCTOBER, 1922.

Making of Roads, Section 1 (b):			
Bruce, A. E. D., Secretary and Accountant, salary		$3,450.00	
Sinton, Jas., Road Engineer, salary		2,700.00	
Beardall, F. G., Principal Clerk, salary		2,300.00	
Lawer, W. L., Senior Account Clerk, salary		2,100.00	
Reid, A., Map Draughtsman, salary		1,800.00	
Dicker, C. L., Clerk, salary		1,500.00	
Fleming, Miss E., Clerk, salary		1,300.00	
Carefoot, Miss O., Clerk-Stenographer, salary		1,100.00	
			$16,250.00
Wages		$911,923.04	
Contracts		239,329.14	
Supplies, Equipment and Services		435,646.35	
			1,586,898.53
			$1,603,148.53
Advancement of Settlement and Colonization, Section 1 (D):			
Wages		$3,610.53	
Purchase of Land		24,800.00	
Supplies, Stock and Equipment		1,867.63	
			30,278.16
Assistance of Settlers, Section 1 (D):			
Hay, Oats, Corn, Freight, Services and Disbursements			57,841.20
Creamery, New Liskeard, Section 1 (E):			
Wages		$4,679.96	
Supplies, Equipment, Freight and Expenses		6,625.90	
			11,305.86
Seed Grain, Section 2 (1):			
Wages		$324.50	
Seed, Freight, Services and Disbursements		36,850.34	
			37,174.84
Cattle Purchase Account, Section 2 (2):			
Cost of Cattle, Freight and Disbursements			1,523.38
Schools and other Public Buildings, Section 2 (4):			
Continuation School, New Liskeard, contracts for erection, heating, etc.		$15,912.86	
Material and Supplies		1,440.99	
			17,353.85
Returned Soldiers' and Sailors' Land Settlements Act, 1917:			
Services, Repairs and Disbursements			3,169.35
			$1,761,795.17
Settlers' Loan Account, Amending Act, 1916:			
Dane, F., Commissioner, salary		$5,000.00	
Kennedy, W. K. P., accountant, salary		2,700.00	
Crawford, G., Stenographer, salary		1,050.00	
		$8,750.00	
Net amount of loans issued	$237,255.00		
Expenses	2,353.12		
		239,608.12	
			248,358.12
			$2,010,153.29

NORTHERN DEVELOPMENT BRANCH.

STATEMENT OF REVENUE FOR THE YEAR ENDED 31ST OCTOBER, 1922.

Section 1 (B) Roads: Sale of Supplies, Stock and Equipment, Rentals and Refunds	$3,008.13
Section 1 (D) Farms: Sale of Produce and Cartage	1,836.15
Section 1 (D) Assistance of Settlers: Cash Sales of Feed and Notes retired	24,287.08
Section 1 (E) Creamery: Butter Revenue, Sale of Buttermilk, Cans, etc.	7,521.08
Section 2 (1) Seed Grain: Cash Sales and Notes retired	19,338.83
Section 2 (2) Purchase of Cattle Account: Cash Sales and Notes retired	2,826.84
Clause 5 (1-12) Soldiers' Settlement Account: Note retired and Sale of Stock, Kapuskasing Colony	18,110.46
	$76,928.57
Settlers' Loan Account: Payments on Principal, Interest, etc.	84,096.98
Total Revenue under all heads, 1922 account	$161,025.55

RECORD OF CORRESPONDENCE.

FOR YEAR ENDED 31ST OCTOBER, 1922.

Letters received		9,742
Letters mailed	10,712	
Circulars mailed	652	
		11,364

November 16, 1922.

ARTHUR E. D. BRUCE,
Secretary and Accountant.

Appendix No. 49.

46 RICHMOND STREET WEST,
TORONTO, January 10th, 1923.

To the Honourable, the Minister of Lands and Forests.

DEAR SIR,—I have the honour to herewith submit a report of the business of this Department to the end of October, 1922, as follows:—

Total number of applications received, 3,871. These applied for loans amounting to $1,554,800.00, being an average application of $392.47.

Consideration of each application being on its own merits, and the basis, as usual, on which the loans have been advanced was that of the actual improvements to land.

The total number of loans granted to settlers being 2,549, amounting to $860,235.00, being an average loan of $323.40. This amount includes a loan to the Sudbury Co-Operative Creamery Co., Ltd., of $24,000.00, and a loan of $10,000.00 to the Kenora Dairy Co-Operative Association; also $3,500.00 to the Producers Co-Operative Creamery Co., Ltd., of Lavallee, District of Rainy River.

It is a pleasure to refer to the manner in which repayments on account of

loans have been met; being 89.16% on account of interest, and 90.83% on account of principal. The repayments on principal include some loans paid in advance.

From information received from the several districts, the Department learns that settlers are giving more attention to the development of their own lots than in former years, and seem more anxious than ever to get themselves in a position to carry stock.

During the year there have been many expressions of appreciation of the service that the loan has been to settlers.

All of which is respectfully submitted.

F. DANE,
Settlers' Loan Commissioner.

Memorandum of Settlers' Loans to October 31st, 1922.

Applications.

Total number of applications received	3,871
Total amount applied for	$1,554,800.00
Average per application	392.47
Amount applied for under approved applications	1,070,810.00

Loans.

Number of loans issued	2,549
Equal to 66% of applications.	
Amount granted	$860,235.00
Equal to 55% of total amount applied for and	
Equal to 80% of total amount applied for under approved applications.	
Average loan	$323.40
Total acreage covered by liens	387,443
Acreage improved land	56,120
Equal to 14% of total acreage.	
Average loan per acre on total acreage	$2.12
Average loan per acre on acreage improved land	$14.66

Note.—Figures, except averages, include application for, and loan of $24,000.00 to Sudbury Co-operative Creamery Co., Ltd., $10,000.00 to Kenora Dairy Co-operative Association, and $3,500.00 to the Producers Co-operative Creamery Co., Ltd., Lavallee, Ont., District of Rainy River..

Repayments.

Accrued interest due	$122,028.78
Accrued interest received	108,812.29 or 89.16%
Payments on principal due	278,273.16
Payments on principal received	252,759.23 or 90.83%
Total payments due	400,301.94
Total payments received	361,571.52 or 90.32%

Details of Loans Issued and Outstanding.

District.	No. of Loans.	Amount.	Unpaid Principal and Accrued Interest.
Algoma	72	$22,460.00	$19,965.73
Kenora	257	94,120.00	74,732.48
Manitoulin	10	3,850.00	3,800.00
Nipissing	140	49,545.00	39,821.12
Rainy River	204	67,350.00	45,911.56
Sudbury	136	75,500.00	61,623.18
Temiskaming	1,083	336,705.00	223,320.87
Thunder Bay	647	210,705.00	151,517.32
Totals	2,549	$860,235.00	$620,692.26

Appendix No. 50.

REPORT OF FORESTRY BRANCH, 1922.

SIR,—The report of the work of this Branch for the year ending October 31st, 1922, is given under the sections of Forest Fire Protection, Forest Investigations, Reforestation and Forest Pathology.

I.—FOREST FIRE PROTECTION.

(1) *Legislation.*

The Forest Fires Prevention Act has not been changed since 1918. Experiences since then have indicated, however, that certain amendments are desirable. The lack of compulsory fire-fighting, and jail sentences as well as fines for certain infringements of the Act, are particularly felt.

(2) *Organization and Personnel.*

The supervision of the field force was carried on by one Forest Supervisor with headquarters at Kenora, one Fire Inspector with headquarters at Cochrane, one Assistant Superintendent of Fire Ranging and one Fire Inspector with headquarters at Sudbury, and three District Foresters, each with a Forest Assistant, with headquarters at Parry Sound, Pembroke and Tweed. The District Foresters and Forest Assistants are all technical foresters.

A rearrangement of Chief Ranger Districts was made, whereby one new district was created, and two old districts abolished, the territory in these being divided among the adjoining districts. In addition to this, the country south of the French River and Lake Nipissing, and within the Fire District, was divided into three Forest Districts, each in charge of a District Forester, who was directly responsible for the fire protection in his district.

Fig. 1.—Aircraft patrolling forest in Algonquin Park.

There were on duty a total of thirty Chief Rangers and sixty-two Deputy Chief Rangers, allowing direct field supervision of one Deputy or Chief Ranger to every eleven Rangers.

The average daily force was as follows: April, 29; May, 595; June, 1,053; July, 1,054; August, 1,024; September, 463; October, 70. The largest number of men on duty at any one time, including ninety-two Chief and Deputy Chief Rangers, was 1,067.

As a result of the fire season being early, there were 595 men on duty by the middle of May, and at the end of the month 1,002. On the 15th of June, the total number was 1,052; on the 13th of June, 1,065; on the 15th of July, 1,054; on the 31st of July, 1,044; on the 15th of August, 1,040. It was possible to discontinue some patrols during the last days of August so that by the end of the month the total number on duty was 980. By the middle of September the number had been reduced to 545, and at the 1st of October to 101. On the 15th of October there were 44 men on the pay roll.

One of the greatest drawbacks to proper forest fire protection in Ontario is the impermanency of the personnel. Fire ranging is a specialized line of work, requiring special training, and until a permanent staff is built up, whereby the chief and deputy chief rangers at least may be put on a permanent basis, the organization will not have the degree of efficiency which is desired. A ranger school where these men could be given from one to three months' special training each year would also aid materially.

(3) *Expenditure.*

The expenditure for the fiscal year was $643,902.63, classified as below, with the figures for the preceding years given for comparison. Against this expenditure, protection accounts for the year totalled $309,938.40.

CLASSIFICATION OF EXPENDITURE.

Item.	1922	1921	1920	1919
Pay roll	$417,023.88	$433,463.02	$398,919.61	$405,212.30
Equipment	44,504.49	28,384.40	22,287.83	22,899.02
Expendable property	3,048.16	19,505.86	16,589.99	13,903.06
Travel (inspection)	23,088.33	21,034.95	17,495.93	15,826.37
Improvement work	40,999.77	3,621.06	1,591.01	4,765.35
Extra fire fighting	40,969.67	65,267.79	41,491.24	58,863.92
Express, postage, etc.	9,561.17	7,926.65	5,401.02	5,646.47
Air patrol	23,437.84	.....	.....	.....
Repairs, upkeep, etc.	17,670.45	.....	.....	.....
Miscellany	23,598.77	31,331.01	2,331.08	5,955.02
Total	$643,902.63	$610,534.74	$506,107.71	$528,071.51

(4) *Fires.*

The spring of 1922 was fairly wet up until about the last week in April, when, in some districts the weather turned warm and dry and continued so until after the 1st of June, and as a result, some of the worst fires of the season occurred during the month of May. During the summer there were short periods of hot dry weather, but these were almost invariably followed by enough precipitation to relieve, in many instances, very serious conditions. The latter part of September was extremely dry and hot, and serious fires occurred.

CLASSIFICATION OF FOREST FIRES.

By Month.

Month.	1922	1921	1920	1919	1918	1917
	No.	No.	No.	No.	No.	No.
April	35	5	...	...	...	...
May	280	296	1* 422	362	294	449
June	194	290	309	414	273	320
July	77	475	142	613	124	158
August	212	97	300	377	268	117
September	121	105	2* 114	14	6	66
October	102	1	...	...	...	...
Totals	1,021	1,269	1,287	1,780	965	1,110

1* April and May.
2* September and October.

By Origin.

Origin.	1922		1921	1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Settlers	164	16.1	9.6	11.0	7.7	8.1	8.2
Campers	122	11.9	8.8	11.7	9.2	9.7	13.9
Railways	166	16.3	14.8	23.9	37.0	46.5	49.5
Lightning	52	5.1	11.0	1.1	3.0	3.8	2.9
Logging operations	42	4.1	5.0	4.6	2.5	4.1	4.1
Miscellaneous	8	.8	1.1	7.2	4.3	4.6	3.6
Unknown	467	45.7	49.7	40.5	36.3	23.2	17.8
	1,021	100.0	100.0	100.0	100.0	100.0	100.0

By Size.

Size.	1922		1921	1920	1919	1918	1917
	No.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Quarter acre and under	242	23.7	20.8	23.2	30.5	40.5	36.3
Over quarter to 5 acres	297	29.1	24.0	29.4	27.7	33.7	19.5
Over 5 to 10 acres	64	6.3	6.8	8.1	6.1	6.0	4.8
Over 10 to 100 acres	196	19.2	20.4	17.1	16.5	13.6	9.5
Over 100 to 500 acres	129	12.6	13.3	12.0	8.7	5.1	4.7
Over 500 acres	....	....	....	....	....	1.1	25.2
Over 500 to 1,000 acres	37	3.6	5.5	5.0	3.3	....	....
Over 1,000 to 10,000 acres	50	4.9	8.1	4.9	5.9	....	....
Over 10,000 acres	6	.6	1.1	.3	1.3	....	....
	1,021	100.0	100.0	100.0	100.0	100.0	100.0

Of the total number of fires, settlers were responsible for 164 or 16.1 per cent., a slight increase over previous years. Of this number, 36 were permit fires which got beyond control.

During the season three convictions were secured for carelessness in allowing fires to run, one for burning without a permit, and two for operating open burners in connection with sawmills.

Fig. 2.—Aircraft, landing in Algonquin Park.

The number of fires known to be caused by campers was 122, or 11.9 per cent. of the total. Special efforts were made to trace the parties responsible for some of these fires, but it was found impossible to get sufficient evidence to warrant court proceedings.

Railways are known to have caused 166 fires, or 16.3 per cent. of the total. This is slightly above the total for 1921, but the general trend in the number of railway fires is downward. Although the attention given by our locomotive inspectors to the fire protective appliances on locomotives has been responsible for a decrease in the number of railway fires, much credit must also be given to the co-operation between our own field organization and that of the railway companies.

The fires of railway origin were distributed as follows:

Railway.	Per cent. of Total Number of Railway Fires.				
	1922	1921	1920	1919	1918
Canadian National Railway (exclusive of northern lines)...	25.9	44.7	32.3	24.6	25.4
Canadian Pacific Railway	25.3	29.8	27.9	26.3	24.9
Canadian National Railway (northern transcontinental line only)	13.3	7.9	16.4	25.9	21.8
Temiskaming and Northern Ontario Railway	14.5	10.6	9.9	17.9	10.5
Algoma Eastern Railway	2.4	2.8	5.0	0.3	2.9
Algoma Central Railway and Hudson Bay Railway	8.4	1.0	4.4	1.5	1.1
Grand Trunk Railway	10.2	3.2	4.1	3.5	13.4
	100.0	100.0	100.0	100.0	100.0

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE.

RAILWAY	1922	1921
Canadian National Railway (exclusive of northern lines)	2.9	5.8
Canadian Pacific Railway	2.7	3.9
Canadian National Railway (northern transcontinental line only)	2.4	1.8
Temiskaming and Northern Ontario Railway	7.3	6.3
Algoma Eastern Railway	4.5	5.9
Algoma Central and Hudson Bay Railway	4.2	0.6
Grand Trunk Railway	4.5	1.6
Total	3.3	3.7

Lightning was reported as having started 52 fires, or 5.1 per cent. of the total number. Of this total 29 were in the Algonquin District.

Logging operations were credited with having started 42 fires, or 4.1 per cent. of the total, and 8 fires were due to miscellaneous causes.

A total of 1,021 fires were reported, with an area burned of 346,193 acres, the lowest figures since 1918. Of this total, 539 fires or 52.8 per cent., were confined to areas of 5 acres or less in extent, and 78.3 per cent. of the total to areas of 100 acres or less. The fires which burned areas of more than 500 acres were almost entirely in logged-over regions where the logging slash made fire fighting almost impossible.

CLASSIFICATION OF BURNED-OVER AREA.

FOREST CONDITION.	1922.		1921.	1920.	1919.	1918.	1917.
	Acres.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land	46,395	13.4	13.2	14.7	26.8	15.8	19.1
Cut-over land (some timber left)	70,109	20.2	25.5	38.8	27.3	37.0	39.2
Young growth (below six inches)	87,123	25.2	20.2	26.7	25.3	23.5	19.5
Barren and grass land	142,566	41.2	41.1	19.8	20.6	23.7	22.2
	346,193	100.0	100.0	100.0	100.0	100.0	100.0

As is shown in the above table, the area of timber land burned over was 13.4 per cent. of the total area burned. While the per cent. of the total is about the same as in 1921, the area was only 46,395 acres as against 99,104 acres in 1921.

Land which had been cut over, but upon which there was still some timber standing, totalled 70,109 acres, or 20.2 per cent. of the total, and land upon which some young growth existed totalled 87,123 acres, or 25.2 per cent. of the total, while in 1921 these figures were respectively 190,977 acres, or 25.5 per cent. and 151,700 acres, or 20.2 per cent. The need of protection on these two classes of land can not be too strongly emphasized, as it is to just such land that we must look for our next timber crop.

The area of barren and grass land burned totalled 142,566 acres, while in 1921 the total was 307,753 acres.

CLASSIFICATION OF FOREST AREAS BURNED OVER, 1922.

Ranger District.	Number of fires	Timber land, mainly coniferous, i.e., soft-wood	Timber land, mainly hardwood	Cut-over land, some softwood left	Cut-over land, some hardwood left	Young growth, mainly coniferous	Young growth, mainly hardwood	Barren land	Grass land	Totals (acres)
I. Western Inspectorate—										
1. Kenora	16	5	.....	205	11	1,851	260	1,100	.....	3,432
2. Rainy River	26	6	5	.....	185	5	350	585	.....	1,136
3. Thunder Bay	82	594	62	7,420	190	2,494	1,679	5,269	321	18,029
4. Nipigon	20	1,395	.....	.....	.....	1,303	381	22,160	.....	25,239
5. C. G. R.—Western	24	150	1	.....	.....	.....	.....	19	.....	170
6. C. G. R.—Central	7	12,040	5,344	.....	.....	3,037	2,120	1,546	1	24,088
	175	14,190	5,412	7,625	386	8,690	4,790	30,679	322	72,094
II. Northern Inspectorate—										
1. C. G. R.—Eastern	13	.....	.....	.....	.....	1	.....	162	.....	163
2. Hearst	19	105	.....	95	16	33	.....	51	8	308
3. Kapuskasing	9	.....	.....	5	20	76	.....	265	.....	366
4. Cochrane	32	230	.....	139	5	47	41	229	11	702
5. Abitibi	6	.....	.....	.....	.....	60	20	1,006	.....	1,086
6. Timmins	24	2	.....	59	.....	4	.....	7	5	77
7. Matheson	1	.....	.....	.....	.....	.....	.....	2,000	.....	2,000
	104	337	.....	298	41	221	61	3,720	24	4,702
III. Central Inspectorate—										
1. Soo	11	.....	.....	70	450	5	40	641	5	1,211
2. Webbwood	47	52	5	.....	1,730	10	2,508	3,214	1,194	8,713
3. Sudbury	65	3,243	23	755	47	588	4,787	14,783	1,637	25,863
4. North Bay	54	7,651	205	2,711	19,351	2,901	920	29,424	20	63,183
5. Mississagi	3	.....	.....	600	600	.....	15	6	.....	1,221
6. Chapleau	15	1,000	200	960	900	5,443	11,017	823	.....	20,343
7. Longlac	36	10,402	10	561	.....	21,779	1,990	4,637	.....	39,379
8. Foleyet	39	5	.....	6,267	1,500	187	296	1,449	.....	9,704
9. Timagami, West	5	961	.....	6,720	.....	.....	.....	250	.....	7,931
10. Timagami, East	60	706	70	224	265	248	1,945	830	109	4,397
11. Timagami, North	23	233	.....	1,775	1,140	4,031	3	7,146	6,150	20,478
12. Algoma Central	36	17	53	1,250	62	181	316	555	16	2,450
	394	24,270	566	21,893	26,045	35,373	23,837	63,758	9,131	204,873

IV. Georgian Bay Forest District—										
1. Georgian Bay, West	70	14	6	354	496	56	2,168	642	38	3,774
2. Georgian Bay, East	41	113	155	3,952	1,016	1	1,750	925	189	8,101
	111	127	161	4,306	1,512	57	3,918	1,567	227	11,875
V. Algonquin Forest District—										
1. Algonquin North	58	130	.....	1,631	408	209	580	10,696	55	13,709
2. Algonquin South	76	17	12	851	3,700	1,465	2,073	18,913	400	27,431
	134	147	12	2,482	4,108	1,674	2,653	29,609	455	41,140
VI. Trent Forest District—										
1. Trent	52	531	136	432	561	350	2,346	1,100	714	6,170
2. Madawaska North	15	304	110	325	10	428	50	455	225	1,907
3. Madawaska South	36	40	52	55	30	5	2,670	482	98	3,432
	103	875	298	812	601	783	5,066	2,037	1,037	11,509
Totals	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
Per Cent	.....	11.5	1.9	10.9	9.5	13.5	11.64	37.9	3.2	100.0
1921 Totals	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534
1920 Totals	1,287	38,539	14,319	116,312	23,126	46,595	49,135	70,093	732	358,851
1919 Totals	1,780	223,022	24,244	102,884	148,471	109,752	123,444	189,701	643	922,161
1918 Totals	965	3,123	1,634	5,661	5,513	1,797	5,303	6,465	676	30,172
1917 Totals	1,110	73,160	135	148,408	2,160	61,806	13,202	82,959	2,334	384,164

Fig. 3.—Unloading fire pump and hose from aircraft.

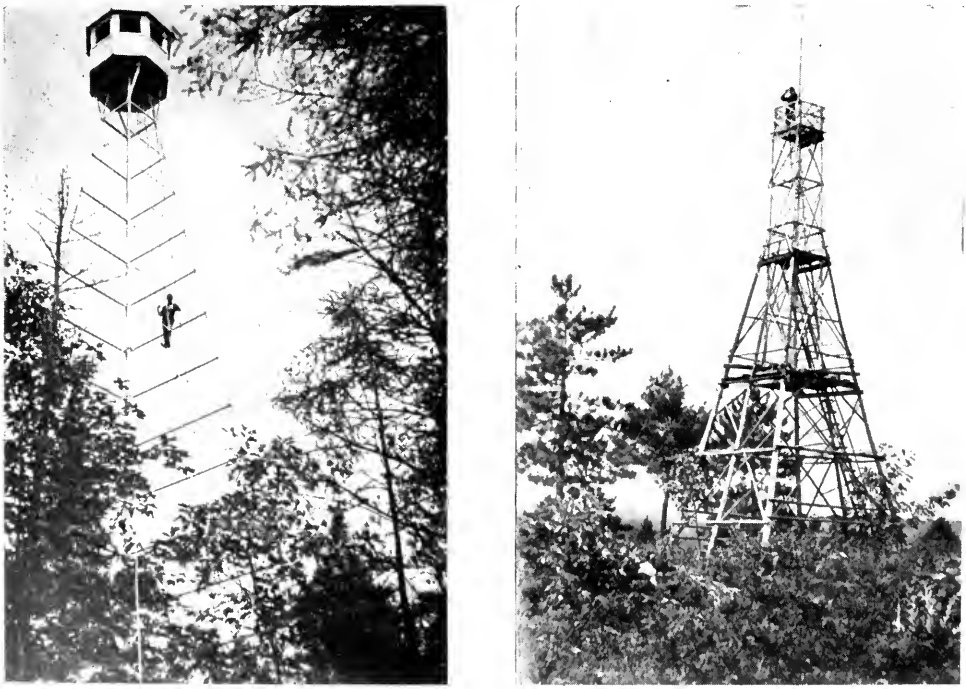


Fig. 4.—Steel lookout tower on left. Wooden tower on right.

(5) *Permits.*

Permits were issued in 189 townships, as compared with 139 townships in 1921, 123 townships in 1920, and 136 townships in 1919. A total of 8,603 permits were issued, covering an area of 29,455 acres.

As in previous years, the greatest number of permits were issued in the Districts of Cochrane, Matheson and Hearst. The bulk of the permits, 3,034, were issued in June, with 1,992 in May, 1,580 in August and 1,502 in July.

STATEMENT OF PERMITS ISSUED.

Ranger District.	Number of Permits.					
	1922	1921	1920	1919	1918	1917
Cochrane	2,497	1,503	1,982	2,275	3,493	....
Matheson	2,126	1,599	1,887	1,691	2,346	....
New Liskeard	....	916	1,169	1,557	2,179	....
Hearst	1,774	1,082	756	702	514	....
Timmins	754	407	193	199	651	....
All other districts	1,452	459	167	211	407	....
Totals	8,603	5,966	6,154	6,635	9,590	3,486

Month.	Number of Permits.					
	1922	1921	1920	1919	1918	1917
May	1,992	1,154	1,003	1,536	2,248	....
June	3,034	3,085	2,011	2,786	2,899	....
July	1,502	364	891	496	2,050	....
August	1,580	1,329	1,620	1,475	2,156	....
September	495	34	629	342	237	....
Totals	8,603	5,966	6,154	6,635	9,590	3,486

Ranger District.	Acreage Burned Over Under Permit.					
	1922	1921	1920	1919	1918	1917
Cochrane	8,108	4,652	4,984	5,437	10,267	....
Matheson	7,613	5,442	5,427	4,760	7,371	....
New Liskeard	....	7,726	9,768	13,521	17,863	....
Hearst	3,837	2,124	1,478	1,379	1,134	....
Timmins	2,591	988	424	925	1,971	....
All otner districts	7,306	2,746	686	768	1,072	....
Totals	29,455	23,678	22,767	26,790	39,683	15,186

(6) *Equipment.*

The amount of equipment required to outfit the ranging staff is necessarily large. Replacements must be made each year, and additional equipment added for use on new patrols and to increase the efficiency on old patrols.

A total of 116 tents were purchased in 1922. These were the ordinary style of tent, and used mostly where the rangers must carry their shelter from place to place along their routes.

In a large part of the Province the only means of travel is by water, and for this purpose fifty-three new canoes and three power boats were added to the equipment. The boat best suited to the requirements is the lumberman's pointer equipped with a six or twelve horse power motor. These boats are strong, seaworthy, and will make a speed of from seven to ten miles per hour.

A large number of the chief rangers are also ex-officio officers of the Board of Railway Commissioners. These men act as local fire inspectors over railway lines in their districts which are under the jurisdiction of the Railway Commission, on a co-operation basis, and are supplied in most cases with railway motor cars. These cars are indispensable for inspection work, and in those districts where the train service is infrequent, afford an excellent means of transportation, not only for the chief ranger, but for fire fighting equipment as well. Seven of these cars were purchased during the season.

Portable forest fire fighting units have proved to be the most valuable part of our equipment. The unit consists of a small pump driven by a 5-6 horse power gasoline motor, all mounted on a metal base, and capable of throwing a good stream of water at the end of fifteen hundred or two thousand feet of hose. The unit itself weighs about one hundred and twenty pounds and can be transported without difficulty, either by canoe or back-pack. An unlined one and one-half inch linen hose is used, in one hundred foot lengths, weighing about twenty pounds per hundred feet. These pumps have been operated continuously for as much as fourteen hours, and have been estimated to be equal to forty men. Sixteen units were purchased at the beginning of the season, and it is desirable that at least as many more may be procured for next season.

In the more settled parts of the fire districts light motor trucks can be used to good advantage, not only for inspection purposes, but for the transportation of fire fighting equipment. Two such trucks were purchased.

For use by the rangers and emergency fire fighting, one thousand blankets were added to the equipment.

(7) *Locomotive Inspection under Board of Railway Commissioners.*

No change was made in the organization of the inspection of fire protective appliances on railway locomotives, two inspectors devoting their whole time to this work.

LOCOMOTIVE INSPECTION, 1922.

Railway	Number Inspected					Total No. Engines	Total Number Inspections						Inspections Showing Defects	Percentage Defective					
	Times																		
	1	2	3	4	5 & over	1922	1922	1921	1920	1919	1918	1917	1922	1922	1921	1920	1919	1918	1917
C.P.R.	161	98	66	44	16	385	815	723	660	499	448	328	48	5.8	8.3	18.8	29.9	36.4	19.5
C.N.R.	73	50	36	23	12	194	440	498	351	317	232	154	16	3.6	9.7	7.9	15.5	22.4	39.6
G.T.R.	87	52	14	2	....	155	241	242	226	155	184	60	8	3.3	1.7	4.8	11.0	28.3	20.0
A.C. & H.B.R.	4	2	8	2	1	17	45	35	25	23	36	37	1	2.2	22.8	12.0	13.0	38.8	45.9
A.E.R.	2	2	1	....	2	7	22	28	26	18	20	36	.....	.....	21.4	46.1	16.7	70.0	55.5
	327	204	125	71	31	758	1,563	1,526	1,288	1,012	920	615	73	4.6	8.3	12.8	21.8	32.1	28.3

A total of 49 round-houses and gravel pits were visited, and 1,563 locomotive inspections made, covering 758 locomotives. In addition to this 9 inspections of locomotives operated by lumber companies were made, bringing the total number of inspections up to 1,572. The above table shows that the number of inspections has increased each year, and the percentage of locomotives found defective has steadily decreased from 32.1 per cent. in 1918 to 4.6 per cent. in 1922.

The average cost per inspection in 1922 was $1.61, as compared with $1.70 in 1921, $1.86 in 1920, and $2.07 in 1919.

(8) *Improvements.*

The improvements carried out during the season consisted of the construction of cabins, store houses, lookout towers, telephone lines, the cutting of new and the cleaning out and improving of old roads and trails. Most of the work was done by the rangers themselves.

It is necessary each spring to clear all existing roads and trails of debris which has accumulated during the winter months, and in a burned-over section this is often an arduous task. It is, however, one of the first duties of the rangers as a good rail is most necessary in transporting equipment in case of fire. Several hundred miles of roads and trails are cleaned out each year and repaired where necessary. Landing docks are built for boats and canoes, camping grounds made in safe places, and signs put up directing travellers to these camp sites.

In some districts it is possible to assign rangers to permanent headquarters, and here cabins are often built as they add to the comfort of the men and provide a safe place for the storage of equipment. Storehouses are also built at the headquarters of the chief and deputy chief rangers for the storage of emergency equipment during the fire season, and all field equipment during the winter months. Where boats or motor cars are used it is necessary to build shelters for them. There were built during 1922, 38 cabins, 3 storehouses, 1 car house, 1 boathouse, 2 oil houses for the storage of gasoline and oil, and 2 kitchens for cabins already constructed.

The construction of lookout towers was continued and seventeen wooden and eleven steel towers erected. The wooden towers were built almost entirely by ranger labour, and are from twenty-five to eighty feet in height. The steel towers are eighty feet in height, of much the same type as the ordinary windmill tower, but are surmounted by an eight foot octagonal cabin fitted with windows on all sides. The ranger, who is stationed in the cabin during the hazardous part of the day, has an uninterrupted view of the surrounding country, and on clear days has little difficulty in locating smoke twenty miles away. These towers are connected by telephone lines to the deputy or chief ranger's headquarters, so that fires observed may be reported immediately.

Telephone Lines.—Considerable progress was made in the construction of telephone lines during the season, a total of 171½ miles being completed. Included in this total were the following:—

Gogama to Mattagami Post in Mattagami Township	18	miles
Milnet to Frederick Lake in Stobie Township	28	"
Chudleigh to Upper Goose Falls on the Sturgeon River in Sheppard Township	30	"
Brule Lake to lookout tower in Osler Township with branch to lookout tower in Biggar Township	50½	"
Whitney to south end Opeongo Lake in Sproule Township	15½	"
Pakesley to lookout tower south of Key Junction	11	"
Apsley to lookout tower in Methuen Township	7	"

These lines make it possible for the rangers in the district to report fires promptly, and to call for assistance without wasting valuable time in travelling to the nearest point where help is available. They also enable the officer in charge to keep informed as to the exact conditions existing in the district at any time.

(9) *Air Patrol.*

Aircraft for forest fire detection were used this season for the first time. The operation was carried on in co-operation with the Dominion Air Board and proved highly satisfactory. A main base was established at Whitney, a station on the Grand Trunk Railway in Algonquin Park and a sub-base at Parry Sound, the patrols covering the Districts of Parry Sound and Muskoka, Algonquin Park and the adjacent country. This territory lends itself admirably to the use of sea-planes or flying boats and this type of machine was used. Patrols were carried on from May 23rd to October 4th with a total of 613.8 flying hours. Usually only one flight was made over the territory each day, but when conditions warranted, two flights were made. Fires were reported by dropping messages, by landing at some point where telephone or telegraph communication was possible, or when the machine returned to its base.

The season's operations have clearly demonstrated that for similar country, aircraft have no equal for sighting and locating forest fires. From a height of five or six thousand feet the smoke of a camp fire can be seen for several miles, and located within one-quarter of a mile by an experienced observer. When bad fires occur the chief ranger is able, by flying over the area, to place his men to greater advantage, and when a patrol is finished the officer in charge of the district knows the exact condition of fires throughout his territory. The moral effect on the people within the patrol area is also of great importance.

In addition to the locating of fires, the machines were used for transporting fire fighting equipment to fires in remote areas, for mapping forest types, and for taking photographs of particular areas.

II.—FOREST INVESTIGATION

During the past season two large forest survey projects were undertaken.

The first area covered about 13,500 square miles of the lower watersheds of the Abitibi, Mattagami and Moose Rivers. This area, little known except along the main waterways, was mapped from aircraft, working in conjunction with ground parties. A detailed report is appended herewith.

Another large area of 4,000 square miles in extent forming a portion of the upper watershed of the Missinaibie and Kapuskasing Rivers was done with aircraft and ground parties. A detailed report of this survey is not yet available, but the following is a classification of the forest conditions on the above survey.

1. Timber		1,828	sq. miles
2. Immature Growth			
(*a*) Above 5 inches D.B.H. but below merchantable	152		
(*b*) Below 5 inches D.B.H.	1,602		
		1,755	,, ,,
3. Barren		101	,, ,,
4. Water		306	,, ,,
		3,990	,, ,,

ESTIMATE OF THE TIMBER.

1. Pulpwood—cords		
Spruce	3,700,000	
Balsam	900,000	
Poplar	1,600,000	
		6,200,000
2. Ties.		
Jack Pine		33,000,000
3. Lumber—board feet.		
White Pine	56,000,000	
Red Pine	27,000,000	
		83,000,000

AIR AND GROUND REPORT OF THE JAMES BAY FOREST SURVEY MADE IN 1922 UNDER SUPERVISION OF R. N. JOHNSTON, FORESTER.

I. AREA.

The James Bay survey covered the territory north of the Canadian Government Railway (Transcontinental) from Quebec boundary westward to Moose and Mattagami rivers and including their west banks to a depth of five miles. The area involved was around 13,500 square miles or, 8,640,000 acres.

II. OBJECT.

The purpose of the survey was to obtain an estimate of the forest resources, and a map showing forest types and conditions, together with supplemental information on physiographic features.

III. PROCEDURE.

1. *Aerial Type Mapping*:

In view of (a) the inaccessible nature of the country, (b) the shortness of the working season (less than 100 days possible) and (c) the desire to complete the work within one season, it was planned to use aircraft to delimit timber types and thus avoid the examination by the estimating party of waste areas and areas of non-commercial timber. The contract for flying was awarded to the Laurentide Air Service who established an air station at Remi Lake, 55 miles west of Cochrane in Fauquier Township and supplied 342 flying hours between June 2 and October 3.

The subdivision of a forest area into types by the use of aircraft, can be carried out either (a) by the records of observations made during flight by an observer (by a direct method), or (b) by the use of photographs which are afterwards related and interpreted (indirect).

(*a*) *Direct Mapping.*—While the direct method as above defined may very conceivably lead in its further developments to complex methods with a considerable use of instruments, as yet it consists essentially in sketch mapping the information required as directly observed while in flight. The requirements for satisfactory results by this method may be discussed under two heads (a) Machines (b) Observers and their equipment.

Machines.—The machines used in the past season and in 1921 in this work, while of different types, including the H.S.2.L., F.3., Vickers Viking, and Loening Air Yacht have been alike in that in all of them the observer's cockpit is placed directly in the nose or front of the machine. It is believed that this position for observation purposes can hardly be improved on.

The correct choice of machine to use is a matter having the greatest bearing on the cost and results of the work. The requirements as regards performance of machines will of course vary for different classes of work and in different localities. But, in general, rapid climb is of great advantage as tending to conserve flying time. Also a machine capable of high speed is more independent of wind conditions and can with equal fuel capacity operate successfully from the same base over a much larger area than a slower type. While actually typing, however, it is found that when flying between 2,500 and 4,000 feet—which is a satisfactory height from which to identify tree growth—the ground speed of the machine should not exceed 85 miles per hour. By ground speed is meant the speed at which the machine passes over the ground; it does not correspond with the speed shown by the air speed indicator of the machine but is greater or less depending on the influence of the wind.

Observers.—This season there were two foresters with previous experience both in flying and mapping, while a third was trained during the progress of the work. Observers, to produce reliable type maps should have comfortable working conditions in the machine, complete unconcern about the pilot and machine, and the best base maps available.

The quality of the map produced depends most largely on the experience and judgment of the individual observer. This should not be confined entirely to aerial experience, but should be checked by comparing aerial observation with ground study of forest conditions. Too much stress cannot be laid on this phase of the observer's work, and during the past season, whenever feasible, landings were made as a regular part of the procedure in order to allow the observer to investigate any stand of peculiar appearance, or to refresh his memory as to the actual conditions of more familiar types. It was found also in this connection that ground studies were of more value when made by the observer in person rather than through the study of strip tallies, descriptions, etc., however full and precise.

Base Maps.—Finally the field sheet on which the observer does his sketching should contain as much survey data as possible. This is even more necessary in the air than in the same class of work on the ground, since it is not practicable with the existing aerial instruments, to locate or orient the map in flight by travelling on a known course for a known distance. Consequently the observer is dependent for his location and judgment of distance and direction on the detail of his base map. Experience in both ground and aerial mapping has shown, however, that the aerial observer is in a much better position to work in this way than the ground mapper, since he can see a greater number of reference points at one and the same time and is also (hills and valleys are not apparent from the air) free from the difficulties arising from differences in elevations. Indeed, with a good base map, the aerial observer's work may be compared to the copying—on a small scale—of a highly coloured carpet lying beneath him, a great deal of the pattern of which, the base map detail, has already been drawn.

From the above it is readily apparent that the rate at which any given territory can be typed is intimately connected with the completeness and accuracy of the observer's base map, since a rational representation of the timber types is usually dependent on these base maps details, particularly where lakes and drainage systems are involved. Actual experience has shown that for the above reasons, that is the relations between topography and timber types, some additions to the existing topographic data—except in surveyed townships—are always necessary before typing of timber areas can be commenced.

Such information can be supplied by additional sketching, though experience has shown that this class of work can be done to better advantage from a much greater height than that used for mapping timber, since a distinction between land and water surfaces is possible from practically any altitude. For the same reasons it is often possible at this higher altitude—10,000 feet if weather conditions are suitable—to greatly expedite subsequent closer examination of timbered areas at lower altitudes, by splitting the territory into two or three general types, such as green timber, muskeg, barren, all of which can be recognized at the above altitudes.

Of the total flying time for the season, 342 hours, an analysis of the flight records shows that over 90 per cent. was given to sketching forest types and topography, the remainder being taken up with transportation of ground parties and photography.

(*b*) *Indirect Mapping.*—While it is realized that photography can produce results which sketch work cannot hope to replace, it was not used in the past season as an essential part of type mapping. So far no photographic system has been developed which could produce the information desired at a cost which the nature of the work would justify. Undoubtedly photography will eventually go much further in this direction than at present. But while the carrying of timber type lines over immense areas by photography is still very expensive, it is considered that in its present state of development it can be used to advantage to give information for the construction of base maps for sketching which would render the work more accurate and would also effect an economy in the whole operation, since a very small saving in flying time will pay for a great deal of photographic work.

Procedure for type mapping in the past season's work may therefore be summarized as follows:—Type maps were prepared by an experienced forest observer, sketching directly on base maps two miles to the inch scale. In all 13,500 square miles or 8,640,000 acres were thus mapped, requiring flights totalling 25,000 air miles. Information from these maps prepared in flight was then, on returning to the base at Remi Lake, transferred to an office map, and from the latter information as to timber was given to the ground parties in map form from time to time as required. It might be well to state here as an indication of the accuracy of this work that information as to type limits given to and checked by the ground parties was found to be reliable except in two instances; (1) during the first three or four flights the difference between dense stands of scrubby dwarf spruce and merchantable stands of the same species, while recognized, was not known to indicate such significant differences in the stand as actually existed. Ground study by the observers, as mentioned above, settled this question so that throughout the remainder of the season no trouble was experienced in this connection, (2) there was throughout the season a tendency to overestimate the percentage of hardwoods associated with the conifers in the mixed type.

2. Ground Work.

After the area had been typed and mapped from the air, a copy of this map was delivered to the ground parties, who then were in a position to locate starting points for samples for the estimate. The strip method was adopted, and was confined to areas bearing commercial quantities.

Fifteen men were used on the Abitibi and Mattagami rivers, one chief, two sub-chiefs, six other forestry men, four canoe men and packers and two cooks. The whole party with seven canoes, seventeen and eighteen foot "Chest-

nut" model, did not leave Clute on the Frederickhouse river until June 3rd, owing to the spring flood. The party proceeded to Moose Factory, one of the Hudson Bay Co. posts, with five weeks' supplies, slightly over a ton. Arrangements were made at Cochrane to have a similar amount cached at the junction of the Abitibi and Little Abitibi rivers within the five weeks.

Work commenced five miles north of Moose Factory and extended south up the Moose river to the junction of the Moose and Abitibi rivers, where the party split, eight men going up the Moose and Mattagami rivers and seven men up the Abitibi river.

In addition to the above fifteen men on the rivers, two men were stationed at the air base at Remi Lake to be placed by aircraft in regions lacking practicable canoe routes. Later in the season two other men were taken from the river party and used on this work. These parties were landed on lakes with from one to three weeks' supplies and acted on the instructions of the aerial observers, who decided what strips were necessary to cover the pulpwood in that particular locality. In this way parties were placed on the following lakes; Kesagami, Pierre, Indian Reserve No. 9 and unnamed lakes designated by the letters F., G., J., K., L., N. on the map. For the final estimate, areas on which strips were not run were compared by the observer with areas where samples were taken. The aircraft was not equipped to carry a canoe which handicapped the effectiveness of these parties. In some instances the planes while on sketching work would land and transfer a party to another camping ground.

The strip method consisted in running a compass and chain line 11 feet wide and measuring all commercial species 4 inches (diameter taken at breast height) and over, in one inch diameter classes. In this region in general the cordage runs heaviest adjacent to the water courses, the types paralleling the shore line. This characteristic feature of the timber distribution was directly responsible for the field procedure of the ground parties, which usually consisted in running a single straight strip per day at right angles to the general direction of the shore line; occasionally a shorter strip in from the water, an offset of ½ mile and a second strip back to water was substituted for the single long strip. It was found that where a single strip was run it was possible to tally 4½ miles; with two strips and offset, three in and three out, or a total of six for the day. Results of the season's work go to show, however, that 4½ miles in a single strip, besides allowing for a better check of the aerial type map, gives a much better basis for an estimate of the timber in this type of country than the two parallel three-mile strips, whose tallies tend to give too much prominence to the better stands close to the shore and not enough to the poorer growth on undrained areas inland.

Two and three-man parties were used, three-man is recommended, that is one caliperman, one compass man and a tally man. With three men, calipers may be used and the caliperman is in a position to size up every tree. Calipers were used every day for the first two weeks, after which dimensions were estimated by eye. The caliperman checked himself once a week by taking his calipers into the field. This gives actual calipering for 30 per cent. of the time.

Throughout the season, June 3rd to September 20th, 470 miles of strip were run.

In addition to running strips, volume table data was collected for black spruce generally throughout the whole area. The figures were compiled into two general regional tables. (See tables 5, 6.). Measurements were made on white spruce but it was found the volumes compared favourably with existing tables and these were used.

The measurements for black spruce were taken as follows:

Location	No. of Trees	Av. Age on 12-inch stump
Remi Lake	119	....
Grand Rapids, Mattagami River	51	109 years
Lower Abitibi River, at Little Abitibi River	30	....
Upper Abitibi	39	....
Upper Mattagami	133	112 years
Fernow Lake	20	111 "
Indian Reserve No. 9	50	109 "
Total	442	

IV. Forest Types and Conditions.

1. Relief and Drainage.

From this standpoint the characteristic feature of the whole territory is the low monotonous relief and slow drainage, the total fall in the 175 miles from the Canadian Government Railway track to James Bay being only 900 feet.

The most important topographic and drainage feature in the whole region is undoubtedly the low escarpment—perhaps more pronounced in the western part of the area—which marks the northern limit of the Clay Belt. This formation, which runs in a fairly definite northwesterly-southeasterly direction crosses the Ontario-Quebec boundary line about forty miles north of the Canadian Government Railway, runs north of Little Abitibi Lake, strikes the Abitibi river in the neighbourhood of the Canyon, crosses the Mattagami about the Long Rapids and continues westward out of the territory examined.

Elevations on the Abitibi river as shown by O. L. S. Kenny in a survey of this river made during the current year (1922), may serve to indicate the character of this formation and of drainage conditions in the country generally.

From Cochrane to the head of the Lobstick Rapids taken as the edge of the escarpment, a total fall of 271 feet is recorded or five feet to the mile. The drop over the escarpment—a distance of about 6½ miles from the head of the Lobstick to the foot of the Abitibi Canyon—is 234 feet, or 36 feet to the mile. From the foot of the Canyon to James Bay the fall is given as 406 feet in 120 miles or about 3.4 feet to the mile.

The drainage is peculiar in that the main rivers—the Mattagami and the Abitibi—have few feeders of importance and appear to flow through the country without any very perceptible increase in volume of water. Perhaps the best developed river system in the region is shown by the French which flows into the estuary of the Moose from the west not far above Moose Post, and which with its tributaries drains about one-third of the whole area examined.

Lakes are usually small and of infrequent occurrence in the western and northern sections of the country. South and east, however, in the territory between Kesagami and Little Abitibi the occurrence of lakes of good size is rather common. This condition continues eastward into Quebec.

Finally it should be noted that the whole territory, because of the difference in slope, falls naturally into two sections, a northern and a southern.

In the former, the slope, as before noted, is only 3.4 feet to the mile and in the latter five feet, giving a difference of 1.6 feet, which, though actually small, is seen to be proportionately large.

2. General Forest Conditions.

The resultant difference in drainage conditions noted above is strongly reflected in the character of the forest growth, giving two distinct timber regions

which may be designated as the Coastal Plain region to the north and the Northern Clay Belt region to the south. The former comprises 5.8 million acres and the latter 2.8 million acres.

The Coastal Plain is poorly timbered from a commercial viewpoint. The bulk of the timber standing on the area is inland and inaccessible, the largest area being west of Kesagami Lake, with blocks scattered in that portion of the region south and east of this lake. The commercial stands to-day are restricted to a narrow belt up to one-half mile in width along the rivers and streams. Practically 70 per cent. of the coastal plain area is given over to endless scrubby stands of dwarf black spruce and various classes of muskeg.

In the northern clay belt region, however, pulpwood conditions are much better. Not only are drainage conditions more favourable to true development, but the region exhibits more relief inland from the rivers. In consequence, the pulpwood supplies are not confined to the rivers but additional stands, both pure and mixed, occur on the low ridges and knolls scattered throughout the extent of non-commercial scrubby spruce.

The difference in character of the coastal plain and northern clay belt regions is summed up in the fact, that the timber bearing areas in the former aggregate only 6.8 per cent. of its acreage, while in the case of the northern clay belt they constitute 38.8 per cent.

3. *Forest Types.*

The forest growth of the territory under consideration resolves itself into a very few strongly marked types with a limited number of species. The rivers everywhere are lined with a narrow belt of mixed evergreen and broad-leaved trees. Beyond this belt and parallelling it, runs one of practically pure black spruce. As one gets farther from the river, the spruce rapidly and progressively falls off in diameter and height, the number of trees per acre increasing, with a tendency towards growth in clumps. Finally, at a distance in general of a few hundred yards up to one-half mile in the coastal plain, trees of commercial size are left behind, and a scrub type is entered. Here the trees are extremely dwarfed although very old, and eventually give way to open muskeg. In the northern clay belt, however, the black spruce, is continued inland indefinitely, depending on drainage, assuming a patchy character among mixed stands and scrub.

Inland, these same types are repeated around all lakes, and wherever there is any variation in the relief.

(a) *Mixed Type.*—This type along the rivers consists of black and white spruce, balsam, cedar, both balsam and aspen poplar and paper birch. It varies but little in composition throughout the total length of these long waterways, there being a slight increase in the quantity of birch, balsam and cedar, and a general improvement in the stands as one comes south; this was particularly noted in the poplar, although nowhere is it found free from heart rot, after reaching seven and eight inches D.B.H.

This type is also to be found inland from the rivers in small areas, in association with black spruce stands, generally on gentle rises in the ground and adjacent to lakes. The occurrence of these mixed stands (and as well, stands of pure spruce) inland, and additional to the river timber, is a feature characteristic of the northern clay belt region; whereas they are of relatively infrequent occurrence in the coastal plain. This inland mixed type differs from the river type in the absence of cedar and balsam poplar, and the poorer development especially of white spruce; it accordingly gives a lower yield of pulpwood.

On the basis of pulpwood cordage, the mixed type runs 54 per cent. black spruce, 24 per cent. white spruce and 22 per cent. balsam, in the northern clay belt; the corresponding figures in the coastal plain are 54, 19 and 27.

The mixed type exclusive of hardwood (broad-leaved) species produces the heaviest cordage, averaging 10.7 cords in the coastal plain and 9.1 cords in the northern clay belt, per acre of timbered area. It is to be recalled that in the former, little of the inland mixed type is concerned, which yields less than the river mixed type.

In all, 543,434 acres, or 36.6 per cent. of the total timbered area, is classified as mixed stands containing 40 per cent. of the total pulpwood. Of the timbered area of the coastal plain, they constitute around 22 per cent. and in the case of the northern clay belt around 42 per cent.

(b) *Black Spruce Type.*—This type supplies around 60 per cent. of the pulpwood wealth of the whole territory and occupies in round figures 942,000 acres in the total timbered area or 64 per cent. of it. As previously stated the fringe of mixed stands along the river banks is succeeded, as one leaves the river, by practically pure black spruce; this in turn gives way to the black spruce scrub. In addition to such occurrence, the black spruce type is to be found generally throughout the inland areas in the northern clay belt, in particular, the western two-thirds of it.

Spruce stands are healthy, the only damage observed being that of windthrow in small plots 200 or 300 feet across. Their development is better in the southern section. Under the stands is a thick carpet of sphagnum moss with openings in the stand filling in with alder, especially in the northern clay belt section.

The composition of the black spruce type on a pulpwood cordage basis is 90 per cent. black spruce and five per cent. each of white spruce and balsam in the northern clay belt region; in the coastal plain, the percentage of both black and white spruce increases slightly at the expense of balsam.

Black spruce stands have an average yield per acre of 7.0 cords in the coastal plain, and 8.4 cords in the northern clay belt.

(c) *Dwarf Black Spruce Type.*—This type is related to the excessive water conditions, the ground being covered with several feet of sphagnum moss, which retains the moisture and keeps the ground frozen late into the growing season. The trees are stunted, reaching a maximum of 30 feet in height and four inches D.B.H. at ages up to 150 years. They are mature and have no commercial value. The type runs 1,000 or 1,200 of these dwarfs per acre gathered into a clump-like stand. A certain amount of dwarf tamarac is present among the prevailing black spruce scrub.

This type covers 2.4 million acres or 28 per cent. of the territory and is more prevalent in the coastal plain region.

(d) *Muskeg Type.*—The separation of the muskeg type from the dwarf black spruce was almost entirely aerial. From an aeroplane a very definite line is evident in the scrub spruce surrounding the open muskeg. The trees are much shorter, more distinctly in clumps and with the clumps at greater distances from one another, so that from the air the intervening ground spaces stand out. Consequently, an arbitrary division line between muskeg and the dwarf spruce type was chosen, corresponding to this characteristic appearance from the air. Study of these stands by the ground parties, gave a figure of around 400 trees, averaging nine feet in height as a maximum growth condition for this type. Hence the muskeg type includes the treeless areas and the open portion of the dwarf black spruce type.

The muskeg type as defined above covers 2.4 million acres or 28 per cent. of the whole. Percentically the proportion is much higher than in the coastal plain where it reaches 40 per cent.

(e) *Burn.*—In all, around 1.9 million acres were mapped as burn, or 22 per cent. of the whole. This is made up of about 20 per cent. of the coastal plain region and 26 per cent. of the northern clay belt. The loss has been small in the coastal plain, since the burned areas originally were largely dwarf spruce or muskeg. In the northern clay belt, however, fire has burned considerable timber. The greatest damage has resulted west of Little Abitibi Lake towards the Abitibi River. Reproduction in the northern clay belt is by poplar and birch with spruce coming in as an understory. East and west from the Mattagami River along the escarpment between the two main regions, dense jack pine reproduction is to be found.

(f) *Jack Pine.*—This species was found in clumps in short ridges or low gravelly knolls in a virgin state in the belt of country intermediate between the northern clay belt and coastal plain. Most of the mature jack pine found was in the vicinity of New Post on the Abitibi River, where it was accompanied by an understory of black spruce.

4. *Tree Species.*

Black Spruce.—This is the tree characteristic of the whole territory, occurring in mixed and pure stands. It reaches a development up to 80 feet in height and 15 inches D.B.H. and is in general quite sound. Average conditions confine the species to a general diameter range of five to nine inches and height of 45 to 60 feet. This species constitutes three-fourths of the total pulpwood supply of the area.

White Spruce.—This species, while forming a small percentage in the black spruce type, is mainly found in the mixed type on the banks of rivers and streams. It is a less important feature in the pulpwood resources of the coastal plain than of the southern region. About 13 per cent. of the total pulpwood is white spruce. The tree reaches 120 feet and 30 inches D.B.H.

Balsam.—The balsam ranks third after the two spruces as a source of pulpwood in the region. It reaches a maximum D.B.H. of 18 inches with a height of 60 feet, the common diameters being seven to nine inches. Balsam is severely affected with heart rot, and the estimated deduction would be one-third of the volume.

Jack Pine.—Trees of this species were tallied up to 18 inches D.B.H. and 70 feet high. The northern limit for the species was a scrubby growth inland from the mouth of the Onakawana River.

Tamarac.—Scattered young trees were noted throughout the whole area, but of no commercial value. Along the smaller streams, trees were seen up to six inches D.B.H. It occurred in pure stands of a scrubby character north of Moose Factory, adjacent to James Bay; southward, it merged in with dwarf black spruce.

Cedar.—Cedar occurs in the mixed type along the main rivers and streams to James Bay. It shows only a stunted growth.

Aspen Poplar.—This is the typical hardwood (broad-leaved) species of the region, just as the black spruce among the conifers. While occurring throughout the whole region, it is largely confined to the better drained banks of the streams, and is the predominating hardwood in the inland patches of the mixed type. It grows well to a D.B.H. of 20 inches and height of 80 to 90 feet, but suffers severely from heart rot.

Balsam Poplar.—This poplar grows close to the water, usually in clumps along river banks, and is found extensively on the islands in the lower Moose River, near the Bay. Like the aspen, it is much affected with heart rot.

Paper Birch.—Going north down the rivers towards James Bay, the birch becomes reduced in numbers. It is not plentiful, except around the lakes on Indian Reserve No. 9, where a considerable quantity was found in mixture with conifers; here about two cords to the acre.

White Pine, Black Ash, Elm.—These species are of botanical interest only. A few white pine were seen on an island below Little Long Rapids, Mattagami River. Black ash was noted near Devils Rapids on Mattagami River, growing to tree size, and below Island portage towards the Lobstick portage on the Abitibi River, a shrubby growth of the species occurs. A few trees of white elm, 36 inches D.B.H. were observed near Devils Rapids on the Mattagami River.

V. Results

The total area of 13,500 square miles or 8,640,000 acres falls naturally into two regions—a belt of low-lying very poorly drained country adjacent to James Bay, called in this report the coastal plain, and containing 5.8 million acres, or 67.4 per cent. of the whole; with the remainder, or northern clay belt better drained and comprising 2.8 million acres or 32.6 per cent. On the map, these two regions are separated by a broken black line running slightly southeasterly from the Long Rapids on the Mattagami River to the Quebec boundary.

Of the territory, slightly under 1,500,000 acres, or 17.2 per cent., support tree growth of pulpwood size. Of this acreage 36.6 per cent. consists of mixed stands and 63.4 per cent. of pure black spruce. Approximately 73 per cent. of the timbered area is in the northern clay belt, with only 27 per cent. in the coastal plain. It covers 38.8 per cent. of the area of the northern clay belt, and only 6.8 per cent. of the coastal plain.

The remainder of the territory, around seven million acres, contains no commercial pulpwood supplies. It is classified as muskeg, dwarf black spruce, burn and water, constituting respectively, 28.4, 27.9, 21.9 and 4.6 per cent. of the whole.

The details of the classification of the whole territory are given in table I. below.

Table I.—Classification of James Bay Forest Survey Area.

Type	Coastal Plain		Northern Clay Belt		Total	
	Acres	Per Cent.	Acres	Per Cent.	Acres	Per Cent.
Timbered:						
Mixed	85,540	1.5	457,894	16.4	543,434	6.2
Black Spruce	312,124	5.3	629,982	22.4	942,106	11.0
Total	397,664	6.8	1,087,876	38.8	1,485,540	17.2
Non-Timbered:						
Dwarf Black Spruce	1,715,192	29.5	685,360	24.4	2,400,552	27.9
Muskeg	2,357,248	40.3	95,280	3.5	2,452,528	28.4
Burn	1,155,952	19.8	740,320	26.4	1,896,272	21.9
Water	210,216	3.6	195,928	6.9	406,144	4.6
Total	5,438,608	93.2	1,716,888	61.2	7,155,496	82.8
Grand Total	5,836,272	100.0	2,804,764	100.0	8,641,036	100.0

The timbered area contains pulpwood supplies totalling in all a little over 12,750,000 cords, including trees four inches D.B.H. and up. Of this quantity, a little over three million cords or 24.3 per cent. are in the coastal plain, and 9.6 million cords or 75.7 per cent. stand in the northern clay belt.

The total quantity of pulpwood consists of 9.6 million cords of black spruce. 1.6 million cords of white spruce, 1.4 million cords of balsam and less than 100,000 cords of jack pine.

It may here be repeated that the mixed type averages 10.7 cords in the coastal plain, and 9.1 cords in the northern clay belt, per acre of the timbered area; while the black spruce type averages 7.0 cords and 8.4 cords in the same two regions respectively. The general average for the whole timbered area is 8.6 cords per acre.

A considerable proportion of the total standing pulpwood does not lend itself to profitable exploitation, owing in some cases to the scattered distribution of the stands concerned and in others on account of the location of the timber. Such timber has been inserted in the tables under the heading of "remote areas." In all, 2.8 million cords are so listed, or 22.2 per cent of the total pulpwood; of the quantity, however, almost two million cords are in the coastal plain.

If the timber in "remote areas" be neglected, there still remains 9.9 million cords, of which 11.8 per cent. is in the coastal plain and 88.2 per cent. in the northern clay belt (here largely in the western portion). This gives a final average of 8.5 cords per acre of the area of accessible pulpwood.

Of the total timber in the territory, 3.7 million cords or 29.2 per cent. is tributary to the Mattagami River, three million cords or 23.5 per cent. on the Abitibi; 2.3 million cords or 18.1 per cent. on the Little Abitibi, and under 500,000 cords each to the French and the Moose (3.7 and 3.3 per cent. respectively); leaving 2.8 million cords or 22.2 per cent. remote.

The details of the estimated pulpwood cordage embracing all trees four inches D.B.H. and over, are given in the tables below. A cord is taken as 85 solid cubic feet of wood.

TABLE II.—PULPWOOD RESOURCES BY REGIONS.

Unit	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	J. Pine Cords	Total Cords
A. *Northern Clay Belt:*						
Mattagami R.	368,410	2,877,523	375,923	348,099	14,911	3,616,456
Abitibi R.	346,584	2,047,960	499,122	242,735	43,129	2,832,946
Little Abitibi R.	284,155	1,584,560	315,924	411,530	....	2,312,014
	999,149	6,510,043	1,190,969	1,002,364	58,040	8,761,416
Remote Areas.	88,727	583,496	94,211	183,979	35,885	897,571
Totals.	1,087,876	7,093,539	1,285,180	1,186,343	93,925	9,658,987
B. *Coastal Plain:*						
Mattagami R.	16,340	66,616	33,870	17,301	....	117,787
Abitibi R.	23,400	146,447	14,566	10,579	....	171,592
French R.	62,572	352,290	108,249	6,319	....	466,858
Moose R.	61,672	333,855	76,039	9,641	....	419,535
	163,984	899,208	232,724	43,840	....	1,175,772
Remote Areas.	233,680	1,627,171	92,101	212,617	....	1,931,889
Totals.	397,664	2,526,379	324,825	256,457	....	3,107,661
Grand Totals.	1,485,540	9,619,918	1,610,005	1,442,800	93,925	12,766,648

TABLE III.—PULPWOOD RESOURCES BY FOREST TYPES

Unit	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	Total Cords	%
A. Mixed Type:						
1. *Northern Clay Belt:*						
Mattagami R.	86,720	401,515	185,056	131,296	717,867	..
Abitibi R.	145,040	673,928	419,494	183,294	1,276,716	..
Little Abitibi R.	175,367	889,285	315,924	411,530	1,616,739	..
Remote Areas.	50,767	280,150	94,211	183,979	558,340	..
Totals.	457,894	2,244,878	1,014,685	910,099	4,169,662	32.7
2. *Coastal Plain:*						
Mattagami R.	3,420	17,562	2,492	14,647	34,701	..
Abitibi R.	3,840	14,208	13,440	6,528	34,176	..
Moose R.	9,360	39,023	67,987	9,641	116,651	..
Remote Areas.	68,920	429,683	92,101	212,617	734,401	..
Totals.	85,540	500,476	176,020	243,433	919,929	7.2
Grand Totals.	543,434	2,745,354	1,190,705	1,153,532	5,089,591	..
B. Black Spruce Type:						
1. *Northern Clay Belt:*						
Mattagami R.	281,690	2,476,008	190,867	216,803	2,883,678	..
Abitibi R.	201,544	1,374,032	79,628	59,441	1,513,101	..
Little Abitibi R.	108,788	695,275	.....	.....	695,275	..
Remote Areas.	37,960	303,346	.....	.....	303,346	..
Totals.	629,982	4,848,661	270,495	276,244	5,395,400	42.3
2. *Coastal Plain:*						
Mattagami R.	12,920	49,054	31,378	2,654	83,086	..
Abitibi R.	19,560	132,239	1,126	4,051	137,416	..
French R.	62,572	352,290	108,249	6,319	466,858	..
Moose R.	52,312	294,832	8,052	.....	302,884	..
Remote Areas.	164,760	1,197,488	.....	.....	1,197,488	..
Totals.	312,124	2,025,903	148,805	13,024	2,187,732	17.1
Grand Totals.	942,106	6,874,564	419,300	289,268	7,583,132	..
C. Jack Pine:	.....	.....	.....	.....	93,925	0.7
Grand Totals.	1,485,540	9,619,918	1,610,005	1,442,800	12,766,648	100.

TABLE IV.—SUMMARY OF PULPWOOD RESOURCES

Unit	Timbered Area Acres	Black Spruce Cords	White Spruce Cords	Balsam Cords	J. Pine Cords	Totals Cords	%
Mattagami R.	384,750	2,944,139	409,793	365,400	14,911	3,734,243	29.2
Abitibi R.	369,984	2,194,407	513,688	253,314	43,129	3,004,538	23.5
Little Abitibi R.	284,155	1,584,560	315,924	411,530	....	2,312,014	18.1
French R.	62,572	352,290	108,249	6,319	....	466,858	3.7
Moose R.	61,672	333,855	76,039	9,641	....	419,535	3.3
Totals.	1,163,133	7,409,251	1,423,693	1,046,204	58,040	9,937,188	77.8
Remote Areas.	322,407	2,210,667	186,312	396,596	35,885	2,829,460	22.2
Grand Totals.	1,485,540	9,619,918	1,610,005	1,442,800	93,925	12,766,648	100.
Per cents.	.....	75.4	12.6	11.3	0.7	100.0	

TABLE V.—VOLUME TABLE FOR BLACK SPRUCE.

JAMES BAY SURVEY, 1922.

Northern Clay Belt.

Volume to 4" top I.B. stump height 12". No allowance for rot or defect.

Basis 361 trees.

D.B.H.	Vol. Cu. Ft.	Vol. Cords
4	.70	.009
5	1.65	.020
6	3.28	.039
7	5.30	.062
8	7.70	.090
9	10.60	.125
10	14.00	.165
11	18.00	.210
12	22.70	.267
13	28.10	.330

TABLE VI.—VOLUME TABLE FOR BLACK SPRUCE.

JAMES BAY SURVEY, 1922.

Coastal Plain.

Volume to 4" top I.B. stump height 12" No allowance for rot or defect.

Basis 81 trees.

D.B.H.	Vol. Cu. Ft.	Vol. Cords.
4	.74	.009
5	1.42	.017
6	2.53	.030
7	4.23	.050
8	6.50	.076
9	8.90	.105
10	11.24	.130

III.—REFORESTATION.

During the past year the work of reforestation has been marked chiefly by the preparation for production of planting material. Two new forestry stations have been established, one in Durham County near the village of Orono; the other at Midhurst, five miles from Barrie. A description of these two stations together with reports on work already being carried on, is here appended.

PROVINCIAL FORESTRY STATIONS.

ST. WILLIAMS.

Spring sowing of seed beds commenced April 5th and continued until May 20th, a total of 382 beds being sown. On November 10th work was commenced in connection with fall sowing. By the 9th of December, when cold weather compelled a cessation of the work a total number of 414 beds were sown.

SPRING SOWING OF CONIFEROUS SEED.

SPECIES.	Collected	Origin.	No. of Beds Sown.	Amount Seed Lbs.	Per bed Ozs.	Total Amount Seed lbs.
Scotch Pine	1921	Norfolk County	90	.	10	56¼
Scotch Pine	1921	Danish	80	..	10	50
Jack Pine	1921	Norfolk County	100	..	9	56¼
Red Pine	1921	Simcoe County	1	..	12	¾
White Spruce	1920	Simcoe County	1	1	..	1
Norway Spruce	1921	German	20	1	..	20
European Larch	1921	Switzerland	90	1	4	112½
Total	.....	.....	382	..	..	296¾

FALL SOWING OF CONIFEROUS SEED.

SPECIES.	Collected	Origin.	No. of Beds Sown.	Amt. Seed Lbs.	Per Bed Ozs.	Total Lbs.	Amt. Seed Ozs.
White Pine	1922	Simcoe County	185	1	4	231	4
Red Pine	1921	Simcoe County	100	..	13	81	4
Scotch Pine	1921	Danish	18	..	12	13	8
Scotch Pine	1921	Scotland	2	..	12	1	4
Japanese Larch	1921	.....	5	1	4	6	4
White Spruce	1922	Simcoe County	35	1	..	35	..
White Cedar	1922	Simcoe County	35	1	4	43	12
Red Cedar	1922	Pr. Edward County	20	3	8	70	..
Balsam	1922	Simcoe County	14	1	8	21	..
Totals	.....	.....	414	.....	.....	603	4

In addition to the foregoing, a large quantity of hardwood seed was sown in drills, flats and beds.

SOWING OF HARDWOOD SEED.

SPECIES.	Origin.	Date of Sowing.	How Sown.	Amt. of Seed Sown, Bus.
Soft Maple	Norfolk County	June 5	Flats	30
White Elm	Toronto	June 5	Flats	6
Black Walnut	Norfolk County	Oct. 17	Drills	400
Hard Maple	Pr. Edward County	Oct. 19	Flats	15
White Walnut	Simcoe County	Oct. 26	Drills	90
White Ash	Simcoe County	Nov. 16	Flats	14
Red Ash	Norfolk County	Nov. 16	Flats	1
Sweet Chestnut	Norfolk County	Nov. 16	Drills	1½
Hard Maple	Lanark County	Dec. 1	Flats	8
Black Cherry	Norfolk County	Dec. 1	Seed Beds	1¼
Basswood	Norfolk County	Dec. 1	Seed Beds	1
Basswood	Simcoe County	Dec. 1	Seed Beds	1½
Red Oak	Simcoe County	Dec. 9	Drills	1½
Beech	Simcoe County	Dec. 9	Seed Beds	1¼
Black Locust	Norfolk County	Dec. 9	Seed Beds	¼
Total	.....	.....	.....	572¼

Small quantities of seed of the various hardwoods indigenous to Southern Ontario were also sown, comprising water beech, American mountain ash, hackberry, pepperidge, dogwood, cucumber tree, tulip, catalpa and sassafras.

Nursery Lines.

During the spring, 710,000 two-year old jack pine seedlings were lined out, while 230,000 one year old Scotch pine were transferred from seed beds to nursery lines.

A much larger number of seedlings were lined out during late summer and autumn. Planting began on 7th of August, terminating on the 9th of November. In addition to the regular staff employed, thirty boys, ranging from twelve to fifteen years of age were employed on this special work until school was re-opened. The use of planting boards was resorted to with unvarying success, resulting in greater speed and more careful planting.

Fall Transplanting.

Species.	Origin.	Age.	No. of Plants.
White Pine	Norfolk County	2 year old	548,000
Jack Pine	Algoma District	2 year old	1,473,300
Austrian Pine	Norfolk County	2 year old	12,300
White Spruce	Simcoe County	2 year old	945,000
Norway Spruce	Norfolk County	2 year old	71,000
White Cedar	Simcoe County	2 year old	164,400
European Larch	Western Alps	1 year old	474,820
Balsam	Simcoe County	2 year old	7,980
Total			3,696,800

A number of hardwoods comprising 70,200 white elm and 79,600 soft maple, too small for distribution, were also lined out, making a total of 3,846,600 seedlings planted in nursery lines during the fall season.

In addition to the foregoing disposal of seedlings, a considerable number were shipped to the several recently organized Provincial Forestry Stations and Plantations in the following proportions:

Species.	Provincial Forestry Stations.		Provincial Forestry Plantations.		Totals.
	Orono.	Midhurst.	Simcoe Co.	Sand Banks.	
White Pine			286,700		286,700
Scotch Pine	114,000	200,000		63,900	377,900
Red Pine			3,500		3,500
Jack Pine		50,000	13,000	59,300	122,300
White Spruce	22,000	100,000	854,500	326,900	1,303,400
Norway Spruce	84,000	50,000		7,000	141,000
White Cedar			14,600	70,500	85,100
Totals	220,000	400,000	1,172,300	527,600	2,319,900

Fertilizers.

Fertilizers applied during the year in connections with the nursery lines and seed beds are as follows:

Location.	Animal.		Mineral.	
	Manure Tons.	Dried Blood Lbs.	Acid Phosphate Lbs.	Sulphate of Ammonia Lbs.
Lot 2	..	100	270	..
Lot 3	..	120	320	60
Lot 4	..	280	1,100	140
Lot 5	52	600	1,100	300
Lot 6 to 11 inclusive	5	..	..	..
Lot 20 to 23 "	5	..	..	..
Lot 24	5	..	400	..
Lot 25	5	..	400	..
Lot 26	30	..	..	150
Lot 30, 31, 32	..	..	800	150
Lot 34, 35	..	..	800	150
Lot 36	..	250	900	180

Additions to Property.—Although very little building was done during the year, one important construction was completed, namely, an underground room for storing tree seed. This building or room 16′ x 22′ in dimension, is composed of concrete and is completely surrounded by earth to the extent of seven feet. An even temperature the year round is thus obtained, a medium essential to the storing of seed over a number of years. The seed itself is contained in sealed glass bottles which in turn are labelled to indicate the species, origin, quantity and quality of seed stored.

Roads.—An effort has been made to divide the 1,720 acres comprising the property into workable compartments in order to facilitate the management of the wooded areas of the plantation. The old timber roads have been cleared of all debris, widened and otherwise improved, while one and one-half miles of new road was built to link up these older trails, thereby increasing accessibility and reducing fire hazard. All fire roads were kept clean by ploughing and discing. The sixth concession road extending from the town line west to the quarter town line was cleaned of all inflammable material and diseased and ill-formed tree growth.

The erection of a thirty-five foot tower overlooking a large plantation provides an observation point from which records may be made of the development of the reforested area, for a number of years to come. Moreover, situated as it is on a prominent hill this tower is serviceable as a "look-out" in connection with protection from fire.

To meet with increasing demands for planting material, it has been found necessary to rent a twenty-five acre field abutting the nursery. This field will produce approximately 6,000,000 transplants suitable for permanent planting purposes.

Silviculture.—During the late fall and winter months 140 acres of the wooded section of the forest station was subjected to improvement cutting.

Weed trees, windfalls, standing dead timber and trees showing evidence of fire scar, butt rot, ill-form, oppression and senility were removed and converted into logs and cord wood, the remaining slash being burned.

As a result of this improvement cutting only sound healthy vigorous trees are left, while with the removal of slash, fire hazard is minimized.

Moreover, underplanting was made possible, since by the removal of all undesirable material, a greater growing area was obtained and the resultant reduction of crown density permitted a greater percentage of light ingress, essential to the successful development of the underplanting.

Protection (Disease and Insects).—The policy of eradication of members of the family Ribes for the prevention of the infection of nursery material with white pine blister rust was continued during the recent summer. Three men were constantly employed on this work.

An immunity belt of over one mile in width surrounding the nursery has been freed of host plants, up to the present there has been no evidence of infection of nursery stock from this source.

The destructive work of the white pine weevil has also been held in check by removing all attacked leaders in the older plantations. An interesting and important observation relative to the work of combating this pest may be noted that where the white pine is planted in conjunction with other conifers or along the border, or under an older stand of hardwoods little or no evidence of white pine weevil has been found.

NURSERY STOCK ON HAND DECEMBER 14TH, 1922.

CONIFERS	
Balsam	7,980
Cedar, White	716,400
Larch, European	1,469,820
Pine, White	2,643,000
Pine, Scotch	1,670,100
Pine, Jack	4,196,300
Pine, Red	2,120,700
Pine, Austrian	12,300
Spruce, White	1,545,000
Spruce, Norway	571,000
	14,952,600
HARDWOODS	
Ash, White	4,450
Birch, White	2,300
Basswood	1,250
Chestnut	6,000
Cherry, Black	900
Elm, White	84,200
Hickory, Shellbark	400
Hackberry	550
Locust, Honey	900
Locust, Black	2,000
Maple, Soft	116,300
Maple, Hard	16,500
Maple, Manitoba	1,300
Oak, Red	24,400
Poplar Cuttings	250,000
Sycamore	450
Tulip	1,500
Walnut, Black	30,000
Walnut, White	3,000
Willow Cuttings	50,000
	596,400
Conifers	14,952,600
Hardwoods	596,400
Net Total	15,549,000

ORONO.

As this station was acquired during the late summer of 1922, a description of the property, its area, position and conditions may be given first. This new nursery consists of approximately 147¾ acres and is situated in Clarke Township, Durham County. The headquarters are on the outskirts of the Village of Orono, about one-third mile from the C. N. R. station. The C. P. R. and G. T. R. are also available in emergency, the former being three miles, the latter five miles south. There are also excellent opportunities for securing labour and a creek which flows to the north of the area, along the east side, penetrates the boundary in two places. Telephone and electric light services are also available.

The area chosen is on the shore line of the glacial Lake Iroquois, with a general southerly aspect. The soil varies greatly from a medium heavy loam n a small portion to a pure medium sand, blowing in patches in the south. Iin general, however, the soil is a warm, sandy loam. The southerly aspect of the property and the general porosity of the soil renders the solution of the drainage question fairly easy.

There are approximately 100 acres of land suitable for intensive nursery work—seed beds and transplant lines. The remainder of the area, 47¾ acres, is largely included in a valley of from 20 to 60 feet deep and from 200 to 600 feet wide which extends from the northeast corner along the east side of the property swinging diagonally in the southern portion to the west side. This offers a good chance for demonstration plantations and, as stated before, since the soil embraces practically all classes from heavy loam to blow sand and as all aspects from north to south are available in larger or smaller areas, practically all species may be represented.

This nursery situated in the heart of a rolling farming country, where every farm contains a percentage of unprofitable hillside, with a wide area of light soil to the west and with the so-called "pine ridge," largely a blow sand area, approximately six miles wide, extending through York, Ontario, Durham and Northumberland Counties a few miles north. It is excellently placed to serve private requirements as well as any project which may be instituted for the complete reforestation of the ridge. The position of the nursery in a thickly populated and prosperous district is also exceptional for the dissemination of educational propaganda.

Owing to the fact that the property was taken over late in the season, most of the work instituted was in the nature of soil cultivation and organization of the property.

However, a small start was made in seed bed work and nursery lines as follows:

Transplant Beds.

Transplanting commenced September 7th and terminated October 4th. Material was secured from St. Williams and planted with the Yale Planting Board.

Species.	Origin.	Age.	No. of Plants.
Norway Spruce	St. Williams	1 year	2,000
" "	"	1 "	82,000
White "	"	2 "	22,000
Scotch Pine	"	1 "	114,000
Total			220,000

SEED BEDS.

SPECIES.	Collected.	Origin.	No. of Beds sown.	Amount of Lbs.	Seed per Bed, Ozs.	Total Amount.
White Pine.....	1922	Simcoe Co.	20	1	8	30

The following hardwood seeds were sown in drills and belts:

SOWING OF HARDWOOD SEED.

SPECIES.	Origin.	Date of Sowing.	How Sown.	Amount of Seed Sown.
				Bushels.
Hard Maple.....	Pr. Ed. Co.	Nov. 15	Belts	3
White Ash.....	" "	" 20	"	3
Butternut.....	Simcoe Co.	" 23	Drills	20
Black Walnut.....	Durham Co.	" 27	"	18
			Total.....	44

Hard maple and white ash were sown in belts 120 feet long by 11 inches wide. These belts were formed by the use of a seeding roller 35 inches long by 8 inches in diameter. A belt 11 inches wide and 10 inches in diameter formed the centre of the roller. When rolled over the area this left a depression three-quarter inch to 1 inch deep for the whole width of the area with a 12 inch path between belts. In so far as the actual seeding was concerned this device undoubtedly proved its efficiency in speeding up the operation.

NURSERY STOCK ON HAND, JANUARY 1ST, 1923.

CONIFEROUS.	CLASSIFICATION.		TOTALS.
	4" to 6"	4" to 8"	
Norway Spruce.....	74,000	2,000	84,000
White Spruce.....	22,000	.....	22,000
Scotch Pine.....	112,000	.....	114,000
Totals.....	208,000	2,000	220,000

Additions to Property.—A strip of land forty rods long by four rods wide was purchased across the valley which separated the village from the nursery land and a road constructed. This necessitated the erection of two concrete abutments with wings and a concrete culvert.

MIDHURST.

The property purchased for this station consists of approximately one thousand acres of land in Vespra Township, Simcoe County, five miles from the Town of Barrie. It covers a part of a large sand plain at one time occupied with fine stands of red and white pine. Some of the property since then has been

stumped and cropped, but the greater part has been used for pasture farms and wood lots. The approximate areas of the different types are as follows:—

Broken and stumped	50 acres
Broken and partially stumped	100 "
Second growth in pasture	300 "
Pine stumps and pasture	350 "
Mixed growth along creek bottoms	100 "
Swamp	100 "

There were no buildings on the property of any great value at the time of purchase. One six roomed bungalow was built and made ready for use for the winter. As the property was not taken over until September of 1922, most of the work done was of the nature of clearing up and cultivation of the soil. Owing to the unclean condition of the land, no seed beds were sown. A few nursery beds were put in containing 400,000 seedlings from St. Williams and twenty-five bushels of butternuts were planted.

PROVINCIAL FOREST PLANTATIONS.

SAND BANKS.

During the past year, the work at the Sand Banks has been put on a permanent basis. A foreman has been placed in charge and a house and a few acres of land purchased to serve as headquarters. In addition to this, a storehouse and workshop combined and a stable have been erected during the summer. As the work of checking the sand dunes is not expected to show tangible results until the trees planted have put on a few years' growth, and as the sand still continues to cover up privately owned property, the government has offered to purchase land which is thus endangered as well as that which has already been covered up. A flat rate of fifty dollars an acre for agricultural and forested land, and ten dollars an acre for sand covered land has been decided upon, and up to the present most of the land owners adjacent to the banks have sold their property at this price.

By having control of these fringes of good land and especially by insuring permanency of the remaining clumps of mature cedar, the work for the future is safe guarded. Also, some of the land thus acquired is suitable for nursery work, and already a large quantity of planting material has been transferred from St. Williams to nursery beds here, awaiting final planting on the banks.

The work of tree planting was continued during the spring. The protective belts of willow and poplar were widened and supplemented where necessary. Large areas, where the drift was most severe, were planted solid with limb material. In addition to the planting on the exposed areas, a number of small plantations were set out in corners of good fields and in protected places.

SIMCOE COUNTY.

Simcoe is the first of the counties to take advantage of the offer of the government to reforest waste land. The tract purchased consists of one thousand acres of light soil in Vespra Township about eight miles from Barrie. At one time this section of the township was covered with big pine, and since it was cut, small areas have been farmed with varying success. The greater part, however, remains unstumped.

Work was commenced here in April of last year. Five hundred thousand one-year old seedlings were transferred from St. Williams and planted in nursery beds, in preparation for permanent planting in succeeding years. Sixty acres of the property were planted out permanently with Scotch pine and mixed hardwoods. Autumn transplanting was continued with material from St. Williams, bringing the total of seedlings in nursery beds to 1,172,300. In the work of transplanting at the Simcoe plantation, the use of the Yale planting tool was experimented with, on a large scale, for the first time in our work. The rapidity with which small stock can be transplanted by this means, more than justifies its continued use.

During the summer, the section of the property chosen for nursery compartments and headquarters was improved. Buildings on the property were renovated and made ready for the occupancy of a foreman who took charge in the autumn.

TREE PLANTING.

PRIVATE PLANTING.

The distribution of trees for waste land planting and wood lot work on privately owned lands was greater this year than previously. More applications were received than the branch could fill and in all 311 separate persons received trees for planting work.

DEMONSTRATION PLOTS.

In accordance with the plan outlined by the government, for the establishing of plots to demonstrate the utilizing of non-agricultural land for tree growing purposes, the following municipalities have purchased land which has been planted free of cost during the year.

Burford Township—Brant County.

Situated about one mile from Burford Village on the Provincial County Highway, 5-1/20 acres planted with 3,000 Scotch pine and 2,000 red oak.

Darlington Township—Durham County.

Situated on Toll Gate Hill about two miles from Bowmanville on the County Provincial Highway, a five acre corner lot planted with 4,000 Scotch pine, 2,000 jack pine and 1,000 walnut.

Colborne Township—Huron County.

A part of the township cemetery which is unfit for burial purposes, five acres planted with 3,000 Scotch pine and 1,000 jack pine.

Sunnidale Township—Simcoe County.

Situated one and a half miles from New Lowell on the Glen Cairn Road. The drifting sand from the adjoining fields has practically blocked one section of the road. Eleven acres of land, a part of which was planted with 2,000 Scotch pine, 3,000 jack pine, 1,000 willow cuttings, 1,000 poplar cuttings and a quantity of willow limb material.

Beeton Village—Simcoe County.

Situated one and a half miles from the village, being a part of the reservoir reserve. This plot not only serves as a demonstration in tree planting, but also shows the use to which trees may be put for protecting the margins of streams and lakes used for water supply. The areas planted are the slopes of hillsides which drain into two streams which feed the village reservoir. Trees planted were, 2,000 Scotch pine, 8,000 jack pine, 1,000 cedar and 2,000 spruce.

Essa Township—Simcoe County.

Situated on the road between Thornton and Essa, being a part of a large sand area unimproved since the mature timber was removed. Ten acres planted with 3,000 Scotch pine and 2,000 jack pine.

Norfolk County.

Situated in the Township of South Walsingham and close to the government owned nursery at St. Williams. One hundred acres of land, a part of which was planted with 35,000 Scotch pine.

Edwardsburgh Township—Grenville County.

Situated on the Ottawa Prescott Highway between Kemptville and Spencerville. This plot was commenced about six years ago. One thousand Scotch pine were used for completing the area and filling up fail places.

Cramahe Township—Northumberland County.

Situated west of Dundonald on the town line between Brighton Township. One and a half acres of drifting sand planted with 3,000 Scotch pine and 2,000 jack pine.

Plantagenet Township—Russell County.

Situated one and a half mile from the Village of Plantagenet. Ten acres, a part of which was planted with 6,000 Scotch pine.

SUMMARY OF TREES PLANTED PERMANENTLY, 1922.

	Misc. Species	Scotch Pine	Jack Pine	Walnut	Butternut	Hard Maple	Soft Maple	Red Oak	White Ash	Poplar Cuttings	Willow Cuttings
Private Planting.....	.....	199,600	49,401	12,871	6,651	10,827	5,086	7,372	11,324	13,500	11,100
Demonstration Plots..	3,000	62,000	18,000	1,000	.....	.....	.....	2,000	.....	1,000	1,000
Sand Banks.....	9,500	5,000	20,000	2,000	.....	2,000	2,000	.....	2,000	230,000	82,000
				64 c	ords of Lim	b Material	equal to...	.....	.....	.....	.....	225,000
Simcoe County.....	5,000	30,000	20,000	2,000	.....	.....	.....	2,000	.....	5,000	.....
	17,500	296,600	107,401	17,871	6,651	12,827	7,085	11,372	13,324	249,500	319,100

Total, 1,059,232.

PLANTATION INSPECTION.

Inspection of plantations was carried on this year over the greater part of Western Ontario, embracing the following counties: Welland, Lincoln, Haldimand, Simcoe, Grey, Wellington, Dufferin, Waterloo, Perth, Middlesex, Brant, Oxford, Wentworth, York, Peel, Halton, Peterborough, Durham, Northumberland.

Taking into account the inspection done in previous years this means that with the exception of a few plantations in the northern part of Old Ontario, the whole of the penisular part of the Province has been covered with the exception of the counties bordering Lake Huron and Kent, Essex and Norfolk Counties. The total area of these plantations inspected amounts to some five hundred acres. There were 448 plantations inspected, none of those having fewer than 500 trees were visited; of these approximately 84 per cent. have been successful, making 30 per cent. and over as the test of success.

The trees were found to be remarkably free of disease. There were no cases of white pine blister rust and only a very few of white pine weevil. An exception

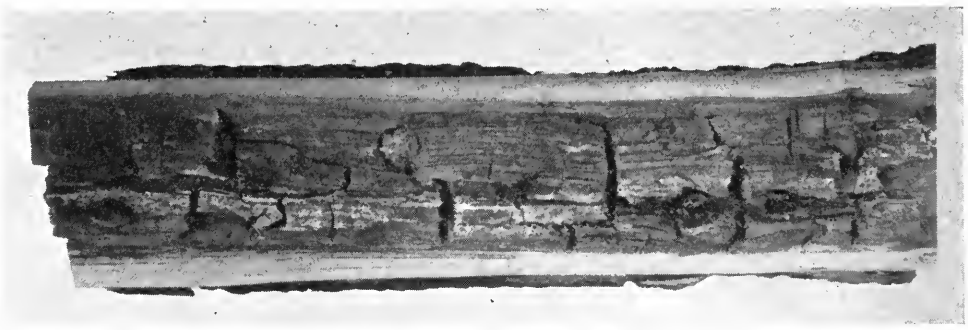


Fig. 5.—Type I: Butt rot of balsam.

to this rule is black locust, which almost everywhere is infested with borer, though the trees are usually not killed for a long time by this insect. The Scotch pine were invariably in a healthy condition.

The plantations were of all ages, ranging from those planted in the spring of this year (though only a few of these were visited) to the oldest, which were begun as far back as 1907 and 1908. Individually, the area of these averages from three-quarters of an acre to one acre, though many were no more than patches a few rods square. The largest visited were from eight to ten acres in extent. There were very few of these.

Below are given some height figures for various species ten years old, as averaged from several of the more successful plantations.

Scotch Pine	16.2 feet
White Pine	10.4 "
Jack Pine	15.3 "
White Ash	11.3 "
Walnut	7.9 "
Soft Maple	13.5 "

SEED COLLECTING.

The season of 1922 has been a prolific seed year for many of our native species used in reforesting work. Gathering of cones and seed was carried on at Angus, St. Williams and at the Sand Banks.

The following seed was secured:

Species.	Bushels.	Lbs. of Seed.
Scotch Pine	.....	25.0
Jack Pine	.....	38.0
Red Pine	.....	6.5
White Pine	.....	731.0
White Spruce	.....	33.25
Balsam	.....	160.0
Tamarac	.....	5.0
White Cedar	.....	243.0
Red Cedar	.....	70.0
Hemlock	.....	22.5
Walnut	575.0	.....
Butternut	267.0	.....
White Ash	60.5	.....
Hard Maple	60.0	.....
Soft Maple	70.0	.....
Elm	6.0	.....
Beech (Unshelled)	15.95	.....
Black Cherry	6.8	.....
Basswood	2.0	.....
White Birch	2.68	.....

IV.—FOREST PATHOLOGY

(Report of Dr. J. H. Faull for 1922.)

Investigations on the following topics in forest pathology were continued or initiated during the season of 1922.

(a) *Physiological diseases.* (1) *Needle blight of white pine.* Several hundreds of trees marked in 1918 and 1919 in connection with studies on needle blight in the Temagami Forest Reserve were checked over. In order to determine the effect on the annual accretion of wood, increment boring and blocks were taken from the majority of them; the results are being collated and will be presented in the next report. (2) *Effects of late spring or early summer frosts on balsam and spruce.*

(b) *"Red branch" of balsam, pine, and arbor vitae,* and *"spike branch" of spruce.* In the Report of the Minister of Lands and Forests for the Province of Ontario for 1920, a brief account was given of an unexplained dying of the branches of balsam, particularly striking and abundant in some localities, and the causes were demonstrated. Observations have been extended since to other conifers. On the entomological side of this problem interesting data have been contributed by Dr. F. C. Craighead of the Federal Entomological Branch, Ottawa. A summary is included in this report.

(c) *Butt and heart rots.*—Special attention has been given to the pulp woods, in part because of requests for information from several limit holders, and in part because of the vast and almost virgin field of research offered by the pulp woods. It has seemed particularly desirable to concentrate on balsam (*Abies balsamea*) for the reason that it is extremely susceptible to disease, and it presents some of the most vital forest problems confronting us to-day in Eastern Canada. Preliminary analyses have been made of the distribution of the various

types of rots, of the extent of their ravages, and the age at which the tree species become susceptible to them. Studies on the rate of progress of deterioration are also planned, information of essential importance in the rectifying of working plans on a sustained yield basis, and of value in determining when a given stand should be harvested.

Owing to the fact that the identity of the fungi responsible for many of the heart and butt rots is unknown, intensive laboratory research has been carried on in this subject by C. W. Fritz, M.Sc., through the co-operation of the University of Toronto; investigations on fifteen forms have been completed and an account of them will shortly be published.

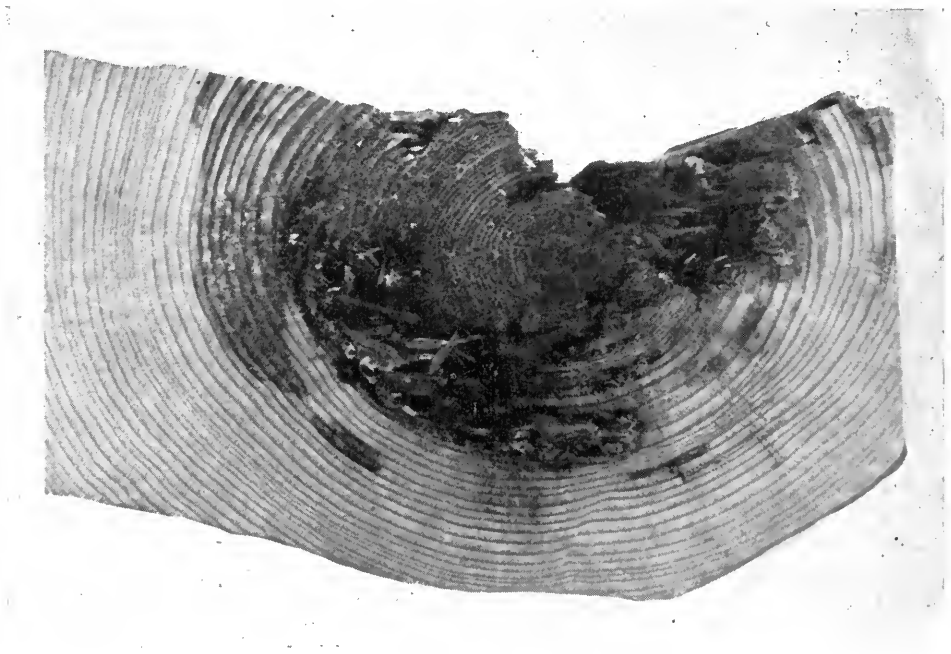


Fig. 6.—Type II: Butt rot of balsam.

As an extension of the work on butt and heart rots some time has been given to the question of their relation to the dying of balsam following bud worm attack.

(d) *Rusts of balsam.*—As a part of the preparation of a monograph on the diseases of balsam, attention has been given to needle diseases. The rusts are among the more important causes of such; they are essentially leaf parasites, though in some cases the stems and branches may be involved. This special group has been investigated by Dr. H. P. Bell, of Dalhousie University, Halifax, who was associated with me in the field, and to whom a working place was granted in the field laboratory through the courtesy of the Forest Branch. Many interesting facts have been brought to light and two new species of rusts on balsam discovered. Dr. Bell's paper on one set of these rusts has been accepted for publication in the *Botanical Gazette.*

(e) *Collections.* (1) *Fungus diseases.*—Many additions have been made to our reference collections in pathology, including contributions from correspondents in various states and provinces.

(2) *Flora of the forest floor.*—For the sake of acquiring a better knowledge of the forest floor, and especially its "index" plants, an annotated and representative, though not exhaustive, collection of seed plants and ferns has been assembled by Mr. H. P. Watson from the Temagami Forest Reserve—about 450 species in all.

1. *"Red branch" of balsam, pine, and arbor vitae, and "spike branch" of spruce.*

"Red branch" of balsam is of frequent occurrence. The dead, red-needled branches located here and there throughout a balsam tree are conspicuous objects against the dark green setting of normal living foliage, and are bound to attract attention. Various explanations to account for them have been offered; one of the commonest theories is that of snow pressure. But this explanation

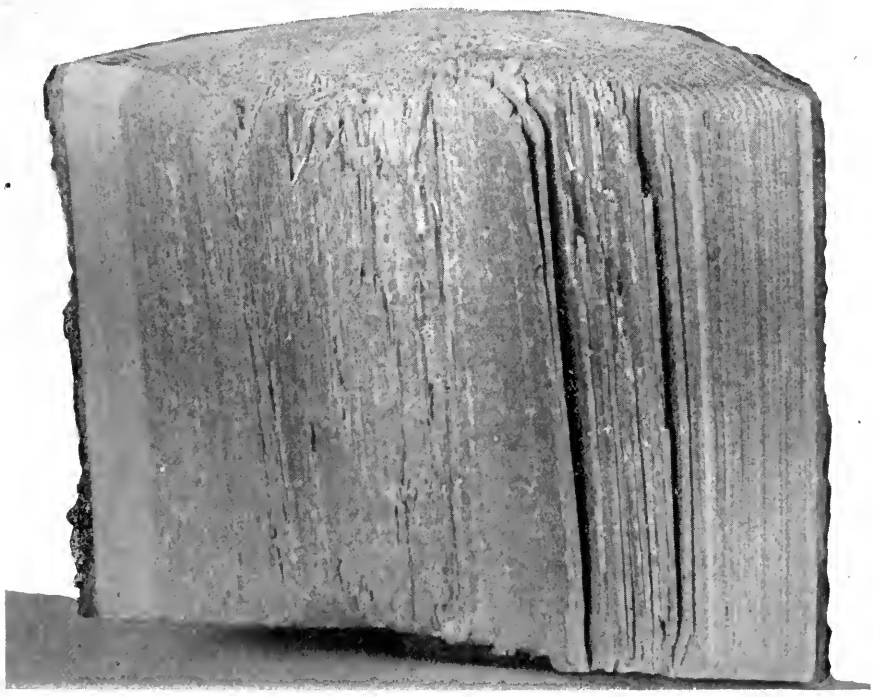


Fig. 7.—Type III: A butt rot of balsam.

lacks proof. The most frequent cause is not snow pressure, but a combination of two factors, namely insect-gnawing of the bark (which is almost invariably restricted to the lower surface, and is by no means a girdling) and the subsequent "drying out" of the living tissues at the same level, a process that is favoured by the action of frost, and by the inactivity of these tissues during the fall and winter.

An examination of the branch at the base of the dead portion almost invariably shows a more or less extensive spot from which the bark has been removed, a ragged-edged wound at once suggesting the gnawing of some small animal. This spot is usually on the under side; it never extends more than half way around the branch and usually much less, so that the branch is not girdled.

It may extend indefinitely towards the tip of the branch, commonly for not more than half an inch, but sometimes for several inches. Occasionally the leader is destroyed in the same way as the branches.

The wound in itself is not sufficient to cause the death of the branch. This was proved by similarly removing the bark with a knife from healthy branches in July of 1919. The wounds healed before the end of the season, and they have shown no ill effects of their maltreatment since then. But when the wounding takes place so late in the season that there is no time left for covering the edges of the wounds with new tissues the result is different. Twenty-five branches were wounded in the same manner in October, 1919. Without exception every one of these branches died from the point of wounding outward and their foliage was red by the following May.

The cause of the wounding in most cases is the large bark beetle *Monohamus scutellatus*. It would also appear from experiments that the rarer *M. marmorator* exhibit the same habit—a habit of these beetles not before known; indeed, it is altogether probable that other species of *Monohamus* (*Monochamus*) resort at times to bark-chewing.

A few instances of what appear to be snow pressure or fungus action occur at times, but in such cases the bark remains intact. Likewise, there are instances of removal of the bark by rubbing, or of the pulling off of low-placed twigs or small branches in the fall or winter, followed by the death of the branches, but they are not frequent. So, too, branches are sometimes killed by breakage due to wind or sleet, or insect burrowing. But the prevalent cause of "red branch" is the combination referred to above.

Now what is true of balsam is also true of white pine (*Pinus strobus*), red pine (*P. resinosa*), jack pine (*P. banksiana*), arbor vitae (*Thuja occidentalis*), black spruce (*Picea mariana*) and white spruce (*P. canadensis*). In the case of the spruces there is an early defoliation and naked branches appear as bushy spikes—hence the term "spike branch." Dr. Craighead reports that at Bathurst, N.B., about 50 per cent. of the "spruce trees standing in old logging operations were defoliated by *M. scutellatus* feeding on the under side of twigs."

In proof of the statement that *Monohamus* is the cause of the wounding Dr. Craighead deposited two males of *M. marmorator* and two females in a cage placed over a living balsam tree six feet high on July 7th. On August 24th much gnawing on the under side of the branches was noted, and by September 15th nearly all of the branchlets had been wounded in this way. By the following spring twenty-one branches had died and reddened. A similar experiment was carried out with *M. scutellatus* and with like results.

2. Butt and Heart Rots.

(a) *General.*—A distinction is drawn between butt and heart rots. The former are rots of any kind localized in the lower part of the trunk and the adjoining roots of a living tree; such rots commonly begin in the roots at the base of the trunk and work their way upwards. The heart rots occur in the heartwood of the main trunk; they commonly enter by way of knots or wounds. Fundamentally there is no difference between the two kinds. Both are caused by fungi. Delicate fungal threads, visible only with the aid of a microscope, except where they form sheets or strands, penetrate the wood partially digesting it; the undigested remains constitute the "rotted" wood. Fruit bodies, usually in the form of brackets or punks (but in a few species as mushrooms or toadstools) eventually develop on the surface of the diseased parts, but as a rule only after

the decay is well advanced or after the affected trunk has fallen to the ground. The fruit bodies produce large quantities of spores, microscopic in size, which are liberated from their surfaces, and which, carried by currents of air or other agents, serve to spread the fungus to other trees. Infection of living trees takes place through the spores lodging and sprouting on wounds or dead branches or branch stubs. Infection by butt rot fungi may also take place through contact between diseased and healthy roots, or in certain species through fungus strands that may traverse the soil.

The amount of loss due to butt and heart rot fungi is enormous; they are

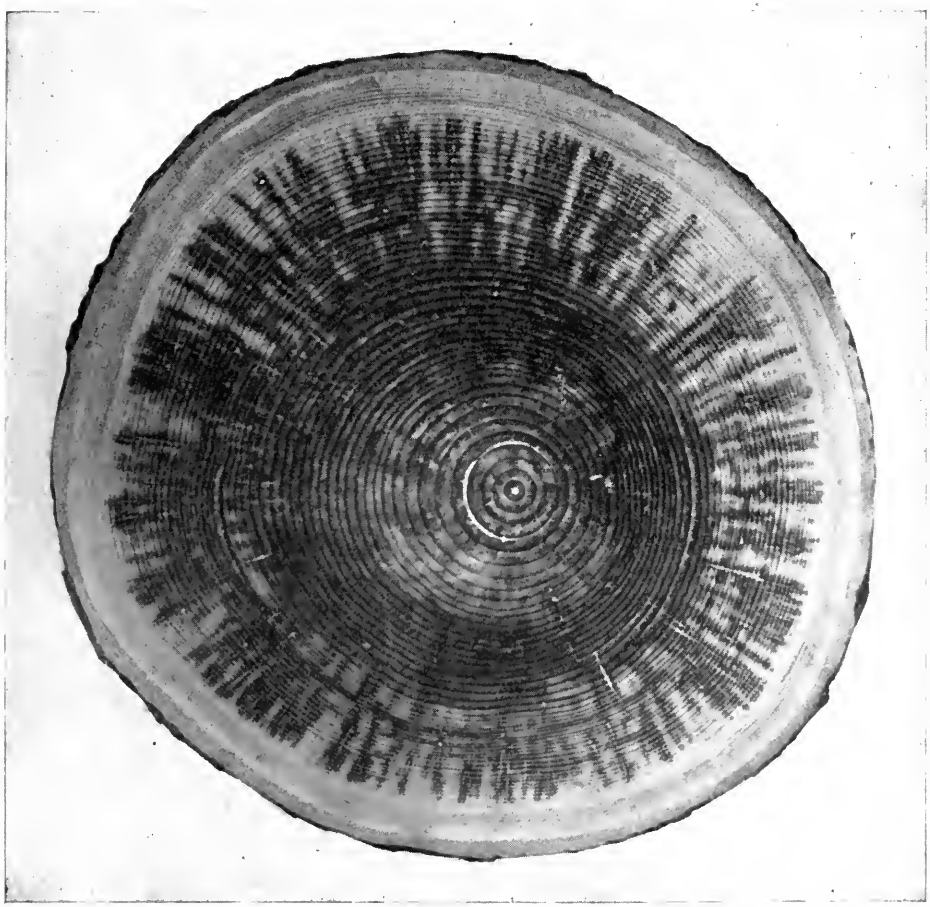


Fig. 8.—Type IV: Heart rot of balsam ("hemlock rot" of balsam).

easily the most destructive agents of the forest. Mature stands will show a destruction up to 50 per cent. or more. The butt rots as a rule do not extend more than a few feet up from the ground, but they weaken the trees at their bases and so facilitate windfall. Indeed, most windfalls are due to this cause, so that in a very direct way the butt rot fungi increase the fire hazard in addition to destroying the timber. The heart rots work throughout the merchantable part of the trunks; they may weaken the stems at any level, so that broken tops are frequent, and in time they spoil the entire tree for any purpose. Even after the death of their hosts these fungi continue to be active, and so they are

found in dead standing timber, fallen trunks, stumps and slash, where they persist as agents of destruction and as breeding centres of infection.

Now as for control, which after all is the ultimate problem, certain facts must be borne in mind. (1) There is not a uniformity of behaviour among the butt and heart rot fungi—hence the various types demand individual study. It is important to know the identity of each, where it fruits (whether on slash, stumps, etc.), what kinds of trees it may attack, and at what ages, and how they work and how rapidly. It is for these reasons that the fungi of the balsam, the spruces and the pines, etc., should receive individual and detailed attention. (2) Sufficient observations have been made to show that young stands do not suffer from butt and heart rots. Trees will grow to merchantable size before they are attacked, though they do fall a prey before they have attained their maximum size. Thus if control be desired it must be considered in connection with leasing and cutting plans. Control will follow automatically when an adequate system of management is put into operation. The rectification of the plans adopted can be effected from time to time as the information indicated above becomes available. Such plans are already being initiated by certain limit holders in Quebec. This has come about through the necessity of doing something if a continued supply at the present rate of consumption is to be assured within competitive reach. The virgin timber left is ever more and more inaccessible and is often much over mature. The harvesting and transportation of this timber easily reaches a point at which the burden of added cost is insupportable. (3) To what extent slash disposal is important as a control measure remains to be seen. Probably it would not much affect the butt rot fungi as they can and do reproduce in connection with the stumps and roots; but it would have a bearing on the control of the heart rot fungi. (4) Methods of harvesting also have a bearing on the question of control. Thus a system of harvesting that permits the leaving of defective and suppressed trees to remain uncut would appear to favour the perpetuation of infection centres, and at the same time threaten the vigour of the succeeding generation of trees. In nature the strongest survive, but by such a system it is the weakest that win out.

(b) *Butt and heart rots of Balsam.*—So far as I know no account has yet been published of the butt and heart rots of the balsam (*Abies balsamea*). Rankin in his "Manual of Tree Diseases" (1918) briefly discusses the butt and heart rots of the American firs in general, including the Douglas fir, but of the six mentioned by him it is not certain that any are applicable to the balsam.

In any case our knowledge of the diseases of our balsam fir is meagre, so that to secure information on the pathology of this tree, which is finding such an extensive use in paper-making and to some extent as lumber, it will be necessary to begin at the foundation and work up.

There are three important butt rots of balsam and one heart rot. A preliminary description of them follows.

Type I.—This is a butt rot (the "brown butt rot" of the lumberman) found in the heart wood of the lower part of the trunk and the larger roots. It may extend ten to fifteen feet upwards into the trunk, but is commonly more restricted. It is the prevalent type in some stands—in very mature stands almost every tree being affected, while in other parts of the country it may be comparatively infrequent. This type is characterized by the heart wood being converted into a light brownish mass due to the removal of the cellulose, which in more advanced stages checks into more or less cubical masses, up to an inch or more in length. On being rubbed up between the thumb and fingers these masses readily pulverize just as does chalk or charcoal. The cracks between the masses

may partly fill the indefinite delicate white sheets of the fungus. This decay will eventually extend out almost to the bark, so that only a very thin shell of sound wood may remain. Such a butt rot is known to occur in all of the conifers, both in Europe and America. It has, on inconclusive grounds, been commonly referred to a fungus botanically known as *Polyporus Schweinitzii*. But our studies both in the field and in the laboratory so far have connected it with a fungus called *Polyporus balsameous* Peck. Culture studies have borne out this conclusion and association of the fruit bodies with the decay in the forest.

It is, of course, possible that *P. Schweinitzii* or even some other fungus may at times attack balsam, causing a similar type of decay. If such findings be established, then this type will be subdivided into Type Ia, Ib, etc.

Types II and III.—These are also butt rots, and are probably not dis-

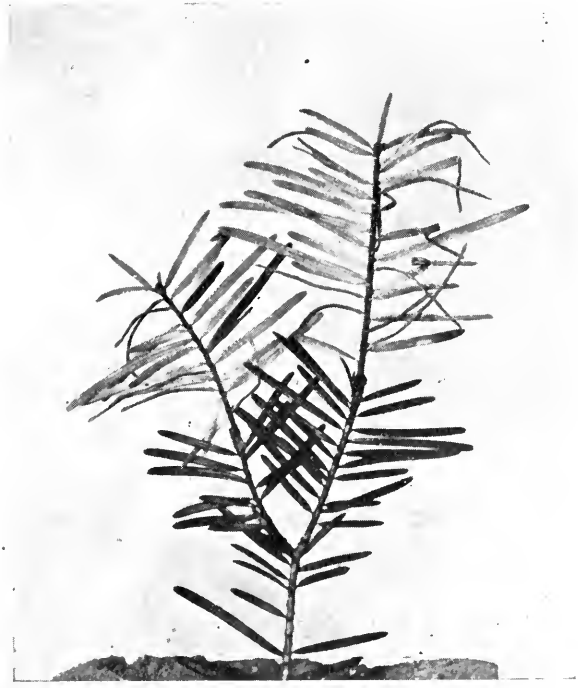


Fig. 9.—Young balsam attacked by a fern rust (Uredin opsis).

tinguished from one another by the casual observer. They pass under the name of "feather rot" because of the light coloured, shredded or flaky rot that characterizes the later stages. This decay does not extend as far up into the trunk as Type I, but causes just as great a weakening of the butt. It is very abundant in some localities.

Type II is described in my field notes as follows: The newly decayed wood is clay colour or tawny olive, later a cinnamon buff. It is soon marked by tiny longitudinal pockets or cavities of indefinite length arranged in close concentric series, typically a single row in the fall wood of each annual ring. This results in the lamination or flaking of the wood, the decayed wood readily falling into sheets, each sheet consisting of an annual ring. The surfaces of these sheets, as one might expect, are etched. Eventually there is a shredding of the sheets due to the radial deepening of the longitudinal furrows. This continues until

the wood is reduced to cottony shreds, with at the same time a fading of the colour. In extreme cases the shreds may disappear to a greater or less extent, leaving the butt hollow. One of the curious features of this decay is the frequent occurrence of small black spots.

Type III is quite similar, but there is a tendency for radial perforations to form quite early in the decayed wood. There is also a delamination, (but more tardy), and an eventual shredding. With this type we have found *Poria subacida* associated as a causal agent.

Type IV.—This is a heart rot confined exclusively to the main trunk and in Quebec known as "hemlock rot" of balsam. In one case only so far have I found it extending down to the butt. This heart rot is probably the outstanding menace of the balsam stands of Eastern Canada at the present time. In some stands recently cut over 65 per cent. of the timber has been rejected from this cause, including what was left uncut because of its evident uselessness, and what was culled from the skids. Regarding its distribution we have little information other than what has been gathered in the course of our own investigations. It is found in Northern Ontario, and in Western Quebec, but how extensively we are as yet unprepared to state. It is extremely common in Middle and Eastern Quebec. There is, as yet, no report from Gaspé, the Maritime Provinces or the United States.

The heart wood of this rot is rather firm and of a reddish brown colour. As seen in a cross section of the trunk its outline is marked by radial extensions of the decay, these rays being up to half an inch in width. Sometimes instead of rays there is a more or less indefinite large-figured mottling. The decayed wood is typically wet and heavy. Indeed, affected logs float very badly; they are known to the lumbermen as "sinkers." On tracing this decay downwards it is found to pass into the "frost patches" or watery-looking spots commonly seen in normal balsam at the time of felling.

Infection has been found to take place through the lower dead branches or branch stubs, and the decay appears to work very rapidly up and down in the heart wood for long distances from these points. In addition, infection in tops injured by the bud worm are very frequent and the decay starting there may work down several feet. They are a frequent cause of the broken topped balsams so common in such stands—the "chicots" of the French-Canadian lumberjack.

Type V.—There is still a form that should be mentioned and that is a root rot due to the "shoe string" fungus or *Armillaria mellea*—one of the common and abundant toadstools. This fungus attacks the roots of trees that have just or recently died. It forms white sheets of fungus threads immediately under the bark and these may work up some distance under the bark of the stem. The sap wood is whitened and softened and occasionally the heart is affected. The fresh decayed wood and sheets of fungus threads are phosporescent. Whether or not this fungus is the cause of the death of such trees is not known. In Europe it is regarded as a highly destructive parasite of certain kinds of conifers, but in America wide differences of opinion are held.

The *control* of the butt and heart rots of the balsam is fundamentally based on the age at which the host trees become susceptible to the attacks of the various types, and the rate of deterioration subsequent to infection. Regarding the "hemlock" rot of balsam in Quebec, Mr. W. E. Hiley, of the investigational staff of the Forestry School of Oxford University, found that more than half of the balsam trees over eighty years of age examined by him were affected, while those under sixty-five years of age were almost invariably sound. If this finding should prove to be general, a cutting cycle of sixty years would practically

avoid and eliminate this type. From our own analyses of butt-rotted balsams made in 1922 in the Temagami Forest Reserve we have found that balsams under sixty years of age are as a rule free from attack. But for all types many more analyses should be made before final conclusions can be reached.

Spruce Bud Worm.—At the request of the Federal Entomological Branch in 1921, an examination of dying balsam, primarily injured by the spruce bud worm, was made to determine to what extend fungi were responsible for the decadence of these trees. The first studies were made at Otter. It was soon discovered that the absorbing roots of such trees were dead, and that in consequence the trees were dying from inability to obtain water and nourishment from the soil. An explanation of the death of the roots seems apparent; injury to the foliage by the bud worm meant loss of the power to manufacture food, and the roots, dependent on such food, are starved and die. Thus a vicious circle is established. Mr. Hiley has also pointed out that the flow of materials in bud worm injured trees would be greatly lessened, because of the abrupt decrease in the size of the annual rings. That such a condition would affect the health of the tree is quite obvious. They, too, would in all probability the more quickly succumb to the attacks of butt and heart rot fungi. But as many of the dying or dead trees are free from butt and heart rot fungi, it is clear that the physiological disturbances are quite sufficient to cause their death. In the case of surviving bud worm injured trees it would be interesting to compare the ravages of the butt and heart rot fungi in them with what takes place in uninjured trees of the same class. Do such trees, for example, suffer more severely from the "hemlock rot", and if so, to what extent? Casual observations indicate that they do, but there are no data on this subject.

Indeed, from the standpoint of utilization, data should be collected relative to the subsequent history of balsam stands attacked by the spruce bud worm. Some trees die during the bud worm epidemic, but a large proportion survive. Then a few years after the epidemic has passed, as clearly stated by Mr. Hiley, "great numbers of the convalescent trees mysteriously died; and as this mortality continued for several years the loss appears in some places to have been as great as that which resulted from bud worm feeding."

3. Balsam Rusts.

The foliage of balsam (*Abies balsamea*) is subject to the parasitism of many rust fungi. In all cases these rusts parasitize an alternate host, so that there are two phases in their life cycles. Thus one alternates between the blueberry and the balsam, another between the fireweed and the balsam, a third (comprising several species) between various ferns and the balsam, a fourth between chickweeds and the balsam, and a fifth between willows and the balsam. The fern rusts of the balsam cause the greatest damage, especially to seedlings and younger trees. The others are probably of little or no economic importance at any time. The chickweed rusts of the balsam are the cause of the often large conspicuous crows' nests or witches' brooms common enough on the balsam in some localities.

The willow rust of the balsam appears as small open pustules on the affected needles. All of the others form small white or yellow cylindrical bladders on the discoloured (usually whitened) affected needles. These bladders, or peridermia, as they are called, break irregularly at their apices to discharge their spores; the latter are capable of infecting the alternate host only.

Two new species were described and named by Dr. H. P. Bell, in 1922, from abundant material discovered in the Temagami Forest Reserve. Both

are remarkable for their habit of parasitizing the older needles of balsam. One of them (*Peridermium pycnograndе* Bell) is found on needles from two to eight years old, and this rust is associated with and is probably the cause of a loose broom-like habit of growth of balsam branches very frequent in Temagami. This rust also appears to pass over to the polypody fern and to be represented there by a rust not before noted. The second new rust (*P. pycnoconspicuum* Bell) was found on needles three years old. Culture experiments indicate that this is the alternate phase of a rust on the oak fern, *Hyalopsora Aspiotus* (Peck) Magn., a rust which was believed to pass over to some conifer, but which one, if any, had not heretofore been demonstrated. The peridermia of the first are white and associated with deeply seated spherical pycnia, those of the second are yellow and associated with very large flat and shallow pycnia.

As a record of distribution a list of the balsam rusts found in Northern Ontario (all in the Temagami Forest Reserve) is appended with the names of the rusts as they are known on the various hosts.

Abies Balsamea.	Alternate Hosts.
Peridermium columnare (O and I)..... (Blueberry rust of balsam).	*Calyptospora columnaris* (III), on Vaccinium pennsylvanicum and V. canadense.
Peridermium pustulatum (O and I)..... (Fireweed rust of balsam).	*Pucciniastrum pustulatum*, on Epilobium angustifolium (II and III) and E. adenocaulon (II and III).
Peridermium balsameum (O and I)..... (Fern rusts of balsam).	*Uredinopsis Osmundae* (II and III), on Osmunda claytoniana and O. cinnamomea.
	U. mirabilis (II and III), on Onoclea sensibilis.
	U. Struthiopteridis (II), on Onoclea Struthiopteris.
	U. Phegopteridis (II and III), on Phegopteris Dryopteris.
	U. Atkinsonii (II and III), on Asplenium filix-foemina.
Peridermium pycnograndе Bell (O and I)... (Fern rust of balsam).	*U. polypodophila* Bell (II), on Polypodium vulgare (connection with balsam not yet established by artificial infections).
Peridermium pycnoconspicuum Bell (O and I) (Fern rust of balsam).	*Hyalopsora Aspidiotis* (II), on Phegopteris Dryopteris.
Peridermium elatinum (O and I)..... (Chickweed rust of balsam).	*Melampsorella elatina* (II), on Cerastium vulgatum and Stellaria graminea.

Caeoma arctica with the alternate phase *Melampsora arctica* on willows has been found on balsam in Nova Scotia, but has not yet been reported for Ontario.

The Occurrence and Frequency of Species of Ribes and Grossularia in Ontario.

Report of Dr. G. H. Duff.

All present methods for the control of the White Pine Blister Rust, in places where it has already become established, are based upon the eradication of its alternate hosts, the currants and gooseberries. It is of great importance, therefore, to have an accurate knowledge of the different species of Ribes and Grossularia occurring in any region threatened by the disease, together with reliable information concerning their frequency and the correlation (if such exists) between the species and their frequency on the one hand and the forest and topographical conditions on the other. In fact, any information we acquire

concerning the oecology and biology of these plants may turn out to be useful, if not essential, to the formulation of a proper policy in respect to this problem.

The survey, the results of which are presented here, was undertaken with these considerations in view. The territory to be covered by the survey was determined by the fact that if large-scale eradication measures were ever to be adopted it would probably be along some line between the Ottawa River and Georgian Bay, and further, that even for the purposes of local eradication, information gathered in this territory would have a wide application on account of the variety of conditions encountered. Consequently, a beginning was made at Petawawa and Pembroke and, travelling along the line of the Grand Trunk Railway, the survey terminated at Parry Sound with sufficient observations on the Islands of Georgian Bay to make it certain that these must be taken into consideration in any wholesale eradication project. The only deviation from the line of the railway of more than fifteen or twenty miles was an excursion into Himsworth Township between Powassan and Lake Nipissing, undertaken on the advice of the district forester.

Method.

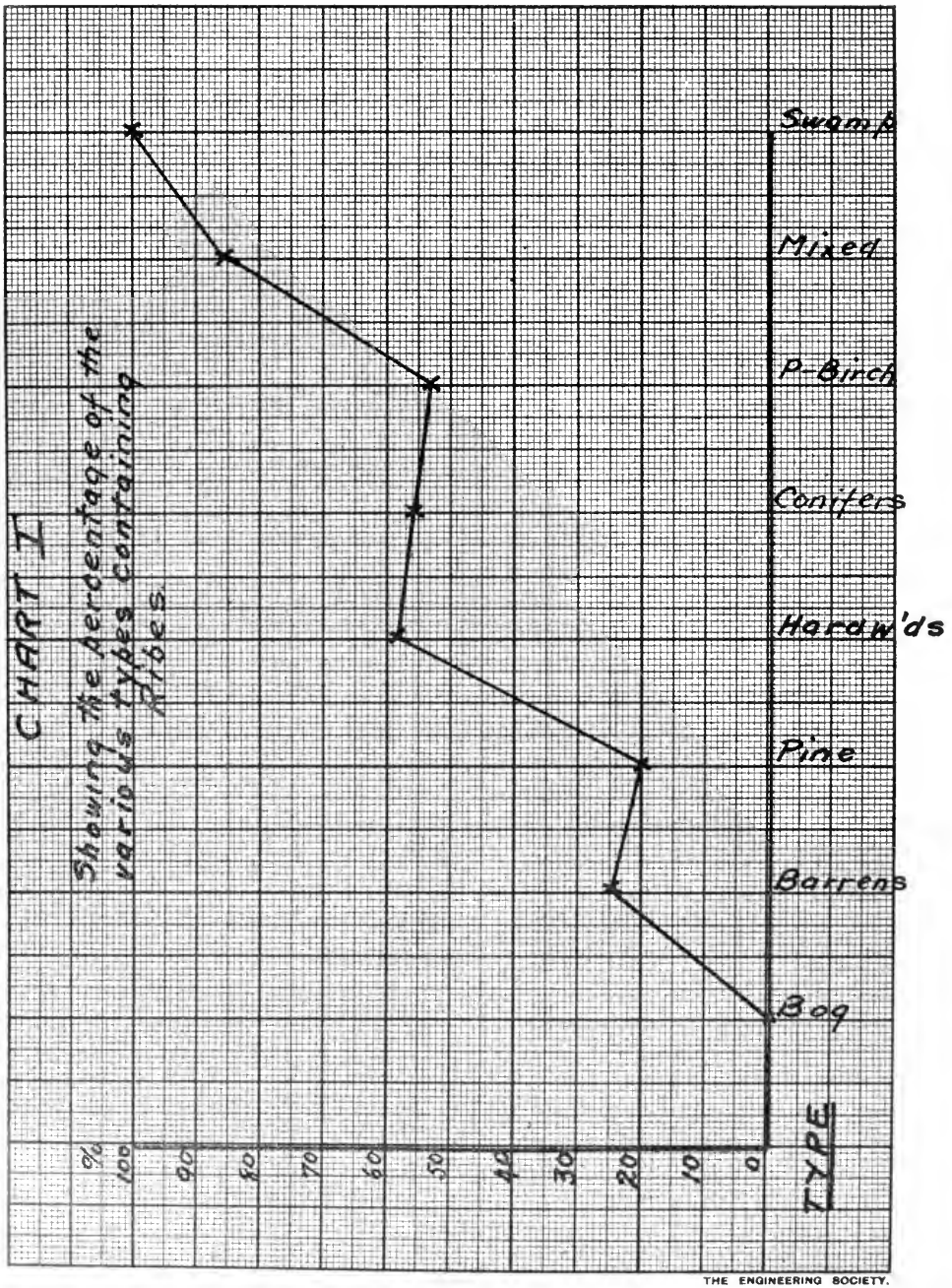
The mode of procedure was roughly as follows: On account of the desirability of visiting a suitable variety of localities the topographical and type maps of the district foresters' offices at Pembroke and Parry Sound were first consulted. In this way a route was planned such as would make possible the use of various stations along the Grand Trunk Railway as headquarters from which excursions could be made. In as far as possible the travelling was done on foot, though canoe and motor were used when necessary to reach desirable locations. When "on location" an intensive search for currants and gooseberries was made. If these were found the place was marked and the neighbouring territory was examined cursorily to see that the spot chosen was typical of the particular topographical or forest conditions represented at that point. If this turned out to be so a plot was measured out by tape-line usually 100 by 100 feet in size. In many cases this size of plot proved unnecessarily large on account of the number of currants and gooseberries found. In these cases a smaller plot 50 by 50 feet was adopted. The plot was divided into lanes ten feet wide and these lanes were carefully traversed up and down and the plants of the various species found counted and recorded. This plot was then considered a "station" and was located on the map and numbered. The notes taken were of the following sort:

Station 63: Wolf Lake—Lot 19, Con. XII, Hunter Tp. Near portage from McIntosh Lake.
Topography: Fairly uneven, somewhat rocky, about 30° slope towards lake.
Forest Cover: Mixed second-growth. Hardwoods.
Ground Cover: Almost entirely young maple seedlings, fairly dense.
Soil: Deep litter, raw humus and humus 1½ inches, sandy loam beneath. Moist, but well drained.
Ribes:
Ribes glandulosum..... 14
R. lacustre..... 8
Grossularia cynosbati..... 2
Dimensions: 50 x 50 feet.

In all ninety-four such plots were established, embracing every topographical and forest type encountered.

The counting of gooseberry plants presents no difficulties on account of their more or less solitary habit. Nearly all the currants, however, and especially the skunk currant (*Ribes glandulosum*) propagate vegetatively and frequently form dense masses in which it is impossible to distinguish individual plants.

For the purpose of enumerating these species where they occur densely an arbitrary unit was evolved, based upon the maximum area of ground which can be freed from stem and foliage in a single up-rooting operation. This was fixed at about four square feet, and is, as these plants grow in that territory, a liberal allowance.



If search at any point failed to reveal the presence of currants or gooseberries, it was extended, many times for hours, until it was certain that these plants did not occur. The location was then given a station number, the usual notes taken and "no ribes" recorded.

Frequently in the eastern end of the territory the blister rust was found on currants. These cases were recorded and their locations and other details are presented elsewhere in this report. In each case the occurrence of the rust was given some attention and neighbouring pine trees were examined, but no pretence is made of having given this aspect of the problem exhaustive treatment.

RESULTS.

1. *Species occurrence.*—The following species occur:
   Ribes glandulosum (skunk currant),
   " *triste* (swamp red currant),
   " *lacustre* (swamp black currant),
   " *hudsonianum* (Hudson Bay currant),
   " *americanum* (wild black currant),
   Grossularia cynosba'i (prickly gooseberry),
   " *oxyacanthoides* (smooth gooseberry),
   " *hirtella*
   " *rotundifolia*

2. *Suscept bility.*—It is significant that all the species occurring in this territory are among the most susceptible to attack by the rust. According to an analysis by Spaulding (U. S. D. A. Bulletin 957) of inoculation experiments with these plants both in the greenhouse and out of doors, all except the Hudson Bay currant fall easy victims to the rust. There are no data on the susceptibility of this latter species. Though there is but little to choose between the others, the wild black currant is apparently the most susceptible, and the various species may be arranged in the following order on the basis of their susceptibilty:

1. Wild black currant,
2. Swamp red currant,
3. Swamp black currant,
4. *Grossularia hirtella*,
5. *Grossularia rotundifolia*.
6. Prickly gooseberry,
7. Skunk currant,
8. Smooth gooseberry,
9. Hudson Bay currant.

3. *Distribution.*—Of the five species of currants, the skunk currant is overwhelmingly preponderant. All of them except the wild black currant are swamp forms. Nevertheless the skunk currant exhibits a remarkable versatility and was found in every type of locality, dry and moist, except under virgin white pine (on the Opeogo River) and in sphagnum bogs. The ground cover in a virgin pine forest is usually almost entirely wanting and in sphagnum bogs is composed exclusively of a very definite flora consisting of the moss, certain Ericaceae, pitcher plants, orchids, etc., so that the absence of the skunk currant here is not noteworthy. Four extensive bogs were examineed to see if it could be found in this habitat, and though the plants occur around the edges in mucky soil or even in the clefts of rocks among ferns, they were never seen in the bog proper. It is hardly an exaggeration to say that in this territory the skunk currant is universally distributed.

All the other species of currants are of secondary importance from the point of view of distribution. In only three cases were other currants found growing

in places where the skunk currant was absent. Consequently from the point of view of the distribution of wild currants in the territory, the skunk currant is the limiting factor.

Of the gooseberries, the prickly gooseberry (*Grossularia cynosbati*) is the commonest and most widely distributed. This species also is cosmopolitan, having been found in all the habitats possible except sphagnum bog and swamp. In this case too, it is found practically wherever other gooseberries occur, very few exceptions to this rule having been noted. The smooth gooseberry *G. oxyacanthoides*) ranks next in distribution followed by *G. hirtella* (very similar to the smooth gooseberry) and *G. rotundifolia*. Nevertheless, here, as with the currants, one common and widely distributed species determines the distribution of the whole group.

4. *Frequency.*—The appended Table (I) shows an analysis of the number of times currants were encountered in various habitats and forest types.

TABLE I.

TYPE.	No. Stations.	Absent.		Few.		Moderate.		Numerous.	
Bog	4	4	100%	.....		.....		.....	
White Pine	10	8	80%	1	10%	.....		1	10%
Barrens	4	3	75%	.....		.....		1	25%
Hardwood	26	11	42%	2	8%	4	15%	9	35%
Other Conifers	16	7	44%	3	19%	1	6%	5	31%
Poplar-Birch	15	6	40%	2	13%	.....		7	47%
Mixed	7	1	14%	.....		3	43%	3	43%
Swamp	12	.....		.....		2	16 %	10	84%

Legend:—Few: 1-5 plants per plot, 50 x 50.
Moderate: 5-25 plants per plot.
Numerous: Over 25 plants per plot.
Bog: Sphagnum bog only.
White pine: White pine stands, not necessarily pure.
Other conifers: Includes all conifers except white pines.
Barrens: Fairly recent burns.
Swamp: All swampy types included, except sphagnum bog.

Chart No. I is based upon the figures of the table. For the purposes of the chart, however, no account is taken of the numbers in which the currants occur, but it shows the percentage of the various types that contain currants, whether few, moderate or numerous.

From this chart it will be seen that the types fall into three groups on the basis of the percentage of cases in which currants occur:

1. Bog, white pine, barrens—small percentage or none.
2. Hardwoods, other conifers, poplar-birch—between 50 and 60%
3. Mixed and swamp—80 to 100%.

The figures of the table show, moreover, that where currants do occur, they frequently are present in large numbers, running up to several hundreds per acre.

Table II shows the number of times gooseberries were encountered in these same topographical and forest types, and Chart II is derived from this table in a manner similar to the way in which Chart I was derived.

TABLE II.

TYPE.	Stations.	Absent.		Few.		Moderate.		Numerous.	
Bog	4	4	100%	.....		.....		.....	
White Pine	10	4	40%	4	40%	2	20%	.....	
Barrens	4	3	75%	1	25%	.....		.....	
Hardwood	26	10	38%	3	12%	7	27%	6	23%
Other Conifers	16	7	44%	3	19%	3	18%	3	19%
Poplar-Birch	15	7	47%	2	13%	5	33%	1	7%
Mixed	7	4	57%	1	14%	2	29%	.....	
Swamp	12	12	100%	.....		.....		.....	

It will be seen that gooseberries are somewhat more uniformly distributed among the various types than currants. A comparison between Charts I and II shows that the percentages are practically equal in barrens, while the group consisting of hardwoods, conifers and poplar-birch is very uniform in both cases. For the rest, gooseberries are frequent where currants are infrequent and vice versa. Table II shows that gooseberries are not "numerous" as often as currants. This is chiefly because the unit in the case of gooseberries, is, on the whole, larger than that of currants. While the unit for currants was taken to be about four square feet of ground many gooseberry bushes grow to a size four times this.

Chart III shows graphically the percentages of the various types containing either currants or gooseberries. From it may be seen that apart from bog, swamp, mixed and barrens, all the types gather about 50 per cent. Of the irregular types swamp and mixed are as high as bog and barrens are low.

It may be concluded that there is an even chance that some species of currants or gooseberries will be found at any arbitrarily selected spot in the territory. Almost every foot of ground in this region is a potential bearer of one of the hosts of the blister rust.

The actual number of plants found per unit area in the various types is, of course, widely variable. The two species which chiefly determine the number of currants or gooseberries found in any given area are the ones that also delimit their distribution, namely the skunk currant, *Ribes glandulosum* and prickly gooseberry, *Grossularia cynosbati*.

The former species occurred in 69 per cent. of the stations established and in 29 per cent. was growing in great numbers, not often less than 50 and frequently over 100 plants per 10,000 square feet. In terms of acres this would mean from 200 to 500 plants. It is to be remembered in this connection that these represent maximum figures and that in 31 per cent. of the stations the skunk currant was absent entirely.

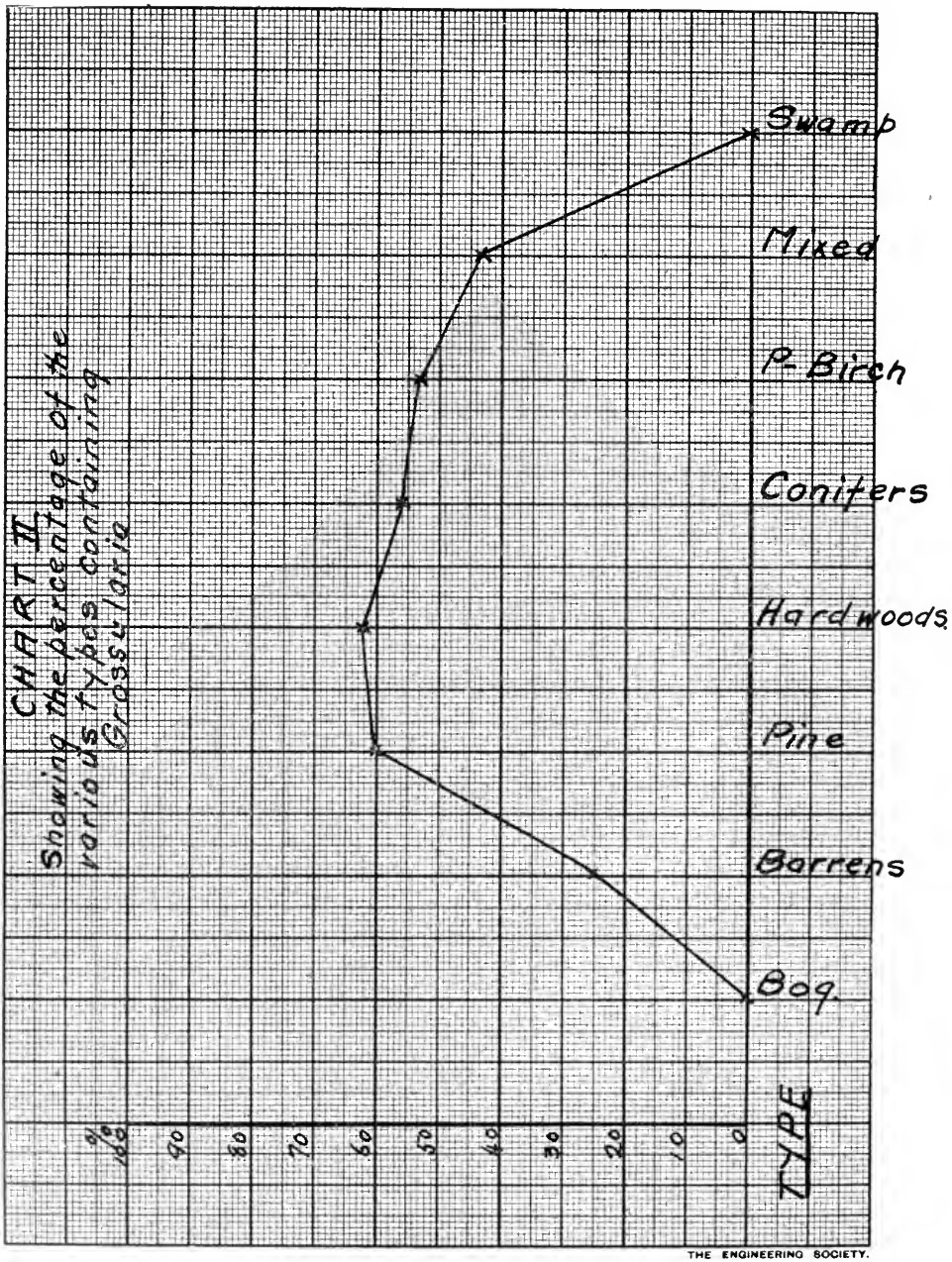
The other currants rarely exceed the skunk currant where they occur together. An exception to this might be made in the case of the swamp black currant (*Ribes lacustre*), which in a few instances was found to outnumber the skunk currant. In two such stations in Algonquin Park the currants were distributed as follows:—

Ribes lacustre	56	55
R. triste	20	15
R. glandulosum	11	46

The prickly gooseberry was found in 46 per cent. of the stations. The fact that it does not occur in swampy locations where there is a 100 per cent. occurrence of the skunk currant accounts in large part for this lower figure. In only

9 per cent. of the stations were these plants really numerous. The highest record for this species was at a station at Rainy Lake, where no less than fifty-four plants were counted in an area 50 by 50 feet. This is very unusual, however, and is to be explained by the fact that though in fairly deep shade, the mature bushes were fruiting heavily and the ground was dotted with young plants as a consequence.

Practically never do the other gooseberries outnumber the prickly goose-



berry where they occur together. One station at Seguin Falls showed twenty-three smooth gooseberry plants (*G. oxyacanthoides*) to eight prickly gooseberries, and this is the only one recorded of which this is so. This is also by far the largest figure for any gooseberry other than the prickly form.

The following table (Table III) shows maximum and average figures for the prickly gooseberry, skunk currant and total currants and gooseberries from stations arbitrarily selected. In each case the figures have been expressed as numbers of plants per acre. The minimum figure for each is 0.

TABLE III.

	Max.	Average.
Prickly gooseberry	544	61
Skunk currant	800	130
Total currants and gooseberries	1,600	180

Although such figures cannot be given any broad application or exact interpretation, they convey, in a general way, an idea of the numbers in which these plants may be found.

INCIDENTAL OBSERVATIONS.—(1) The occurrence of *Ribes glandulosum* completely hidden under a dense ground cover of young maple was noted in one place, and in another this species was found similarly growing under brambles. (2) The survival of gooseberries in burned over country was noted several times. This takes place chiefly where large rocks occur. The gooseberries become established in the crevices of the rocks, as well as close beside them and in this way are protected from ground fires. They are able to fruit abundantly in the light after the trees above have been removed by the fire and very soon seed dissemination takes place. Burning over certainly does not rid the country of these plants, in fact, by making possible the production of seed, the reverse is accomplished. (3) At several points in the eastern portion of the territory the blister rust was found in several species of currants and gooseberries. The species found infected were: *Grossularia cynosbati*, *G. oxyacanthoides*, *Ribes glandulosum*, *R. tris e.*

The infections in the case of *G. cynosbati* were several times very heavy indeed. All the other species, however, were only slightly affected. The places at which these observations of the rust took place were:

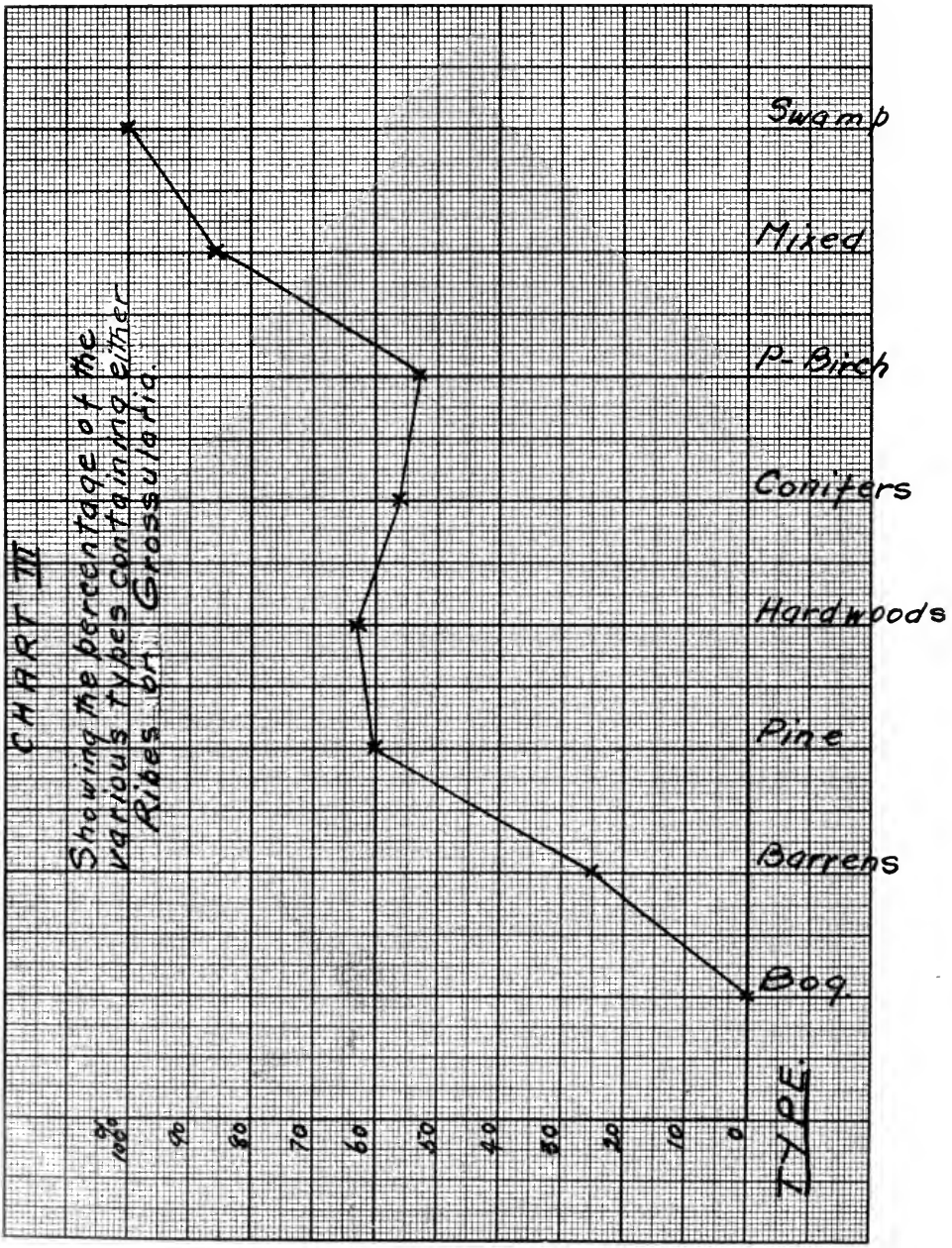
1. Lot 16, Con. VI, Petawawa Township.
2. On the outskirts of Pembroke, across from General Hospital.
3. Lot 20, Con. VIII, Alice Township.
4. Lot I, Con. XIV, Wilberforce Township.
5. B. N. 190, Sherwood Township.
6. B. S. 185, Sherwood Township.
7. Lots 14-15, Con. IV, Sherwood Township.

CONCLUSIONS.—The first thing to do in going about the eradication of currants and gooseberries is to locate the plants. It is not sufficient that some of them or even most of them should be located, all of them must be found.

To do this in an extensive territory would be greatly simplified if it could be shown that certain topographical and forest types are devoid of currants and gooseberries and consequently do not require inspection. The reverse has been the result of this survey. The distribution of currants and gooseberries has been shown to include every type except the sphagnum bog. In all but one of these types their occurrence is in from 50 to 100 per cent. of the possible total. Consequently, no territory, however small, may safely be left uninspected.

The difficulty of inspection is increased when it is remembered that currants are sometimes found in most inconspicuous and unexpected places, such as beneath dense young maple seedlings or brambles and on rocky ledges among ferns. In such habitats it is an extremely difficult matter to find them.

Even if all currants and gooseberries are satisfactorily found, however, it next remains to uproot them. This must be done in such a way as to free the soil as completely as possible of their roots. If portions of root are left, especially



near the surface exposed to light, sprouts are sure to arise. The power of vegetative propagation is possessed by all currants and gooseberries, but the swamp forms are notorious in this respect. The skunk currant, the swamp red currant and the swamp black currant reproduce in this way much more regularly than by means of seeds.

The difficulty of uprooting is greatly enhanced where the plants grow among dense young maple seedlings or brambles. In such cases the whole ground cover must be completely uprooted and destroyed in order to make sure of the currants.

Finally, the difficulty and expense of eradication increases the larger the number of plants that must be handled. The survey reveals astonishingly large numbers in many places. This consideration alone would make it doubtful whether any large-scale eradication enterprise could be undertaken successfully except at a prohibitive expenditure. When all the factors are taken into consideration this conclusion would seem to be amply confirmed.

I have the honour to be, Sir,

Your obedient servant,

E. J ZAVITZ,
Provincial Forester.

Toronto, Ont.,
October 31st, A.D. 1922.

Appendix No. 51.

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1921 Oct. 4.	1921 Nov. 1.	An area lying east of Stokes Bay and south of Pipestone River running into Rainy Lake, District of Rainy River	6½ sq. miles.	A. G. Murray, Fort Frances.	$10.00 per M. ft. B.M. for White and Norway Pine; $8.00 per M. ft. B.M. for Jack Pine; $8.00 per M. ft. B.M. for Spruce; $5.00 per M. ft. B.M. for Poplar; 6c. per tie for railway ties; $2.00 per cord for Spruce pulpwood; 35c. per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Ties and Pulpwood.	39582
1921 Aug. 22.	1921 Nov. 10	Township 2 B., Mississaga Forest Reserve, District of Algoma.	36 sq. miles.	McFadden & Malloy, Spragge.	$5.56 per M. ft. B.M. for Pine; $2.56 per M. ft. B.M. for Spruce and Poplar; $2.00 per M. ft. B.M. for other timber; 25c. per tie for railway ties; 75c. per cord for Spruce pulpwood; 75c. per cord for other pulpwood; 10c. each for Cedar posts, all in addition to Crown dues. *Cedar poles*—30 ft. and less in length, 25c; 31 to 40 ft. in length, 50c.; 41 to 50 ft. in length. 75c.; 51 ft. and over, $1.00, all in addition to Crown dues.	Sawmill.	37698
1921 Sept. 21.	1921 Nov. 10.	Berth W.R. 4 A., District of Kenora.	53½ sq. miles	The Indian Lake Lumber Co., Ltd., per D. L. Mather, Winnipeg, Man.	$7.50 per M. ft. B.M. for Pine; $6.85 per M. ft. B.M. for Spruce and Poplar; $5.40 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 75c per cord for Spruce pulpwood; 50c. per cord for other pulpwood; 10c. per cord for fuelwood, all in addition to Crown dues.	Sawmill.	39599
1921 Sept. 16.	1921 Nov. 10.	Township of Jack, District of Sudbury.	36 sq. miles.	The Harris Tie & Timber Co., Ltd., Ottawa, Canada.	$8.00 per M. ft. B.M. for R. and W. Pine; $6.00 per M. ft. B.M. for Jack Pine, Spruce and Poplar and other timber; 10c. per tie for railway ties; $1.00 per cord for Spruce pulpwood; 45c. per cord for other pulpwood, all in addition to Crown dues.	General lumber.	26405

1921 Oct. 31.	1921 Nov. 22.	Fowler Township—Lots 7 to 20 inclusive. Con. 1—South pts. 7 to 19 inclusive. Con. 2—being all that part of the lots lying south of Timber Berth A.L. 10 and Block D. in said township, District of Thunder Bay.	9½ sq. miles.	James T. Greer, Port Arthur.	$8.00 per M. ft. B.M. for Pine; $8.50 per M. ft. B.M. for Spruce; $5.00 per M. ft. B.M. for Poplar; $6.00 per M. ft. B.M. for other timber; 20c. per tie for railway ties; 50c. per cord for Spruce pulpwood; 25c. per cord for other pulpwood, all in addition to Crown dues.	Ties and pulpwood.	8616A
1921 Oct. 21.	1921 Dec. 10.	Township of Pardo, S.W. ¼; lots 6 to 11 inclusive, Con. 1; lots 6 to 12 inclusive, Con. 2; lots 6 to 12, Con. 3; District of Sudbury.	9½ sq. miles.	Mageau Lumber Co., Ltd., Field, Ont.	$16.15 per M. ft. B.M. for R. and W. Pine; 25c. per tie for railway ties, all in addition to Crown dues.	Pine sawlogs.	40157
1921 Oct. 27.	1921 Dec. 10.	Lyman Township, Lot 4, Con. 5—Lot 4, Con. 6, Dis-of Nipissing.	1 sq. mile.	Canadian Timber Co., Ltd., Toronto.	$8.10 per M. ft. B.M. for R. and W. Pine; 30c. per tie for railway ties, all in addition to Crown dues.	Pine sawlogs.	39737
1921 Nov. 23.	1921 Dec. 17.	Umbach Township—Lots 13, 14, 15 and 16 in Con. 1, District of Kenora.	2 sq. miles.	Frank Haksell, Kenora.	$2.50 per M. ft. B.M. for Pine, in addition to Crown dues; $2.00 per M. ft. B.M. for Spruce, in addition to Crown dues; $2.00 per M. ft. B.M. for Poplar, inclusive of Crown dues; $1.50 per M. ft. B.M. for other timber, inclusive of Crown dues; 5c. per tie for railway ties in addition to Crown dues; 80c. per cord for Spruce pulpwood, inclusive Crown dues; 40c. per cord for other pulpwood, inclusive of Crown dues; 25c. per cord for fuelwood, inclusive of Crown dues.	Ties, etc.	10744
1921 Nov. 23.	1921 Dec. 31.	Area S. of mileage 102 to 105 on the C.P. Ry., bounded on the north by C.P. Ry., and on the south by Pyramid Lake, vicinity of Sheba, District of Thunder Bay.	12 sq. miles.	J. J. Gracie, Fort William.	$22.75 per M. ft. B.M. for Pine; $9.78 per M. ft. B.M. for Spruce and Poplar; $7.92 per M. ft. B.M. for other timbers; 8½c. per tie for railway ties; 35¼c. per cord for Spruce pulpwood; 10 7/8 cents per cord for other pulpwood; 31c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	7289A
1921 Oct. 28.	1921 Dec. 31.	East half of Sheraton Township, District of Temiskaming.	18 sq. miles.	Hawk Lake Lumber Co. Ltd., Monteith.	$11.00 per M. ft. B.M. for W. Pine; $5.50 per M. ft. B.M. for Jack Pine; $5.00 per M. ft. B.M. for Spruce; $2.00 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 50c. per cord for Spruce pulpwood; 25c. per cord for other pulpwood; 15c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and general Logging.	10870

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1921 Dec. 5.	1921 Dec. 31.	Lundy Township.—Lot 2, Con. 2. On the south half of said lot the Pine timber only was offered for sale, as this is a patented Veteran Claim.—District of Temiskaming.	1 sq. mile.	John Aitchison, New Liskeard.	$2.00 per M. ft. B.M. for every description of timber in addition to Crown dues.	Sawlogs.	16080
1921 Dec. 17.	1922 Jan. 7.	The area north of the Township of McGregor.—District of Thunder Bay.	5¼ sq. miles.	Scott Lumber Co., Port Arthur.	$8.50 per M. ft. B.M. for Pine; $6.50 per M. ft. B.M. for Spruce; $4.50 per M. ft. B.M. for Poplar; 21c. per tie for railway ties; $1.50 per cord for Spruce pulpwood; 75c. per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Sawlogs.	16064
1921 Dec. 29.	1922 Jan. 19.	Lundy Township—South ½ Lot 2, Con. 5.—District of Temiskaming.	½ sq. mile.	John and Jabe Barnard, New Liskeard.	$2.25 per M. ft. B.M. for Pine; 9c. per tie for railway ties, all in addition to Crown dues.	Sawlogs.	16080
1921 Dec. 30.	1922 Jan. 20.	Cane Township—South half Lot 10 in Con. 2.—District of Temiskaming.	½ sq. mile.	H. A. Palmer, Cane P.O.	$1.50 per M. ft. B.M. for Jack Pine; $1.50 per M. ft. B.M. for Spruce; 2c. per tie for railway ties, all in addition to Crown dues.	Ties, etc.	18645
1921 Dec. 30.	1922 Jan. 20.	Gorham Township.—Mining Location N. 8.—District of Thunder Bay.	1 sq. mile.	Elford Wray, Port Arthur.	$8.50 per M. ft. B.M. for Pine; $5.50 per M. ft. B.M. for Spruce and Poplar; 20c. per tie for railway ties; 80c. per cord for Spruce pulpwood; 50c. per cord for Balsam pulpwood, all in addition fo Crown dues.	Pulpwood, etc.	19760
1921 Dec. 21.	1922 Jan. 16.	Areas comprising part of timber berth G. 33, and pt. of timber berth N. 7.—District of Rainy River.	5¼ sq. miles.	Geo. W. Hughes, Barwick, Ont.	$5.00 per M. ft. B.M. for R. and W. Pine; $3.00 for Jack Pine per M. ft. B.M.; $2.50 per M. ft. B.M. for Spruce; 6c. per tie for railway ties; 50c. per cord for Spruce pulpwood, all in addition to Crown dues.	Pulpwoodand Sawlogs.	39847
1922 Feb. 24.	1922 Mar. 10.	Glamorgan Township. Lots 20 and 21 in Con. 14.—District of Haliburton.	½ sq. mile.	Fred. Dart, Haliburton, Ont.	$1.20 per cord for Spruce pulpwood; $1.20 per cord for Balsam pulpwood; 60c. per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	26207

1922 Feb. 14.	1922 Mar. 14.	Township of Fauquier. A peninsula running into Remy Lake in the said township.—District of Cochrane.	2 sq. miles.	M. Maurice, Moonbeam, Ont.	$2.15 per M. ft. B.M. for Spruce, in addition to Crown dues.	Sawlogs.	26805
1922 Mar. 22.	1922 April 24.	Beauchamp Township. — South half Lot 9, south half Lot 10, Con. 1—Temiskaming District. Pine only on south half lot 9, Con. 1.	½ sq. mile.	Blair Rushton, Kenabeek, Ont.	20c. per M. ft. B.M. for Pine, in addition to Crown dues; $2.00 per M. ft. B.M., for Spruce, inclusive of Crown dues; $1.50 per M. ft. B.M. for other timber inclusive of Crown dues; 2c. per tie for railway ties in addition to Crown dues; 10c. per cord for Spruce pulpwood, in addition to Crown dues; 40c. per cord for other pulpwood inclusive of Crown dues; 25c. for cordwood per cord, inclusive of Crown dues.	Sawlogs and Ties.	8923A
1922 July 13.	1922 Aug. 8.	Ware Township.—North half lot 6, Con. 6; lot 6, Con. 8; north half lot 7, Con. 8.—District of Thunder Bay.	1 sq. mile.	J. C. Greer, Port Arthur.	$1.45 per cord for Spruce pulpwood; $1.25 per cord for other pulpwood; 15c. per tie for railway ties; 10c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	19757
1922 July 10.	1922 Aug. 7.	Nipigon Township. West half lot 8, Con. 5.—District of Thunder Bay.	½ sq. mile.	Russell Timber Co., Ltd., Port Arthur.	$18.79 per M. ft. B.M. for Pine; $8.61 per M. ft. B.M. for Spruce; $6.02 per M. ft. B.M. for other timber; 8¼c. per tie for railway ties; $1.03 per cord for Spruce pulpwood; 33c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Ties.	17390
1922 July 12.	1922 Aug. 8.	MacLennan Township. — Parts of lots 8 and 9, Con. 5; lots 9 and 10, Con. 6; lots 9 and 10, Con. 7.—District of Sudbury.	1 sq. mile.	Clarke & Lounsbury, North Bay.	$7.50 per M. ft. B.M. for Pine; $5.00 per M. ft. B.M. for Spruce, Poplar, etc.; $3.00 per M. ft. B.M. for other timber; 10½c. per tie for railway ties; 20c. per cord for Spruce pulpwood; 15c. per cord for other pulpwood; 25c. per cord for cordwood (hard); 20c. per cord for cordwood (soft); 4c. each for Cedar posts, all in addition to Crown dues. *Cedar Poles* 30 ft. and less in length, 26c. each; 31 ft. to 40 ft. in length, 52c. each; 41 to 50 ft. in length, $1.56 each; 51 ft. and over in length, $3.21 each, all in addition to Crown dues.	Cedar Poles and Posts, etc	25117
1922 July 12.	1922 Aug. 8.	Nipigon Township. — East half lot 8, Con. 8—District of Thunder Bay.	½ sq. mile.	D. A. Clark, Port Arthur.	$1.57 per cord for Spruce pulpwood; $1.15 per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	10022

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 July 11.	1922 Aug. 8.	Bryce Township. — North half lot 2, Con. 3; north half lot 3, Con. 3; north half lot 4, Con. 3.—District of Temiskaming.	1 sq. mile.	J. L. McCauley and J. N. Robinson, Kenabeek.	$5.25 per M. ft. B.M. for Pine, including Crown dues; 15c. per tie for railway ties, including Crown dues.	Sawlogs.	19762
1922 July 17.	1922 Aug. 8.	Sterling Township. — East half lot 7, Con. 5.—District of Thunder Bay.	½ sq. mile.	Russell Timber Co., Ltd., Port Arthur.	$18.79 per M. ft. B.M. for Pine; $8.61 per M. ft. B.M. for Spruce; $6.02 per M. ft. B.M. for other timber; 8¼c. per tie for railway ties; $1.03 per cord for Spruce pulpwood; 64c. per cord for other pulpwood; 33c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	34146
1922 June 27.	1922 July 27.	Henwood Township.—North half lot 8, Con. 5.—District of Temiskaming.	½ sq. mile.	James Simpson, Kenabeek.	50c. per M. ft. B.M. for Pine, in addition to Crown dues.	Sawlogs.	10853
1922 July 13.	1922 Aug. 15.	Block D. situated on Pigeon River.—District of Thunder Bay.	13½ sq. miles	Hughes Bros. Timber Co., Ltd., Duluth, Minn., U.S.A.	$20.00 per M. ft. B.M. for Pine; $22.00 per M. ft. B.M. for Basswood; $4.51 per M. ft. B.M. for Spruce; $4.10 per M. ft. B.M. for Poplar; $4.51 per M. ft. B.M. for Balsam; $6.51 per M. ft. B.M. for Cedar; 11c. per tie for railway ties; $2.56 per cord for Spruce pulpwood; $2.00 per cord for other pulpwood; 25c. per cord for fuelwood; 3c. each for Cedar posts, all in addition to Crown dues. *Cedar Poles* 30 ft. and less in length, 12c; 31 ft. to 40 ft. in length 20c.; 41 ft. to 50 ft. in length, 30c.; 51 ft. and over, 35c., all in addition to Crown dues.	Pulpwood and Sawlogs.	41545
1922 July 17.	1922 Aug. 8.	Nipigon Township.— East half lot 5, Con. 6.—District of Thunder Bay.	½ sq. mile.	John W. Aho, Nipigon.	$3.00 per M. ft. B.M. for Pine; $3.00 per M. ft. B.M. for Spruce and Poplar; $2.00 per M. ft. B. M. for other timber; 45c. per tie for railway ties; 95c. per cord for Spruce pulpwood; 85c. per cord for other pulpwood; 60c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	13772

1922 July 3.	1922 July 31.	Henwood Township.—North half lot 12, Con. 6.—District of Temiskaming.	½ sq. mile.	McCauley Bros., Kenabeek, Ont.	$3.00 per M. ft. B.M. for Pine; 5c. per tie for railway ties; 25c. per cord for Cordwood, all in addition to Crown dues.	Sawlogs.	10521
1922 Aug. 11.	1922 Sept. 15.	An area in the vicinity of Jellicoe and Nezah Stations along the C. N. Ry. partly in the Nipigon Forest Reserve and immediately to the east thereof.—District of Thunder Bay.	77 1/5 sq. miles.	Western Stevedore Co., Ltd., Fort William,	$3.50 per M. ft. B.M. for Pine; $2.00 per M. ft. B.M. for Spruce, Poplar and Basswood; $1.50 per M. ft. B.M. for other timber; 20c. per cord for Spruce pulpwood; 5c. per cord for other pulpwood; 2c. per tie for railway ties; 25c. per cord for fuelwood; 2c. each for Cedar posts. all in addition to Crown dues. *Cedar poles*, 30 ft. and less in length, 10c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 10c.; 51 ft. and over in length, 25c., all in addition to Crown dues.	Ties and Sawlogs.	43881
1922 Aug. 16.	1922 Sept. 15.	Gibbons Township.—Lots 1 to 10 inclusive, Con. 5, lots 1 to 9 inclusive, Con. 6.—District of Nipissing.	10 sq. miles.	Alfred Gignac, River Valley, Ont.	$5.00 per M. ft. B.M. for Pine; 15c. per cord for Spruce pulpwood, all in addition to Crown dues. *Cedar Poles*—30 ft. and less in length, 10c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 15c.; 51 ft. and over, in length, 15c., all in addition to Crown dues.	Pulpwood and Cedar.	43590
1922 Aug. 14.	1922 Sept. 15.	Lutterworth Township.—Lot 27, Con. 11; Lots 26 and 28, Con. 12.—District of Haliburton.	1 sq. mile.	Samuel Bryant, Norland, Ont.	$75.00 per M. ft. cubic, being Crown dues only.	Sawlogs.	25366
1922 Aug. 14.	1922 Sept. 15.	Nipigon Township. — East half lot 7 in Con. 4; east half lot 8 in Con. 4.—District of Thunder Bay.	½ sq. mile.	Arvo Paju, Port Arthur.	$7.50 per M. ft. B.M. for Pine; $5.00 per M. ft. B.M. for Spruce and Poplar; 50c. per M. ft. B.M. for other timber; 35c. per tie for railway ties; $1.70 per cord for Spruce pulpwood; $1.60 per cord for other pulpwood; 25c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood.	33772
1922 Aug. 23.	1922 Sept. 20.	Field Township.—North half Lot 15, Con. 1. — Lots 14 and 15, Con. 2 — Lot 14, Con. 3 — S. half Lot 14, Con. 4.—District of Nipissing.	2 sq. miles	HonoreTurenne, Verner, Ont.	$7.00 per M. ft. B.M. for Pine; $5.00 per M. ft. B.M. for Spruce and Poplar; $2.00 per M. ft. B.M. for other timber; 5c. per tie for railway ties; 80c. per cord for Spruce pulpwood; 40c. per cord for other pulpwood; 1c. each for Cedar posts; 10c. per cord for fuelwood, all in addition to Crown dues. *Cedar poles*—30 ft. and less in length, 25c.; 31 to 40 ft. in length, 50c.; 41 to 50 ft. in length, 60c.; 51 ft. and over in length, 75c., all in addition to Crown dues.	Cedar and Pulpwood.	27821

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Aug. 24.	1922 Sept. 20.	Part of Timber Berth No. 6, south of Ash Bay.—District of Rainy River.	3½ sq. miles.	Angus Shaw, Fort Frances.	$3.50 per M. ft. B.M. for Pine, in addition to Crown dues; $2.00 per M. ft. B.M. for Spruce and Poplar, inclusive of Crown dues; 80c. per cord for Spruce pulpwood, inclusive of Crown dues; 5c. per tie for railway ties, in addition to Crown dues.	Pulpwood and Ties.	42417
1922 Aug. 24.	1922 Sept. 20.	Area lying north of Township of Halkirk on the north shore, and between Black Sturgeon Lake and Red Gut Bay.— District of Rainy River.	4 sq. miles.	Shevlin-Clarke Co. Ltd., Fort Frances, Ont.	$14.10 per M. ft. B.M. for Pine; $7.05 per M. ft. B.M. for Spruce; $6.05 per M. ft. B.M. for Poplar; $6.55 per M. ft. B.M. for Jack-pine; 8c. per tie for Jack Pine ties; 80c. per cord for Spruce pulpwood; 30c. per cord for other pulpwood, all in addition to Crown dues. *Cedar poles*—30 ft. and less in length, 10c.; 31 to 40 ft. in length, 15c.; all in addition to Crown dues.	Sawlogs.	43520
1922 Sept. 20.	1922 Oct. 5.	Gorham Township.—South half Lot 2, Con. 7.—District of Thunder Bay.	½ sq. mile.	John Keivu, c/o Scott LumberCo., Port Arthur.	$2.25 per cord for Spruce pulpwood; $1.35 per cord for other pulpwood, all in addition to Crown dues.	Pulpwood.	18216
1922 Aug. 24.	1922 Oct. 16.	South half Shackleton Township.—District of Temiskaming.	40½ sq. mls.	Hawk Lake Lumber Co., Ltd., Monteith, Ont.	$12.00 per M. ft. B.M. for Pine; $1.80 per M. ft. B.M. for Spruce and Poplar; 70c. per M. ft. B.M. for other timber; 18c. per tie for railway ties; $1.00 per cord for Spruce pulpwood; 45c. per cord for other pulpwood; 15c. per cord for fuelwood, all in addition to Crown dues.	Pulpwood and Sawlogs.	16067
1922 Sept. 22.	1922 Oct. 31.	Berth No. 4-G.—Mississaga Reserve.—District of Algoma.	36 sq. miles.	Hope Lumber Co., Ltd., Thessalon, Ont.	$8.26 per M. ft. B.M. for Pine; $2.50 per M. ft. B.M. for Spruce, Poplar or Basswood; $2.00 per M. ft. B.M. for other timber; 25c. per tie for railway ties; 75c. per cord for Spruce pulpwood; 75c. per cord for Balsam and other woods; 10c. each for Cedar posts, all in addition to Crown dues. *Cedar poles*—30 ft. and less in length, 25c.; 31 to 40 ft. in length, 50c.; 41 ft. to 50 ft. in length, 75c.; 51 ft. and over in length, $1.00, all in addition to Crown dues.	Sawlogs.	42318

1922 Sept. 22.	1922 Oct. 31.	Berth No. 4-H.—Mississaga Reserve.—District of Algoma.	36 sq. miles.	Hope Lumber Co., Ltd., Thessalon, Ont.	$7.76 per M. ft. B.M. for Red and White Pine, in addition to Crown dues.	Sawlogs.	42318
1922 Oct. 2.	1922 Oct. 31.	Northeast quarter Township of Henry.—District of Nipissing.	9 sq. miles.	Mageau Lumber Co., Ltd., Field, Ont.	$9.00 per M. ft. B.M. for Red and White Pine; $9.00 per M. ft. B. M. for Jackpine; $2.50 per M. ft. B.M. for Spruce; 5c. per tie for railway ties; 21c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 2c. each for Cedar posts, all in addition to Crown dues. *Cedar Poles*—30 ft. and less in length, 30c.; 31 to 40 ft. in length, 31c.; 41 to 50 ft. in length, 41c.; 51 ft. and over, 51c., all in addition to Crown dues.	Sawlogs.	11635
1922 Sept. 22.	1922 Oct. 31.	Sherlock Township.—District of Sudbury.	81 sq. miles.	Continental Wood Products Co. ,Ltd., Elsas, Ont.	$2.00 per M. ft. B.M. for White Pine; $1.00 per M. ft. B.M. for Red Pine; $1.00 per M. ft. B.M. for Jackpine; $1.00 per M. ft. B.M. for Spruce, Poplar or Basswood; 75c. per M. ft. B.M. for other timber; 2c. per tie for railway ties; 15c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 5c. per cord for fuelwood; 3c. each for Cedar posts, all in addition to Crown dues. *Cedar Poles*—30 ft. and less, 15c.; 31 to 40 ft., 20c.; 41 to 50 ft., 25c.; 51 ft. and over, 50 c., all in addition to Crown dues.	Pulpwood and Sawlogs.	12334

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

Date offered.	Date sold.	Locality.	Area.	To whom sold.	Price paid.	Proposition.	File No.
1922 Sept. 26.	1922 Oct. 25.	Berths Nos. 3 and 4.—Mulock Township.—District of Nipissing.	7¼ sq. miles.	Herbert Brennan, Hamilton, Ont.	*Berth No. 3.* $3.00 per M. ft. B.M. for Jackpine; $2.00 per M. ft. B.M. for Spruce, Poplar or Basswood; 50c. per M. ft. B.M. for other timber; 10c. per cord for Spruce pulpwood; 10c. per cord for other pulpwood; 5c. per tie for railway ties; 3c. each for Cedar posts; all in addition to Crown dues. *Cedar Poles*—30 ft. and less in length, 5c.; 31 to 40 ft. in length, 10c.; 41 to 50 ft. in length, 20c.; 51 ft. and over, 40c., all in addition to Crown dues. *Berth No. 4.* $8.50 per M. ft. B.M. for Jackpine; $5.50 per M. ft. B.M. for Spruce, Poplar or Basswood; $3.20 per M. ft. B.M. for other timber; 80c. per cord for Spruce pulpwood; 55c. per cord for other pulpwood; 15c. per tie for railway ties; 6c. each for Cedar posts, all in addition to Crown dues. *Cedar Poles*—30 ft. and less in length, 30c.; 31 ft. to 40 ft. in length, 50c.; 41 ft. to 50 ft. in length, 80c.; 51 ft. and over, $1.25, all in addition to Crown dues.	Sawlogs.	1817
1922 Sept. 27.	1922 Oct. 31.	An area lying south and west of Greenwater Lake, near Kashabowie.—District of Thunder Bay.	25 sq. miles.	E. E. Johnson, Port Arthur, Ont.	$10.00 per M. ft. B.M. for Pine; $7.50 per M. ft. B.M. for Spruce; $5.50 per M. ft. B.M. for Poplar; 12c. per tie for railway ties; $1.22 per cord for Spruce pulpwood; 90c. per cord for other pulpwood; 25c. per cord or fuelwood; 2c. each for Cedar posts, all in addition Crown dues. *Cedar Poles*—30 ft. and less in length, 15c.; 31 to 40 ft. in length, 60c.; 41 to 50 ft. in length, 80c.; 51 ft. and over, 90c., all in addition to Crown dues.	Pulpwood and Sawlogs.	16083

Appendix No. 51.—Continued

Timber areas disposed of from 1st November, 1921, to 31st October, 1922.

When granted.	Locality.	Area.	To whom granted.	Price paid.	Proposition.	File No.
1921 Nov. 15.	Township of Irving, (North half) Township 27, Range 23; Township 28, Range 22.	113 sq. miles.	Algoma Central & Hudson Bay Railway Co., under authority of 63 Victoria, Chap. 30, Sec. 9.	$5.00 per M. ft. B.M. for Pine timber; 2c. each for railway ties, all in addition to Crown dues.	Ties.	175
By Order-in-Council dated 24th, Aug., 1922.	Lyman Township (Pt.) Lots 1 to 12 inclusive, Con. 1, 2 and 3; Lots 2 to 12 inclusive, Con. 4; Lots 5 to 12 inclusive, Cons. 5 and 6.—District of Nipissing.	31½ sq. miles.	Petawawa Lumber Co., Ltd., Pembroke, as compensation for surrendering to the Crown timber limits situate within the Townships of Hunter and Devine in the Algonquin Provincial Park.	$5.00 per M. ft. B.M. for Red and White Pine, in addition to Crown dues.	Sawlogs.	39737
By Order-in-Council dated, 24th Aug., 1922.	East half Township 41; west half of Township lying immediately east of Township 41; south half of the Township lying immediately north of Township 41, known as the Township of Lang; southwest quarter of the Township lying immediately east of the Township north of Township 41, known as the Township of Lang.	18 sq. miles. 18 " " 18 " " 9 " " respectively.	Austin & Nicholson Limited, Chapleau, in order that areas over which it was alleged the firm trespassed during the past few years, might be cleaned up.	$3.10 per M. ft. B.M. for Red and White Pine; $2.10 per M. ft. B.M. for Jackpine; $3.00 per M. ft. B.M. for Spruce; 20c. per cord for pulpwood; ½c. each for railway ties, all in addition to Crown dues.	Ties and Sawlogs.	332

Appendix No. 52.

DR. JUDSON CLARK'S REPORT.

TORONTO, August 12th, 1922.

Hon. E. C. Drury, Premier of Ontario,
Parliament Buildings, Toronto.

DEAR SIR,—Complying with your request, I beg to submit what in my judgment might be done to better the adminstration of the public forest lands of the Province of Ontario:

I.—DEPARTMENTAL REORGANIZATION.

I am convinced that the outstanding need of the present, and for much time that is past, is the placing of the administration of the provincial forests in the hands of a competent forest engineer under the Minister of Lands and Forests.

The man for the position must be a forest engineer of thorough training in his profession, of proven capacity as an executive, and wide business experience and outlook. The logical position for such a man in the Department of Lands and Forests should be that of Commissioner of Forests; though of much greater importance than the name of the position would be an entire freedom, under the responsible Minister, to develop the department along business lines so that the provincial forests may increasingly be a greater provincial asset and an ever increasing source of provincial revenue.

No words of mine are needed to emphasize the vast interests involved or the vast opportunity for service afforded in this matter. I might, however, be pardoned for adding a personal conviction that this position affords the greatest opportunity for a constructive work open to the members of the forest engineering profession on this continent, and your Government should be able and willing to command the services of the best available man. Were I looking for such a man for a similar position in my own business, I would not hesitate to pick Mr. E. T. Allen, of Portland, Oregon, as the man who would best work out the problem. I am sure that the professional opportunity for a great public service would appeal to him strongly. Whether he could make the financial sacrifice involved in giving up his present work, I am not so sure.

The present Department of Lands and Forests, as the name indicates, calls for two distinct, though closely related, departments of public service. The present volume of detail work coming to the desk of the Deputy Minister of Lands and Forests makes it entirely impossible, even with much overtime work, to find the necessary leisure for study of the larger problems of policy and administration. It is even impossible for the Deputy to have that personal contact with the workings of his department inside and out, which is so necessary if progress is to be made. The present enormous volume and prospective growth of departmental work in caring for the public forests and public lands amply justify the division of this great department into two separate departments, which might be termed the Department of Forests and the Department of Lands, both remaining as now under the responsible care of the Minister of Forests and Lands.

In organizing a Department of Forests for the care of the public forest lands, it would be logical and in the highest degree desirable that all forest

interests should be included under the one administrative head. For example, the administrative care of the provincial parks and of all minor forest products, such as game and fisheries, would naturally find its place in this Department.

Having created a separate Department of Forests, and appointed a Commissioner of Forests, who from a business standpoint will always mean the business manager of the public forests, this business manager must be required and permitted to manage the public forest business. That is to say, the public which deals with the department must quickly learn that he is the real executive officer, to carry out the policies, laws and regulations of the Department as enacted by the Legislature or ordered by the responsible Minister.

It is high time that all the public having business with this great department should understand that hard luck stories of sick wives and children, personal losses and interesting angles of local political situations and such, have absolutely no place as a part of a business transaction having to do with the care of the public forest lands or the sale of the public forest products. For many years the harassing of the Minister and his secretary with personal and other appeals in the settlement of simple business matters, fully covered by law and departmental regulations, has wasted a vast deal of exceedingly valuable time, and greatly hindered the regular functioning of the Department.

II.—Sundry Other Matters.

Should the Department be reorganized along the lines suggested, it may safely be left to the forestry staff, in conjunction with the responsible Minister to work out the further reorganization in the office and in the field. I shall, however, as you request, comment on some of those problems which my previous connection with the Department and long acquantance with its work have convinced me need special attention at this time. In this I have been greatly helped by the information made available to the public by the Timber Commission who have so long and carefully examined into the affairs of the Department, and by the courtesy of the department officials who have assisted my inquiry in every way possible.

(1) Re Measuring Wood.

The modern diversity of wood products has long since antiquated the measurement of the main forest product—wood—by the Doyle rule, the Scribner rule, Clark's international rule or any other *product* rule. The forest administration of the Province sells *wood*, and it should not in the measurement of that wood concern its mind with what the purchaser may do with it after he has bought it and paid for it. The Province should sell its customers just so much wood; so many cubic feet of wood; and let the buyer saw it into "feet board measure" with a good or bad saw or a good or bad sawyer (getting, of course, from the same sized logs various quantities of "feet board measure"); or let him pulp it, or burn it for fuel. Why, indeed, should the forest administration be concerned if a customer should convert the wood, which is sold and paid for, into sugar and eat it, or distil it for moonshine and drink it?

The ridiculous side of using a *product* unit instead of a *volume* unit in measuring wood has not been generally appreciated. This is no doubt due to the fact that we can in time become accustomed to almost anything (we have used the present product unit for over forty years), and perhaps more especially to the circumstance that the evils of a product unit were of gradual development as the methods of manufacture and the uses of wood gradually changed. Should

a gasoline merchant decide to measure his gasoline on the basis of the *mileage* that he *thought his customers ought to get* in their various cars, or the number of pairs of gloves that they ought to be able to clean with the gasoline, his troubles would be well begun.

The troubles of the Province with its habit of measuring the wood it sells by a *product* (*board feet*) *unit* instead of a volume (*cubic foot*) unit, have long since been well begun, and have bred much undeserved loss and unearned gain, also endless suspicion and controversy.

There can, of course, be no question that the cubic measurement of wood is the ideal measurement. It is also clear that it is entirely practicable. It is, indeed, much the simplest means of measurement for future sales. Happily, it is already being used by the Department of Lands and Forests in a large way in the scaling of pulpwood and the cullers are, therefore, already familiar in a practical way with measuring wood according to its cubic contents. Its adoption for all wood measurements would quickly dispel the absurd belief held by many citizens that the lumbermen are a class of semi-professional robbers and that they are even aided and abetted by the Department itself. This absurb and exceedingly vicious impression has been the result of the using of a *product* unit instead of a volume unit in the measurement of its logs, plus the said circumstance that the Doyle rule, which has been the official rule in Ontario since October 18th, 1879, is the very worst of its class in that it is less and less a true measure of value as the logs grow smaller. And the average logs coming to the mills of the Province are apparently forever growing smaller, paradoxical as that may sound.

On the other hand, the Doyle rule has been the official rule of the Province for many years, during which period many timber limits have been sold. And it must be clearly kept in mind that when bids were made for these timber limits at public auction or by sealed tender they were based on the scale the Doyle rule would give under the conditions then obtaining. It is, therefore, of course, obvious that any change in the manner of measurement must have regard to the equities thus established. It should also be appreciated by the public that in maintaining these equities the lumberman is getting nothing but his own, and the Province is being paid the full value of the timber sold as determined at the time of sale by public competition.

If then the equities as between buyer and seller were correctly adjusted at the time of sale, why suggest a change to cubic measurement? The answer has already been given. The Doyle rule, by virtue of its unscientific construction, is less and less a true measure of volume in logs as it is applied to the smaller and ever smaller logs that are being cut.

It is, of course, in the best interests of the forests, of the settlers, and of all concerned that the Department should have a clear legal mandate to sell such small parcels at prices adjudged fair by the responsible officers of the Department without public competition, which in such small matters would be quite impracticable; such authority should, of course, be properly safeguarded as to the amount so sold, and the time and matter of removal.

(7) Notice of New Operations.

A point that has been overlooked in the administration of the forests has been a failure to require operators to notify the Department before a logging operation is begun. This is desirable from every point of view, and is especially necessary from the standpoint of the fire hazard, and for the proper supervision of the logging operations and the scaling of the log output. Wide publicity should immediately be given of an order making such notice mandatory and immediately effective.

(8) Fire Protection.

Fire prevention, and the early detection of such fires as do occur, together with efficient fire fighting, form the very foundation of all forest management.

Much progress has been made in recent years by the Department of Lands and Forests in all these matters. Prevention of fires set by locomotives will illustrate the progress made in one detail as a result of persistent and intelligent work:

Year.	Percentage of locomotives reported defective by Department Inspectors.	Percentage of fires in the Province caused by railways.
	Per cent.	Per cent.
1917	28.3	49.5
1918	32.1	46.5
1919	21.8	37.0
1920	12.8	23.9
1921	8.3	14.8

The disposal of the debris incident to logging operations promises to be one of the largest problems to be solved by the coming forest administration. It is my conviction that at best fire prevention and fire fighting will, from time to time—as the seasons vary—be a losing battle so long as the brush is left to litter the ground where the future forest must be grown. For the present I am confident that a requirement that all brush lying within specified distances of all buildings, machinery, tote roads, railroads and other points of frequent human contact be piled and burned, is immediately justified. Such cleaning up is obviously as much in the interest of the operator as it is in the interest of the Province. I understand that a start has already been made in this matter by the Fire Ranging Department. It should be made obligatory on all operators.

(9) Re Records.

It appears to me that the testimony of Mr. Grigg, the former Deputy Minister, before the Timber Commission, gives a decidedly wrong impression as to the efficiency of the bookkeeping in the Department of Lands and Forests. I am confident that an investigtion by competent parties will show that while

it may not have been as thoroughly modern in its form as it might have been, it has always been done with scrupulous care. During the past year the system has been much improved by the introduction of more modern methods. Mr. Grigg's testimony in this connection to the effect that with proper reorganization the Department might become "a handsome money-maker," might, I fear, convey the impression that the bookkeeping methods were such as to cause the Province a monetary loss. While this implication might not have been intended. it may be reassuring to some people to know that not a penny of the Province's money has been lost in this way. A careful checking of the system now in use leaves me with but a single suggestion, namely, that the Audit Department should widen its sphere of activity to include an annual audit of the departmental records.

Exception has been taken to the failure of the Department to promptly collect all accounts immediately when due. I am not in a position to say whether there has or has not been undue leniency on the part of the Department regarding overdue accounts, but every business man must appreciate that there are many times when a creditor's best interest is served by reasonable leniency in regard to the collection of secured debts. And I can easily imagine that there have been times during the past few years of severe business depression, when the public interest could have been very badly served by the Department seizing and selling the lumber of the delinquent companies, which, of course, they have a perfect legal right to do. This could only have the effect of making a bad situation very much worse. In extending reasonable leniency in the case of secured overdue accounts, the Department is simply following the best business practice.

The Timber Commission has pointed out that the rate of interest charged on overdue accounts, namely, six per cent. simple interest, is unfair to the Province, and in effect makes the Province to some extent a banker to the lumberman. This point is well taken. I would suggest that the interest rate be made to conform to current banking usage, both as regards rate and the compounding of accumulated interest, plus perhaps an additional one per cent. in the rate.

(10) Forest Reserves.

Several large areas of provincial forest lands have been set apart as Forest Reserves. The statute provides that timber may not be cut on those reserves areas except when mature or when killed by fire. I submit that this leaves them on a par with all other forest lands, except that such reserved lands may not be cut over for the purpose of opening up for agricultural settlement.

It will be the duty of the forest administration to prevent the cutting of timber on non-agricultural lands, except as and when it is silviculturally mature or has accidentally been killed by fire, just as it will be their duty to see that all silviculturally mature timber is sold and cut from time to time as the best interests of the forest and the markets for wood products require.

Respectfully submitted,

Yours very truly,

(Sgd.) Judson F. Clark.

The following table shows the increasing volume of wood required to produce one thousand feet board measure, as scaled by the Doyle rule:

Diameter of logs in inches.	No. of cubic feet required to give 1,000 feet board measure as scaled by Doyle Rule.	Additional per cent. of volume required as logs decrease in diameter.
inches.	cu. feet.	per cent.
30	123	....
25	134	9
23	139	12
21	146	19
19	155	26
17	167	36
15	185	50
14	196	59
13	211	71
12	230	87
11	256	108
10	293	138
9	349	184
8	442	260
7	621	405
6	1,070	770
5	3,140	2,453

Here is the crux of the whole problem of wood measurement. *One thousand feet* board measure scaled by the Doyle rule has long been the unit of measurement by which all logs sold have been paid for. Had this been a *stable* unit (i.e., remaining essentially the same in practical effect from year to year) even though entirely unscientific, there would be no good reason for change. It, however, is not a stable unit—far from it, and for two fundamental reasons:

(a) The logs now cut on Crown Lands average much smaller than formerly, and the tendency is still downward.
(b) The Doyle rule underscales all logs below thirty inches in diameter, and as the diameters decrease, the Doyle rule becomes an increasingly unfair measure. When applied to logs of twelve inches in diameter or under it becomes a joke.

The decreasing size of the average log cut on all operated timber limits is a matter of record in vaults of the Department of Lands and Forests.

The practical effect of this decrease in size when the Doyle rule is the measure is strikingly shown by the table above. For example, if the average log is 17 inches in diameter, 167 feet are the equivalent of 1,000 Doyle scale. If the average log be 10 inches in diameter, 293 cubic feet are required to scale 1,000 Doyle rule. If the average log were but 7 inches, no less than 621 cubic feet would be required to yield 1,000 by Doyle.

This is the demonstration that the Doyle rule—by virtue of its unfair scale of small logs and its ever increasing unfairness as the logs become smaller, together with the established fact that our logs are smaller from year to year—profoundly disturbs the equities established between the lumbermen and the Province at the time the timber was sold.

Fortunately the full and complete records of the scaling from year to year on all timber limits, available in the files of the Department of Lands and Forests, afford the means of readily determining the correct converting factor for trans-

lating the Doyle scale into its cubic volume equivalent, which will preserve undisturbed the equities established by the sales contracts, for there can surely be no truer index as to what the purchaser had in mind to buy when he made his bid than what he actually cut after the bid was accepted.

For greater clearness, let us assume the case of a timber sale in 1906 at $12.00 per 1,000 Doyle scale, (the $12.00 covering both Crown dues and bonus). Here the lumberman bids $12.00 for the amount of logs that will scale 1,000 feet, board measure, by the Doyle rule. By reference to the records of the timber cut on that limit during 1907 it will quickly be found just how many cubic feet of logs were required to yield the 1,000 feet, board measure, Doyle rule, he was paying for. If a more conservative basis were desired, the converting factor might be based on the cut of the two seasons following the timber sale, thus in case of the sale in 1906, used as an illustration, the converting factor might be based on the returns on the timber cut on the limit during the two following logging seasons of 1907 and 1908. If the average log cut on this limit during the two years following the sale should prove to be thirteen inches in diameter it would take 211 cubic feet of logs to give the lumberman his 1,000 feet as scaled by Doyle. Thus we find an exact parity between $12.00 per 1,000 feet as scaled by Doyle rule, and $12.00 for 211 cubic feet as measured by actual volume, and during the years 1907 and 1908 the amount of money paid the Province by the operator on this limit would have been the same whether paid on the basis of $12.00 per 1,000 feet, Doyle rule, or $12.00 for each 211 cubic feet, or in other words, $5.69 per hundred cubic feet. And if in all subsequent years the lumberman operating on this limit had paid his Crown dues on a basis of $5.69 per hundred cubic feet, he and the Province would each be rightfully receiving what they were entitled to under the contract entered into at the time this timber was sold.

From this example it will be clear that a converting factor that gives equitable adjustment as between buyer and seller may quickly be worked out for every scale that has been made since the Doyle rule was adopted in 1879, and once determined, this converting factor is valid as long as the contract obtains.

For timber limits disposed of before 1879 it would be equitable to accept the *then relation between Doyle rule and its cubic volume equivalent* as determined by the cubic volume and scale of the average log cut during, let us say, the five-year period following the adoption of the Doyle rule, namely; 1880 to 1884.

In its practical application to those old timber limits, a change from the Doyle rule scale to a cubic volume scale as suggested above will increase the amount of Crown dues paid into the Provincial Treasury. It is evident, however, that it is equitable that an owner of these old timber limits should not receive more cubic feet of wood for his unit of Crown dues than he did in 1880 to 1884. A change to cubic volume measurement with an adjustment by a converting factor (obtained as outlined) *merely makes a correction for the fact that the Doyle rule requires so much more cubic volume of wood to scale one thousand feet board measure with our present small logs than it did with the larger logs, 1880-1884.* In other words, under this adjustment the limit owner would again be receiving the identical volume of wood per unit of Crown dues which he received in the early eighties. The practical effect on the amount paid for logs cut from areas recently sold will be slight; in some cases possible nil. In any event, any change obtaining will be, as has been shown, equally fair to buyer and seller.

(2) Re Checking Cullers' Scaling.

The Timber Commission made a timely reference to the desirability of all cullers being employees of the Department, and of the necessity of properly checking their work in the woods, and particularly pointing out the importance of marking all skidways so that the check scalers would have every opportunity to make a real check of the work of the cullers in determining the amount of wood cut on which Crown dues are payable.

These recommendations are obviously entirely sound, and I am very pleased to find that the matter of establishing a checking of the scale on all operations, and the closely related and very necessary detail of marking each skidway, has already been adopted by the Department of Lands and Forests, and has been in effect during the past year. I would suggest as an additional aid to the check scaler, that the number of logs reduced for defect be noted for each skidway on the culler's report.

The discounting logs for defect is undoubtedly a procedure in which there now obtains a great diversity in judgment and method, with corresponding differences in the scale returned. An occasional—perhaps an annual—cullers' conference at a convenient milling point, which would provide facilities for practical demonstrations, would be most helpful in promoting accuracy and, therefore, uniformity in scaling methods and results. The discussions and exchanging of ideas on such an occasion would also greatly contribute to the same result.

(3) Re Shanty Books.

In time it may be found that the check-scaling of the culler's work which now obtains on all limits, is a sufficient check on the accuracy of the cullers, returns on which the provincial forest revenue is computed. Until that is demonstrated, however, the "Shanty Book" record should be retained and made more effective than it has been in the past. To this end I am glad to pass on the suggestion of the provincial forester that all shanty books be serially numbered so that they may be all readily accounted for at the end of the season. Also, they should be paged so as to prevent the possibility of removal of pages containing original records. The desirability of the record being made daily, and the affidavit being taken as provided by statute and Departmental Regulations has been forcefully pointed out by the Timber Commission.

(4) Re Measurement of Pulpwood.

Already a considerable proportion of the pulpwood of the Province is being measured by cubic volume because of the greater convenience to all parties of this method of measurement.

The determination of a converting factor which will accurately express the wood volume relation between the cubic foot unit and the standard cord of stacked wood measuring eight feet long by four feet wide by four feet high, and containing 128 cubic feet of wood, bark and air spaces, is, of course, a simple matter, and can probably be obtained from measurements already in the Department. The writer made a number of careful measurements with different sizes of pulpwood in Northern Ontario some years ago, but has not now the results at hand. The study, however, indicated that a correct converting factor for different sizes of pulpwood ranged from about eighty-five to ninety-eight cubic feet per cord; a converting factor of 100 cubic feet per cord would be a conserva-

tive and a very convenient converting factor. The 115-cubic-foot converting factor now in use is from 15 per cent. to 25 per cent. above actual wood volume.

(5) Re Method of Selling Timber.

Prior to 1906 sales of timber limits were conducted on the basis of inviting bids for a lump sum, known as a "bonus" which was to be paid in cash at the time of the sale, this bonus being the sum which the purchaser was willing to pay over and above the regular Crown dues, which in all cases are paid as the timber is cut.

Since 1906, the bids have been invited on a per 1,000 foot basis; the amount bid to be paid together with the Crown dues as and when the timber is cut. The payment of the entire purchase price as and when the timber is cut has many advantages over the former system. Perhaps the greatest advantage is the better prices which are realized under this plan of sale. The fact that higher prices may be realized, is due, in part, to the fact that a much larger number of lumbermen can compete at a sale where the timber is to be paid for as cut, as purchases under this plan are much more easily financed. It also implies a much less expensive examination of the tract by the prospective purchasers in advance of the sale, in as much as this examination would confine itself chiefly to the quality of the timber and the cost of logging, a knowledge of the approximate amount of the timber being sufficient when the payment is to be made on a measured basis as the timber is cut.

It has been urged by some that the former system of a lump sum "bonus" was desirable from a standpoint of immediately interesting the lumbermen in a larger financial way in the tract, and thus enlisting his very especial interest in protecting it from fire; also that the comparatively small payment for the timber as it was cut presented but little temptation to improperly influence the culler in the measurement of the logs. As regards honest measurement, it may be admitted that in lessening the amount that a thief can get, one somewhat decreased the risk of theft. The thing to do, however, in the measurement of wood sold by the Province is to make it impossible for anyone to steal it and get away with it. The improvements suggested in this report in conjunction with what the Department has already done during the past year, as noted above, will, I am sure, speedily end any such practice. It is, of course, true that the larger the financial interest of the owner, the greater is his interest in preventing fire. Efficient fire protection can, however, best be developed by provincial organization. There are many reasons for this. Sufficient here to say that the safety of any particular tract is in a very large measure assured by work done far beyond its boundaries. In any event the added interest of the lumbermen owner in protecting from fire a limit purchased on the lump-sum-bonus plan is not a value that has been created by the method of sale. The fire hazard, which the lumberman necessarily assumes under these circumstances, is a factor which he as a business man must have discounted for at the time he made his bid to purchase the tract.

(6) Re Selling Small Quantities of Timber.

The Shevlin-Clarke case has clearly shown that large timber sales made in recent years without public competition were not legally so made. It would appear that there is not any essential legal difference between the lack of authority for the selling of these larger tracts and the apparent lack of authority for the granting of permits to cut small quantities of timber, cordwood, ties, etc.

Appendix No. 53.

SUBDIVIDED AREA OF PROVINCE TO END OF 31ST OCTOBER, 1922

District of Manitoulin.

Township:	Area
Surveyed portion of Manitoulin Island, including Barrie and Cockburn Islands.	1,000 sq. miles.
Surveyed islands in north shore of Lake Huron and throughout the north part of the Province, approximately	200 " "

Summary:—

Area in Province of Ontario south of French River, Lake Nipissing and Mattawan River	50,482 sq. miles.
Area district of Nipissing, north of French River subdivided	1,827 " "
Area district of Timiskaming subdivided	1,994 " "
Area district of Sudbury subdivided	4,428 " "
Area district of Algoma subdivided	2,976 " "
Area district of Cochrane subdivided	6,842 " "
Area district of Thunder Bay subdivided	1,883 " "
Area district of Kenora subdivided	1,118 " "
Area district of Rainy River subdivided	1,245 " "
Area Manitoulin Island and other islands	1,200 " "
Total	73,995 sq. miles.

L. V. RORKE,
Director of Surveys.

October 31st, 1922.