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REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1927

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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TO HIS HONOUR WILLIAM D. ROSS, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the Operations of the Department of Lands and Forests, for the fiscal year ending 31st October, 1927.

WILLIAM FINLAYSON,
Minister.



HONOURABLE WILLIAM FINLAYSON,
Minister of Lands and Forests.

We have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1927, said report being divided into two parts—Part One dealing with matters affecting Lands and Forests proper, and Part Two dealing with matters under the head of Forestry.

W. C. CAIN,
*Deputy Minister,
Lands and Forests.*

E. J. ZAVITZ,
*Deputy Minister,
Forestry.*

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

For the Year ending 31st October, 1927

GENERAL ADMINISTRATION

All the natural resources of the Province, exclusive of the minerals and the game and fish, come particularly under the jurisdiction of the Department of Lands and Forests. Even the wild life of the great Provincial Parks is subject to the control and administration of this Department. The land, timber, water powers and wild life are our heritage. When it is considered that the great Pulp and Paper Industry, with the Lumbering, has operated more effectually than any other wide movement to create favourable trade balances in the international money markets and from a commercial and labour viewpoint it is of such vital import to the people of the Province, the necessity of taking precautionary measures to perpetuate the industry is obvious. The greatest care, therefore, must be exercised in developing our forest wealth along lines of perpetuating its possibilities, and it is the desire and intention of the Department to extend its influence towards educating the masses to an adequate understanding of the storehouse of treasures that belong to them and deserve protection.

The magnitude of the Province, with its spacious areas of so diversified a character, should immediately challenge the attention of all public-spirited citizens.

Timely steps are being taken by the Government to segregate the barren from the productive, to make a business-like inventory of our natural holdings and provide the readiest solution to the problem of protecting Nature's gifts for the benefit of the public.

Large unproductive sections in the past have been wantonly exploited, ostensibly for sustaining man in an agricultural sense, but in reality for gaining a temporary livelihood, after which the effort of eking out an existence conduces to conditions not at all advantageous to the individual or society. It is therefore the duty of the Crown to administer its domain that a fair division of its products may result. Limiting those who desire to farm to lands that are primarily tillable and suitable for agricultural purposes is of special consideration. If Canada is to remain the granary of the Empire a "back to the land" cry should be forever in our minds and Ontario with her expansive clay lands, in its northern portions especially, appeals to the sturdy type who can handle the saw and wield the axe. There is no country in the world to-day with greater advantages for the man of little wealth and thrift who wishes to hew out, develop and maintain a home. Encouraging this pioneer type is the effort of the Department of Lands and Forests.

There are large sections of our country, both in Southern and Northern Ontario, which are decreed by Nature to produce nothing but a crop of timber, and such sections should be inevitably withheld from further futile attempts at farming and fenced, theoretically speaking, for the reproduction of a timber

crop. It is not too late to save Nature's heritage and retain for Ontario an industry that will continue to reflect its importance in international trade balances and conduce much to the commercial, economic and social welfare of the people.

To implement the Department's intention towards a development that should lead to greater vigilance and more judicious treatment of the forest wealth, certain legislation will be sought at the coming Session and from it will result, it is hoped, a gradual enforcement of sane methods with increased efforts at educating the public to a recognition of Ontario's hereditary wealth and its adequate administration.

In water powers we have an asset the economic value of which can scarcely be estimated, and the need of ever doggedly preserving them for the benefit of the present and future generations is of paramount necessity; hence these "White Coal" producers are not alienated by the Crown, but when industrial progress is dependent upon their development the Crown grants term leases under reasonable restrictions and fair conditions as respects annual rental and use, making provision for municipal and other essential purposes. These powers being a bounty of Nature, the rentals derived therefrom are credited to Consolidated Revenue and are ultimately returned to the Province as a whole—in education, construction of highways, administration of public institutions, and in a myriad of other forms.

The Department's interest in wild life and tourist business centres round the administration of the great Provincial Park areas comprising over 3,000,000 acres, such as Algonquin and Roudeau in the southern part and Quetico in the northwestern part. The impetus given to summer travel by the increased use of the automobile beneficially affects the parks.

The annual visitors to these wild retreats are ever growing and the features that attract them require our constant attention. Outside the Parks, areas are being constantly sought for camping and hunting purposes, and to meet the demands the Department is gradually, through the Survey Branch, selecting and subdividing suitable areas along lakes and rivers with beaches, good fishing grounds and admirable surroundings, the sites thus selected and surveyed being open to purchase or lease according to the section of the country where they lie.

The foregoing may give a fair idea of but part of the work undertaken by the Department of Lands and Forests in its administration of the Natural Resources. A more detailed reference to the sale of lands, placing of settlers, selling of timber, the logging industry, forest protection and the general Revenue and Expenditures of the Department is found hereafter.

LAND MATTERS

MOVEMENT OF SETTLERS

Important steps were taken under the Forestry Act, passed last Session, which provided an innovation with respect to the removal of settlers from barren portions of Old Ontario. From a portion of Haliburton District several families were translated to the Southern Clay Belt in the Temiskaming District on the T. & N. O. Ry., under a mutual arrangement with the Government. Regular farm lots were selected and are now occupied by these settlers, who have erected houses, undertaken to clear and improve their holdings and to prepare for their permanent establishment on productive land.

These newcomers with the experience gained in Old Ontario are a type that command the belief that the settlement thus initiated will be the nucleus of a large community of the hardy Old Ontarions, whose unproductive acreage in the older regions will be released to and taken over by the Government to grow a permanent crop of timber and maintain wild life that attracts the tourist and the hunter. It is fully expected that the movement will be extended this coming year to embrace further parties from the same region.

Details of land transactions for settlement, summer resort and other purposes will be found in Appendices 12 and 13.

GROUP SETTLEMENT

New communities established a year or so ago in the Thunder Bay district near Port Arthur, and certain group settlements on the Transcontinental are progressing favourably and a number of new applications by groups have been submitted to the Government and are being duly considered.

PROVINCIAL LAND TAX ACT

The first revenue returnable under this Act amounted to \$76,088.68. While certain criticisms have been urged against the Act, generally speaking it has met with ready acceptance on the ground that all property on a fair assessment should bear its proportionate share of taxation and as the greater part of the land and improvements to which the tax is applicable had previously been free from all taxation the element of unfairness could not be very well charged. The aggregate assessment for the coming year is expected to be increased by the addition of new holdings and hitherto unlisted ones. An increase in revenue to the extent of approximately \$100,000, is estimated.

Certain slight amendments to exempt such works as logging roads, timber camps, etc., that through oversight became assessable, will be submitted this Session.

CLERGY LANDS

The area comprising the above purpose has practically all been disposed of long ago, although certain moneys covering occasional arrears are received. Some \$400.55 was collected under this head.

COMMON SCHOOL LANDS

No sales took place of these lands during the year but collections on previous sales to the amount of \$11,919.93 were made.

UNIVERSITY LANDS

The number of acres of these lands sold during the year was 639.25 for \$319.64 and there was collected on previous sales \$377.35, the total being \$696.99.

CROWN LANDS

Throughout the year 110,541.68 acres were sold for agricultural, townsite, tourist and various other purposes, the sales amounting to \$207,476.25 on which was collected the sum of \$144,673.46. This acreage was in excess of the previous year by 24,321 acres.

The lands leased during the year were less by 24,818 acres although collections on new and old areas considerably increased. (See Appendix No. 3.)

MILITARY GRANTS

During the year six certificates were surrendered and one patent was issued. Under the Act approximately 13,998 certificates were issued and of these 1,027 are still outstanding.

The above has no reference to the special privilege accorded returned Canadian overseas soldiers of the Great War, who are entitled to acquire, free of charge, a farming location in Northern Ontario, subject, however, to all settlement regulations. Sixty-seven returned men took advantage of this opportunity during the year. Because of failure to comply with the regulations, fifty-seven, previously located under these regulations, forfeited their locations, which is an improvement on the previous year when sixty-seven locations were cancelled.

TOURIST LANDS

The growth in popularity of our Provincial parks as health and recreation resorts was most notable throughout the year; each of the three great parks, Algonquin, Rondeau and Quetico, reports an increase in tourists with a corresponding increase in revenue. It is encouraging to note that most reliable reports from the Algonquin and Quetico Parks indicate the wild life in a healthy state. Close observation and a checking up of wild life evidence on all ranger's beats in Algonquin Park show an increase in the big game and also in fur-bearing animals such as beaver, marten, mink, etc. Deer is everywhere abundant in the greater portions of this park, notwithstanding the too frequent pronouncement of those well intentioned critics of the so-called wolf menace. Deer are seen daily about the logging camps, along the trails and in the farther recesses visited by the Rangers. They are wandering around headquarters, houses and stables every night. Throughout the year the Rangers secured fifty-one wolves within the park, and this year are using guns, traps and snares to add to their spoils. The generally expressed opinion based upon isolated and unreliable data that Algonquin Park is the breeding spot of wolves is not borne out by the actual facts gathered on the ground by those who are twelve months within the confines of the park. It is the belief amongst the honest hunters who frequent the vicinity of the park for their annual outing, that the park is well sustaining one of the many purposes for which it was created, that is, a protected reservoir of wild life from which constantly flows a stream of game that has succeeded in maintaining the supply in neighbouring localities which long since would otherwise have been run dry through the ever growing army of quick repeaters.

The closest supervision to adequately protect these cloistered creatures from unscrupulous hunters and migratory poachers is necessary, and while vigilant efforts in this behalf are being exercised it may be found advisable to augment our park staffs at critical periods of the year to make enforcement of the park laws and regulations more effective.

Rondeau Park in Kent County, a quaint sequestered nook of attractive grandeur in the southwestern peninsula has some 250 summer cottages representing a summer population of over 1,000. Last year the capable and highly respected superintendent, who had been efficiently carrying on for a number of years, passed to his reward, and the Department is about to undertake an in-

vestigation into the many features of the Park demanding attention. When it is understood that many thousands throughout the summer months weekly visit this glorious spot for health and pleasure, comfort and repose, and it is the only provincially owned virgin timbered area within the old southwest part of Southern Ontario, one can realize what a heritage the people therein possess. Several hundred deer run wild within the comparatively small area of 5,000 acres, and the finest mixed forest growth, typical of Old Ontario, exists. Lots may be leased at reasonable rentals and building restrictions are not severe.

Quetico Park in the northwestern part of the province, comprises over one million acres, and is situated on the Minnesota border; beaver and other fur-bearing animals thrive within its area, while the finest stands of white pine provide material for the great wheels of the lumbering industry in Fort Frances. Countless parties as they pass over streams and moss covered floors from the neighbouring states find solitude and solace midst nature's boundless blessings. The fishing is good and guides are easily secured.

SURVEYS AND WATER POWERS

The Department completed some important surveys in the northern part of the province in the running of base and meridian lines, and in co-operating with the Dominion Government in respect of acquiring data for the traversing of water ways, and definite points where permanent posts for future guidance can be placed. Some parcels for tourist purposes were subdivided and listed for sale to meet the demands of tourists.

The increase in expenditure over the former year in connection with our surveys was some \$25,694.20. (See Appendix No. 16.)

The only water power of importance developed during the past year under direct control of this department was that on the Seine River where three falls exist, namely: Sturgeon, Calm and Moose Lake. The consolidated development of these rapids will produce power for the Backus-Brooks interests who have completed development the past year, and will transmit their power approximately one hundred miles to Fort Frances for the use of their enlarged paper plant there.

Negotiations are under way with the Dominion Government respecting the possibility of providing storage on Lac Seul to provide the present Manitoba power interests and the prospective Ontario users with controlling levels in connection with this lake. Joint legislation may be found necessary and the undertaking involving the erection of a costly dam will be effected through a mutual co-operation of all interested parties.

The general revenue from water power rentals increased considerably during the past year, the greater part of such increase being due to the Lower Abitibi power leases held by the Abitibi Company.

TIMBER ADMINISTRATION

NEW RESERVES

Practical efforts have been made to segregate and set apart for the perpetuation of timber wealth suitable areas and these will be created into timber reserves and rigid measures adopted for their protection and reproduction in order that future generations shall be assured of raw supplies for industrial development.

OLD LICENSES

The question of resuming old timber licenses granted under sales where no time conditions were provided has been vigorously taken up and already large areas, in one instance over 300 square miles, of young growth have been released to the Crown and will form the centre of wide circles of forest productive land that will be theoretically fenced and retained for the direct advantage of the Crown. These releases to the Crown are under a mutual arrangement with the licensees and consequently perplexing problems are being solved with no direct outlay by the Government or appearance of confiscation.

RESTRICTIVE CUTTING

The importance of the lumbering and paper industry is so universally recognized that the most modern methods must be adopted to preserve for posterity the sources of supply. Measures with regard to judicious cutting and caring for the forest are being insisted upon in all new undertakings and in order to place in the hands of the Government indisputable power to improve any obsolete methods, the Legislature may be asked to vest in the Minister through his officers power to regulate the cutting as to diameter limit, types of trees, etc. Sympathetic co-operation with representatives of the industry is the basis of any Legislative amendments and already conferences have been held and will be further conducted when draft legislation is ready.

SALES

Timber sales have been made primarily with a view to caring for going concerns, public competition, nevertheless with adequate upset prices fixed by the Government being the policy followed. In one instance the Department in order to rehabilitate an industry that had been in existence for many years but had found the sledding too hard and had later gone into bankruptcy made provisions for adding to the old areas and for the creation of means whereby the pulpwood supply would be manufactured into the finished product paper in our own province, thus promoting industrial expansion and materially improving the labour situation of the section involved.

Under Appendix 11 will be found a list of the sales consummated throughout the year and a cursory examination of the areas sold and the purchasers in each case will disclose that the raw material disposed of was acquired by real operators whose heavy commitments during the coming winter will rebound so much to the real life of their respective communities through the purchase of camp equipment, and supplies and the payment of huge wage accounts in connection with the cutting and hauling of their wood and logs, all of which in turn when manufactured during the coming summer will be of vital interest to the milling centres.

The mainspring of the continued existence of the great lumbering and pulp and paper industries with the communities immediately dependent thereon is raw material, and when such material is cut and operated under government supervision and restrictions, based upon the principles of rotation of crop and perpetuation of forest wealth, sales are amply justified.

Exclusive of one mixed logging and pulp concession proper, covered by special agreement authorized by Order in Council, there were fifty-seven separate areas sold during the year, of which eighteen were two square miles or less and a like number comprised ten square miles or less. The balance, or twenty-one

sales, exceeded ten square miles each. Purchasers from the big operator in logs and pulpwood to the small jobber in all lines were represented. The areas sold, with the prices bid, and the successful tenderers may be found in Appendix 11.

Some of the largest operators who acquired areas are as follows:

The Shevlin-Clarke Company, Limited, whose mill at Fort Frances cuts an average of ninety million feet per annum. This company has a payroll of \$1,000,000 and employs 800 men throughout the summer and sixteen to 1,800 in the winter operations.

The J. A. Mathieu, Limited, control a very substantial mill at Rainy Lake in the vicinity of Fort Frances and employ for their winter undertaking 1,000 men, and for their summer, 300.

The Fort Frances Pulp and Paper Company, who have recently completed an addition to their paper plant and are producing an average of 80,000 tons of newsprint each year. This company have succeeded for many years in conducting a paper mill at this point of very substantial capacity without having a single limit from the Crown, the first having been acquired during the past year under public competition when under 100,000 cords were secured, less than their requirement for one year.

The very existence of Fort Frances is dependent upon the continuance of these enterprises, and the logging companies with but two season's timber supply ahead and the Pulp Company with practically none assured except what may be picked up from settlers, small jobbers and an occasional licensee from the Crown, are exercising some concern as to the Government's attitude with respect to additional areas to be offered.

It is very urgently claimed that with investments of such proportions assured supplies for a reasonable period in advance should be furnished and financing would be less onerous.

Where such a local condition obtains and the timber contiguous to these mills is such that it should be cut, the Department would be unwise to withhold the timber from competitive sale.

Austin & Nicholson on the C.P.R. in the Sudbury district, The Abitibi Fibre Company on the Transcontinental in Cochrane, The Temagami Timber Company on the T. & N. O. Railway in the Temagami region and Carpenter-Hixon on the north shore at Blind River, all active and important concerns, were purchasers throughout the year. In Eastern Ontario, Gillies Bros., Limited, secured a white pine limit on the Montreal River in the districts of Nipissing and Temiskaming for the furtherance of their plant at Braeside, Ontario, where they have one of the finest sawmills of the province.

In each case of the outstanding sales, the purchaser as it may be seen is an active operator and the owner of a going concern.

LOGGING

In last year's report, because of the instability of the lumber market, grave doubts were expressed regarding the advisability of the operators in proceeding to cut to an extent equivalent to the year 1926. The doubts were not unfounded as the actual output for the year 1927 just closed clearly indicates a decided reduction from the previous season. A marked decline in the cut of Red and White Pine is worthy of note, there being some 70,000,000 feet B.M. less produced. Only 45,464 cubic feet of waney timber is recorded as against 183,754 cubic feet for the year 1926. Of course, this type of timber has almost reached its limit and the comparatively small quantity involved in either instance has no great relation to general logging of pine for lumbering.

Jack Pine saw logs were cut to the extent of 19,000,000 feet less and Jack Pine ties, which numbered eighteen hundred thousand in 1926, fell to 829 thousand in 1927.

All other classes of timber were subject to a reduction of seven and a half million feet.

It must be recognized that the great lumber industry, that has been the mainstay of financial conditions in many parts of the province, is passing through more or less troublous times, and while the lumberman's buoyancy and optimism are proverbial, their former determined activity to produce, come what may, has given way to caution in the face of so many competitive factors. These pioneers of the province are deserving of the public's trade and it is earnestly hoped that the Government's efforts towards urging the users of wood material to remember the slogan, "Produced in Ontario from Ontario's forests," will not be without good results. The Government during the past year has directed that in all further provincially constructed buildings Ontario material wherever possible must be used. The application of this principle to the new East Block of the Parliament Buildings has elicited favourable comment.

The diminishing production of lumbering material from Crown lands is from a revenue point of view in part compensated by the pulpwood operations.

PULPWOOD

The generally expressed opinion of the paper manufacturers during the fall of 1926 that the market was suffering from over-production was not reflected in the cut of pulpwood from Crown areas. It may be that numbers had already prepared for operations on a scale equal to former years and in order to avoid additional overhead costs decided to make contracts and keep intact their adequate organizations for the year, entertaining the hope that further apprehensions as to ready markets would early disappear on the improvement of conditions. At any rate over 750,000 cords were cut on Crown lands under license and subject to dues and other charges as against only 642,000 the previous season. All this material must be used for manufacture into the finished product, pulp or paper, mostly the latter, in our own country, thus maintaining industry, fostering trade and stabilizing community centres.

The outstanding paper trade announcement during the year was the consolidation of the Abitibi Pulp & Paper Company with the Spanish River Pulp Company. The merger of interests gives the holders control over several large mills, the four held by the Spanish at Sturgeon Falls, Espanola, Sault Ste Marie and Fort William, and the two held by the Abitibi interests at Iroquois Falls and Smooth Rock Falls, the one at the last mentioned point having recently been acquired by the Abitibi interests from the liquidator of the Mattagami holdings. This consolidation will mean the control ultimately of a daily production of over two thousand tons of newsprint.

The Backus interests at Fort Frances increased their capacity from 125 to over 250 tons and are seeking from the Crown a survey of their future raw supply. The Howard Smith Company of Cornwall, whose extensive additions call for increased raw material, are also negotiating with the Department for a reasonable cordage. The Abitibi Pulp Company are contemplating improvements to the old Mattagami plant at Smooth Rock Falls and seek territory lying within the Mattagami watershed. The Government, realizing the necessity of keeping intact going concerns, is now considering all these inquiries.

The Great Lakes Paper Company, who control the Pic, Black Sturgeon and Long Lake limits, have under the insistence of the Government made

substantial progress in establishing an up-to-date self-contained pulp and paper plant at Fort William on the Kaministiquia River. The pulp mill has been in active operation some time and the paper plant is expected to be operating within a few months' time, this enterprise involving an investment in plant, equipment, etc., of eleven and one-half million dollars. The Nagagami limit holders who alone have not actively and technically met the obligations regarding operating a plant, have nevertheless continued to pay their annual fire protection charges and negotiate with the Government apropos of development.

The lack of a water power, capable of ample development, upon the limit has seriously affected the efforts of those interested. It may be found necessary to erect a plant at a strategic point outside the limit where power is available and to which the raw material may all have to be hauled.

Negotiations, nevertheless, are still in progress and while the paper situation is in its present position, where production is at least equivalent to if not greater than the demand, no interests of the Crown will be jeopardized.

FOREST FIRE PROTECTION

Considering the province as a whole the season, like the three preceding, was particularly favorable for forest fire control. In the early spring conditions in some districts indicated a season of high hazard but the latter part of May saw a moderation of these conditions. No really prolonged periods of high hazard were experienced except in the territory along the north shore of Georgian Bay and Lake Huron and here during August and the early part of September conditions were exceptionally serious. That no real damage was suffered is greatly to the credit of the local fire ranging organization.

In the more remote areas of the province aircraft were used entirely for fire detection, and to a limited extent for transportation of supplies and equipment. In the more settled areas both aircraft and lookout towers were used for detection and in the Ottawa-Huron area, the Temagami area, and the Clay Belt towers alone were used.

The total area burned over was 35,742 acres with 924 fires. Of this total, 950 acres were timber land, 5,176 acres land which had been logged over, 6,335 acres second growth and 23,281 acres of barren or grass lands.

Large quantities of slash were disposed of throughout the province, thus lessening the hazard considerably.

The stock of fire-fighting equipment was increased, several lookout towers built and a considerable mileage of telephone lines.

The travel permit was introduced for the first time in Mississagi and Temagami Forest Reserves and was a decided success.

REFORESTATION

The programme of reforestation this year was the largest in the history of the work. More than seven and one-half million trees were distributed throughout the province from the main Government nurseries and the two transplant nurseries. One new county forest was established and plans were put under way for commencing three more. Several new demonstration forests were planted for townships which brings the total number of these to well over fifty. The collecting of tree seed was continued on an enlarged scale and large quantities of red and white pine were gathered for immediate use. (For a detailed report of this work see Appendix No. 36.)

FOREST SURVEYS AND INVESTIGATION

The forest survey programme was continued during the past season covering over 4,000 square miles of the eastern portion of the Rainy Lake watershed. (See Appendix No. 36.)

Investigations of the growth and life histories of the important commercial trees were continued during 1927. These studies were carried on in spruce and jack pine stands, the primary object of this work being the determination of future yields from the present, immature stands.

FORESTRY BOARD

Pursuant to the Forestry Act of last session there was created a Forestry Board for the purpose of studying all questions dealing with the problems of making the forest industries of this province permanent by the securing of continuous forest crops.

The following were appointed as members of the Forestry Board:

J. A. Gillies, Lumberman, Braeside, Ontario.

Dr. C. D. Howe, Dean of Faculty of Forestry, University of Toronto, Toronto.

B. F. Avery, Forester, Sault Ste Marie, Ontario.

H. G. Schanche, Forester, Iroquois Falls, Ontario.

E. J. Zavitz, Deputy Minister of Forestry, Toronto.

The Forestry Board have held several meetings and have made reports to the Government on questions of Forest Research, Survey and classification of forests lands, and reforestation of non-productive areas in Northern Ontario.

REVENUE

The total revenue collected from all sources throughout the year was \$4,664,425.03 an amount greater than any previous year except that for the year 1925. Of this the sum of \$3,445,763.21 was ordinary and \$1,218,661.82 capital. This represented an increase over the previous year collections by \$177,956.09, the ordinary revenue for the year 1927 having been in excess of the 1926 revenue by \$164,433.63.

Crown leases and licenses of occupation covering water powers, public lands, water lots and various other purposes, showed an increase of over \$84,000. Taxes collected under the Provincial Land Tax Act, which became operative for the first time in 1927, accounted for \$76,088.68. Agricultural and townsites sales increased some \$35,000. Ground rent and fire protection charges were augmented to the extent of approximately \$45,000 and transfer fees by over \$6,000, while the collections from timber bonus and dues were less by over \$70,000, such a condition having been predicted in the annual report for the fiscal year ending October 31st, 1926. The biggest percentage of the revenue by far is secured from the resources of the forest and the charges in respect of their administration. On the acquirement of a timber area the successful tenderer is required to make a cash deposit as an evidence of faith, and this is returnable on the fulfillment of cutting and other obligations. The cash deposits for the year amounted to \$422,985.00. (See Appendix No. 4.)

DISBURSEMENTS

Expenditures for the year totalled \$2,527,146.07, of which \$1,762,231.60 was charged to ordinary and the balance, \$764,914.47 to capital.

A few of the more important items may be cited. Fire ranging exceeded the preceding season by \$169,857.04 and reforestation by \$78,503.04. Surveys due to intensive work in the Red Lake and outlying districts cost \$25,000 in addition and forest ranging \$13,000. Special warrants, however, were less by \$165,000 and Civil Government by some \$24,000 in round numbers in each case.

(For itemized expenditures see Appendix No. 7.)

APPENDICES

PART I.

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests for the year ending October 31st, 1927

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks
	Hon. Wm. Finlayson.....	Minister.....	1926, Oct. 18	\$8,000 00	
	W. C. Cain.....	Deputy Minister.....	1903, March 1	5,700 00	
	E. J. Zavitz.....	Deputy Minister of Forestry.....	1905, May 1	5,000 00	
	A. Ferguson.....	Assistant to Deputy Minister.....	1915, Dec. 15	3,000 00	
	J. B. Thompson.....	Minister's Secretary.....	1925, Feb. 2	2,600 00	
	M. E. Bliss.....	Secretarial Stenographer.....	1909, Aug. 16	1,500 00	
	E. G. Halliday.....	Clerk.....	1907, Feb. 21	1,500 00	
	E. Harrison.....	Senior Clerk Stenographer.....	1920, May 14	1,400 00	
Solicitor's Branch.....	F. E. Titus.....	Solicitor.....	1920, March 2	3,500 00	Superannuated, June 16, 1927
	B. Chambers.....	Clerk Stenographer.....	1917, April 24	1,050 00	
Lands Branch.....	S. Draper.....	Chief Clerk.....	1900, May 1	3,300 00	
	W. R. Ledger.....	Principal Clerk.....	1894, Feb. 15	2,400 00	
	C. E. Burns.....	"	1897, July 29	2,400 00	
	J. E. Drinkwater.....	Senior Clerk.....	1915, Oct. 19	2,100 00	
	J. B. Proctor.....	"	1897, Jan. 15	2,000 00	
	W. S. Sutherland.....	"	1900, March 18	2,000 00	
	A. E. Roe.....	"	1906, Oct. 16	2,000 00	
	F. A. Lucas.....	"	1906, Dec. 18	2,000 00	
	S. A. Platt.....	"	1905, June 12	2,000 00	
	A. E. Robillard.....	Clerk.....	1894, May 4	1,900 00	
	E. F. O'Neil.....	Senior Clerk Stenographer.....	1902, July 7	1,500 00	
	S. Ross.....	"	1917, July 9	1,500 00	
	B. M. Benson.....	Clerk.....	1909, May 25	1,500 00	
	E. Hills.....	Senior Clerk Stenographer.....	1912, July 2	1,500 00	
	C. O'Connor.....	Engrossing Clerk.....	1907, Oct. 16	1,200 00	Superannuated, Aug. 1, 1927
Surveys.....	L. V. Rorke.....	Director of Surveys.....	1909, May 1	5,000 00	
	I. Hutcheon.....	Inspector of Surveys.....	1913, April 1	3,800 00	
	H. C. Smith.....	Geographer.....	1919, Dec. 12	2,850 00	
	D. G. Boyd.....	Senior Map Draughtsman.....	1896, Oct. 16	2,600 00	
	I. Work.....	Principal Clerk.....	1909, May 18	2,400 00	
	E. M. Jarvis.....	Senior Clerk.....	1897, April 25	2,000 00	
	H. Treeby.....	Map Draughtsman.....	1896, June 25	2,000 00	
	F. E. Blanchet.....	"	1906, May 15	2,000 00	Died May 13, 1927

Forestry Branch.....	A. Leaman.....	Map Draughtsman.....	1907, Sept.	12	2,000 00	Resigned Dec. 31st, 1926					
	Sidney Smith.....	Clerk.....	1923, Sept.	7	850 00						
	M. H. Kirkland.....	Senior Clerk Stenographer.....	1902, July	21	1,500 00						
	C. R. Mills.....	Assistant Provincial Forester.....	1921, Mar.	28	3,800 00						
	F. S. Newman.....	Superintendent Forester Station, Group I.....	1913, Oct.	1	2,700 00						
	N. L. Rogers.....	Senior Clerk.....	1911, Aug.	1	2,000 00						
	G. W. Harris.....	".....	1906, Sept.	1	1,900 00						
	M. C. Rowland.....	Senior Clerk Stenographer.....	1912, May	1	1,500 00						
	J. Bald.....	".....	1913, June	12	1,500 00						
	A. S. McKeyes.....	Clerk Stenographer.....	1921, May	9	1,200 00						
Woods and Forests Branch.....	J. Houser.....	Head Clerk.....	1905, July	17	3,000 00	Superannuated, January 1, 1927					
	H. D. Gillard.....	Principal Clerk.....	1897, Dec.	6	2,400 00						
	W. F. Trivett.....	".....	1900, June	25	2,300 00						
	A. H. O'Neil.....	".....	1906, July	19	2,000 00						
	E. H. Telfer.....	Senior Clerk.....	1915, Sept.	27	1,900 00						
	S. D. Meeking.....	Senior Clerk.....	1910, Feb.	8	2,000 00						
	E. H. Squire.....	Clerk.....	1916, Jan.	4	1,600 00						
	E. F. Quigley.....	".....	1921, May	4	1,200 00						
	E. C. Armer.....	Senior Clerk Stenographer.....	1909, Aug.	6	1,400 00						
	D. H. Hamlin.....	".....	1922, June	1	1,500 00						
Accounts Branch.....	J. Ferguson.....	".....	1919, Aug.	4	1,200 00	Transferred to Depart- ment of Health, Aug- ust 31st, 1927					
	H. M. Lount.....	Head Clerk.....	1903, Oct.	1	3,000 00						
	C. J. Clarke.....	Principal Clerk.....	1905, Aug.	9	2,300 00						
	W. A. Burritt.....	Senior Clerk.....	1907, Sept.	24	2,000 00						
	R. Gordon.....	Clerk.....	1912, July	30	1,600 00						
	C. Bowland.....	".....	1908, July	9	1,500 00						
	M. A. Whyte.....	Clerk Stenographer.....	1921, June	1	1,200 00						
	S. K. Burdin.....	Senior Clerk.....	1916, April	6	2,500 00						
	C. Dies.....	Clerk.....	1905, June	14	1,700 00						
	F. Samuels.....	Senior Clerk.....	1903, Dec.	5	1,800 00						
Files Branch.....	J. T. Lee.....	Clerk.....	1917, June	23	1,700 00						
	W. C. St. John.....	".....	1906, July	9	1,500 00						
	N. B. Mathewson.....	".....	1915, May	7	1,600 00						
	S. Mulholland.....	".....	1918, May	6	1,300 00						
	H. Brophy.....	Senior Clerk Messenger.....	1898, Oct.	1	1,300 00						

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
LANDS AGENTS					
Alexander, James A.	Fort Frances.	Part Rainy River District.	1924, Nov. 1	.....	For salary see Crown Timber Agents
Arthurs, E.	Espanola Mills.	" District of Sudbury.	1915, June 1	\$500 00	
Baker, R. H.	Minden.	" Haliburton.	1907, Oct. 1	350 00	
Blank, Frank.	Wilno.	" Renfrew County and North part Nipissing District.	1921, April 1	500 00	
Both, C.	Denbigh.	" Frontenac, Lennox and Addington	1905, Oct. 20	200 00	
Bresnahan, John.	Hearst.	" District of Cochrane.	1924, April 28	3 00	per day
Brown, John.	Markstay.	" " Nipissing and Sudbury.	1916, July 3	600 00	
Cameron, Wm.	Stratton Station.	" " Parry River.	1911, May 8	500 00	
Campbell, Miss I. M.	Parry Sound.	" " Parry Sound.	1914, Nov. 15	500 00	
Dean, Thos.	Sault Ste. Marie.	" " Algoma.	1920, Nov. 18	300 00	Also Homestead Inspector
Dempsey, S. J.	Cochrane.	" " Cochrane.	1911, Feb. 1	1,100 00	
Ellis, H. J.	Powassan.	" " Parry Sound.	1909, May 20	500 00	
Fink, J. Arthur.	Mattawa.	" " Nipissing.	1925, Mar. 18	500 00	
Freeborn, J. S.	Magnetawan.	" " Parry Sound.	1905, Nov. 10	500 00	
Fuller, David.	Bancroft.	" Hastings County.	1926, Mar. 20	500 00	
Gerhart, Wm. G.	Bracebridge.	Muskoka District.	1924, Oct. 14	.....	For salary see Homestead Inspectors
Gibson, J. E.	Dryden.	Part District of Kenora.	1914, Dec. 5	1,200 00	
Grigg, Albert.	Bruce Mines.	" " Algoma.	1925, Sept. 1	900 00	Also Homestead Inspector
Hales, W.	Apsley.	" County of Peterborough.	1911, July 17	250 00	
Holland, H. E.	Kenora.	" District of Kenora.	1921, Jan. 1	600 00	Also Mining Recorder (Transferred to Gold-pines)
Hough, John A.	Matheson.	" " Cochrane.	1926, April 20	1,200 00	
McCrea, J. R.	New Liskeard.	" " Temiskaming.	1924, Nov. 15	1,200 00	
MacLennan, J. K.	Sudbury.	" " Sudbury.	1905, July 3	700 00	
Marchildon, J. P.	Sturgeon Falls.	" " Nipissing and part Sudbury.	1923, April 27	1 60	per day
Parsons, W. J.	North Bay.	" " Nipissing and Parry Sound.	1908, April 8	1,200 00	For salary see Crown Timber Agents and Mining Recorders
Smith, J. D. C.	Kenora.	" Kenora District.	1924, Nov. 1	.....	For salary see Homestead Inspectors
Sheppard, H. E.	Kapuskasing.	" District of Cochrane.	1909, Feb. 13	.....

Teasdale, R. A.	Massey	Part District of Sudbury	1917, July	600 00	
Thaw, D.	Emsdale	" " " Parry Sound	1919, July	500 00	
Tranor, W. J.	Hilton Beach	St Joseph Island	1925, Sept.	300 00	
Watt, F.	Pembroke	Part Renfrew	1923, Sept.	300 00	
Wilson, A. N.	Kinnmount	" County of Peterborough and Haliburton	1915, May	175 00	
Wilson, S. H.	Port Arthur	" District of Thunder Bay	1921, Nov.	1,200 00	
Woollings, Jos.	Englehart	" " Temiskaming	1908, July	800 00	
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May	900 00	Also Inspector of Mining Recorders' Offices
<i>Homestead Inspectors</i>					
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec.	1,600 00	
Bastien, J. A.	Chelmsford	W. part of Sudbury District	1913, May	1,300 00	
Cragg, W. V.	New Liskeard	S. part of Temiskaming District	1913, April	1,700 00	
Dean, Thos.	Sault Ste. Marie	Part Algoma District	1908, Aug.	900 00	
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct.	1,100 00	Also Crown Lands Agent
Grigg, Albert	Bruce Mines	Part District of Algoma	1925, Sept.	.....	Also Crown Lands Agent
Hough, Wm.	Englehart	Centre Part of Temiskaming District	1926, Jan.	1,300 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July	1,400 00	
Jewens, H. F.	Callander	District of Parry Sound	1920, June	1,600 00	
Owens, H. B.	Cache Bay	E. part Sudbury and W. part Nipissing Districts	1918, July	1,100 00	
Sheppard, H. E.	Kapuskasung	Part District of Cochrane	1909, Feb.	1,800 00	Also Crown Lands Agent
Smith, D.	Cochrane	Part Cochrane District	1912, Apr.	1,900 00	
Van Horn, L. E.	Monteith	Part Cochrane District	1920, Jan.	1,700 00	
Wigle, R. G.	Dryden	Kenora District	1914, June	1,600 00	
<i>Timber Agents</i>					
Alexander James A.	Fort Frances	Fort Frances District	1924, Nov.	2,500 00	Also Crown Lands Agent
Fletcher, N. B.	Parry Sound	Part Parry Sound and Muskoka District	1923, Dec.	1,700 00	
Huckson, A. H.	Sault Ste. Marie	Part District of Algoma	1914, Apr.	2,500 00	
Larose, S. C.	Ottawa	Part Ottawa District	1890, May	1,800 00	
MacDonald, S. C.	New Liskeard	Part Temiskaming District	1907, Jan.	2,400 00	
McDougall, J. T.	North Bay	Nipissing and part Sudbury Districts	1908, July	2,500 00	
Milway, Jos. H.	Port Arthur	Part Thunder Bay District	1924, Nov.	2,400 00	
Smith, J. D. C.	Kenora	Kenora District	1924, Nov.	2,400 00	Also Acting Crown Lands Agent and Mining Recorder
Spence, D. J.	Cochrane	Part Temiskaming and Algoma Districts	1920, Dec.	2,400 00	
Stevenson, A.	Peterborough	Belleville District	1905, Oct.	1,900 00	
Whelan, Patrick J.	Renfrew	Renfrew Agency	1924, Nov.	2,400 00	
Hartt, J. I.	Orillia	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration	1923, Sept.	4,200 00	
Hawkins, S. J.	Toronto	Relieving Crown Timber Agent	1905, Aug.	2,300 00	

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1927

Service	Acres Sold and Leased	Amount of Sales and Leases	Collections on Sales, Leases, Land, Taxes, etc.
		\$ c.	\$ c.
<i>Lands Sold:</i>			
Agricultural and Townsites	110,541.68	207,476 25	144,673 46
Clergy Lands .....	.....	.....	400 55
Common School Lands .....	.....	.....	1,919 93
University Lands	639.25	319 64	377 35
<i>Lands Leased:</i>			
Crown	13,640.8	6,034 94	194,362 95
Temagami	46.66	423 00	2,573 80
Sand and Gravel .....	.....	.....	18 00
Provincial Land Tax .....	.....	.....	76,088 68
	124,868.39	214,253 83	420,414 72

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1927

Service	\$	c.	\$	c.	\$	c.
LAND COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	107,585	34				
Townsites.....	37,088	12				
			144,673	46		
Clergy Lands.....	400	55				
Common School Lands.....	1,919	93				
University Lands.....	377	35				
			2,697	83		
					147,371	29
<i>Rent:</i>						
Crown Leases.....			183,851	60		
Algonquin Provincial Park.....			3,216	45		
Rondeau Provincial Park.....			6,477	32		
Bruce Beach.....			120	50		
Jordan Harbour.....			697	08		
Temagami Leases.....			2,573	80		
Sand and Gravel.....			18	00		
Provincial Land Tax.....			76,088	68		
					273,043	43
WOODS AND FORESTS						
Bonus.....			1,581,818	63		
Timber Dues.....			2,064,296	51		
Ground Rent.....			109,691	43		
Fire Protection.....			346,973	31		
Transfer Fees.....			11,100	00		
Mill License Fees.....			595	15		
					4,114,475	03
<i>Parks:</i>						
Algonquin Provincial Park.....			8,320	50		
Rondeau Provincial Park.....			954	27		
Quetico Provincial Park.....			10,916	27		
					20,191	04
Casual Fees.....			2,133	95		
Forest Reserves, Guides' Fees.....			123	00		
					2,256	95
REFUNDS						
Agents' Salaries, etc.....			191	34		
Clearing Townsites.....			10	00		
Contingencies.....			254	81		
Cullers' Act.....			180	00		
Display Toronto Exhibition.....			235	25		
Fire Ranging.....			8,934	93		
Forest Ranging.....			82,592	11		
Insurance.....			400	00		
Reforestation.....			13,988	85		
Surveys.....			300	00		
					107,087	29
					4,664,425	03

Appendix No. 5

Statement of Revenue Refunds of the Department of Lands and Forests for the year ending October 31st, 1927

Service	\$	c.
Algonquin Park—Rent.....	65	00
Casual Fees.....	4	15
Crown Lands Sales.....	4,783	37
Fire Protection.....	6	40
Fire Ranging.....	5	72
Forest Ranging.....	318	00
Land Taxes.....	4	25
Licenses of Occupation—Rent.....	45	15
Mill License Fees.....	24	00
Quetico Park—Perquisites.....	136	50
Timber Dues.....	4,418	24
	9,810	78

Appendix No. 6

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1927, which are considered as Special Funds

Service	\$	c.	\$	c.
<i>Clergy Lands:</i>				
Principal.....	190	80		
Interest.....	209	75		
			400	55
<i>Common School Lands:</i>				
Principal.....	1,001	88		
Interest.....	918	05		
			1,919	93
<i>University Lands:</i>				
Principal.....	273	20		
Interest.....	104	15		
			377	35
			2,697	83

Appendix No. 7

Statement of Disbursements of the Department of Lands and Forests for the year ending
October 31st, 1927

Service	\$	c.
MAIN OFFICE AND BRANCHES:		
Salaries—Lands.....	98,956	25
“ Forestry.....	37,766	64
AGENTS' SALARIES AND DISBURSEMENTS.....	98,541	96
ALGONQUIN PROVINCIAL PARK.....	33,996	02
ALLOWANCE TO SCHOOL SECTION, SOUTH WALSINGHAM.....	150	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF VESPRE.....	250	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CLARKE.....	150	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CHARLOTTEVILLE.....	150	00
CONTINGENCIES.....	84,595	01
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....	46,479	58
CULLERS' ACT.....	77	30
DISPLAY AT TORONTO EXHIBITION.....	1,351	16
FIRE RANGING.....	1,162,717	77
FOREST RANGING.....	420,457	11
FOREST RESERVES.....	4,794	70
EXPENDITURES UNDER THE FORESTRY ACT.....	41,015	12
GRANT TO THE CANADIAN FORESTRY ASSOCIATION.....	1,000	00
INSURANCE.....	5,208	03
LEGAL FEES AND EXPENSES.....	4,600	00
MOVING EXPENSES OF OFFICIALS.....	45	00
OTTAWA AGENCY.....	2,644	83
QUETICO PROVINCIAL PARK.....	17,706	15
REFORESTATION.....	284,838	33
RONDEAU PROVINCIAL PARK.....	10,856	98
SURVEYS.....	124,820	19
VETERANS' COMMUTATION.....	300	00
STATUTORY:		
Minister's Salary.....	8,000	00
Keefer, F. H.....	971	90
Refunds.....	1,256	03
SPECIAL WARRANTS:		
Purchase of lots, Kapuskasing Subdivision.....	15,450	54
Long Point Provincial Road.....	17,999	47
	2,527,146	07

Appendix

Statement of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

PROVINCE OF ONTARIO	Area covered by timber licenses	Saw Logs					
		Red and White Pine		Jack Pine		Other Logs	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet
		18,534½	2,738,036	124,905,671	2,968,702	46,699,944	1,646,762	54,651,170

STATEMENT OF

PROVINCE OF ONTARIO	Lath- wood	Cedar Posts	Telegraph Poles	Pulpwood	Railway Ties	Waney and Cubic Pine		Lagging and Stulls
	Cords	Pieces	Pieces	Cords	Pieces	Pieces	Cubic Feet	Pieces
	2,334	68,121	21,115	753,455	829,627	1,300	45,464	5,096

Total amount received from all Forest sources, \$4,118,923.67. See Appendix No. 9.

No. 8

Rent, Fire Protection and Bonus, etc., during the year ending 31st October, 1927

DESCRIPTION OF TIMBER

Boom and Dimension Timber						Piling		Cordwood		Tan- bark Cords
Red and White Pine		Jackpine		Other		Lineal Feet	Board Measure	Hard	Soft	
Pieces	Feet	Pieces	Feet	Pieces	Feet			Cords	Cords	
16,826	3,408,357	22,903	1,868,684	28,569	3,308,084	616,176	918,917	6,404	54,543	925

TIMBER—Concluded.

Amounts Accrued

Timber Dues	Bonus	Trespass	Interest on Dues and Bonus	Ground Rent	Transfer Fees	Fire Tax	Mill License Fees	Annual Bonus	Total Accruals
\$ c. 1,625,490 24	\$ c. 1,538,971 76	\$ c. 34,898 32	\$ c. 38,669 06	\$ c. 98,864 00	\$ c. 11,100 00	\$ c. 343,702 60	\$ c. 619 15	\$ c. 6,860 00	\$ c. 3,699,175 13

Appendix No. 9

Statement of Timber Revenue year 1926-27

Timber dues.....		\$2,068,714 75
Bonus.....		1,581,818 63
Fire protection.....		346,979 71
Ground rent.....		109,691 43
Transfer fees.....		11,100 00
Mill License fees.....		619 15
		\$4,118,923 67
Timber dues.....	\$1,606,490 52	
Int. timber dues.....	39,239 23	
Timber sale deposits.....	422,985 00	
		\$2,068,714 75
Bonus.....		1,581,818 63
Fire protection.....		346,979 71
Ground rent.....	\$108,223 72	
Int. ground rent.....	1,467 71	
		109,691 43
Transfer fees.....		11,100 00
Mill License fees.....		619 15
		\$4,118,923 67
Less refund account timber dues.....	\$ 4,418 24	
“ “ “ mill fees.....	24 00	
“ “ “ fire protection.....	6 40	
		\$ 4,448 64
		\$ 4,114,475 03

Appendix No. 10

ACREAGE UNDER LICENSE

The area covered by timber licenses where the holder pays regulation ground rent and fire charges, at the end of the fiscal year 1927, was 18,534½ square miles.

The number of Crown Timber Licenses issued for the license season of 1926-27 was 891.

Appendix No. 11

Timber areas disposed of from November 1st, 1926 to October 31st, 1927

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Price Paid				Proposition	File
						Kind of Timber	Bid	Upset price	Dues		
1926 Oct. 12	1926 Nov. 1	Pt. Osborne Township, Nipissing District.	4	1	Spanish River Pulp and Paper Mills, Ltd.	Spruce Pulpwood..... Balsam Pulpwood.....	0 10 0 10	0 35 0 35	1 40 0 70	Pulpwood	9476
Oct. 20	Nov. 5	S.E. ¼ Sweeney, Sudbury District.	9	4	C. C. Schrieber, Sudbury	Cedar Poles: 30 ft. and less..... 31 ft. to 40..... 41 ft. to 50..... 51 ft. and over..... Cedar Ties..... Cedar Posts.....	0 10 0 20 0 50 0 75 0 05 0 01	..... ..... ..... ..... ..... .....	0 25 0 50 0 75 1 00 0 10 0 02	Cedar Salvage	14769
Oct. 20	Nov. 10	E. Part 50, R.R. Dist.	1	1	Shevlin-Clarke Co., Ltd.	Red and White Pine..... Jack Pine.....	..... .....	7 50 4 00	2 50 2 50	Logging	3145
Oct. 20	Nov. 20	S.E. Corner, Berth G. 43, Rainy River District.	2	1	Shevlin-Clarke Co., Ltd.	Red and White Pine..... Jack Pine.....	..... .....	7 50 4 00	2 50 2 50	Logging	3145
Oct. 20	Nov. 20	Berth 44, Rainy River District.	20	1	Shevlin-Clarke Co., Ltd.	Red and White Pine..... Jack Pine.....	..... .....	10 50 4 00	2 50 2 50	Logging	3145
Oct. 20	Nov. 20	W. part Berth 50, Rainy River District.	6½	1	Shevlin-Clarke Co., Ltd.	Red and White Pine..... Jack Pine.....	..... .....	7 50 4 00	2 50 2 50	Logging	3145

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1926 to October 31st, 1927.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Kind of Timber	Prices Paid			Proposition	File
							Bid	Upset price	Dues		
Oct. 21	Nov. 20	Blocks 1, 2, 3 and 4, vicinity English River, Kenora District.	100	4	R. L. Seaman, Port Arthur, Ont.	White Pine..... Jack Pine.....	5 25 3 25	5 00 4 75	2 50 2 50	Logging	5506
Oct. 20	Nov. 20	Calder Township, S.W. corner Cochrane District.	9	1	D. A. Chenier, Cochrane	Spruce Pulp..... Balsam Pulp..... Poplar Pulp.....	0 10 0 10 0 05	0 10 0 30 0 10	1 40 0 70 0 40	Pulpwood	28664
Nov. 5	Nov. 22	Hudson Bay Co's, location at La Cloche Reserve, Algoma Distr ct.	10	1	Spanish River Lumber Co., Sud- bury, Ont.	White Pine.....	5 50	.....	2 50	Pine	25504
Nov. 16	Nov. 30	Part Cane Township, Temiskaming District.	¼	1	E. Dalcourt, Osseo, Ont.	Spruce Pulp..... Balsam Pulp..... Fuelwood—Hard..... Fuelwood—Soft.....	0 10 0 05 0 10 0 05	..... ..... ..... .....	1 40 0 70 0 50 0 25	Pulpwood	18645
Nov. 22	Dec. 6	Part Davidson Township, Temiskaming District.	1	1	Jos. Meyers, Charlton, Ont.	Pine..... Spruce and Balsam..... Poplar..... Spruce Pulp..... Poplar Pulp..... Ties.....	1 75 1 75 1 00 0 05 0 05 0 05	..... ..... ..... ..... ..... .....	2 50 2 00 2 00 1 40 0 40 0 10	Logging	29016
Nov. 4	Dec. 6	Benneweis and Somme, Sudbury District.	68	1	Poupoire Lumber Co., Ottawa.	Red and White Pine..... Jack Pine.....	0 50 0 80	7 50 4 00	2 50 2 50	Logging	25114

Nov.26	Dec. 13	Part Bridgeland, Algoma District.	3	1	Augustus Harman Bruce Station	Spruce Pulp..... Balsam Pulp.....	0 61 0 26	0 75 0 70	1 40 0 70	Pulp	60523
Dec. 7	Dec. 21	Part Tudhope, Temiskaming District.	1	1	Ben Rozell, Elk Lake	Pine Timber..... Pine per cord.....	..... .....	0 50 0 10	2 50 0 40	Boxwood	16087
Dec.11	Dec. 31	Area north of Block 6A, Rainy River District.	6	1	Holmes Bros., Fort Frances	Spruce Pulp..... Balsam Pulp..... Other Pulp.....	..... ..... .....	0 25 0 30 0 10	1 40 0 70 0 40	Pulp	18648
Dec. 9	Dec. 31	Paxton Berth 2, Nipissing District.	11 1/4	2	Wilson Bros., Sundridge	White Pine..... Birch..... Maple..... Hemlock..... Spruce and Balsam..... Spruce Pulp..... Balsam Pulp.....	15 25 1 00 0 25 0 10	8 00 4 00 4 00 4 00 7 00 0 60 0 40	2 50 2 50 2 50 1 50 2 00 1 40 0 70	Logging	53691
Dec.11	Dec. 31	Area north and south Hematite Station on Canadian National Railways, Rainy River District.	8	4	Greer Bros., Port Arthur, Ont.	Red and White Pine..... Jack Pine..... Poplar..... Spruce Pulp..... Balsam Pulp..... Other Pulp..... Cedar Posts..... Cedar Poles: 30 ft. and less..... 31 ft. to 40..... 41 ft. to 50 ft..... 51 ft. and over.....	3 50 5 50 1 00 0 50 0 55 0 15 0 02 0 10 0 25 0 50 0 75 1 00	6 50 4 00 2 00 0 35 0 50 0 10 0 15 0 25 0 25 0 75 1 00	2 50 2 50 2 00 1 40 0 70 0 40 0 02 0 25 0 50 0 75 1 00	Milling.	39983
Dec.23	1927 Jan. 10	Area south and west of Upper and Lower Scotch Lakes, Kenora District.	82	4	Chas. Greer, Port Arthur.	Red and White Pine..... Jack Pine..... Spruce.....	6 50 8 00 8 00	7 50 5 00 4 50	2 50 2 50 2 00	Tie.	37584

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1926 to October 31st, 1927.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset Price	Dues		
1926 Dec. 30	1927 Jan. 14	Part Auld Township, Temiskaming District.	½	1	A. J. Murphy, Latchford, Ont.	Jack Pine..... Spruce Pulp.....	0 50 0 05	4 50 0 50	2 50 1 40	Logging.	20416
1927 Jan. 5	1927 Jan. 19	Part Grenfell Township, Temiskaming District.	½	1	J. G. Goldthorpe, Goldthorpe, Ont.	Jack Pine..... Spruce..... Poplar..... Spruce Pulp..... Poplar Pulp..... Remaining Timber.....	..... ..... ..... ..... ..... .....	3 50 4 00 1 00 0 35 0 25	2 50 2 00 2 00 1 40 0 40 0 25	Milling	1443A
Jan. 10	Jan. 31	Area vicinity of Sawbill Lake, Rainy River District.	15	3	Holmes Bros., Fort Frances, Ont.	Red and White Pine..... Spruce Pulp.....	3 00 0 75	7 00 0 15	2 50 1 40	Logging and Pulp	797
Feb. 4	Feb. 22	Pt. Kaladar Township, County Lennox and Addington.	½	1	James J. Vogan, Northbrook, Ont.	Birch } Maple } Elm } Hemlock..... Cordwood (Hard)..... Cordwood (Soft)..... Railway Ties.....	1 50 2 50	2 50 2 50	2 50 1 50 0 50 0 25 0 10	Logging	11640

Jan. 21	Mar. 1	South ¾ Menapia, Beniah and S.W. ¼ Thorning, Cochrane District.	155	3	Abitibi Fibre Co., Ltd., Northern Ontario Bldg., Toronto, Ont.	Large Spruce and Balsam Spruce Pulp..... Balsam Pulp..... Other Pulp.....	1 50 0 25 0 25	4 00 0 60 0 40 0 10	2 00 1 40 0 70 0 40	Pulp	53229
Feb. 25	Mar. 23	McGarry Township, part N.E. corner, Temiskaming District.	2	1	P. McCool, North Bay, Ont.	Jack Pine.....	0 50	4 50	2 50	Logging	39358
Mar 11	Apr. 11	Strathy Township except pt. north of Net Lake, Nipissing District.	35¼	3	Temagami Timber Co., Goward, Ont.	Red and White Pine..... Spruce..... Cedar..... Spruce Pulp..... Poplar Pulp..... Cedar Poles: 30 ft. and less..... 31 ft. to 40..... 41 ft. to 50..... 51 ft. and over.....	0 51 0 60 0 25 0 10 0 05 0 05 0 05 0 10	8 50 4 50 2 50 0 60 0 10	2 50 2 00 1 50 1 40 0 40 0 25 0 50 0 75 1 00	Logging	20275
Feb. 7	Apr. 15	Townships 4-C, 3-D, 4-D, and 5-D, Algoma District.	144	1	Carpenter Hixon Co., Minneapolis	Red and White Pine..... Jack Pine.....	0 08 0 08	7 50 3 25	2 50 2 50	Logging	68348
Apr. 8	May 10	Berth 46, Rainy River District.	22½	1	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jack Pine.....	..... .....	8 50 3 50	2 50 2 50	Logging	69682
Apr. 8	May 10	North part 9A, Algoma District. South half 10A, Algoma District. West parts of W½ 9-Z, Algoma District.	49¼	1	Geo. B. Nicholson, Chappleau, Ont.	Red and White Pine..... Jack Pine..... Red and White Pine..... Jack Pine..... Red and White Pine..... Jack Pine.....	0 25 0 15 0 50 0 15 0 25 1 00	8 00 4 00 6 00 4 00 4 50 2 60	2 50 2 50 2 50 2 50 2 50 2 50	Logging	63681

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1926 to October 31st, 1927.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset price	Dues		
May 25	June 13	Cane Township (part) Temiskaming District.	1/2	1	Sam Stayman, Englehart, Ont.	White and Jack Pine Lump sum.....	100 00	.....	.....	Logging	18645
June 8	June 20	Mining Location W. 203, Gun Flint Lake, Thunder Bay District.	1/2	1	C. J. Johnson, Grand Marais, Minn.	Spruce Timber.....	.....	8 00	2 00	Logging	70697
June 11	June 28	Burns Township (Part) County of Renfrew.	1 1/4	1	Frank Palubeskie, Barry's Bay, Ont.	Pine, Ash, Birch Spruce..... Maple and Basswood... Hemlock and Cedar... Spruce Pulp..... Balsam Pulp..... Cedar Poles.....	2 00 1 00 1 00 0 60 0 30 1 00	2 00 2 00 2 00 1 00 1 00 0 50	2 50 2 00 1 50 1 40 0 70 0 50	Logging	20277
June 13	June 29	Melick Township (Part) Kenora District.	1 1/4	2	J. Peterson, Kenora, Ont.	Jack Pine..... Red and White Pine..... Spruce Pulp..... Jack Pine Pulp..... Poplar Pulp..... Balsam Pulp..... Birch (Cordwood).....	3 50 11 25	0 50 0 75 0 15 0 15	2 50 2 50 1 40 0 40 0 40 0 70 0 50	Logging	9477A
June 8	July 7	J. A. 2, Rainy River District.	16	1	J. A. Mathieu, Ltd. Rainy Lake, Ont.	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulp.....	0 50 0 50	6 50 2 50 3 50 0 30	2 50 2 50 2 00 1 40	Logging	613B

Appendix No. 11—Continued
Timber areas disposed of from November 1st, 1926 to October 31st, 1927.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset price	Dues		
Aug. 4	Sept. 1	K-14-B, Kenora District.	10	1	Indian Lake Lumber Co., Winnipeg, Man.	Jack Pine..... Spruce.....	1 00	6 00 6 50	2 50 2 00	Logging	3055
Aug. 5	Sept. 1	M-23, Kenora District.	14	2	Geo. E. Farlinger, Sioux Lookout, Ont.	Red Pine..... Jack Pine..... Spruce.....	1 80 3 80 3 80	7 00 5 00 5 50	2 50 2 50 2 00	Logging	39599
Aug. 4	Sept. 6	Berth 47, Rainy River District.	23	1	Shevlin-Clarke Co., Ltd., Minneapolis, U.S.A.	Red and White Pine.....	0 18	8 75	2 50	Logging	69682 64440
Aug. 4	Sept. 6	J.A. 10, Rainy River District.	10	1	Shevlin-Clarke Co., Ltd., Minneapolis, U.S.A.	Red and White Pine..... Jack Pine.....	0 08 0 08	7 50 3 50	2 50 2 50	Logging	69682 64440
Aug. 4	Sept. 6	J.A. 9, Rainy River District.	2	1	Shevlin-Clarke Co., Ltd., Minneapolis, U.S.A.	Red and White Pine.....	0 08	5 00	2 50	Logging	69682 64440
Aug. 15	Sept. 6	Parts Townships Fripp and Musgrove.	8½	1	Hawk Lake Lumber Co.	White Pine..... Jack Pine..... Spruce.....	..... ..... .....	6 00 3 50 4 50	2 50 2 50 2 00	Logging	46076

Aug.19	Sept. 12	J.A. 12, Rainy River District.	8	1	J. A. Mathieu, Ltd.	Red and White Pine. Jack Pine..... Spruce..... Jack Pine Pulp..... Cedar Poles; 30 feet and less..... 31 ft. to 40.....	7 50 3 00 3 50 0 15 0 25 0 10	2 50 2 50 2 00 0 40	11639	Logging
Aug.19	Sept. 12	J. A. 8, Rainy River District.	30	1	J. A. Mathieu, Ltd.	Red and White Pine. Jack Pine..... Spruce..... Spruce Pulp..... Jack Pine Pulp.....	2 00 0 50 0 50 2 00 0 10	2 50 2 50 2 00 1 40 0 40	5495	Logging
Aug.18	Sept. 13	Area east of and adjoining Allanwater Limit.	12	1	John Fee, Allanwater	Jack Pine..... Large Spruce.....	0 25 0 20	2 50 2 00	16092	Logging
Aug.25	Sept. 16	Part south half Thornloe, Temiskaming District.	10	3	Feldman Timber Co., Schumacher, Ont.	Jack Pine.....	1 75	2 50	32638	Logging
Aug.23	Sept. 19	Area south and east of Sandy Lake, and south and east of Pickereel Narrows, Kenora Dis- trict.	35	6	Chas W. Cox, Ltd. Port Arthur, Ont.	Jack Pine.....	9 00	2 50	39865	Logging
Aug 29	Sept. 20	Cody Township (part) Coch- rane District.	8	1	A. C. White, Hoyle, Ont.	Spruce Pulp..... Balsam Pulp..... Poplar Pulp..... Cedar Poles; 30 ft. and less..... 31 ft. to 40..... 41 ft. to 50..... 51 ft. and over.....	0 10 0 15 0 10 0 10 0 10 0 15 0 20 0 30	1 40 0 70 0 40 0 25 0 50 0 75 1 00	3734B	Pulp
Sept.16	Oct. 7	Harrison Township (Part) Parry Sound District.	1 1/4	1	Beagan & Simp- son Lumber Com- pany, Shawanaga, Ont.	Pine..... Hemlock..... Hardwood.....	0 50 3 00 5 00	2 50 1 50 2 50	18651	Logging

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1926, to October 31st, 1927.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset price	Dues		
Oct. 5	Oct. 20	Area adjoining W.R. 6, and east of W.R. 5, Kenora District.	4	1	Indian Lake Lumber Co., Ltd. Winnipeg, Man.	Jack Pine..... White Pine..... Spruce..... Spruce Pulp..... Jack Pine Pulp.....	..... ..... ..... ..... .....	9 00 9 00 9 00 0 60 0 10	2 50 2 50 2 00 1 40 0 40	Logging	3055
Sept 12	Oct. 24	Parts Cassels and Riddell and area east and part Askin Township, Nipissing and Temiskaming Districts.	115	1	Gillies Bros., Ltd., Braeside, Ont.	Red and White Pine..... Jack Pine..... Spruce.....	..... ..... .....	10 00 4 00 4 50	2 50 2 50 2 00	Logging	56174
Sept 23	Oct. 24	Part Township Bennett north of Seine River and adjoining area, Rainy River District.	100	2	Fort Frances Pulp & Paper Co., Ltd., Fort Frances.	Spruce Pulp..... Balsam Pulp.....	0 27 0 27	0 40 1 10	1 40 0 70	Pulp	18648
Oct. 4	Oct. 25	Part Township Watten, south of Grassy Portage Bay, Rainy River District.	6¾	1	J. A. Mathieu, Ltd., Rainy Lake, Ont.	Red and White Pine..... Jack Pine..... Spruce..... Jack Pine Pulp..... Poplar Pulp.....	0 10 4 00 0 10	6 50 3 50 2 50 2 00 0 40	2 50 2 50 2 00 0 40 0 40	Logging	28771
Oct. 6	Oct. 26	Island off N.W. point of Split Rock Island, Lake of the Woods, Kenora District.	¾	1	Keewatin Lumber Co., Ltd., Kenora, Ont.	Red and White Pine.....	1 00	7 00	2 50	Logging	72680
When Granted											
By Agreement dated 29th July, 1927, authorized by Order-in-Council dated 17th June, 1927.		Districts of Kenora and Thunder Bay.	1975	.....	Northwest Ontario Development Co. Limited	Spruce Pulpwood..... Balsam "..... Poplar "..... Jackpine "..... Jackpine..... B.M.—all of the above prices in addition to Crown Dues.	..... ..... ..... ..... ..... .....	60c. per cord "..... 40c. "..... 10c. "..... 10c. "..... \$4.50 per M.ft.		Tie Timber and Pulp to rehabilitate old industries.	39865

Appendix No. 12

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, 1927

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	W. G. Gerhart,							1	100
Brunel	"	Bracebridge					1	100		
Cardwell	"	"					3	262	1	200
Chaffey	"	"							2	199
Draper	"	"								
Franklin	"	"							2	403
Freeman	"	"								
Macaulay	"	"								
Medora	"	"	1	100					1	100
Morrison	"	"			1	4	2	377		
Muskoka	"	"	2	164	2	10	4	409		
McLean	"	"								
Oakley	"	"							1	80
Ridout	"	"			1	2				
Ryde	"	"							4	481
Sherbourne	Haliburton	"								
Sinclair	Muskoka	"					1	100	2	250
Stephenson	"	"								
Stisted	"	"								
Wood	"	"	1	112	1	3				
Watt	"	"			1	10			2	396
Blair	Parry Sound	Miss I. M. Camp-								
Burpee	"	bell, Parry Sound							1	186
Carling	"	"	1	175	1	21	1	129	5	897 ⁶ / ₁₀₀
Christie	"	"	1	95			2	291		
Conger	"	"	2	188	1	1	13	1,872		
Cowper	"	"								
Ferguson	"	"	1	197			6	726		
Foley	"	"					1	56		
Hagerman	"	"	1	62						
Henvey	"	"	1	100				1	1	85
Humphrey	"	"	1	125						
McConkey	"	"	2	200	1	3	2	285	1	800
McDougall	"	"					2	472		
McKellar	"	"					2	400		
McKenzie	"	"					4	693	2	374
Monteith	"	"					3	399		
Wilson	"	"								
Chapman	"	Dr. J. S. Freeborn,	3	353 ¹ / ₂			3	250 ¹ / ₂	2	339
Croft	"	Magnetawan	1	100			2	200		
Gurd	"	"	1	100			1	100		
Lount	"	"								
Machar	"	"	2	297			1	198	3	500
Mills	"	"							3	397
Pringle	"	"							3	524
Ryerson	"	"					1	185	1	145
Spence	"	"			1	100				
Strong	"	"	1	185			10	1,099		
Armour	"	A. W. Freeland,					1	100	1	130
Bethune	"	Emsdale					6	576	1	77
Joly	"	"	2	201	3	126	1	101	5	928

Appendix No. 12—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
McMurrich.....	Parry Sound...	A. W. Freeland,			1	2	1	182	2	197
Proudfoot.....	"	Emsdale.....			1	2½			1	100
Hardy.....	"	Wm. Jenkins,								
Himsworth.....	"	Powassan.....	3	400			5	600		
Laurier.....	"	"							3	457
Nipissing.....	"	"	2	386					3	505
Patterson.....	"	"	1	103	1	3				
Bonfield.....	Nipissing.....	W. J. Parsons,	1	100	1	1¾ ₁₀₀	2	129	2	191
Boulter.....	"	North Bay.....								
Chisholm.....	"	"								
Ferris.....	"	"	2	422	1	22	2	400	1	100
Anson.....	Haliburton...	R. H. Baker,	1	100			3	279	6	603
Glamorgan.....	"	Minden.....					1	94		
Hindon.....	"	"							2	221
Lutterworth.....	"	"	1	198			1	198		
Minden.....	"	"	1	100	2	200			1	72
Snowdon.....	"	"					1	99		
Stanhope.....	"	"			1	20			6	776½
Anstruther.....	Peterborough..	Wm. Hales,	1	137						
Burleigh, N.D...	"	Apsley.....							1	80
Chandos.....	"	"								
Methuen.....	"	"					1	89		
Cardiff.....	Haliburton...	A. N. Wilson,	2	183	1	5	4	405	3	316
Cavendish.....	"	Kinmount.....					1	155	1	88
Galway.....	"	"							2	194
Monmouth.....	"	"					1	188	1	100
Bangor.....	Hastings.....	David Fuller,	1	26						
Carlow.....	"	Bancroft.....	3	290						
Cashel.....	"	"								
Dungannon.....	"	"	2	256½	1	3½	1	143	4	546½
Faraday.....	"	"	1	71½			1	206		
Herschel.....	"	"								
Limerick.....	"	"								
Mayo.....	"	"								
Monteagle.....	"	"			1	85			3	297¾ ₁₀₀
McClure.....	"	"	2	268			2	268		
Wicklow.....	"	"	1	104			1			
Wollaston.....	"	"			1	18	1	67	1	100
Algona South...	Renfrew.....	F. Blank, Wilno..								
Brougham.....	"	"	1	50					1	153
Brudenell.....	"	"	5	450			4	300		
Hagarty.....	"	"	2	200			3	300		
Jones.....	"	"			2	84				
Lyell.....	"	"	1	100			4	492	1	210
Lyndoch.....	"	"	1	200			2	295	4	610
Matawatchan...	"	"								
Radcliffe.....	"	"	7	751½	2	6	3	259½		
Raglan.....	"	"	3	400			4	325		

Appendix No. 12—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
Richards.....	Renfrew.....	F. Blank, Wilno.	3	295	1	40	2	289	3	490
Sebastopol.....	"	"	1	79			2	182	1	155
Sherwood.....	"	"	1	79			2	182	5	389½
Algona North...	"	Finlay Watt,								
Alice.....	"	Renfrew.....							1	100
Buchanan.....	"	"	1	52	1	4				
Fraser.....	"	"	2	214	1	44			1	204
Head.....	"	"								
Maria.....	"	"			1	99			2	198
Petawawa.....	"	"	1	42			1	42		
Rolph.....	"	"	1	100					1	92
Wilberforce.....	"	"							1	100
Wylie Pt.....	"	"								
Calvin.....	Nipissing.....	J. A. Fink,	1	100			2	200		
Cameron Pt.....	"	Mattawa.....	2	220					3	353
Lauder.....	"	"	2	209	1	7	4	413		
Mattawan.....	"	"	2	338	2	2	2	338	1	202
Papineau.....	"	"	2	200	1	54	1	100	2	200
Park.....	Algoma.....	Thos. Dean,								
Prince.....	"	Sault Ste. Marie..	1	160	1	160				
Galbraith.....	"	Albert Grigg,	2	324	2	123½	4	673	1	160
Lefroy.....	"	Bruce Mines...								
Aberdeen.....	"	"								
Hilton.....	"	W. J. Trainor,	6	587			6	587		
Jocelyn.....	"	Hilton Beach..	2	200			1	118	4	423
Baldwin.....	Sudbury.....	Ed. Arthurs,	5	725½			4	636		
Merritt.....	"	Espanola.....	1	6¾			1	100	2	313½
Blake.....	Thunder Bay..	S. H. Wilson,	2	320			1	160		
Conmee.....	"	Port Arthur....	5	743	1	73½	2	339	1	93
Crooks.....	"	"	2	261	1	70	1	83		
Dawson Rd....	"	"	8	949	1	40	10	1,303½	3	419½
Dorion.....	"	"	7	943½			7	982		
Gillies.....	"	"	2	320			2	320		
Gorham.....	"	"	3	270	2	86¼	3	426½	3	420
Lybster.....	"	"							1	160
Marks.....	"	"	8	1,276			6	959½		
McGregor.....	"	"	2	322			4	481		
McIntyre.....	"	"							1	114
Oliver.....	"	"	1	159½						
O'Connor.....	"	"							3	482
Paipoonge, N.R.	"	"							1	283
Paipoonge S. R.	"	"								
Pardee.....	"	"	1	160						
Pearson.....	"	"	4	581¼			4	666½		
Scoble.....	"	"	2	240	1	2	3	320	3	481½
Sterling.....	"	"	12	1,773¼	4	182	2	315½	7	971¼

Appendix No. 12—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
Strange.....	Thunder Bay..	S. H. Wilson, Port Arthur....			1	18	1	158½		
Ware.....	"	"	10	1,182½	5	134½	4	604	5	755½
Atwood.....	Rainy River...	Wm. Cameron, Stratton.....								
Blue.....	"	"	4	646			3	486	1	81
Curran.....	"	"	2	320	2	80½	1	160	1	160
Dewart.....	"	"	7	1,089			1	162		
Dilke.....	"	"								
Morley.....	"	"								
Morson.....	"	"	13	1,472	2	26	11	1,246		
McCrosson.....	"	"	7	1,188			9	819¾	1	161½
Nelles.....	"	"	3	485	4	9	5	649	3	405
Pattullo.....	"	"	6	710½	3	85	6	795½	2	320½
Pratt.....	"	"	6	826¼	1	2	2	337½		
Roseberry.....	"	"								
Shenston.....	"	"								
Sifton.....	"	"	15	2,038¾			12	1,846½	2	239¾
Spohn.....	"	"	1	157½			1	80		
Sutherland.....	"	"	6	750	2	106	6	864		
Tait.....	"	"	9	1,129			3	399		
Tovell.....	"	"	7	1,171	1	18	6	834½	2	200
Worthington.....	"	"							1	160
Aylesworth.....	"	J. A. Alexander, Fort Frances....								
Barwick.....	"	"								
Burriss.....	"	"					1	160		
Carpenter.....	"	"	3	443¼			1	176½	1	159
Crozier.....	"	"	1	162			1	141		
Dance.....	"	"	2	329½			3	408½		
Devlin.....	"	"	1	164	1	2	1	81	2	242
Dobie.....	"	"	2	232¾	1	1	1	152½	2	249
Fleming.....	"	"								
Kingsford.....	"	"	5	670¼	1	½	3	450		
Lash.....	"	"	1	40½	1	4			1	160
Mather.....	"	"	1	160			1	80		
Miscampbell.....	"	"								
Potts.....	"	"								
Richardson.....	"	"	8	1,266¼	1	28¼	4	639		
Roddick.....	"	"								
Woodyatt.....	"	"								
Aubrey.....	Kenora.....	J. E. Gibson, Dryden.....	3	431	4	80	2	269½	5	443
Britton.....	"	"	9	1,424½			6	879¾		
Eton.....	"	"	3	400			1	157	8	1,310
Langton.....	"	"	4	405½			1	83½		
Melgund.....	"	"	13	2,060	3	91	5	804		
Mutrie.....	"	"	1	12½	1		1	100		
Rowell.....	"	"	7	1,086	2	113	2	335½		
Redvers.....	"	"	1		1	½			3	481
Rugby.....	"	"	1	80½	1	1	2	320	1	160
Sanford.....	"	"	3	406½	1	117	2	330	5	838½
Southworth.....	"	"	4	387	2	114½	3	387	1	160
Temple.....	"	"	10	1,584			7	1,019½	1	206
Van Horne.....	"	"	1	82	4	17½	1	82		
Wabigoon.....	"	"	3	460			5	786½		
Wainwright.....	"	"					1	159½		
Zealand.....	"	"	10	1,421	2	28¾ ¹⁰⁰	10	1,401	3	617¾ ¹⁰⁰
Melick.....	"	"	4	579½	1	42	5	776½	1	160
Pellatt.....	"	"					3	471		

Appendix No. 12—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
Balfour	Sudbury	J. K. Maclellan,	3	479½						
Bleazard	"	Sudbury	1	163	1	3	3	483½	4	558
Broder	"	"	1	95					3	431
Capreol	"	"			1	151	1	74¾	5	451¼
Chapleau	"	"								
Dill	"	"	3	480			2	320		
Garson	"	"	1	150	1	14½	1	150	1	179½
Hanmer	"	"	9	1,283¼	4	21½	9	1,487½	10	1,305¾
Lumsden	"	"	7	807	3	34	2	318	4	558¾
Morgan	"	"	8	1,162	1	1½	6	947	1	155½
Neelon	"	"								
Rayside	"	"	1	89			1	89	2	276¼
Appleby	"	Jno. Brown,	7	1,056½			1	161	2	244½
Casimir	"	Markstay	2	286			2	286		
Dunnett	"	"					1	160	1	160½
Hagar	"	"	8	1,197½			7	1,059	4	691½
Jennings	"	"	3	514½	1	39	1	159½	1	199
Kirkpatrick	"	"			1	160	1	80		
Ratter	"	"	5	809½	1	15	5	786½	6	965½
Caldwell	Nipissing	J. P. Marchildon,							1	115
Cosby	"	Sturgeon Falls								
Grant	"	"	4	559½	1	80	2	320	1	79
Macpherson	"	"	3	361½	2	80½			3	440
Martland	"	"	2	170			1	155		
Springer	"	"	2	223	1	40	1	160	3	335
Abinger	Lennox and Addington	Chas. Both,								
Canonto S.	Frontenac	Denbigh								
Clarendon	"	"								
Miller	"	"								
Denbigh	Lennox and Addington	"	1	89			1	89		
Palmerston	"	"								
McClintock	Haliburton	Unattached								
Gibson	Muskoka	"								
Shawanaga	Parry Sound	"					1	104	1	200
Wallbridge	"	"								
Airy	Nipissing	"								
Finlayson	"	"								
Murchison	"	"	2	188						
Sabine	"	"	1	100			2	200	1	193¾
Burton	Parry Sound	"			1	5				
Total			432	57,297¾	117	3,555¾	400	52,472¼	251	33,881¾

No. of lots assigned 151

No. of acres assigned 20,672

Appendix No. 13

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, 1927.

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.....	Cochrane.....	S. J. Dempsey,	2,925	37	14	1,528 $\frac{1}{2}$	.....	.....
Brower.....	".....	Cochrane	308 $\frac{1}{2}$	4	5	6	2	324
Calder.....	".....	"	3,278 $\frac{1}{2}$	42	10	1,205 $\frac{1}{2}$	5	742
Clute.....	".....	"	500	6	7	1,021	12	1,583.84
Colquhoun.....	".....	"	1,651	22	4	525	.....	.....
Fox.....	".....	"	793	9	2	320 $\frac{1}{2}$	1	54.67
Fournier.....	".....	"	950 $\frac{1}{2}$	12	3	474 $\frac{1}{2}$	1	151
Fauquier.....	".....	"	532	7	5	705	8	1,005
Glackmeyer.....	".....	"	527	5	1	151	7	898.20
Kennedy.....	".....	"	225	2	1	152	3	490
Leitch.....	".....	"	3,488 $\frac{1}{2}$	47	14	1,764 $\frac{1}{2}$	1	44.75
Lamarche.....	".....	"	400 $\frac{1}{2}$	4	2	312 $\frac{1}{2}$	1	160 $\frac{1}{2}$
Machin.....	".....	"	750	10	.....	.....	1	150
Newmarket.....	".....	"	1,056 $\frac{3}{4}$	14	7	872 $\frac{1}{2}$	1	164 $\frac{1}{2}$
Pyne.....	".....	"	1,881	24	14	1,922 $\frac{1}{2}$	.....	.....
Shackleton.....	".....	"	302 $\frac{1}{2}$	4	6	961	3	373
Barker.....	".....	John Bresnahan,	1,047 $\frac{1}{2}$	14	.....	.....	.....	.....
Casgrain.....	".....	Hearst	749 $\frac{1}{2}$	10	4	465	3	375
Devitt.....	".....	"	4,547 $\frac{1}{2}$	60	10	1,098	2	275
Eilber.....	".....	"	1,874	23	2	150	2	263
Hanlan.....	".....	"	1,440 $\frac{1}{2}$	19	6	832	4	559
Kendall.....	".....	"	1,795	21	2	226 $\frac{1}{2}$	9	1,375
Lowther.....	".....	"	2,219	29	6	598	4	458.03
O'Brien.....	".....	H. E. Sheppard,	810	10	5	502	.....	.....
Nansen.....	".....	Kapuskasing	580	8	4	405	.....	.....
McCrea.....	".....	"	6,581 $\frac{1}{2}$	82	23	1,977	.....	.....
Owens.....	".....	"	3,387	34	5	496	4	265
Idington.....	".....	"	9,419	104	21	2,024	1	90
Williamson.....	".....	"	4,365	45	7	675	.....	.....
Haggart.....	".....	"	291	2	.....	.....	.....	.....
Kendry.....	".....	"	484 $\frac{1}{2}$	4	.....	.....	.....	.....
Bayley.....	Temiskaming.....	Jos. Woolings,	.....	.....	.....	.....	.....	.....
Blain.....	".....	Englehart	.....	.....	.....	.....	.....	.....
Catherine.....	".....	"	.....	1	.....	159	.....	.....
Chamberlain.....	".....	"	163	2	4	643	5	773.71
Dack.....	".....	"	238	2	1	159	.....	.....
Eby.....	".....	"	240 $\frac{1}{4}$	3	1	73 $\frac{3}{4}$	7	280
Evanturel.....	".....	"	.....	.....	.....	.....	2	308
Ingram.....	".....	"	789 $\frac{1}{2}$	5	.....	.....	3	399 $\frac{1}{2}$
Marter.....	".....	"	80	1	4	641 $\frac{1}{2}$	.....	.....
Marquis.....	".....	"	153	2	7	944	2	320
Otto.....	".....	"	625	8	5	638 $\frac{1}{2}$	5	545 $\frac{1}{2}$
Pacaud.....	".....	"	236	3	4	636 $\frac{3}{4}$	4	636 $\frac{1}{2}$
Pense.....	".....	"	245	3	1	74 $\frac{1}{2}$	.....	.....
Robillard.....	".....	"	148 $\frac{1}{4}$	2	2	266 $\frac{1}{2}$	5	807
Savard.....	".....	"	.....	.....	3	457 $\frac{1}{2}$	4	641 $\frac{1}{2}$
Truax.....	".....	"	.....	.....	.....	.....	.....	.....
Davidson.....	".....	"	.....	.....	.....	.....	1	43.81
Gross.....	".....	"	.....	.....	1	159 $\frac{1}{2}$	4	182 $\frac{1}{2}$
Sharpe.....	".....	"	64	1	28	4,037	1	160

Appendix No. 13—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
Benoit	Temiskaming	J. A. Hough,	1,192	15	9	1,125	4	635
Beatty	Cochrane	Matheson				160	5	666
Bowman	"	"	238	3	1	160	3	479
Calvert	"	"					2	199
Carr	"	"					3	458
Clergue	"	"	240	3	1	160	7	1,122
Currie	"	"	879	11	7	943	1	133
Dundonald	"	"	163	1	1	82	1	147
Evelyn	"	"					1	160
German	"	"	382	5	2	316	11	173
Hislop	"	"	78	1	8	1,306	10	1,606
Matheson	"	"	537	7	5	694	4	593
McCart	"	"	1,153	13	6	669	2	316
Mountjoy	"	"			1	158	5	669
Playfair	"	"	81	1	11	1,701	6	921
Stock	"	"	388	4	3	319		
Taylor	"	"	150	1	2	312	7	958
Walker	"	"			1	160	4	580
Armstrong	Temiskaming	J. R. McCrea,					1	80
Auld	"	New Liskeard	142	2	1	170	1	159
Bucke	"	"					1	129
Bryce	"	"	80	1	4	625	1	40
Brethour	"	"			1	160	2	320
Beauchamp	"	"					4	639
Cane	"	"	321	2	1	295	3	323
Casey	"	"			1	98		
Dymond	"	"	319	1			2	321
Firstbrook	"	"			7	1,126		
Harley	"	"	160	2	1	160	1	160
Henwood	"	"	159	2	3	493	2	297
Harris	"	"					2	161
Hilliard	"	"			1	160		
Kerns	"	"			1	162	2	140
Hudson	"	"					2	288
Lundy	"	"			4	646	1	80
Tudhope	"	"	80	1	7	947		
Lorrain	"	N. J. McAulay, Haileybury				160	1	160
Hugel	Nipissing	John Brown,	320	2	1	159	1	160
Loudon	"	Markstay	160	1				
Loughrin	"	"	3,079	19	4	653		
Phelps	"	W. J. Parsons,	2,402	15	10	1,602		
Widdifield	"	North Bay	765	5	1	161	6	635
Hallam	Sudbury	R. A. Teasdale,	320	2	1	160		
Harrow	"	Massey	248	3			1	173
May	"	"			2	297	1	160
Salter	"	"	258	3				

Appendix No. 13—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	J.K. MacLennan,	637	4			2	317
Bigwood	"	Sudbury	1,407	13			9	839
Dowling	"	"	474	4	2	317	4	466
Cobden	Algoma	Albert, Grigg,	428	3	5	515		
Gladstone	"	Bruce Mines	165	1			4	520
Day	"	"	10	1				
Gould	"	"	165	1				
Johnson	"	"			1	180	2	286
Haughton	"	"					1	241
Parkinson	"	"			1	762	1	83
Patton	"	"	160	1	5	164		
Rose	"	"			1	160	2	193
Striker	"	"			1	104	1	93
Thompson	"	"	253	2	1		1	155
Tarbutt	"	"					1	180
Wells	"	"	158	1	1	208	2	
Bright	"	"	26	1				
Galbraith	"	"	82	1				
Aweres	"	T. Dean, Sault Ste. Marie					5	149
Vankoughnet	"	"	170	1				
Forbes	Thunder Bay	S. H. Wilson,	3,992	25	6	1,001	5	812
Fowler	"	Port Arthur	981	7	1	155		
Goldie	"	"	3,361	22	2	319		
Jacques	"	"	4,274	29	1	150	1	157
Lyon	"	"	403	4	2	320	1	161
McTavish	"	"	760	5				
Sibley	"	"	3,121	20	1	176		
Upsala	"	"	1,027	7	3	453	2	305
Devon	"	"	472	3				
Jaffray	Kenora	J. D. C. Smith, Kenora	80	2			2	210
Mason	Sudbury	J.P. Marchildon, Sturgeon Falls	60	1			1	160
Scollard	Nipissing	"	160	1	1	73	1	161
Arthur	Wellington	Unattached					1	50
Admaston	Renfrew	"	50	1	1	141	1	100
Artemesia	Grey	"	2	1	2	200		
Bastedo	Nipissing	"					1	160
Badgerow	"	"	637	4	2	240	3	482
Barrie	Frontenac	"	2	1	2	113		
Bromley	Renfrew	"	200	1			1	200
Blythfield	"	"	100	1				
Bagot	"	"	300	3			3	272
Bedford	Frontenac	"			1	200		
Carden	Victoria	"	155	2	1	50		
Cherriman	Sudbury	"	160	1			3	186
Clinton	Lincoln	"	100	1			1	100
Cornwall	Stormont	"	104	1			1	104
Creighton	Sudbury	"	1,207	9			7	1,003
Cook	Cochrane	"					1	159
Crerar	Nipissing	"	322	2			1	159
Crosby (South)	Leeds	"	178	1				
Charlotteville	Norfolk	"	100	1			1	100
Dummer	Peterborough	"					1	92

Appendix No. 13—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
Digby	Victoria	Unattached			4	257		
Drury	Sudbury	"	160	1			1	160
Dalhousie	Lanark	"					1	100
Egremont	Grey	"					1	45
Elderslie	Bruce	"					3	196
Efingham	Lennox and Addington	"					1	117
Fairbank	Sudbury	"	156	2			3	311
Falconer	Nipissing	"	1077	10			2	326
Field	"	"	367	3			2	175
Foster	Sudbury	"	158	1				
Fraser	Renfrew	"					1	55
Gibbons	Nipissing	"	202	2			2	176
Glenelg	Grey	"					2	161
Henry	Sudbury	"					1	157
Holland	Grey	"					1	50
Horton	Renfrew	"					1	50
Harvey	Peterborough	"			3	393		
Hinchinbrooke	Frontenac	"			1	100		
Kennebec	"	"	153	2			2	105
Lavant	Lanark	"					1	100
Luther	Wellington	"					1	101
Laxton	Victoria	"					1	51
Louise	Sudbury	"	160	1				
Mara	Ontario	"					1	300
Madoc	Hastings	"					1	50
Murray	Northumberland	"	80	1				
Nairn	Sudbury	"	120	1				
Nottawasaga	Simcoe	"					1	85
Oso	Frontenac	"	435	4	4	521	2	299
Rama	Ontario	"	100	1				
Sherbrooke South	Lanark	"					1	50
Saugeen	Bruce	"	25	1			1	100
Shakespeare	Sudbury	"	163	1			1	163
Stafford	Renfrew	"					1	100
Somerville	Victoria	"					3	345
Snider	Sudbury	"			1	151	2	335
Seymour	Northumberland	"	61	1			1	61
Tisdale	Temiskaming	"	122	2	1	81		
Tudor	Hastings	"					2	148
Umbach	Kenora	"					1	160
Waters	Sudbury	"	310	2			1	170
Wellesley	Waterloo	"					1	100
Total			110,466	1083	421	54,191	336	42,326

Number of lots assigned 447

Number of acres assigned 52,555

Appendix No. 13—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Matheson.....	6	11
Cochrane.....	Cochrane.....	19	11
Cochrane.....	Kapuskasing.....	6	9
Cochrane.....	Hearst.....	2	3
Algoma.....	Bruce Mines.....	1	0
Temiskaming.....	Englehart.....	6	8
Temiskaming.....	New Liskeard.....	2	3
Nipissing.....	Markstay.....	2	0
Nipissing.....	North Bay.....	7	5
Thunder Bay.....	Port Arthur.....	11	0
Sudbury.....	Sudbury.....	2	0
Sudbury.....	Massey Station.....	0	2
Unattached.....		3	5
		67	57

Statement showing the number of purchasers, acres sold and of patents issued in townsites during the year ending 31st October, 1927

Townsite	District or County	Agent	No. of acres sold	No. of purchasers	No. of patents issued	No. of acres patented
Alexandra.....	Cochrane.....	Unattached.....	1.25	3	5	5.31
Armstrong.....	Thunder Bay...	".....	.40	2	1	.40
Bartleman.....	Temiskaming...	C. A. Duval.....	.37	5	6	.46
Capreol.....	Sudbury.....	Unattached.....	.22	2	4	.48
Colchester.....	Essex.....	".....	1.00	1	1	1.00
Gowganda.....	Temiskaming...	".....	2.15	7	4	1.25
Hornepayne.....	Algoma.....	".....	2.90	12	5	.92
Kapuskasing.....	Temiskaming...	H. E. Sheppard...	82.32	3	42	5.37
Kirkland Lake...	".....	Unattached.....	.93	9	21	2.26
Low Bush River..	Cochrane.....	".....	.23	1	0	0
Macfarlane.....	Kenora.....	".....	.23	1	2	.46
Matheson.....	Cochrane.....	".....	.24	1	0	0
Missinaibi.....	Algoma.....	J. A. Bresnahan...	.51	3	4	.85
Moonbeam.....	Cochrane.....	Unattached.....	.17	1	1	.17
Nakina.....	Thunder Bay...	".....	.93	5	2	.55
Orillia.....	Simcoe.....	".....	.09	1	4	1.01
Peterboro.....	Peterboro.....	".....	.50	1	0	0
Shrewsbury.....	Kent.....	".....	6.28	3	2	15.14
Smyth.....	Temiskaming...	".....	.75	2	1	.25
Swastika.....	".....	".....	1.54	9	2	.44
Windsor City....	Essex.....	".....	.16	1	2	.31
Winnipeg River Crossing..	Kenora.....	".....	.23	1	1	.37
			103.40	74	110	37.00

Appendix No. 13.—Continued

ISLANDS SOLD

Statement showing islands and parcels sold as summer resorts

Part of Parcel	Township	District or County	Agent	No. of acres sold
Parcel 18, Pine Island, in front of Laird and Tarbutt.....		Algoma.....	Thos. Dean.....	2.1
Parcel 31, Pine Island in front of Laird and Tarbutt.....		".....	".....	4.6
Parcel 25, Pine Island in front of Laird and Tarbutt.....		".....	".....	1.8
Somme Island, Puslinch Lake.....	Puslinch.....	Wellington.....	Unattached.....	1
Island A, Joe's Bay, Pudash Lake	Cardiff.....	Haliburton.....	A. N. Wilson.....	5
Parcel W.D. 2701, Island B, Matagamishing Lake.....	Rathbun.....	Sudbury.....	Unattached.....	3.2
Island D, Mill Lake, opposite lot 21, con. 4.....	McDougall.....	Parry Sound.....	I. M. Campbell... 2	
Parcel 5, Rama Island.....	Rama.....	Ontario.....	Unattached.....	.48
Island 50, St. Joseph's Channel.....		Algoma.....	W. J. Trainor.... 3	
Island In Devil's Lake, in front of lot 29, con. 8.....	Cashel.....	Hastings.....	D. Fuller.....	1.65
Island N.W. of Island 1, Skelton Lake.....	Watt.....	Muskoka.....	W. G. Gerhart... 3	
Island 132, Newboro Lake.....	Crosby S.....	Leeds.....	Unattached.....	3
Island 27, Devil's Lake.....	Bedford.....	Frontenac.....	".....	1
Parcel 32, Pine Island, St. Joseph's Channel.....		Algoma.....	Thos. Dean.....	4.50
Parcel 4, Rama Island.....	Rama.....	Ontario.....	Unattached.....	.45
Net Island, Surprise Lake opposite lot 15, con. 7.....	Gorham.....	Thunder Bay.... 1	S. H. Wilson.... 1	
Island T, Trout Lake.....	Palmerston...	Frontenac.....	C. Both.....	2
Island D, Cariboo Lake, opposite lot 17, con. 4.....	McConkey....	Parry Sound.... 3.80	I. M. Campbell... 3.80	
Island in Lake Huron, N.W. from lot 17, con. D.....	St. Joseph....	Algoma.....	W. J. Trainor.... 9.4	
Parcel 23, Pine Island, in front of Laird and Tarbutt.....		".....	Thos. Dean..... 3.4	
Foster Island, Crow Lake.....	Marmora.....	Hastings.....	Unattached..... .92	
Island 30, Bob's Lake.....	Bedford.....	Frontenac.....	"..... .6	
Island No. 3, Long Lake.....	Galway.....	Peterborough... 2	A. N. Wilson.... 2	
Parcel No. 1, Pine Island in front of Laird and Tarbutt.....		Algoma.....	Unattached..... 3.3	
Stuart Island, Wood Lake, North lot 4, con. 6.....	Oakley.....	Muskoka..... 4.65	W. G. Gerhart... 4.65	
Island 25, Wahnapiitay Bay.....	Allen.....	Sudbury..... 1	Unattached..... 1	
Parcel 33, Pine Island in front of Laird and Tarbutt.....		Algoma.....	Thos. Dean..... 4.5	
Island 69, Green Bay.....	Bedford.....	Frontenac..... 5.7	Unattached..... 5.7	
Part of Goose Island and water lot front of lot 19, con. 8.....	Wilberforce...	Renfrew.....	F. Watt..... .055	
				79.10

Appendix No. 13—Continued

ISLANDS PATENTED

Statement showing islands patented as summer resorts

Part or Parcel	Township	District or County	Agent	No. of acres patented
Island 745-A, Georgian Bay	Harrison	Parry Sound	I. M. Campbell	1.07
Island 147-A, Georgian Bay . . . .	" . . . . .	" . . . . .	" . . . . .	.30
Sherman's Island, Healey's Lake . .	Conger	"	"	1.00
East part Island B-26, Georgian Bay	"	"	"	10.00
Island B-14, Georgian Bay . . . . .	" . . . . .	" . . . . .	" . . . . .	.80
Island in Lake Nipissing	Himsworth N.	"	H. J. Ellis	1.10
Part Island, Gloucester Pool	Baxter	Muskoka	W. G. Gerhart	4.00
Ross Island, Georgian Bay	Carling	Parry Sound	I. M. Campbell	3.97
Island C-44, Georgian Bay	"	"	"	3.30
Island C-43, Georgian Bay	"	"	"	3.55
Avalon Island, White Lake	Darling	Lanark	Unattached . . . . .	.60
Island C	McClintock	Haliburton . . . . .	" . . . . .	.90
				30.59

Appendix No. 13.—Continued

MAINLAND SOLD

Under summer resort regulations

Part or Parcel	Township	District or County	Agent	No. of acres sold
Part S.E. quarter sec. 11, parcel 9	Aweres.....	Algoma.....	T. Dean.....	1.7
Part broken lot 18, con. 3.....	Cavendish.....	Peterborough.....	A. N. Wilson.....	2
Location P.P. 215, Lower Shebandowan Lake.....		Thunder Bay.....	Unattached.....	1.21
Part N.W. quarter sec. 11, par. 2	Aweres.....	Algoma.....	T. Dean.....	.16
Part S.W. quarter sec. 11, par. 20	Aweres.....	".....	".....	.72
Part broken lot 35, con. 17.....	Smith.....	Peterborough.....	Unattached.....	5.
Location P.P. 229, Lower Shebandowan Lake.....		Thunder Bay.....	".....	3.1
Part lot 7, cons. 8 and 9.....	Anglesea.....	Addington.....	".....	5
Part lot 12, con. 5.....	Striker.....	Algoma.....	A. Grigg.....	1.2
Part broken lot 4, con. 5.....	Rathbun.....	Sudbury.....	Unattached.....	5
Part broken lot 1, con. 1.....	Bigwood.....	".....	J. K. MacLennan.....	5
Part lot 30, con. 6.....	Cardiff.....	Haliburton.....	A. N. Wilson.....	5
Part broken lot 34, con. 3.....	Muskoka.....	Muskoka.....	W. G. Gerhart.....	5
Parcels A. and B, parts lot 15, con. 7.....	Gorham.....	Thunder Bay.....	S. H. Wilson.....	3.2
Part lot 2, con. 12.....	Burton.....	Parry Sound.....	I. M. Campbell.....	5
Parcel 1, part lot 11, con. 8.....	Oakley.....	Muskoka.....	W. G. Gerhart.....	4.08
Par. 29, part lot 18, con. 8.....	Gorham.....	Thunder Bay.....	S. H. Wilson.....	.30
Part lot 9, con. 13.....	McClintock.....	Haliburton.....	Unattached.....	5
Part lot 29, con. 2.....	".....	".....	".....	5
Par. 1, part lot 8, con. 9.....	Ridout.....	Muskoka.....	W. G. Gerhart.....	2.50
Par. 2, part lot 8, con. 9.....	".....	".....	".....	2.50
Part broken lot 9, con. A.....	Olrig.....	Nipissing.....	Unattached.....	5
Part broken lot 9, con. A.....	".....	".....	".....	5
Part broken lot 9, con. A.....	".....	".....	".....	4.75
Part broken lot 9, con. A.....	".....	".....	".....	5
Location L.K. 168.....	81.....	Thunder Bay.....	".....	2.75
Part broken lot 5, con. 6.....	Malachi.....	Kenora.....	J. E. Gibson.....	5
Part lot 19, con. 5.....	Elmsley N.....	Lanark.....	Unattached.....	9
Part broken lot 6, con. 8.....	Radcliffe.....	Renfrew.....	F. Blank.....	5
Part broken lot 11, con. 9.....	Dalhousie.....	Lanark.....	Unattached.....	5
Par. 19, S.E. quarter, sec. 11.....	Aweres.....	Algoma.....	T. Dean.....	.3
Part broken lot 6, con. 10.....	Anglesea.....	Addington.....	Unattached.....	1.6
Part broken lot 4, con. 10.....	".....	".....	".....	2
Part lot 13, con. 3.....	McConkey.....	Parry Sound.....	I. M. Campbell.....	3
Part lot 57, con. 12.....	Carling.....	".....	".....	6
Part broken lot 5, con. 10.....	Jones.....	Renfrew.....	F. Blank.....	1
Part lot 5, con. 1.....	McMahon.....	Algoma.....	Unattached.....	2
Parcel 4, S.E. quarter, sec. 11.....	Aweres.....	".....	T. Dean.....	2.5
Part lot 4, con. 1.....	McMahon.....	".....	Unattached.....	2
Part broken lot 35, con. 17.....	Smith.....	Peterborough.....	".....	5
Part lot 6, con. 4.....	MacLennan.....	Sudbury.....	".....	2.75
Part broken lot 35, con. 17.....	Smith.....	Peterborough.....	".....	4.6
Location P.P. 479, Middle Shebandowan Lake.....		Thunder Bay.....	".....	1.17
Part lot 6, con. 10.....	Anglesea.....	Addington.....	".....	3
Part lot 12, con. 5.....	Haddo.....	Sudbury.....	".....	4.37
Part lot 1, con. 5.....	Cherriman.....	".....	".....	.63
Part lot 1, con. 6.....	Conger.....	Parry Sound.....	I. M. Campbell.....	1
				157.09

Appendix No. 14

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1926 to 31st October, 1927

Public Lands (Patents).....	609
Free Grant Lands (Act of 1913).....	303
“ “ “ (Act of 1901 Veterans).....	1
Mining Lands (Patents).....	469
Mining Leases.....	132
Crown Leases.....	18
Licenses of Occupation.....	163
Temagami Island Leases.....	23
Sand and Gravel Licenses.....	29
Pine Patents.....	18
Water Power Leases.....	2
Algonquin Park Leases.....	32
Rondeau Park Leases.....	31
Bruce Beach Leases.....	1
Jordan Harbour Leases.....	28
Total.....	1,85

Appendix No. 15

RECORDS BRANCH 1926-27

Communications received:

From Crown Land Agents.....	6,636
From Crown Timber Agents.....	5,860
From Mining Recorders.....	8,704
From Homestead Inspectors.....	3,007
From Superintendent Algonquin Park.....	484
From Superintendent Quetico Park.....	198
From Superintendent Rondeau Park.....	145
Orders-in-Council.....	319
Telegrams.....	232
All other sources.....	26,042

Total incoming (Minister's office and Land Tax Branch not included)..... 51,627

Communications sent out:

To Crown Land and Timber Agents, Inspectors and Park Superintendents.....	17,775
To General Public.....	18,600
Circular letters re timber sales and mill licenses.....	3,000
Maps and blue prints by Surveys Branch.....	5,500

Total outgoing (Minister's office and Land Tax Branch not included)..... 44,875

Files:

New files issued—General.....	7,084
New files issued—Accounts Chargeable.....	965
New files issued—Accounts free.....	39 1

Appendix No. 16

REPORT OF DIRECTOR OF SURVEYS

The following surveys were carried out under the direction of this Department during the past year:

BASE AND MERIDIAN LINES

- Seventh base line west, district of Kenora, Phillips and Benner, Ontario Land Surveyors, Port Arthur.
- Seventh base line east, district of Thunder Bay, Beatty & Beatty, Ontario Land Surveyors, Pembroke.
- Base and meridian lines near Lake Savant, district of Thunder Bay, E. L. Moore, Ontario Land Surveyor, North Bay.
- Fourth base line and meridian line east of Lake of the Woods, district of Kenora, Speight & vanNostrand, Ontario Land Surveyors, Toronto.
- Third base line, boundary between districts of Rainy River and Kenora, D. J. Gillon, Ontario Land Surveyor, Fort Frances.

TOWNSHIP OUTLINES

- Townships in the vicinity of Lake Savant, district of Thunder Bay, H. W. Sutcliffe, Ontario Land Surveyor, New Liskeard.
- Townships in the vicinity of Woman Lake, in the district of Kenora (Patricia portion), J. R. Gill, Ontario Land Surveyor, Sudbury.

LAKE AND RIVER TRAVERSE

- Traverse of Lost Lake and the easterly part of Lac Seul and Root River, district of Kenora, J. S. Dobie, Ontario Land Surveyor, Thessalon.
- Traverse of Shoal Lake and westerly shore line of Lake of the Woods, district of Kenora, C. R. Kenny, Ontario Land Surveyor, Sault Ste. Marie.
- Traverse of shore line of Sturgeon Lake in the district of Thunder Bay, E. L. Cavana, Ontario Land Surveyor, Orillia.
- Traverse of the shore of Eagle Lake in the district of Kenora, R. M. Gourlay, Ontario Land Surveyor, Toronto.
- Traverse of Manitou Lakes and other waters in the district of Kenora and Rainy River, R. S. Kirkup, Ontario Land Surveyor, Fort William.
- Traverse of Little Abitibi River, district of Cochrane, Alex. Matheson, Ontario Land Surveyor, Swastika.
- Traverse of water route north of Lake St. Joseph in the district of Kenora (Patricia portion), H. B. Proudfoot, Ontario Land Surveyor, Toronto.

MISCELLANEOUS SURVEYS

- Subdivision of part of the township of Panet near Chapleau, in the district of Sudbury, H. Matheson, Ontario Land Surveyor, Sudbury.
- Survey of line between concessions 2 and 3, township of Ameliasburg, Prince Edward County, T. B. Speight, Ontario Land Surveyor, Toronto.
- Survey of islands in Gananoque Lake, county of Leeds, N. B. MacRostie, Ontario Land Surveyor, Ottawa.
- Ground control surveys in the districts of Parry Sound and Muskoka, J. T. Coltham, Ontario Land Surveyor, Parry Sound, and W. F. B. Rubidge, Ontario Land Surveyor, Port Credit.
- Survey of town plot at Savant, formerly Bucke, district of Thunder Bay, C. E. Fritton, Ontario Land Surveyor, Toronto.
- Survey of summer resort parcels on lot 3, concession 7, township of Wicklow, F. T. Webster, Ontario Land Surveyor, Peterborough.
- Inspection of surveys field work, C. E. Fitton, Ontario Land Surveyor, Toronto.

Town and park lot subdivisions of lands patented subsequent to 1910, have been approved pursuant to R.S.O. 1914, chapter 34 and amendments thereto. Sioux Lookout addition, district of Kenora.

- Part of mining claim L 1437 at Kirkland Lake, district of Timiskaming.
- Part of mining claim L 2553 at Kirkland Lake, district of Timiskaming.
- Part of mining claims L 2566, 2672 and 1404 at Kirkland Lake, district of Timiskaming.

Municipal surveys performed under instructions with authority of the Lieutenant-Governor in Council were completed and confirmed as follows:

- Survey of road allowance between lots 26 and 27, concessions 4 and 5, township of Saltfleet.
- Survey of outlines certain lands adjoining Loch Lomond in the township of Blake, district of Thunder Bay.

Extract from the reports of the several surveyors employed during the year describing the country covered by their surveys will be found in appendices 21 to 34:

The following maps have been published during the year:

- New edition of part of district of Timiskaming showing townships at the head of Lake Timiskaming.
- 24-A—Map of the districts of Kenora and Thunder Bay.

L. V. RORKE,

Director of Surveys.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1927

No	Name of Surveyor	No.	Date of Instructions	Description of Survey
1	J. J. Newman.....	757	April 25, 1927	Survey and establish the corners of the several lots and boundaries of Goyeau Street as shown on registered plan No. 93 in the Registry Office for the city of Windsor.
2	Roger M. Lee.....	758	Sept. 8, 1927	Survey and establish the concession road between concessions 10 and 11, in front of lots 19 to 24 inclusive, township of North Walsingham, county of Norfolk.
3	F. W. Farncomb...	759	Nov. 1, 1927	Survey that part of the city of London, in the county of Middlesex, bounded on the north by Huron Street, on the east by Adelaide Street, on the south by Central Avenue, and on the west by Talbot Street.
4	F. E. Patterson...	760	Nov. 14, 1927	Survey the boundaries of lots 6, 7, 8, 9 and 10, concessions 4 and 5, township of Cumberland, county of Russell.

Appendix No. 18

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1927

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes, 1920, chap. 48, sec. 18
1	MacKay & MacKay	747	Nov. 12, 1925	Survey the road allowance between lots 26 and 27 across concessions 4 and 5 township of Saltfleet, in the county of Wentworth and to plant standard iron monuments to define the limits of said road allowance.....	Jan. 10, 1927
2	E. R. Bingham.....	749	Dec. 30, 1925	Survey outlines of certain lands in the township of Blake, district of Thunder Bay.....	Jan. 21, 1927

Appendix No. 19

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1927

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount
1	Sept. 21, 1926	F. T. Webster.....	Lot 3, con. 7, Wicklow.....	\$300 00
2	April 11, 1927	Speight & van- Nostrand.....	Base line and meridian line, district of Kenora.....	7,398 75
3	April 11, 1927	Phillips & Benner....	Base line, district Kenora.....	7,650 00
4	April 11, 1927	J. R. Gill.....	Township outlines district of Kenora (Patricia).....	5,000 00
5	April 11, 1927	Beatty & Beatty.....	Base line district of Thunder Bay.....	8,625 00
6	April 11, 1927	E. L. Moore.....	Base line and meridian lines, district of Thunder Bay.....	5,100 00
7	April 11, 1927	H. W. Sutcliffe.....	Survey block and township outlines, district of Thunder Bay.....	4,590 00
8	April 11, 1927	D. J. Gillon.....	Survey a base line and meridian line, dis- trict of Kenora.....	5,500 00
9	April 20, 1927	Alex. Matheson.....	Traverse of Little Abitibi River, district of Cochrane.....	1,500 00
10	April 11, 1927	E. L. Cavana.....	Traverse of shore line Sturgeon Lake, dis- trict of Thunder Bay.....	4,800 00
11	April 11, 1927	Hugh Matheson.....	Subdivide a block of land in the township of Panet, district of Sudbury.....	700 00
12	April 11, 1927	Roy S. Kirkup.....	Traverse certain waters in districts of Ken- ora and Rainy River.....	4,848 00
13	April 26, 1927	C. R. Kenny.....	Traverse Shoal Lake in Lake of Woods, district of Kenora.....	2,400 00
14	May 4, 1927	H. B. Proudfoot.....	Traverse line along water route northerly from Lake St. Joseph, district of Kenora (Patricia).....	4,913 33
15	April 20, 1927	R. M. Gourlay.....	Traverse part of shore Eagle Lake, district of Kenora.....	1,500 00
16	May 6, 1927	James S. Dobie.....	Traverse Lost Lake easterly part Lac Seul and Root River, district of Kenora.....	5,000 00
17	May 12, 1927	N. B. MacRostie.....	Survey of islands, Gananoque Lake, county of Frontenac.....	500 00
18	May 13, 1927	Jas. T. Coltham.....	Miscellaneous surveys in district of Mus- koka.....	3,000 00
19	May 13, 1927	W. F. B. Rubidge....	Miscellaneous survey in district of Muskoka	3,403 36
20	June 16, 1927	T. B. Speight.....	Certain side lines and concessions, town- ship Ameliasburg, county of Prince Edward.....	150 00
21	May 12, 1927	C. E. Fitton.....	Inspection of surveys, 1927.....	3,902 50
				\$80,780 94

Appendix No. 20

Statement of Crown Surveys completed and closed during the twelve months ending
October 31st, 1927

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount Paid
1	May 14, 1926	C. E. Fitton.....	Inspection of surveys.....	\$1,255 24
2	May 7, 1926	D. J. Gillon.....	Retrace easterly boundary of Quetico Park, district of Rainy River.....	2,998 02
3	Mar. 23, 1926	Phillips & Benner....	Survey base line and meridian lines, district of Rainy River.....	1,750 62
4	April 29, 1926	T. J. Patten.....	Survey east boundary of Hudson Bay Co., at La Cloche River, district of Sudbury....	1,012 96
5	May 1, 1926	J. S. Dobie.....	Traverse upper waters of Allanwater and Ogoki rivers, district of Thunder Bay....	3,994 40
6	Nov. 22, 1926	Arch. Gillies.....	Survey of township Shaw, district of Cochrane.....	2,541 42
7	Mar. 19, 1926	J. R. Gill.....	Survey base line and meridian lines, district of Patricia.....	3,638 85
8	Mar. 2, 1926	Speight & van- Nostrand.....	Survey base line, district of Patricia.....	2,414 62
9	May 1, 1926	C. R. Kenny.....	Traverse Trout Lake and river, district of Patricia.....	2,395 86
10	July 28, 1926	C. R. Kenny.....	Survey summer resort lot 4, con. 1, Striker, on Lake Louzon, district of Algoma.....	342 13
11	Sept. 27, 1926	Phillips & Benner....	Subdivide block of land at Nakina, district of Thunder Bay.....	2,005 91
12	June 23, 1926	J. T. Coltham.....	Traverse Oxtongue Lake, township of McClintock, Traverse Clear Lake, township of Ridout.....	1,603 00
13	May 14, 1926	C. E. Fitton.....	Survey addition to Macfarlane, district of Kenora.....	30 00
14	May 3, 1926	E. L. Moore.....	Survey northeasterly part township of Wicksteed, district of Algoma.....	3,340 91
15	May 11, 1926	W. F. B. Rubidge....	Traverse part north shore Lake Nipigon, district of Thunder Bay.....	3,128 49
16	Mar. 12, 1926	H. W. Sutcliffe.....	Survey township outlines, district of Patricia.....	4,686 70
17	May 6, 1926	E. L. Cavana.....	Traverse certain waters Quetico Reserve, district of Rainy River.....	1,722 84
18	Mar. 23, 1927	E. W. Neelands.....	Survey part line between 2nd and 3rd concessions, township of Skead, district of Temiskaming.....	189 80
19	April 29, 1926	C. H. Wilkins.....	Survey town plot at Gold Pines, district of Kenora (Patricia).....	2,183 67

Appendix No. 20—Continued

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount
20	May 13, 1926	T. G. Code.....	Traverse Little Abitibi Lake and River, district of Cochrane.....	524 47
21	May 18, 1927	C. C. MacLennan....	Investigate water power possibilities on the English River, district of Kenora.....	2,103 94
22	May 4, 1927	E. L. Moore.....	Survey cottage lots in township Orlig, district of Nipissing.....	175 40
				\$44,039 25

Appendix No. 21

Extract from report of Speight & vanNostrand's survey of base and meridian lines district of Kenora, 1927.

GENERAL FEATURES

The area drained through Whitefish River into Lake of the Woods occupies roughly the quadrilateral enclosed by lines drawn from the east of our base line to the respective north and south ends of our meridian, and from those points to our intersection with O. L. S. Niven's 7th meridian. The surface throughout the area is broken but the hills for the most part are seldom more than seventy to eighty feet high. Our line crossed, however, a ridge west of Fishhawk Lake, some three hundred feet in height, from which an extensive view of the surrounding country could be obtained and our meridian ended at Niven's base line on the summit of a somewhat similar eminence. Very broken ground was encountered immediately east of Sturgeon Lake. No river, in the usual sense of the word, exists in this area. Drainage is effected through a series of lakes in each major valley. Lake Rowan in the central part of the basin is the largest of the lakes, though Atikwa Lake in the northern part is almost as large. Smaller lakes are almost innumerable.

About two miles west of O. L. S. Niven's 7th meridian, our line reached the Lake of the Woods, and after crossing Whitefish Bay, was carried across the Aulneau Peninsula. The peninsula is of the same general character as the country to the east consisting of rocky ridges varied here and there by a lake or an occasional spruce swamp.

SOIL

Little agricultural land was seen, a few small areas near O. L. S. Niven's 7th meridian and east of Whitefish Lake being the most promising. Elsewhere the rock, if not exposed was buried for the most part under deposits of boulders, gravel or sand.

TIMBER

The merchantable white and red pine was cut off the lands crossed by our lines many years ago. At Rainmaker Lake we did notice however, some groves of red pine which had not been cut, owing presumably to difficulty in driving the logs.

At present the Keewatin Lumber Company has several camps for cutting pulpwood and jack pine in the territory adjacent to our lines. The camp headquarters are at the head of Whitefish Bay. The best pulpwood seen from our lines, lies to the east of Atikwa Lake, where there is a stand of mature timber, mostly spruce and jack pine, which should yield a very profitable cordage. South of Lake Rowan the forest is largely poplar and birch about thirty-five years old. Along the base line, most of the timber has been destroyed by fire within the last twenty-five years. On the Aulneau Peninsula fire of more recent date burned over practically all of the part visible from our lines. The fire has been followed by second growth, now about fourteen years old. Numbers of trees not common in New Ontario are found on islands in Lake of the Woods. We noted oak, elm, ironwood, basswood, hawthorn and plum along our line. With the exception of the elm these are, however, quite small and scrubby.

ROCK

East of Fishhawk Lake, north of Rainmaker Lake, and west of Russell Island in the Lake of the Woods, the rock is Huronian. The rock in the central and northern portions is of Keewatin formation. Twenty-five years ago considerable attention was given to this territory by prospectors looking for gold and some minor development work was done on a number of claims. Nothing permanent resulted however. More recently, interest in the rocks of this region has revived as it has been found somewhat similar formations in other parts of Northern Ontario have yielded valuable returns.

WATER POWER

Small water power developments are possible at the outlet from Rowan Lake, where there is a drop of about thirty feet, also at the outlet from Denmark Lake. There is a beautiful falls about one and a half miles below the outlet from Atikwa Lake, where there is a sheer drop of approximately forty feet into Cascade Lake. The volume of the water at this point, is, however, comparatively small.

CANOE ROUTES

Ready access to the east end of our line from the Canadian Pacific Railway at Dinorwic or Wabigoon is had by way of Gold Rock Portage. This portage is the only one of any length involved and, as stated earlier, a wagon is at present available for transport across it. No route seems now to be maintained from Manitou Lake westward. Enquiry among the Indians failed to locate any who were familiar with a route across to the Lake of the Woods watershed. Our canoes were therefore taken back to Wabigoon and thence by rail to Kenora. A regular transport service is maintained from there to Whitefish Camp by Mr. Anton Vick. From Whitefish it was possible to go east to Fishhawk Lake, south to the end of our meridian line and north to Atikwa Lake, by easy canoe routes. The chart of Lake of the Woods published by the Department of Marine and Fisheries supplemented by buoys, greatly facilitated travel on that lake.

FISH AND GAME

Moose and red deer were seen during the summer and the red deer particularly were plentiful. The remains of an unusual number of carcasses however, were noticed in the woods, suggesting unfavourable conditions during the previous winter. Numbers of beaver houses were noticed in the less accessible areas and there seemed to be more of the animals than in the districts travelled by us during the preceding year or two. Bear were occasionally seen on the western part of the work. Partridges were still very scarce, but the broods were somewhat larger than those noticed during the past two years. The members of the party made good catches of lake trout in a number of the lakes and in most of the lakes readily obtained pickerel and pike.

Appendix No. 22

Extract from Report of Ontario Land Surveyor R. M. Gourlay, survey of Eagle Lake district of Kenora, 1927.

PHYSICAL FEATURES

The shore line of Eagle Lake is typical of the Kenora Lake district, steep and rocky. All the rivers met with except Eagle River, flow into the lake and these are bounded by muskeg shores.

Eagle River flows north into Wabigoon River in Sanford township.

The height of land crosses the forty-three chain portage between Beaverhouse Lake and Line Lake near Niven's base line. The level of the lake, taken from the base of rail at Vermilion Bay, was found to be 1,194 feet or nearly two feet higher than normal. Evidence of the high water is shown in one of the photographs.

TIMBER.

The prevalent growth is jack pine and spruce with much poplar and birch. In many places there is a heavy growth of red and white pine from ten inches to twelve inches. On the whole the state of the timber is very good. No burnt area of recent years was noted except on the south shore of Niven Bay where brule covers an area of a few hundred acres.

Reforestation of jack pine and spruce occurs in many places. That and the state of the pine is shown on the photograph.

No lumbering is being done at the present time, but the Dryden Pulp and Paper Company have three camps on the lake. These camps, however, at the present time, are unoccupied.

SOIL

With the exception of the Indian Reserve and the land along the northern shore of the lake, little clay was noticed. The land bounded by Brule Narrows, White Clay Narrows and Niven Bay to the south, is a clay peninsula.

The southeily parts of Muskeg Bay, Midway Bay and Meridian Bay, the length of Meander Creek, Froghead Bay, Straight Lake and Beaverhouse Lake lie in a clay country. It would appear, therefore, that much of the land north of Niven's Base line to the south shore of Eagle Lake is free from rock.

MINES AND BUILDINGS

Grace Soapstone Quarry owned by the Grace Mining Company of Buffalo, is located on the west shore about three miles northwest of Muskeg Bay. Work was stopped at this mine in May of the present year, but it is reported that operations will commence again in the Spring of 1928. A mill and well equipped camp has been erected on the property.

The same Company own the Grace Gold Mine located about one-half mile south of the quarry. A shaft has been sunk 135 feet and in the mine one level has been opened up. In addition to the shaft a tunnel has been driven into the hill 160 feet and a stamp mill erected. This mine was also idle at the time of my visit and both in charge of a caretaker.

On the west shore of Meridian Bay is located the property of the Meridian Bay Mining Company. A shaft has been sunk and buildings erected, but this mine has not been in operation for a number of years.

The Eldorado Mine on Claim M.H. 127 on the west shore of the lake owned by the Northern Light Mining Company, has a shaft sunk, but it has filled with water and from the appearance of the buildings there has been nothing done there for a long time.

Ties were made to mining claims where they were found. With a little difficulty each of the mining claims mentioned in the instructions were located and tied in to the traverse.

BUILDINGS

There were two fish camps operating on the lake during the year. One on Portage Bay operated by Stevenson and one operated by Ball on the south shore of Temple Township. These fisheries are reported to be successful, much fish being shipped to western points.

An Indian graveyard is located near the outlet of Barren Brook on the west shore of Osbourne Bay. The four graves had been recently replenished with tobacco and matches by the Ojibways from the Reserve.

There is also the grave of a child, Martin, on an island northeast of Muskeg Bay. The father of the child kept a fox ranch there, but he abandoned the occupation last year.

Appendix No. 23

Extract from report of traverse of Trout River and lake by C. R. Kenny, District of Kenora, Patricia portion.

TROUT RIVER

In connection with the hydraulic features of Trout River, upstream from O.L.S. Dobie's post No. 50, the following information is from my traverse survey as shown on sheet one. The starting point is at the foot of a rapid with a drop of seventeen feet at high-water stage in a distance of twenty chains. Following up stream from the head of this rapid northeasterly about three miles, there are rapids and falls about twenty chains in length with a total drop of fifty-one feet at high-water stage, this being distributed in a series of cascades, the river dividing into two main channels with two islands each about fifteen chains in length and six chains in width. There does not appear to be a possibility of any economic power development here at reasonable cost. Up stream from this again, about thirty chains, is a rapid with a drop of six feet distributed over a distance of twenty chains. Above this the river has easy current for four and one-half miles to a short rapid with a three-foot drop. From this again it is about three and one-half miles to the junction of Woman Lake River. Three miles north of this again is the junction of the Joyce River. The current through this distance is moderate. About a mile above this junction there is a rapid ten chains in length and having a fall of sixteen feet. Fifteen chains above this rapid is one five chains in length with a drop of twenty feet. From here the river is very crooked with east flow for a distance of about three and one-quarter miles to a rapid and falls with a total drop of forty-four feet. There appears to be a good location here for power development by a dam at the head and running a penstock line parallel to the east of present river channel. Watershed area at this point would be approximately 400 square miles. From the head of the last-noted falls down stream to O.L.S. Dobie's post No. 50, the river has a total fall of about 160 feet in a distance of about twenty miles. The river traverses through banks of clay and sand with occasional outcroppings of rock, noticeable principally at falls and rapids.

From the junction of Woman Lake down stream the country adjacent to Trout River and for miles about has been swept by fire and the timber destroyed, which has since grown up with small poplar and birch.

From the junction of Woman Lake River up stream to Little Trout Lake, the timber consists chiefly of poplar to 12-inch, birch to 10-inch, spruce to 12-inch, and balsam to 8-inch.

JOYCE RIVER

Joyce River joins Trout River about three miles north of the junction with the Woman Lake River. It is a small stream, varying in width of from one to three chains, and having a total length from Lake Joyce to its mouth of about nine miles, with a fall through this distance of fifty-six feet. It traverses through banks of clay and sandy soil, with considerable showings of granite rock, and has a watershed area of probably less than fifty square miles. Timber along the river and for miles about has been burned, leaving the country almost barren.

This river is navigable for large canoes at ordinary water stage, and has only four good short portages, lately cut out, to encounter, making the route easy to travel to this section of the country.

JOYCE LAKE

Joyce Lake has about twenty-three miles of shore line and thirty-eight islands. It has clear water and of moderate depth. The shores are rocky, overlaid with clay and sandy soil, and the banks vary in height of from three to eight feet.

The country in the vicinity is of clay and sand, with considerable outcroppings of granite rock. The timber consists chiefly of very good areas of spruce to 15-inch, poplar, birch, and balsam. There are also large areas of country carrying jack pine timber of merchantable size.

LITTLE TROUT LAKE

This lake has a shore line of about thirty-five miles and twenty-four islands. Its water, which is deep and clear, empties into Trout River. The shores are generally rock and boulders, overlaid with sand and clay soil. The surrounding country about the lake, except the district to the south, which has been burned, appears to be well timbered with poplar to 15-inch, birch to 10-inch, spruce to 15-inch, balsam to 8-inch, and scattered areas of jack pine to 15-inch.

Little Trout Lake is connected on the westerly shore with Otter Lake by a narrow neck of water about two and a quarter miles in length.

OTTER LAKE

Otter Lake empties its waters into Little Trout Lake. It has about ten miles of shore line and three islands. The water in the lake is clear and of moderate depth. The beaches are strewn with boulders and the banks are from three to five feet in height, made up of clay and sandy soil with considerable outcroppings of rock.

The country in the vicinity of the lake is of clay and sandy soil, timbered on the easterly side with goodly quantities of spruce to 12-inch, poplar, birch to 12-inch, and balsam. Here and there will be found ridges of gravel and sand carrying jack pine timber to a merchantable size.

The country to the west of the lake has been recently burned over, and the timber destroyed, and has since grown up with small poplar and birch.

Otter Lake connects Trout Lake by a small stream, varying in width of from four to fifteen chains and three-quarters of a mile in length.

TROUT LAKE

This lake is one of the largest bodies of water in this district, having about one hundred and eighty miles of shore line and comprising an area of about one hundred and thirty square miles. There are many islands, some of which are as large as three square miles, generally rocky, overlaid with clay or sandy soil, usually well timbered with spruce, poplar, birch, balsam, cedar and jack pine of good size.

I did not attempt to make surveys of any of the islands, except to locate those close by in traversing shore line; even so, time would not permit this being done as the northeast section of the lake contains a mass of islands other than those shown on previous maps. I wish to say that during the course of the season's survey covering this report, I have been well guided by the map of the Red Lake district, compiled from aerial photographs by the Royal Canadian Air Force, which in detail is excellent. The northeasterly part of Trout Lake does not appear to have been photographed, and, it will be noted on plan accompanying this report, the change which has taken place. Those islands which are located and mapped by the Royal Canadian Air Force appear to be in their proper positions and detail of their shore line good.

The lake in general is clear water throughout, and of sufficient depth to navigate with large boats. The banks are of clay and sandy soil, varying in height of from three to fifteen feet. The shores are usually rocky, with stones and numerous large boulders.

The country surrounding the lake is rolling, with soil of clay and sand, and occasional outcrops of granite rock.

Except for a few small areas of the district to the south of the lake which has been burned, there are good stands of timber, principally spruce to 15-inch, together with poplar and birch to 15-inch, balsam, and gravel and rock ridges carrying merchantable jack pine.

Appendix No. 24

Extract from report of H. W. Sutcliffe, Ontario Land Surveyor, 1926, Township outlines in district of Kenora, Patricia portion.

TIMBER

Generally speaking, this area is well timbered with spruce, poplar and birch, and in some sections a considerable amount of good jack pine, but there are some old burnt sections. It would appear that a fairly large part of Heyson township was burnt over fifteen or twenty years ago. There is also old brule in the southeast and northeast parts of the township of Bateman as well as in the southeast part of Ranger. In these old burnt areas a large amount of second-growth poplar, birch and jack pine are found, but in some parts the spruce regeneration is fairly good. The section east of Gull Rock and Moose lakes was the poorest timbered area we saw. The balance of the unburnt area, however, was exceptionally well-timbered for latitudes so far north. I had the opportunity of taking an aeroplane trip over the country and my impressions were that the entire section, generally speaking, is well timbered. The country is so well watered by lakes and streams that the timber resources should have a real future value.

SOIL

While this area is generally looked upon as a mining section, there are some areas which could be considered good agricultural land, particularly the area east of Red Lake. There is considerable rock north and south from Red Lake, but with small areas of good soil between the rock sections, just as is true in Porcupine and some of the other gold-mining sections which, when abandoned as mining sections, will provide fair agricultural areas.

WATERCOURSES

There are innumerable lakes with numerous small and large streams, many of which can be navigated by gasoline boats, and which, besides providing a convenient means of transportation, will make it easier taking out the timber, and later, draining the soil.

ROCK FORMATION

I shall not attempt to submit anything on this, as your geological surveyors were busy getting this data.

ANIMAL LIFE

In the Red Lake section and on the water route to the steel, a considerable number of red deer were seen. Moose were apparently more plentiful in the vicinity of Moose Lake and Gull Rock Lake than elsewhere in that locality. Bears were in evidence though we did not see any.

Fish are plentiful, particularly pickerel and pike. Lake trout are plentiful in Red Lake. The Indians told me they get them up to forty pounds.

Appendix No. 25

Extract from report by Ontario Land Surveyor D. J. Gillon, dated 1926, of east boundary, Quetico Park, district of Rainy River.

Acting under instructions, dated May 7th, 1926, to retrace and report the southerly part of the boundary line between the districts of Rainy River and Thunder Bay, which forms the east boundary of Quetico Park, the survey was commenced on May 21st, when the party left Fort Frances and camped near Quetico Station by Windigoostigwan Lake, from the north shore of which lake the work was begun.

Traces of the old line were found on the south shore of Windigoostigwan Lake, and on projecting the line north, the original stone mound and bearing tree were found on the north shore of the lake. The line once established, there was no further difficulty in retracing it. In the entire thirty-six miles only two posts were missing, the 27th at 27M-32.00 c. above mentioned, where the iron post could not be found, and the 28th, where there was no trace of the original post.

The original iron post at the south end of Sewell's line on Saganaga Lake is not now in a cairn of stones as described in the original notes, but is set in a hole drilled in the rock.

The whole of the country through which the line runs may be described as very high, rough and rocky. Hills, from 200 to 300 feet in height, are crossed, the line running in some places along precipitous side hills. No land of any agricultural value is crossed by the line.

The line passes through some white, red and large jack pine timber in the first mile south from Sewell's base, and in miles 1, 2, 3, 14 and 15 north of Sewell's base. Niven's line north from the 16th mile runs through old brule, covered with a very dense growth of jack pine about twenty-eight years old. Sewell's line south of Saganagons Lake also runs through brule covered with second-growth jack pine, birch, and spruce.

All original posts were renewed, the new posts being planted at the exact points where the old posts were found. The stone mounds were rebuilt where they had fallen. A stone mound was built at the 25th mile post, and a new post and stone mound placed at the 28th mile. New bearing trees were marked as shown in the notes.

Standard posts were planted on the line in the following positions: (1) Replacing the 27th mile post. (2) On the south shore of Windigoostigwan Lake. (3) On the south bank of the Kawaiagamak River. (4) On the north shore of Saganagons Lake. (5) On the south shore of Saganagons Lake.

Niven's line was retraced north from Windigoostigwan Lake to the 30th mile post; south from Windigoostigwan Lake to the 16th mile post north from Kawaiagamak River to the 16th, and south to the 6th mile post; and completed, north from Sewell's base. No triangulations were made between Bitchu Lake and the 6th mile post, as all the posts were found in position from chainage between the lakes.

Sewell's line was retraced north and south from Saganagons Lake. No posts were planted at the odd miles on this line as only the iron posts are shown in the original notes, these posts all being found.

Appendix No. 26

REPORT OF SURVEY OF OGOKI RIVER AND LAKE EXPANSIONS, DISTRICT OF THUNDER BAY

Thessalon, Ont., March 15th, 1927.

SIR,—In accordance with your instructions, dated May 1st, 1926, I have made a survey of waterways tributary to the Ogoki River, and beg to submit the following report:

The survey was commenced at Collins Station on the Canadian National Railway, and, after traversing Trout Lake at Collins Station, the survey was carried through a chain of small lakes to Smooth Rock Lake. After making a traverse of Smooth Rock Lake, the survey was continued up Wabakimi River and through Lower Wabakimi Lake to connect with the survey of 1925. Berg's River, which forms the main outlet to Smooth Rock Lake, was also traversed to the point where the survey of 1925 was discontinued. The survey was then carried through a chain of small lakes forming a canoe route from Lone Breast Bay on Smooth Rock Lake to Whitewater Lake. The north side of the west part of Whitewater Lake, which was not surveyed in 1925, was traversed and a

traverse made of both the north and south sides of the easterly part of White-water Lake. The Ogoki River, between Whitewater and Whiteclay lakes, was traversed, and a survey was also made of Whiteclay Lake.

From the lower end of Whiteclay Lake to Waboose Falls, on the Ogoki River, a traverse has been made by Clayton Bush, O.L.S., acting for the Ontario Hydro-Electric Power Commission. My survey was carried to the point where it was possible to connect with the survey made by O. L. S. Bush, after which the party was moved down the Ogoki River to Waboose Falls, where O.L.S. Bush had started his traverse.

From this point a traverse was carried through to Ombabika Station, on the Canadian National Railway, via Ogoki River, Otter Creek, Kapikitongwa River, Summit Lake, Cross Lake and Ombabika River with its various lake expansions.

The method of conducting the survey was by transit and stadia, checked by triangulation from stadia-measured bases, as described in previous years. Every effort was made to reduce the errors in reading distances to as near an absolute minimum as possible, and the use of a transit with a telescope sufficiently powerful to permit of observations being taken on polaris at any time of the day made it possible to almost eliminate azimuth errors.

On account of the manner in which mapping from aerial photographs has developed within recent years, and as it was the intention of the Dominion Air Board to at once photograph the territory through which this survey was to be conducted, it was not considered advisable to go into as great detail as in former years in mapping out the shore line. It was considered that the traversing of numerous islands and of many deep bays and channels could be dispensed with and the details of these features plotted from the aerial photographs when required. The result was that the work was materially speeded up and much more ground was covered than would otherwise have been possible. The plans of the survey as performed give a representation of the main features along the line of traverse that is sufficiently accurate for all present requirements. The survey as a whole was so carried out as to form part of the aerial photographs covering the territory for a considerable distance on either side of the line of the traverse.

Posts were planted at intervals of about a mile apart and marked consecutively as in previous years. As no attempt was made, however, to systematically survey all the islands in the lakes and rivers traversed, the islands were not numbered and no monuments were planted on them except in a few cases where a regular post was more conveniently planted on an island than on the main shore.

Levels were taken at all falls and rapids and across portages connecting different waterways when necessary. All elevations were based on Geodetic Survey Bench Mark No. 1035, being a bolt set in the concrete foundation of the Canadian National Railway water-tank at Collins Station. The elevation of this bench mark is 1263.8698 feet, A.S. Levels were not carried over large bodies of water, but on ascertaining the area of a lake, a water gauge was established, so that if the water level changed before any further levelling was necessary, the change in level could be properly allowed for. In long stretches of river, differences in level were estimated. The elevations given on the plans are, therefore, only approximately correct, but they are sufficiently accurate for all practical purposes for some time to come.

From Collins to Smooth Rock Lake, the traverse was carried along the regular canoe route through a chain of small lakes which were traversed in passing. The shores of these lakes are mostly high and rocky, and the country

is nearly all burnt over, the only timber left being some comparatively small areas of spruce, jack pine, birch and poplar, etc., which have escaped the fires.

Smooth Rock Lake is a large, irregular sheet of water with many deep bays. There are a great number of islands, one very large one being about twelve miles long. The country around the southern part of Smooth Rock Lake is generally high and rocky and has been largely burnt over. There are many areas of second-growth timber of varying ages, and much good spruce and jack pine scattered here and there throughout.

Wabakimi River enters the west side of Smooth Rock Lake well up towards the northern end. This river is about three miles long and has several small lake expansions, separated by river stretches with either rapids or fast current. The total drop between Wabakimi Lake and Smooth Rock Lake is thirty-two feet. A short distance up from Smooth Rock Lake there is a fall of about seven feet with steep rocks on either side. It appears as though it might be possible to concentrate most if not all of the drop from Wabakimi Lake at this point. It would require considerable contouring to determine definitely if this is possible, but it is quite evident that a water power of considerable magnitude can be developed here.

Inasmuch as the survey of the Ogoki River in 1925 indicated that there is no place below Wabakimi Lake where the falls at the numerous rapids can be concentrated, it is suggested that a possible solution of the problem of power development on this portion of the Ogoki River would be to construct a dam at the point where the Ogoki River runs out of Wabakimi Lake and divert the flow into Smooth Rock Lake via Wabakimi River, and concentrate as much of the head as it is possible to develop at the falls near the mouth of Wabakimi River.

A water power reserve of 48.75 acres was laid out at this point, the boundaries being posted near the three shores of the river but the lines were not cut out on the ground.

The main outlet of Smooth Rock Lake is Berg's River, which flows out of Outlet Bay in a northerly direction to join the Ogoki River. This river was traversed to the bottom of the first rapids above Ogoki River, where a connection was made with the survey of 1925. Where Berg's River leaves Smooth Rock Lake there is a heavy rapids, followed by another one a short distance down stream, the total fall being nearly seventeen feet. These rapids are passed by a portage seventeen chains long, which leaves Smooth Rock Lake about half a mile west of the outlet. Berg's River is a fine stream with gentle current and only a few short, easy portages. The banks are largely sandy and most of the timber is second-growth jack pine.

A water power reserve of 236.0 acres was laid out at the outlet of Smooth Rock Lake. There is another fall of about eight feet a couple of miles down stream, and while the banks are too low to permit of the whole fall being concentrated here, a careful survey might disclose some means whereby this fall could be added to the one at the outlet of Smooth Rock Lake.

The traverse was carried up Caribou Bay to the point where Caribou River enters. Caribou Bay is a long, narrow bay nearly ten miles long. For several miles from where it branches off from Smooth Rock Lake, Caribou Bay is shallow, with low, grassy shores, but the country generally becomes higher as one proceeds east, and where the meridian line run by O.L.S. Benner in 1920 crosses, the country is rocky and rough. Great areas of burnt country occur, with considerable areas of spruce, jack pine, poplar, birch, etc., that have escaped the fire.

Lone Breast Bay runs for about ten miles to the northeast from the main body of Smooth Rock Lake, and from its extremity a small stream runs out and

flows through a series of small lakes, finally emptying into a bay on the south side of Whitewater Lake. A well-travelled canoe route with five portages passes through these lakes. Lone Breast Bay has low, stony shores for the greater part and the survey was rendered rather tedious on account of many cedar trees overhanging the water, which necessitated considerable cutting. There is more green timber as one goes farther north, and much good spruce, jack pine, white birch, etc., was seen in this area. The country becomes much rougher as the end of Lone Breast Bay is approached, and on the south side of Whitewater Lake there is a range of hills from two to three hundred feet high.

The stream leaving Lone Breast Bay is a high-water outlet to Smooth Rock Lake, and in dry seasons the flow is very small. Whitewater Lake is approximately forty-eight feet lower than Smooth Rock Lake, and it is possible that a power concentration could be worked out by constructing a dam at some suitable point between Smooth Rock Lake and Whitewater Lake and piping the water to a site for a powerhouse on Whitewater Lake. This would require the construction of a dam at the point where Berg's River leaves Smooth Rock Lake.

No attempt was made to investigate in detail the various phases of the different power possibilities which have been mentioned in this report and they are merely mentioned as possible solutions which will, no doubt, be intensively studied at some future time when power development in this section becomes a live question.

Whitewater Lake is a large sheet of water with many islands both large and small. A short distance east of where the meridian line run by O.L.S. Benner in 1920 reaches the south shore of Whitewater Lake, there are a number of islands and in some of the channels between these islands there is a strong current due to a slight difference in elevation between the east and west parts of the lake.

The south shore of Whitewater Lake is generally high and rocky and the timber is largely old second-growth spruce, jack pine, birch, poplar, etc., with some areas of older timber. The east side of the lake is more sandy and the general relief lower while the timber is much the same. The north shore is very irregular, mostly rocky, with several deep marshy bays. There are many beautiful sand beaches, particularly on the easterly part of Whitewater Lake.

The Ogoki River flows out of the northeast end of Whitewater Lake and enters Whiteclay Lake a little more than nine miles down stream. The river flows with a sluggish current through a rolling, sandy country timbered largely with jack pine of varying ages. While the current is generally sluggish, there are two falls over eight feet each. The first falls occurs in two rapids a short distance apart. There are two portages both on the south side. There is, however, a single portage over an island which is considerably used, but there is some rough water to be navigated at the foot of it. About three miles down stream the lower falls occurs. This is also passed by a good portage on the south side.

Water power reserves were laid out at each end of these falls. There is a total difference in elevation between Whitewater and Whiteclay lakes of approximately eighteen feet and it is possible that this could all be concentrated at the lower falls.

Whiteclay Lake is a long, narrow lake about twenty-eight miles in total length. From a deep bay at the northeast end, a well-travelled portage route leads to the Albany River and is said to pass through larger lakes. The shores of Whiteclay Lake are generally rocky, but there are some long sand beaches, and on the north side of the main body of the lake the shore is nearly all sand and the water is so shallow that in places landing from a canoe is difficult. There

are large areas of sandy country on which the prevailing timber is second-growth jack pine. There is, however, much mature timber suitable for pulpwood.

At the east end, Whiteclay Lake narrows down and for a couple of miles is like a river, with steep, high rocks, often precipitous, on either side. Near the lower end of this stretch the survey was connected with the traverse made by O.L.S. Bush, as previously stated.

From Whiteclay Lake the party moved down the Ogoki River to Waboose Falls, a distance of about thirty miles, where a start was made from the lower end of the traverse made by O.L.S. Bush.

From Waboose Falls the Ogoki River flows in a generally easterly direction through a rolling, sandy country. The river is four to five chains wide with a sluggish current, and is broken at several places by rapids and falls. There are three portages but at two of these the rapids can be run by light or partly-loaded canoes. The last one is Island Falls and a portage is necessary here, as there is a steep pitch here of over six feet.

The river drops twenty-two feet from the foot of Waboose Falls to the bottom of Island Falls, but there does not appear to be any point where this can very well be concentrated.

About six miles below Island Falls, the Ogoki River bends sharply to the north; Otter Creek enters from the south. The canoe route to Ombabika leaves the Ogoki River and follows Otter Creek for about four miles to where a small creek enters on the east side from a rather extensive area of marsh and muskeg. This creek is rather tedious canoeing as it is shallow and very crooked in places, and in order to carry the traverse through it was necessary to leave the creek and cut a line through the woods for about a mile and a half. This creek runs from a narrow lake which is extremely shallow at the west end. It is said that there is great difficulty in navigating this creek in dry seasons.

This lake is followed by another small lake after a nine-chain portage, and then a fifty-chain portage leads over sandy and stony country to a large lake, from which another crooked creek flows to the Kapikitongwa River. The fifty-chain portage referred to above is over the divide between the waters flowing to the Ogoki and Kapikitongwa River.

The Kapikitongwa River is a couple of chains wide and flows with a sluggish current for several miles, but the flow of water is very small. The banks are very low and marshy and for some distance as one goes upstream, but the ground gradually rises and considerable clay appears along the banks. From the point where the canoe route enters the Kapikitongwa River to the first portage is twelve miles. Nine and a half miles further upstream, the route leaves the Kapikitongwa River and goes up the Powatik River, a small stream which flows through swampy country from Summit Lake. There are three portages and two small rapids on the portion of the Kapikitongwa River traversed, and three portages and one small rapid on the Powatik River.

Summit Lake is about three and a half miles long. It is so shallow that it is with difficulty that it is crossed by canoes even when the water is moderately high. The shores are very low and soft and it was a matter of great difficulty to carry the survey across it. In some cases stakes ten feet long had to be driven to make supports for the transit, and platforms of logs were built around the instrument to minimize the vibrations. Fortunately, observations were possible at both ends of the lake.

Summit Lake is on the divide between the waters flowing to James Bay and to Lake Superior, and a small, sluggish stream flows southerly through a wet marshy country for a distance of a little over four miles to where it enters Cross

Lake. Cross Lake is the largest lake between the Ogoki River and Ombabika. From a long bay running to the east, a short portage leads to Willet Lake, another long, narrow lake running nearly east and west. The traverse was carried into Willet Lake and up Willet Lake for a distance of about four miles to connect with the east boundary of the Nipigon Forest Reserve, which was run by O.L.S. Benner in 1916.

From Cross Lake the survey runs down Ombabika River and through three small lake expansions to the railway station at Ombabika. Between Cross Lake and the road leading from the river to Ombabika Station there are two portages and one small rapids where a portage is sometimes necessary.

From the Ogoki River to Ombabika, the country, as seen from the canoe route, is generally low and swampy. There is, however, some high, rocky country around Cross Lake. There is much second-growth, but on the whole the timber resources of this territory are very valuable as there is much spruce suitable for pulpwood all along the route.

There are no water powers of any importance as the flow in all of the streams is very small.

Throughout the whole of the territory surveyed, the timber resources are probably greater than would appear from any inspection that could be made while carrying on the survey. It is invariably found that when one travels into the woods the timber looks better than it does from a canoe.

North of Collins, and for a considerable distance down Smooth Rock Lake, the fires have wrought terrible havoc. As one gets farther north, however, signs of recent fires disappear and the country is generally covered with green timber of varying ages. Many of the second-growth areas are approaching the age when the timber will be suitable for pulpwood and other purposes. The field notes show remarks entered wherever possible as to the general appearance of the timber as seen from the canoes, and these notes have been entered on the plans which accompany this report to as great an extent as possible, so that a reference to the plans will give a fair idea as to the timber resources of the country in greater detail than is possible in this report.

There are no large areas of land suitable for agriculture. Along the Ogoki and Kapikitongwa rivers there are some small stretches of clay and sandy loam, but these areas are too small to be of any great importance.

The prevailing geological formation is granite, which covers about ninety per cent. of the country traversed. From the mouth of the Powatik River to Cross Lake, however, wherever rock exposures occur, they appear to belong to the Keewatin series, and it is possible that careful prospecting would be rewarded. There is also a small area of diabase which probably belongs to the Keweenawan series of rocks, which occurs extensively around Lake Nipigon.

There are no areas of pronounced local magnetic attraction. The local magnetic variation is about one and one-half degrees to the west in the region north of Collins, decreasing to one degree at Whitewater Lake, and is practically zero over the area between the Ogoki River and Ombabika.

Fish of the usual varieties are fairly plentiful in most of the lakes, pike and pickerel predominating. Some fine lake trout were taken with a troll in Smooth Rock, and whitefish are said to be plentiful in the larger lakes. Speckled trout of good size occur in the Ogoki River at Waboose Falls. Moose are fairly plentiful, and a few deer and caribou were seen during the season. Beaver have almost disappeared and partridge are very scarce.

Herewith are the usual returns of the survey, consisting of field notes and two plans on tracing linen on a scale of twenty chains to an inch. Also my account in triplicate, together with the usual affidavits.

Trusting that this will be satisfactory,

Your obedient servant,

JAMES S. DOBIE,
Ontario Land Surveyor.

THE HON. THE MINISTER OF LANDS AND FORESTS,
Toronto.

Appendix No. 27

Extract of Report of E. L. Cavana, O.L.S., traverse lakes and rivers in Quetico Park, districts Thunder Bay and Rainy River.

Orillia, 10th February, 1927.

SIR,—In accordance with instructions from your Department, of date May 6th, 1926, beg to report that surveys were completed of lakes, rivers and portages in Quetico Park, in the districts of Thunder Bay and Rainy River, as follows: Windigoostigwan Lake, French Portage, French Lake, Pickerel Lake, Pickerel River, Beg Lake, Bud Lake, Fern Lake, Pike Lake, Dore Lake, Sturgeon Lake, Tanners Lake, Maligne River, and part of Lac La Croix to the international boundary, embraced within the scope of said instructions and returns completed within the period, June 5th, 1926, and February 10th, 1927.

Particulars of the nature of the country, timber, location of portages and rapids are noted on the plans. Posts numbered consecutively from 1 to 126, from Quetico Station to Lac La Croix, were planted at prominent points indicated on accompanying plans, being of cedar or pine, well driven in the ground where possible, and surrounded by stone mounds. The country throughout is of an undulating, rough and broken rocky formation, rocky ridges. Sand occurs occasionally, and traces of clay along creek bottoms. The rock is granite. The timber is scattered, getting larger and more thickly wooded in the west and consisting chiefly of poplar, banksian pine, and birch, a few spruce, and scattered Norway and white pine. There are a few small stands of Norway and white pine. The water of Pickerel Lake is held up three to four feet above normal by lumber company dams at the outlet of Pickerel River, and partly diverted into Batchewaung Lake, making it more difficult to traverse these shores.

Bear, moose, and red deer were frequently seen. Mink, muskrat and beaver were plentiful, with abundance of fish, lake trout, pickerel and pike. Wolves appeared to be numerous; partridges very scarce. A line of approximate levels was carried from Geodetic Survey of Canada Bench Mark Number 65E, at Quetico Station, to Lac La Croix. The traverse was tied to the district boundary between Thunder Bay and Rainy River districts, O.L.S. Gillon's line 1926, on both shores of Windigoostigwan Lake, and to O.L.S. Phillips and Benner's line, 1926, on both shores of Sturgeon Lake; also to Quetico Station grounds and the international boundary at Lac La Croix.

Appendix No. 28

Extract from Phillips and Benner's Report of the survey of part of the township of Nakina, district of Thunder Bay, 1926.

Twenty-seven summer resort locations, J.K. 169 to J.K. 195 inclusive, were surveyed on Cordingley Lake, and individual descriptions of the locations will be found in the field notes. We did not explore the main body of the lake for summer resorts, but, no doubt, numerous suitable frontages will be found there if more resorts are required later. A reserve was laid out where the road from Nakina comes out to the lake. This might be used as a parking grounds or park, or for such purposes as the Department may see fit.

This survey was greatly impeded by the great amount of rain and snow during the months of October and November. No difficulty was encountered in planting the iron posts. Stone mounds were placed around the posts where such were obtainable, and the small number of such mounds will indicate that the soil is remarkably free of boulders.

There are three squatters on Block 8 and one on Block 18. We have the names of some of these and can furnish them if required.

There is only a small area of brule on the lots surveyed, and this is mainly in Lots 1 to 4, Range A, and in some of the blocks to the west. Jack pine and spruce are the main species. Most of the jack pine is still too small to be of suitable size for tie timber, but the greater part of the spruce is suitable for pulpwood. There is an area of poplar and birch on the level land, which extends northeasterly from Round's Lake through Ranges C, D, and E. Lying to the west of the ranges surveyed, there is a fine stand of jack pine, of which a portion is now of suitable size for marketing, but most of which will not reach maturity for another ten years. The land on which this stands is mostly sandy loam and gravel and is broken by numerous high ridges.

Appendix No. 29

Extract from report of W. F. B. Rubidge of traverse of part of the north shore of Lake Nipigon, etc., district of Thunder Bay, 1926.

On arriving on Lake Nipigon, I found that the water was very high, and that the level was about eighteen inches above high-water level mark, caused by the Hydro-Electric Power Commission's dam at Virgin Falls. This high level of the water makes the new shore line of the lake in the trees and alders for many miles.

In general, the distances were obtained by means of the stadia. However, where conditions were favourable for triangulation and effect a saving in time cutting out along the shore line, this latter method was used.

Much time was lost owing to high winds and rough water on this large lake, together with the rugged character of the new shore line. When weather conditions made it impossible to carry work on continuously, I carried on in the more sheltered bays, and connected up the traverse later.

The work was commenced at the Onaman River and continued around to Meeting Point before leaving the field in the fall.

Following your further instructions, dated October 11th, 1926, I left Toronto for the field on January 24th, and proceeded to Foleyet to obtain a cook and dog-team. I employed the one man to act in the dual capacity, thus saving the extra man and his rations, and found that this arrangement worked out very well. I

proceeded from Foleyet to Nakina and employed two men, and from there going to Ombabika, to employ a man and second dog-team. From Ombabika I went to Willet, my party following on the next train.

From Meeting Point to Pascopee the distances were all chained. Work was carried on every day, including all Sundays. During the very cold weather, considerable difficulty was experienced in obtaining correct bearings, owing to the instrument becoming so stiff that it was hard to rotate it on its axes.

The last station on the traverse was tied in to the centre of the operator's window at Pascopee Station, the chainage and courses being carried along the centre line of the Canadian National Railway.

Bearings were taken every day that it was possible to see the star, and in many cases two or three times a day. During the spells of bad weather, bearings were carried ahead from the last observation and the necessary corrections for convergence and the error in the work were made and distributed back through the previous courses.

The volume of water entering Lake Nipigon from Wabinosh River is small. There are not any water powers along the route traversed between Lake Nipigon and Pascopee.

Appendix No. 30

Extract from O.L.S. Beatty & Beatty's report of survey of Seventh Base line district of Thunder Bay, 1927.

SOIL

There was very little land suitable for agricultural purposes along this line. The only land that might be suitable is in the Mud River valley. This soil is a sandy clay soil and supports a heavy growth of timber and is fairly level. It is about fifteen miles long and varies in width from one-half to three miles. Where the Canadian National Railways cross the river there is more clay than sand in the soil. The remainder of the soil covered by the line this year is sandy soil with boulders. There were very few gravel ridges but numerous outcrops of rock, mostly granite ridges. The country is rolling and very broken.

TIMBER

Several patches of good bush were crossed, but the greater portion of the country has been burned over. There was a bad fire which swept through this section in the spring, about six or seven years ago, and this killed a great deal of the bush. As a result, it has left the country a mass of windfall and standing dead trees, which made it exceptionally hard for cutting the line and keeping camp moved along. The patches of good bush are shown coloured green on our timber plan, the better patches being between the 9th and 15th miles, the 20th mile, the 26th to the 29th mile, the 40th mile, the 60th mile, between the 76th and 80th mile, the 90th and 91st miles, and between the 101st and 109th miles. This last stretch is in the Mud River valley and is one of the nicest patches of timber that we have seen for some years. There is some very fine spruce, jack pine and poplar from 16-inch to 30-inch in diameter, in this piece. We ran through more heavy bush this year than we have for several years. The stretches between the 76th and 80th miles and the 90th and 91st miles, and between the 101st and 109th miles, are within the Nipigon Forest Reserve. In

the burned section, young poplar, white birch and jack pine are growing up, and a thick growth of alders is everywhere. There are few places in the green bush on the brule where there is not heavy underbrush.

There are no fires in this district this year, but we were bothered with smoke for some days from fires to the north and west of us.

MINERALS

The only indications of rock bearing minerals were found in the vicinity of Savant Lake. Here the magnetic variation was found to be so erratic that the observations were discarded. We understand the Geological Department has made extensive surveys in this district. Several claims were staked around the lake but very little development work had been done when we were there. With the exception of this locality, the only rock seen was granite.

STREAMS AND LAKES

As will be seen by the general plan, several large lakes were crossed, the largest ones being Kashaweogama, Savant, Wilcox, Flint, Granite, Berry, Smooth Rock, and Caribou lakes. The largest river crossed was the Allanwater River. Our line crossed near the 39 mile post, just below a falls. From the sketch map we saw that several water-power reserves have been staked out along this river. The only other river of any size crossed was the Mud River. We crossed this river first near our 103 mile post, and again four times near our 108 mile post. The river averages about 100 feet in width and varies in depth from two to ten feet. It has an average current of about two and one-half miles per hour, and is very muddy. It is very crooked and in places has steep-cut banks. There are two falls each about fifteen feet high, but do not consider either are worthy of development. This river flows from Round Lake to Lake Nipigon and is about thirty miles long.

CANOE ROUTES

Several canoe routes leading from the Canadian National Railways were crossed, besides the one used on going to our starting point. The first was the one passing through Savant Lake, which comes from Bucke Station. There are three portages on this route from the track to Savant Lake, in all about one and a quarter miles. This route continues through Savant Lake north to Lake St. Joseph and the Albany River. The next route crossed was through Wilcox Lake, coming from Allanwater Station. This route continues north along the Flint River to the Wabakimi Lake and thence to the Ogoki River and is used in preference to the other route from Allanwater Station via the Allanwater River which crosses our line about five miles east of Wilcox Lake. Both routes are travelled, but the Wilcox Lake route is the easier. The next route runs through Smooth Rock Lake from Collins Station. This is the main route north from the track to White Water Lake and the Ogoki River. There were five short portages between our line and Collins Station and it took about three and a half hours with a light canoe to travel it. The next route was through Little Caribou Lake to Armstrong Station. From the southeast end of this lake there is a jumper and wagon road to Armstrong about four miles long. Teams can take about 650 pounds over the road in summer. This route continues through Caribou Lake and northeasterly to the Ogoki River. The next route is by the Mud River and our 103 mile post was about half a mile south of

Round Lake. The Indians travel this route down but seldom up if they can help it, on account of the strong current. Between Round Lake and the track there are three portages, two of which have to be made, each about fifteen chains, and a third about one mile long, which is made in preference to making the trip around a big bend in the river about ten miles around. The northerly tip of this bend crossed our line near our 108-mile post. This route is used for coming down from the Ogoki River, but is not travelled a great deal now.

We were fortunate enough to be able to make a route close to our line until we got over to the east of Big Lake or about ninety-two miles. From here we had to go quite a bit north of our line until we got to Round Lake and the Mud River and in between we had to do some fly camping on the line. From the Mud River it was impossible to get our canoes east of the Jackfish River as the country is rough and a mass of windfall and we would have had to take our canoes down the Mud to the track and up the Jackfish. Our packers quit us about the fourteenth day of September to go guiding for tourists when we were at 108 miles so we continued our line easterly to the 115-mile post to the east of Seymour Lake, where it can be easily picked up from the Jackfish, and quit on the twenty-fourth day of September. We understand that this point is about three miles east of the Jackfish River and we have arranged for a trail to be blazed from the end of our line east to the Jackfish this winter. We had taken a light camp in from the Mud River to east of our 112-mile post and on the night of September 23rd, we had six inches of snow, which turned to slush and rain the next day. It took us seven hours to backtrack to the Mud River the next day through the snow and windfall. We went via the Mud River to the track near Willet Station where we disbanded our party and stored our canoes.

GAME

We did not see any sign of beaver all summer. Bears are very plentiful, especially in the vicinity of Caribou Lake. Signs of moose and caribou were seen but they are not plentiful. Mr. W. Bruce has a tourist camp where the Mud River crosses the Canadian National Railways, about one mile east of Willet Station. He has several canoes for use on the smaller streams and a gasoline launch that he uses on Lake Nipigon. His camp is about two miles up the river from Lake Nipigon. He takes tourists for speckled trout fishing during the summer and big game during the fall. He has very good accommodation and runs a small trading post as well.

Commercial fishing is engaged in on Savant Lake and Caribou Lake. At Savant Lake the most of the fishing is done in the fall as it is almost impossible to get the fish out in the summer. From Caribou Lake there is only a short portage of about twelve chains to Little Caribou Lake and from the lower end of this lake the fish are taken to Armstrong by team. Lake trout, pickerel and white fish are caught in these lakes.

Pike and pickerel are very plentiful in all the lakes, but we did not find speckled trout in any of the streams crossed.

We had an exceptionally wet season. The only decent weather we had all summer was the first two weeks of September. We had several hail storms during the season and the usual summer frosts. Owing to the excessive rains, the water in the lakes and creeks was exceptionally high all season.

Appendix No. 31

Extract from report by O.L.S. E. L. Moore of base and meridian lines district of Thunder Bay, 1927.

The whole area covered by this survey consists of rough land and in no place was any land suitable for agricultural purposes met with. The country, generally, is covered with boulders of all sizes and the soil is of a light sand mixed with gravel. Bed rock outcrops are numerous. While there is little of the country that could be called level, the hills are not generally very high. Lakes, large and small, are very numerous with shores very irregular and rough. The drainage systems of the larger lakes are very complicated, in fact, some of the lakes are so irregular and so full of islands that one would have to be a very good pilot indeed, to navigate them without an accurate map. I do not think I ever saw so few creeks in such a large area. The Savant River flowing north-east out of Savant Lake was the largest stream met with. Most of the lakes appear to be fairly shallow and like the land, are full of boulders. Portages connecting the lakes are in bad condition and in many places where one would expect to find a portage it does not exist.

Very little timber of commercial value was seen. Fires have run wild over this area time and again. Many different ages of burn occurs. Most of the country traversed by the base line for, roughly, the first thirteen or fourteen miles was burnt so many years ago that it can hardly be classed as brule, though as yet, the timber is of little value. An area of fairly good timber was crossed on the first meridian, north, between the first and the fifth mile post and on the second meridian north between the eighth and the fourteenth mile posts. The timber consists chiefly of spruce and jack pine with a scattering of poplar and white birch. Cedar is not plentiful in this territory. A few Norway pine were seen near the four-mile point on my base line. In most of the burnt areas much of the dry timber is still standing and much of the ground is strewn with windfallen timber, making travelling across country very bad.

Wild fruits such as blue berries, raspberries and wild cherries thrive in abundance in the burnt areas.

Game is not plentiful. A few moose and red deer were seen. Bears and wolves seem to be fairly numerous. There was little indication of small game. Partridge were rarely seen while beaver which once existed in this region are now almost extinct. Pickerel and pike abound in all the lakes that we tried fishing in and I have no doubt that trout exist in many of the large lakes.

The rock formation in the greater part of this territory is granite but north of the fourteen-mile post on the first meridian, north and north of the twelve-mile post on the second meridian north, a schist porphyry rock occurs.

The streams being small and the difference of elevation of the lakes so slight the water power is negligible.

Appendix No. 32

Extract from E. L. Moore's Field Notes of Northeast Part of the Township of Wicksteed, District of Algoma, 1926.

Concessions 3 and 4 and approximately the first ten lots in concessions 5, 6, 7, and 8, comprise an area of fairly good land. This area is not broken badly by rocks and few boulders appear. It is fairly level and the soil is a mixture of sand and clay which is inclined to be light in some places. The balance of this part of the township is too badly broken by rock ridges and strewn with

boulders to be of much value as agricultural land. The swamps throughout this part of the township are clay bottomed with from a foot to two feet of black muck and covered with six to eighteen inches of moss.

The area lying southeast of the line which I show on the timber plan as the approximate limit of old brule is fairly well timbered with jackpine, spruce, balsam, poplar and balm of Gilead up to twenty inches in diameter. There is not much log material but there is considerable suitable for ties and pulpwood. There is also a small area of similar timber in lots 18 to 21 in concession 11. The balance of the township was swept by a very destructive fire probably fifty or sixty years ago and is covered with jack pine, poplar, spruce, birch and balsam averaging about six inches in diameter, and in some places there is a very dense growth of small balsam and spruce. The swamps throughout this burnt area are grown up with small spruce and tamarac while much of the dry cedar and tamarac killed by the fire is still standing.

The lakes are all quite shallow and like the streams are very clear with usually gravel bottoms. Unlike most of the northern lakes and streams, the water is very hard.

Game is not very plentiful. A few signs of moose and red deer were seen. Beaver are fairly numerous as is the small game. A few otters were also seen. I did not have an opportunity to try fishing in many of the lakes but trout are said to be numerous in the Little Jackfish River.

Appendix No. 33

Extract from Report of T. G. Code, O.L.S., 1926. Traverse Little Abitibi Lakes, District of Cochrane.

On the lakes a base line was established by stadia, the stadia being first checked by a chainage along the shore, the check giving a stadia reading 19.83 and the chainage being 19.912 chains. The canoe was then sent around the lake to the different points, setting up large pickets, while I read the angles to them. This process was reversed from the further end of the base if the pickets proved invisible or doubtful.

POSTS

Posts were planted at several points along the survey and numbered as shown on the plans and field notes. Where stone was available the posts were well mounded.

SOIL

The soil, where visible, is a good clay loam and suitable for agriculture. The rivers between Little Abitibi and Williston and between Williston and Pierre Lakes, have rocky bottoms, but the land is fairly high and with few exceptions is of clay. The southwest and southeast ends of Little Abitibi are very low and flat with considerable muskeg. On the extreme west side of Pierre Lake the ground is low and flat along a creek that enters the bay and also at the outlet, but with these exceptions the land appeared to be high enough to provide sufficient drainage for farming.

TIMBER

Spruce appears to predominate; the average would be between six to ten inches diameter. There is some cedar and balsam of up to twelve inches diameter. Along the ridges considerable birch and poplar is to be found. Taken as a whole, I would say the timber compares favourably with that farther south. The only really large brule extends practically along the whole east side of Little Abitibi Lake.

Appendix No. 34

Extract from report of survey of the Township of Shaw, District of Cochrane, surveyed by Arch. Gillies, O.L.S., 1927.

Most of this township has been burned over and is at present a timber slash with a fairly heavy second growth of poplar, birch, jack pine, balsam and alder brush.

The soil is mostly clay or clay loam with a few inches of black loam surface. Certain areas of boulders and clay are unfit for farming purposes. There are various outcrops of rock mostly greenstone, and a high ridge of rough rocky country in the fourth, fifth and sixth concessions being composed of greenstone and porphyry rock.

The greater portion of the area has been staked out as Mining Claims. There are many patented and surveyed claims some of which are not now in good standing. Some of these claims were evidently staked out for farming purposes; there are several clearings and shacks but no one at present actually living on the claims except in the camps on the Triplex Mining Property. Most of these surveyed claims were surveyed in 1910 and 1911 before the big fire and it with great difficulty that these claims may be found and when the lines are located a good many of the posts have been burned or destroyed leaving no trace of their location. Almost as much time was spent trying to relocate the old surveyed claims as in surveying the township into lots.

A traverse was made of the Redstone River in the fifth and sixth concession and tied in on the boundary and concession lines.

Appendix No. 35

AGREEMENT made in duplicate this Twenty-ninth day of July, 1927.

BETWEEN:

HIS MAJESTY THE KING, represented herein by the Minister of Lands and Forests of the Province of Ontario, hereinafter called the "Government,"

Of the First Part,

—AND—

NORTH WEST ONTARIO DEVELOPMENT CO., LIMITED, hereinafter referred to as the "Company,"

Of the Second Part.

Whereas the Company has made provisions to acquire and take over:

- (a) The undertaking and assets of Twin Allan Lumber and Pulp Company, Limited, which include two saw mill plants at McDougall's Mills and Allanwater respectively.
- (b) The licenses of the timber limits now under license to the Montreal Trust Company, being the limits heretofore held and operated in conjunction with the sawmill plant at McDougall's Mills; and
- (c) All the rights, interests, liabilities and obligations of the Grantee under an agreement made between His Majesty, represented by the Honourable the then Minister of Lands and Forests of Ontario, and Alexander McDougall, dated July 2nd, 1925, and assigned on the 23rd day of November, 1925, to the Montreal Trust Company (hereinafter called "The Allanwater Agreement" which provides for the operation of a tie-preserving plant at Sioux Lookout from wood and timber to be cut on the limits therein described, hereinafter called "The Allanwater Limits" which have been operated in conjunction with the said sawmill plant at Allanwater.

And whereas the Company proposes to reorganize the several industries heretofore carried on in connection with the mill plants and limits aforesaid to secure their maintenance and continued operation upon an enlarged scale.

And whereas the said plants and limits and the lumbering industries connected therewith, which represent together an outlay of not less than \$1,500,000, and provide employment for about 900 men in the logging season and 400 men in the summer months, cannot be profitably operated or their operation continued, unless the pulpwood on the said limits under license to the Montreal Trust Company and on the Allanwater Limits (which limits together are hereinafter referred to as "the existing timber rights") estimated by the Company at 1,000,000 cords, can be marketed or utilized by manufacture in conjunction with the said sawmill plants and the existing timber rights.

And whereas there is no available market in Ontario for the said pulpwood of which a substantial part is ripe and should be cut within the next few years to prevent deterioration, and there is not sufficient pulpwood on the existing

timber rights to maintain or warrant a pulp and paper plant for its manufacture; and the construction of the necessary pulp and paper plant for that purpose is impracticable without cutting rights upon additional territory located in convenient working proximity to the present timber rights.

And whereas the grantee under the Allanwater agreement has represented that there is not sufficient tie-material on the Allanwater limits to secure the operation of the tie-preserving plant as contemplated by the Allanwater agreement.

And whereas the Allanwater agreement provides that in that event, or other events which, in the opinion of the Minister, have happened, the Government shall provide the grantee with a fair and reasonable opportunity to acquire additional area and adjacent, if available, to the Allanwater limits to the extent required to provide timber for the operation of the tie-preserving plant in the said agreement mentioned.

And whereas in September, 1925, a tender was put in on behalf of the grantee under the Allanwater agreement for the timber on a portion of the territory hereinafter mentioned adjacent to the Allanwater limits at a price which would be the same as the price named in the highest tender received by the Department of Lands and Forests for the said timber at a public sale to close that month, which price the Company has agreed to pay for the timber on the territory hereinafter described.

And whereas the territory hereinafter described is in two blocks adjacent respectively to the Allanwater limits and to the limits under license to the Montreal Trust Company.

And whereas the Company desires to construct a pulp and paper plant at the city of Fort William, or such other place as it may select, and approved by the Minister, which will ultimately comprise the several plants, involving the expenditure by the Company, and providing the employment, as hereinafter respectively agreed, such pulp and paper plant to be continuously operated for a period of twenty-one years and the extension, or extensions thereof, as hereinafter provided which will utilize, and provide for the manufacture of, the pulpwood on the existing timber rights.

And whereas it will be of great advantage to the Province and will aid materially in the advancement and development of the districts in which the said sawmill plants and the existing timber rights are respectively located to secure the construction and continuous operation as hereinafter provided of the proposed pulp and paper plant.

And whereas in view of the matters above recited the Government has deemed it wise and in the public interest to grant to the said Company the right to cut and remove the timber thereon, as hereinafter provided, and has caused this agreement to be prepared so as to secure the construction by the Company of the said pulp and paper plants and at the same time to assure to the Company a supply of pulpwood sufficient to operate the said plants to their full capacity for a period of twenty-one years from the date hereof, or of any extensions or extension thereof as are hereinafter provided for and also to assure to the Company a supply of tie material sufficient to operate the preserving plant as provided by the Allanwater agreement.

Now therefore this indenture witnesseth that in consideration of the promises and of the mutual covenants and agreements hereinafter contained it is hereby agreed between the parties hereto, as follows:

1. The Government, with the approval of the Lieutenant-Governor-in-Council, and subject to all the terms and conditions hereof, doth hereby grant to the Company for a period of twenty-one years from the date hereof, the right to cut and remove in and upon such parts of the following territory as may from time to time be designated by the Minister, that is to say:—

Parcel 1:

Commencing at the 72nd mile post on the boundary line between the districts of Thunder Bay and Kenora according to survey of said line by Mr. Alex Niven, Ontario Land Surveyor; thence east along Ross' base line of 1921, 40 miles more or less to a point 4 miles east of the meridian line run by Ontario Land Surveyor Ross in 1921, said point being the southwesterly angle of Fort William Pulp and Paper Company's limits; thence north astronomically 44 miles more or less to the southerly limit of Allanwater Wood Limit, thence southwesterly along the southerly boundary of said Allanwater Wood Limit to the southwesterly angle thereof; thence north a distance of 12 miles; thence east a distance of 6 miles; thence north a distance of 8 miles more or less to the northerly boundary of the Allanwater Wood Limit; thence east along the northerly boundary of said limit 25 miles to the northeasterly angle of said limit; thence north 3 miles to the southerly limit of Canadian National Railway right of way; thence westerly along the southerly limit of Canadian National Railway right of way and lands to the boundary line between the districts of Thunder Bay and Kenora; thence south along said boundary line to the point of commencement.

Saving and excepting from said described area Grand Trunk Pacific Block No. 6 and that part of Grand Trunk Pacific Block No. 7, and that part of timber berth ZB lying within the limits of the district of Thunder Bay, said parcel containing 1930 square miles more or less.

Parcel 2:

Commencing at the northwest angle of Grand Trunk Pacific Block No. 9, being a point in Ontario Land Surveyor Niven's base line of 1897, thence north astronomically 5 miles more or less to the southerly limit of berth G 57; thence east and north along the southerly and easterly boundaries of said timber berth G 57 to the southerly limit of the Canadian National Railway right of way; thence easterly along said southerly limit of right of way to the northwest angle of timber berth ZC; thence southerly along the westerly limits of timber berths ZC and ZD and continuing south astronomically to Niven's base line of 1897; thence west along said base line 7 miles more or less to the point of commencement, containing 45 square miles more or less:—

sufficient pulpwood to enable the Company to operate its pulp and paper plant continuously to its full capacity; and if at any time during the said period of twenty-one years or any extension or extensions thereof as are hereinafter provided for, it should appear that for any reason whatever there is not sufficient pulpwood timber on the said territory, together with pulpwood timber then on the existing timber rights to supply the Company with sufficient pulpwood to enable it to operate its pulp and paper plant continuously to its full capacity the Government will grant to the Company the rights to cut pulpwood timber, if available, on other ungranted Crown lands to be designated by the Minister and to be situate as near as possible to the said territory upon the same terms and conditions as are herein contained, so that there will always be sufficient

pulpwood to operate the said pulp and paper plant to its full capacity during the said period of twenty-one years, or any extension or extensions thereof as hereinafter provided. The Company shall also have the right to cut and remove in and upon such parts of the territory as may from time to time be designated by the Minister, sufficient tie material as may be required, having regard to the tie material on the Allanwater Limits, to secure the due performance of the Allanwater agreement.

2. The Company shall with all convenient despatch proceed to construct a pulp and paper plant in or near the town of Fort William, or at such other place, approved by the Minister, as the Company may select, which said mill or mills shall be of the capacity of at least 200 tons of newsprint paper per day and shall have the same fully equipped for operation, as soon as power is available under the contract for power with the Hydro Electric Power Commission of Ontario in 1929 or 1930, and on and after the commencement of operation the Company shall, during the currency of this agreement, continue to operate said mill or mills continuously so that the daily output thereof shall not be less than 200 tons of paper. The Company shall expend in construction and equipment of the plant the sum of at least \$5,000,000.00.

3. The Company shall upon and after the first day of January, 1930, the said power being then available, constantly employ at least two hundred (200) hands in or about the operation of the said pulp and paper plant and shall directly or indirectly afford employment in its woods' operations for not less than six months in each year for an average of 1,250 men during the whole of the remainder of said period of twenty-one years.

Provided however, that if the Company through accident, lack of or interruption to power or any other cause not attributable to any default on its part, which shall include strikes or other labour troubles, shall at any time or times be unable to give continuous employment to the number of men provided for in this paragraph, the Minister may by order in writing under his hand relieve the Company from time to time at any time from its liability so to do. No such order shall in any way invalidate this paragraph or relieve the Company from liability thereunder, other than and to the extent specifically set forth in such written order.

4. The Company shall within thirty days from the date hereof deposit with the Minister the sum of \$25,000.00 which shall remain on deposit until the pulp and paper plant hereinbefore provided for has been completed and put in operation. After said plant has been completed and is in regular operation the said \$25,000.00 may be applied on account of bonus payable by the Company under this agreement. The Company shall also furnish a bond of an approved Guarantee Company satisfactory to the Minister in the sum of \$100,000.00 to secure the performance of its obligations hereunder, the said sum of \$100,000.00 to be reduced to \$50,000.00 if and when to the satisfaction of the Minister one-half of the expenditures as required under the agreement has been made.

5. The wood and timber covered by this agreement are spruce, balsam, banksian or jackpine, poplar, tamarac and whitewood trees.

6. Whenever, in the opinion of the Minister, there is spruce, balsam or poplar too large for pulpwood on the areas of the territory in which the Company may be operating, the same shall be cut into logs and paid for by the Company at such prices as may be determined by the Minister in writing but in no case to exceed the prevailing rates for such timber generally in the district where the factors entering into the determination of stumpage values are similar.

7. All spruce, balsam or poplar cut into logs under the provisions of the preceding paragraph hereof shall be manufactured into lumber or other manufactured products to the satisfaction of the Minister at one or other of the sawmill plants at McDougall's Mills or Allanwater or at some other place approved by the Minister in the Province of Ontario.

8. When so directed in writing by the Minister, the Company shall cut and remove from the areas of the territory from time to time designated by the Minister as hereinafter provided, all merchantable timber, of every kind and character whatsoever or other timber, where special reasons exist, upon said area so that the same may be cut clean and according to approved lumbering methods in such manner as the Minister may from time to time direct and to his satisfaction.

9. No ties commonly known as "axe made ties" shall be made without the permission of the Minister, but if and when such permission be given the grantees shall pay such bonus as the Minister may fix in addition to the regular Crown dues as may be fixed from time to time by the Lieutenant-Governor-in-Council.

10. All pulpwood cut by the Company under this agreement shall be manufactured into newsprint or other finished product of pulp approved by the Lieutenant-Governor-in-Council and requiring the expenditure of no less labour and money in the manufacture thereof than is required in the manufacture of newsprint at the Company's plant, or at some other place in the Province of Ontario approved by the Lieutenant-Governor-in-Council.

11. It is distinctly understood that the right is hereby reserved to the Government to deal with the lands above described and the timber standing, growing and being thereon, for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

- (a) All red and white pine on said territory is reserved to the Government.
- (b) The Government reserves and excepts from the lands above described the right of way of any and all railways or travelled roads, islands, Indian Reserves and all lands under the water of all rivers, lakes and streams; 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 of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.
- (c) All water powers and privileges on the said territory are reserved to the Government.
- (d) The Company shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Government, without the special permission in writing of the Minister.

12. On or before the first of September in each year, the Company shall apply to and get the permission in writing of the Minister for the area within

said territory on which the cutting for the then coming season shall take place, and the Company shall not be entitled to cut at any other place or places in said territory other than and except those specially designated in such permission. At the end of each season's operations, and on or before the first day of June in each and every year, the Company shall file with the Minister a map indicating thereon the area cut over during the preceding season, and the kinds and quantities of wood and timber taken therefrom.

13 (a) The Minister shall have the right in and by the written permission provided for in the preceding paragraph hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of pulpwood and timber on such area, that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose. The Minister shall also have the right to require the Company to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such pulpwood and timber he may think proper.

13 (b) For the purpose of watershed or fire protection, game preserves or game shelters, the Minister may, as occasion requires, out of the areas herein described, withdraw certain timber from cutting and direct that such timber be left standing and the Company shall not be entitled to any compensation for such timber so withdrawn unless directed by the Lieutenant-Governor-in-Council.

14. The Company shall take such precautions and employ such means to prevent injury or destruction by fire upon said territory as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile, or such other rate as may be from time to time fixed by the Lieutenant-Governor-in-Council. The first annual amount in connection therewith shall be due and payable within thirty days from the date hereof and each and every amount thereafter on the first of May in each and every year during the currency of this agreement. The Minister shall fix the area upon which fire protection charge is payable.

15. Pulpwood taken out in four-foot or eight-foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above eight feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

16. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said territory and that the only right conferred upon the Company hereby is the right to cut wood and timber hereinbefore described sufficient to enable the Company to operate its plant or plants continuously to its or their full capacity during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for, on such areas within said territory or within any other territory as from time to time may be designated by the Minister, pursuant and subject to the terms and conditions herein contained, and subject to such further 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 Lieutenant-Governor-in-Council, or by the Minister.

17. Proper sworn returns of the quantity of wood and other timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for such wood and timber not later than the first day of October in each year, and the Government in addition to all the rights and powers herein contained shall have all the rights and powers

in respect of enforcing such payments as are now provided in the case of timber cut under the Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of six per cent. per annum shall be charged up the 31st of October of the same year, or for one month and thereafter at the rate of one per cent. per month until paid.

18. The Minister shall have the right to inspect the timber operations carried on by the Company at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show 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 estimate the said timber and charge the same to the Company at the same rate of dues and bonus as if it had been actually removed. The cutting and removing of the timber on the territory, or any part thereof, shall not be deemed to have been completed until it has been examined by an Officer of the Crown, and the operation has been declared satisfactory by the Minister of Lands and Forests.

19. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters, which shall be or may be injurious to game and fish life.

20. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Company in accordance with the Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

21. The Company shall co-operate to the satisfaction of the Minister in the purchase of all bona fide settlers' pulpwood.

22. All bona fide accounts due for settlers' pulpwood purchased by the Company shall constitute a first claim against the Company.

23. The Company shall pay to the party of the First Part, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and regulations as may be hereafter passed or enacted relating thereto, the following prices for said wood and timber:

Spruce pulpwood—per cord, an upset price of 50 cents in addition to Crown dues of \$1.40 with an additional 10 cents added, making a total of \$2.00 per cord.

Balsam pulpwood—per cord, an upset price of 40 cents in addition to Crown dues of 70 cents, making a total of \$1.10 per cord.

Poplar pulpwood—per cord, an upset price of 10 cents in addition to Crown dues, of 40 cents, making a total of 50 cents per cord.

Jackpine pulpwood—per cord, an upset price of 10 cents in addition to Crown dues of 40 cents, making a total of 50 cents per cord.

Jackpine—(per M.ft. B.M.) an upset price of \$4.50 per M.ft. B.M. in addition to Crown dues of \$2.50 per M.ft. B.M., making a total of \$7.00 per M.ft. B.M.

24. The Company hereby covenants and agrees to and with the Minister to observe, perform and keep all the covenants, agreements, provisions and conditions on its part herein contained.

25. Subject to the power of the Minister to waive the right of revocation caused by any failure on the part of the Company herein provided for, in the event of failure on the part of the Company to construct or operate the said pulp or paper mills or to keep said pulp or paper mills in operation after the construction thereof as herein agreed, or to employ the men as herein agreed or to observe, perform and keep any of the covenants, agreements, provisions and

conditions on its part herein contained the Government may revoke the grant and right to cut the wood and timber herein conferred, and upon such revocation all rights of the Company under this agreement shall be and become null and void and shall cause the deposit hereinbefore mentioned of \$25,000.00 to be forfeited and become the absolute property of the Crown, provided that thirty days' notice in writing of intention to revoke the said grant shall be given by registered letter addressed to the Company at Toronto C/o Messrs. Young & McEvoy, Barristers, Bank of Hamilton Building, before any such revocation is made, in order that the Company may have an opportunity of being heard, should it so desire.

26. If upon the termination of said period of twenty-one years the Company shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the price to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister. If at the expiration of the last of such renewals the Company shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects and so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plant, the Minister shall grant to the Company a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by him.

27. The manufacturing clauses of the Crown Timber Act and amendments to the said The Crown Timber Act and all other clauses, acts and regulations relating in any way to the cutting of timber on Crown Lands, shall be applicable to the operations of the Company, and shall be binding upon the Company as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such clauses, acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Company by virtue of this agreement.

28. This agreement shall be binding upon and enure to the benefit of the Company and its assigns, but this agreement and the rights of the Company thereunder shall not be assigned without the consent of the Minister.

29. The word "Minister" in this agreement shall mean the Minister of Lands and Forests for the Province of Ontario.

In witness whereof the parties hereto have executed these presents the day and year first above written.

SIGNED, SEALED AND DELIVERED
in the presence of

MCGREGOR YOUNG,

W. C. CAIN,

as to Minister's Signature.

NORTH WEST ONTARIO
DEVELOPMENT CO., LIMITED.

JOHN A. McEVROY,
President.

AGNES MOULTON,
Secretary.

WM. FINLAYSON.

PART II.

Appendix No. 36

I.—FOREST FIRE PROTECTION

(1) *Legislation*

On the ninth day of June, 1927, an Order-in-Council was passed designating the following areas as "Travel Permit" areas:

1. All of the Mississagi Forest Reserve and the adjoining area included in Townships 195, 201, Gilmor, Chesley, Curtis, Whitman, and Townships 22 and 23 in Ranges 10, 11 and 12.

2. That part of Temagami Forest Reserve south of and including the Townships of Trethewey, Whitson, Van Nostrand and Klock, and east of and including the townships of McGiffin, Parker, Dundee, Delhi, Armagh, Afton and MacBeth, and the area east of the Temagami Forest Reserve and the Temiskaming and Northern Ontario Railway to the Ottawa River, from the south boundary of the Township of Lorrain to the north boundary of the Townships of Widdifield, Phelps, Olig and Mattawan.

3. The North Bay—Cobalt Road between Cooks Mills (M.80.4) and Latchford.

(2) *Organization and Personnel*

In the early spring the senior Fire Inspector in the Sudbury Inspectorate and the Forestry Assistants in the North Bay and Georgian Bay Inspectorates resigned to accept more remunerative positions elsewhere. Later the Chief Fire Ranger in the Mississagi East District was appointed Fire Inspector for Mississagi East and West Chief Ranger Districts. He also acted as Chief Ranger for Mississagi East. The positions of Forestry Assistant in the North Bay and Georgian Bay Inspectorates are still vacant.

A new Forestry Assistant was appointed in March for the Algonquin Inspectorate to fill the vacancy resulting from the appointment in the late summer of 1926 of the previous assistant as District Forester at Oba.

On June 1st the Forestry Assistant at Sioux Lookout was appointed District Forester at Kenora in charge of the Kenora Inspectorate, a new Inspectorate comprised of the territory in the Kenora Land District west of Farlane and south of the Canadian National Railways, and the Bee Lake mining area. This area was previously in the Hudson Inspectorate. A new assistant who had previously been engaged on forest surveys was then appointed for the Hudson Inspectorate.

The total field supervisory staff for the eleven inspectorates was as shown in the following table and consisted of nine District Foresters, one Assistant District Forester, four Forestry Assistants, one Forest Supervisor, three Fire Inspectors, one Assistant Fire Inspector, thirty-nine Chief Rangers and one hundred and fourteen Deputy Chief Rangers. This allowed direct supervision of one Chief or Deputy Chief Ranger to an average of every six rangers.

ORGANIZATION AND PERSONNEL

Inspectorate	Area (acres)	Headquarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Hudson...	23,616,000	Sioux Lookout	1—District Forester 1—Forestry Assistant 3—Chief Rangers 10—Deputy Chief Rangers	Red Lake C.G.R. West C.G.R. Central	Pine Ridge Sioux Lookout Armstrong
Kenora...	6,755,000	Kenora...	1—District Forester 1—Chief Ranger 3—Deputy Chief Rangers	Kenora	Kenora
Western..	16,310,000	Port Arthur	1—Forest Supervisor 3—Chief Rangers 11—Deputy Chief Rangers	Rainy River Thunder Bay Nipigon	Fort Frances Port Arthur Macdiarmid
Oba	19,840,000	Oba	1—District Forester 1—Asst. Fire Inspector 5—Chief Rangers 14—Deputy Chief Rangers	C.G.R. East Hearst Longlac Oba Franz	Nakina Hearst Longlac Oba Franz
Cochrane..	17,930,000	Cochrane	1—Fire Inspector 6—Chief Rangers 15—Deputy Chief Rangers	Smoky Falls Kapuskasung Cochrane Matheson Timmins Abitibi	Smoky Falls Kapuskasung Cochrane Matheson Timmins Stimson
Soo	7,394,000	Sault Ste. Marie..	1—District Forester 1—Forestry Assistant 3—Chief Rangers 11—Deputy Chief Rangers	A. C. R. Blind River Mississagi South	Sand Lake Blind River Ranger Lake
Sudbury..	13,397,000	Sudbury..	1—District Forester 1—Sub District Forester.. 2—Fire Inspectors and Chief Rangers 6—Chief Rangers 23—Deputy Chief Rangers	Foley West Foley East Mississagi West Mississagi East Webbwood Timagami West Sudbury North Sudbury South	Elsas Gogama Chapleau Biscotasing Espanola Mattagami Post Skead Sudbury
North Bay	5,105,000	North Bay...	1—District Forester 3—Chief Rangers 11—Deputy Chief Rangers	Timagami North Timagami East North Bay	Elk Lake Timagami North Bay
Georgian Bay....	4,591,000	Parry Sound..	1—District Forester 3—Chief Rangers 6—Deputy Chief Rangers	Georgian Bay W. Georgian Bay E. Georgian Bay S.	Parry Sound Powassan Coboconk
Algonquin	3,522,000	Pembroke	1—District Forester 1—Forestry Assistant 2—Chief Rangers 6—Deputy Chief Rangers	Algonquin North Algonquin South	Pembroke Brule Lake
Trent....	3,513,000	Tweed...	1—District Forester 1—Forestry Assistant 2—Chief Rangers 4—Deputy Chief Rangers	Trent Madawaska	Bancroft Dacre

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 173; May, 695; June, 1,030; July, 1,052; August, 1,016; September, 738; October, 122. The largest number of men on duty at any one time, including 153 Chief and Deputy Chief Rangers was 1,063.

NUMBER OF MEN ON DUTY INCLUDING CHIEF AND DEPUTY CHIEF RANGERS

	1927	1926	1925	1924	1923	1922	1921
April 1st.....	44	19	24	22	4	7	7
April 15th.....	159	42	62	60	9	21	19
May 1st.....	361	168	360	215	205	144	59
May 15th.....	675	549	648	525	699	595	568
June 1st.....	958	896	822	756	1,104	1,002	962
June 15th.....	1040	966	842	810	1,166	1,052	1,014
July 1st.....	1046	982	847	812	1,198	1,065	1,022
July 15th.....	1062	992	848	813	1,257	1,054	1,036
August 1st.....	1051	987	845	806	1,220	1,044	1,029
August 15th.....	1019	983	841	792	1,223	1,040	1,034
September 1st.....	926	918	835	745	1,115	980	977
September 15th.....	865	798	806	626	968	545	533
October 1st.....	240	257	245	148	291	101	78
October 15th.....	120	129	82	47	111	44	30
October 31st.....	57	44	.....	.....	.....	.....	.....

(3) *Expenditures*

The total expenditure for the year was \$1,239,996.01 less \$80,000.00 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Fire Protection at \$1,159,996.01. The amount of fire tax collected for the year was \$346,973.31.

CLASSIFICATION OF EXPENDITURES

Item	1927	1926	1925	1924	1923	1922	1921
Pay roll.....	\$780,527 29	\$664,260 69	\$615,811 09	\$480,481 98	\$535,810 35	\$417,023 88	\$433,463 02
Equipment.....	103,167 66	101,981 12	130,353 42	139,894 00	127,186 92	44,504 49	28,384 40
Expendable equipment.....	6,328 39	6,406 00	4,338 76	4,646 75	5,869 55	3,048 16	19,505 86
Travel (inspection).....	39,494 42	29,065 24	33,649 18	32,797 35	31,436 73	23,088 33	21,034 95
Improvement work.....	63,333 45	19,097 63	225,723 85	61,427 30	54,876 42	40,999 77	3,621 06
Extra fire fighting.....	43,509 13	34,728 85	67,023 32	16,450 78	143,508 13	40,969 67	65,267 79
Express, postage, etc.....	20,951 71	30,105 86	39,472 70	33,818 69	28,083 20	9,561 17	7,926 65
Air operations.....	.....	.....	.....	.....	86,404 71	23,437 84	.....
Maintenance.....	89,888 11	95,931 36	98,520 56	28,877 18	7,419 24	17,670 45	.....
Miscellany.....	13,273 84	17,327 48	11,964 07	8,921 53	15,328 44	23,598 77	31,331 01
Gasoline and oil.....	72,295 61	67,720 04	26,924 17	40,527 77	7,485 69	.....	.....
Rent.....	7,226 40	5,920 17	7,528 62	7,206 91	5,251 41	.....	.....
Brush-burning.....	.....	.....	.....	.....	229 00	.....	.....
Advertising.....	.....	.....	.....	.....	14,066 45	.....	.....
Totals.....	*\$1,239,996 01	*\$1,072,544 44	*\$1,261,309 74	\$855,050 24	\$1,062,956 24	\$643,902 63	\$610,534 74

*Of this total \$80,000.00 was transferred to a charge against Forest Ranging to cover air operations in connection with that work.

CLASSIFICATION OF AREA BURNED OVER
BY MONTH

INSPECTORATE	April		May		June		July		August		September		October		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....			11	1.9	42	7.3	4	0.6	334	58.7	179	31.5				570
Kenora.....			275	87.3	3	1.0			36	11.4	1	0.3				315
Western.....			38	5.5	46	6.7	161	23.4	111	16.2	247	36.0	84	12.2		687
Oba.....					1	0.2	337	79.7	33	7.8	52	12.3				423
Cochrane.....					1,166	26.7	2,809	64.3	2							4,368
North Bay.....	24	2.5	144	15.3	568	60.2	20	2.4	186	19.6						942
Sudbury.....	175	1.7	85	0.8	1,822	16.4	8	0.1	8,724	79.2	130	1.3	50	0.5		10,994
Soo.....	70	0.7	1,287	12.5	5		706	6.9	7,513	73.0	707	6.9				10,288
Georgian Bay.....	175	20.0	661	75.4	4	0.5			30	3.4	6	0.7				876
Algonquin.....	2,761	70.5	1,112	28.4	28	0.7	5	0.1	6	0.2	4	0.1				3,916
Trent.....	1,741	73.7	614	26.0	1				7	0.3						2,363
Totals.....	4,946	13.9	4,618	12.9	3,686	10.3	4,050	11.3	16,982	47.5	1,326	3.7	134	0.4		35,742

CLASSIFICATION OF AREA BURNED OVER
BY ORIGIN

Inspectorate	Settlers		Campers		Railways		Lightning		Logging Operations		Smokers		Road Construction		Miscellaneous		Unknown		Totals
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres
Hudson.....	27	4.7	445	78.1	.....	.....	23	4.0	.....	.....	.....	.....	.....	.....	6	1.2	69	12.0	570
Kenora.....	41	6.0	274	87.0	.....	.....	141	20.6	16	5.1	.....	.....	.....	.....	25	7.9	336	48.9	315
Western.....	77	18.2	9	2.2	.....	.....	62	14.6	.....	.....	87	12.7	.....	.....	11	1.6	265	62.6	687
Oba.....	1,225	28.0	286	6.5	.....	.....	.....	.....	20	0.5	.....	.....	.....	.....	13	0.3	2,087	47.8	423
Cochrane.....	72	7.5	124	13.4	.....	.....	.....	.....	442	46.9	378	8.7	327	7.5	.....	.....	156	16.6	4,368
North Bay.....	239	2.2	1,846	16.8	.....	.....	7,213	65.6	1,418	12.9	138	14.6	2	0.2	.....	.....	98	0.9	942
Sudbury.....	2,868	27.8	3,944	38.3	.....	.....	1,110	1.1	101	1.0	1,167	11.3	10	0.2	1,503	14.6	.....	.....	10,994
Soo.....	428	48.9	29	3.3	.....	.....	.....	.....	3	0.3	317	36.2	.....	.....	.....	.....	34	3.9	10,288
Georgian Bay	445	11.3	47	1.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,940	75.1	399	10.2	3,916
Algonquin.....	925	39.1	505	21.4	.....	.....	.....	.....	.....	.....	10	0.4	.....	.....	.....	.....	401	17.0	2,363
Trent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	6,347	17.8	7,578	21.2	1,340	3.7	7,549	21.1	2,000	5.6	2,210	6.2	363	1.0	4,510	12.6	3,845	10.8	35,742

AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS

RAILWAY	1927	1926	1925	1924	1923	1922	1921
Canadian National Railways (exclusive of northern line).....	1.7	1.7	2.4	3.3	6.2	*3.2	*3.7
Canadian Pacific Railway.....	1.5	3.5	2.4	2.0	5.3	2.7	3.9
Canadian National Railways (northern trans-continental line only).....		1.0	0.3	0.5	2.0	2.4	1.8
Temiskaming and Northern Ontario Railway.....	2.3	1.9	1.1	3.7	7.3	7.3	6.3
Algoma Eastern Railway.....			9.4	8.2	1.1	4.5	5.9
Algoma Central and Hudson Bay Railway..	3.4	3.3	6.1	4.5	3.0	4.2	0.6
Nipissing Central Railway.....							
Miscellaneous Private Railways.....	11.2	2.2	7.7				
	1.7	2.2	2.4	2.7	4.9	3.3	3.7

*Former C.N.R. and G.T.R. figures combined.

RAILWAY	Per cent. of Total Number of Railway Fires						
	1927	1926	1925	1924	1923	1922	1921
Canadian National Railways (exclusive of northern line).....	39.3	29.7	38.3	50.3	45.9	*36.1	*47.9
Canadian Pacific Railway.....	27.0	46.6	29.7	21.9	32.5	25.3	29.8
Canadian National Railways (northern trans-continental line only).....		6.8	1.6	3.0	7.6	13.3	7.9
Temiskaming and Northern Ontario Railway.....	10.1	5.9	3.1	8.8	9.6	14.5	10.6
Algoma Eastern Railway.....			6.2	5.1	0.4	2.4	2.8
Algoma Central and Hudson Bay Railway...	12.4	9.3	15.6	10.9	4.0	8.4	1.0
Nipissing Central Railway.....							
Miscellaneous Private Railways.....	11.2	1.7	5.5				
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Former C.N.R and G.T.R. figures combined.

CLASSIFICATION OF FOREST AREAS BURNED OVER

INSPECTORATE	Number of fires	Timber land, mainly coniferous, i.e., softwood	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)
Hudson.....	44	61	.....	25	.....	400	64	20	.....	570
Kenora.....	19	18	.....	24	.....	21	250	2	.....	315
Western.....	96	68	19	124	57	17	40	340	22	687
Oba.....	34	101	.....	34	150	6	.....	123	9	423
Cochrane.....	104	281	25	1,676	227	468	.....	1,481	199	4,368
North Bay.....	70	2	2	20	20	9	11	440	268	942
Sudbury.....	201	3	.....	178	.....	1,923	96	8,207	587	10,994
Soo.....	144	290	3	1,584	258	1,184	745	3,827	2,397	10,288
Georgian Bay.....	75	7	.....	7	109	51	160	205	337	876
Algonquin.....	61	.....	.....	460	.....	15	165	1,995	1,281	3,916
Trent.....	76	.....	70	70	153	200	329	1,421	120	2,363
Totals.....	924	831	119	4,202	974	4,294	2,041	18,061	5,220	35,742
1926 totals.....	1,110	10,266	2,468	12,866	9,378	17,583	11,303	19,262	5,248	88,374
1925 ".....	1,149	4,634	5,555	13,555	21,388	22,391	34,164	68,414	19,242	189,542
1924 ".....	851	24,067	6,592	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 ".....	1,343	567,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
1922 ".....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193
1921 ".....	1,269	95,782	3,322	108,508	82,469	56,569	95,131	305,769	1,984	749,534

CLASSIFICATION OF LAND BURNED OVER

INSPECTORATE	Fires burning on one class of land only						Fires burning on both Crown and private land						Totals			
	Crown land			Private land			Originating on Crown land			Originating on private land						
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Per cent.	Private land area in acres	Per cent.	Crown land area in acres	Per cent.	Private land area in acres	Per cent.	No. of fires	Area in acres
Hudson.....	39	543	95.3	5	27	4.7	44	570
Kenora.....	16	314	99.7	3	1	0.3	.....	.....	.....	.....	.....	.....	.....	19	315
Western.....	50	394	57.3	45	287	41.8	.....	.....	.....	.....	.....	.....	.....	96	687
Oba.....	23	237	56.0	10	106	25.1	1	0.3	4	0.6	.....	.....	.....	34	423
Cochrane.....	38	1,279	29.3	63	1,544	35.3	1	16.6	10	2.3	.....	.....	.....	104	4,368
North Bay.....	28	116	12.3	41	391	41.5	.....	.....	.....	.....	.....	.....	.....	70	942
Sudbury.....	93	10,446	95.0	103	525	4.8	3	.....	7	0.1	.....	.....	.....	201	10,994
Soo.....	53	3,540	34.4	85	6,325	61.5	2	0.5	355	3.4	.....	.....	.....	144	10,288
Georgian Bay.....	33	208	23.7	39	418	47.7	.....	.....	.....	.....	.....	.....	.....	75	876
Algonquin.....	42	3,002	76.7	17	129	3.3	1	135	3.4	15.3	.....	.....	.....	61	3,916
Trent.....	32	1,326	56.2	43	987	41.8	1	25	1.0	1.0	.....	.....	.....	76	2,363
Totals.....	447	21,405	59.9	454	10,740	30.0	9	283	0.8	1,001	2.8	14	1,084	3.0	924	35,742

(5) *Permits*

The number of permits issued during the season was only slightly in excess of the number issued the previous season, 13,593 as against 13,446, but the area covered by these was 55,762 acres, while the area in 1926 was 45,988 acres.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1927	1926	1925	1924	1923	1922	1921
Red Lake.....	24	31}					
C.G.R. West.....	103	26}	99	70	28	23	.....
C.G.R. Central.....	28						
Kenora.....	497	179	3	128	362	180	128
Rainy River.....	61	31	19	16	216	39	3
Thunder Bay.....	433	264	235	100	139	59	.....
Nipigon.....	10						
C.G.R. East.....	37	51	95	36	18		
Hearst.....	1,264	1,804	1,656	1,011	1,000	1,774	1,082
Longlac.....		2			50		
Oba.....	34	29	11	16			
Franz.....	14	5	10				
Kapuskasing.....	1,245	1,022}	1,187	668	531	587	209
Smoky Falls.....	84	76}					
Cochrane.....	2,871	2,506	2,486	1,815	1,480	2,497	1,503
Abitibi.....	5	65	157	2	2	61	2
Matheson.....	1,482	1,603	1,515	1,275	1,122	2,126	1,599
Timmins.....	1,173	1,407	1,212	580	406	754	407
New Liskeard.....		836	637	408	361		916
A.C.R.....	72	97	82	18	10		
Blind River.....	298	164	126	100	36	6	
Mississagi South.....	3						
Foleyet West.....	59	58	3	34	11		
Foleyet East.....	163	175	169	102	1		
Mississagi West.....	77	67	20	15	1		
Mississagi East.....	26	18	12	9			
Webbwood.....	322	183	162	119	25	16	21
Sudbury North.....	18	16	36	173}			
Sudbury South.....	766	580	411	149}	36		
Temagami West.....	11	14	19				
Temagami North.....	765	294	253	200		387	24
Temagami East.....	223	395	174	86	11	48	15
North Bay.....	829	971	691	360	61	46	42
Georgian Bay West.....	87	83	100				
Georgian Bay East.....	162	207	159				
Algonquin North.....	45	14	33	29			
Algonquin South.....	73	103	84	58			3
Trent.....	57	31}	106	24			12
Madawaska.....	172	59}					
Totals.....	13,593	13,466	11,962	7,602	5,907	8,603	5,966

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage Covered by Permits						
	1927	1926	1925	1924	1923	1922	1921
Red Lake.....	56	15}	416	215	95	26	.....
C.G.R. West.....	189	63}					
C.G.R. Central.....				1			
Kenora.....	3,123	442	2	325	35,006	624	637
Rainy River.....	1,162	2,144	174	57	1,374	331	18
Thunder Bay.....	2,428	993	1,029	463	1,081	1,251	.....
Nipigon.....	110						.....
C.G.R. East.....	19	35	28	25	53		.....
Hearst.....	3,358	3,435	3,721	2,311	2,335	3,837	2,124
Longlac.....					64		.....
Oba.....	7	28	1	60			.....
Franz.....			1				.....
Kapuskasing.....	5,085	4,106}	4,222	2,351	2,126	2,017	1,731
Smoky Falls.....	72	205}					
Cochrane.....	5,577	5,623	4,462	4,010	4,348	8,108	4,652
Abitibi.....	4	213	426		1	968	13
Matheson.....	3,251	4,884	5,211	4,573	5,027	7,613	5,442
Timmins.....	1,812	2,354	2,064	1,421	918	2,591	988
New Liskeard.....		2,039	2,154	1,345	1,160		7,726
A.C.R.....	269	408	1,257	100	36		.....
Blind River.....	1,199	1,041	1,119	619	294	67	.....
Mississagi South.....	27						.....
Foleyet West.....	1,370	1,008	25	2,959	52		.....
Foleyet East.....	2,280	1,613	3,152	3,402	5		.....
Mississagi West.....	2,373	2,208	2,555	81	408		.....
Mississagi East.....	2,984	2,843	4,741	2			.....
Webbwood.....	7,565	4,125	2,768	2,009	81	66	101
Sudbury North.....	556	137	293	425}	187		.....
Sudbury South.....	5,105	2,089	1,957	6,900}			
Temagami West.....	7	27	6				.....
Temagami North.....	1,412	319	1,197	303		1,657	129
Temagami East.....	514	458	819	172	41	196	25
North Bay.....	1,348	1,830	1,384	518	92	103	74
Georgian Bay West.....	297	201	742				.....
Georgian Bay East.....	456	558	418				.....
Algonquin North.....	15	148	377	719			.....
Algonquin South.....	139	199	121	599			5
Trent.....	550	111}	326	60			13
Madawaska.....	1,043	86}					
Totals.....	55,762	45,988	47,168	36,025	54,784	29,455	23,678

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1927	1926	1925	1924	1923	1922	1921
April.....	663	100	451	127	.....	.....	.....
May.....	2,857	3,580	2,185	849	2,131	1,992	1,154
June.....	4,641	3,341	2,273	3,614	711	3,034	3,085
July.....	2,082	2,643	2,172	1,388	1,314	1,502	364
August.....	1,671	2,065	2,484	1,093	1,077	1,580	1,329
September.....	1,656	1,672	2,367	528	566	495	34
October.....	23	65	30	3	108	.....	.....
Totals.....	13,593	13,466	11,962	7,602	5,907	8,603	5,966

MONTH	Acreage Covered by Permits			
	1927	1926	1925	1924
April.....	7,138	3,686	7,981	4,956
May.....	15,265	13,484	12,397	2,812
June.....	13,896	12,020	5,851	10,188
July.....	5,662	7,521	7,685	3,546
August.....	8,408	4,434	6,667	5,021
September.....	4,742	4,800	6,546	9,450
October.....	651	43	41	52
Totals.....	55,762	45,988	47,168	36,025

(6) *Equipment*

Of the major equipment in use the portable fire-fighting units and hand pumps continue to be the most important. The large mileage of new roads being opened up each year gives the motor truck an ever-increasing importance for the transportation of men and equipment.

An important development during the season was the use of wireless telegraphy in the Red Lake District of the Hudson Inspectorate, where four stations were opened, the equipment being assembled, installed and operated by our own personnel for the purpose of transmitting and receiving messages in connection with forest fire protection.

MAJOR EQUIPMENT PURCHASED AND IN USE

	Fire fighting units		Fire fighting hose (feet)		Portable hand pumps		Tents		Blankets (pairs)		Canoes		Small motor boats		Launches		Auto trucks		Railway motor cars		Velocipedes		
	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	Purchased 1927	Total in use	
INSPECTORATE																							
Hudson	10	40	22,000	86,700	24	92	14	74	125	342	13	53	1	2	2	2	..	..	..	..	2	4	..
Kenora	..	10	..	19,000	12	30	4	18	..	106	4	20	..	..	4	4	..	..	..	..	2	..	..
Western	3	22	5,000	39,100	..	8	12	34	25	200	1	1	..	..	..	4	..	..	..	..	..	..	..
Oba	..	24	3,500	60,800	58	115	5	11	..	617	2	57	..	4	..	..	..	..	..	..	..	..	..
Cochrane	1	29	13,000	61,400	125	144	5	74	20	437	8	65	..	..	..	..	..	..	..	..	..	..	..
Soo	..	19	..	36,400	46	56	..	77	..	431	..	41	..	..	..	..	..	..	..	..	..	..	..
Sudbury	4	64	..	157,900	2	201	10	162	..	1,098	11	151	4	8	..	..	..	..	..	..	..	..	..
North Bay	..	22	1,000	56,400	1	79	2	69	50	581	..	80	..	..	..	..	..	..	..	..	..	..	..
Georgian Bay	1	16	5,000	32,900	..	74	..	43	..	261	..	42	..	..	..	..	..	..	..	..	..	..	..
Algonquin	..	10	1,500	19,200	18	79	6	62	50	391	3	54	..	..	..	..	..	..	..	..	..	..	..
Trent	..	6	..	18,600	..	76	3	23	..	184	..	18	..	..	..	..	..	..	..	..	..	..	..
Totals	25	262	51,000	588,400	286	954	61	747	270	4,648	42	601	5	25	4	35	21	53	3	34	4	117	..

(7) Locomotive Inspection

Two men were employed throughout the season on the inspection of fire protective appliances on locomotives operating within the Fire Districts of the Province.

A total of 1,754 locomotive inspections were made covering 781 locomotives operating on railway lines under the jurisdiction of the Board of Railway Commissioners for Canada, the two inspectors having appointments as officers of the Board. In addition, 101 inspections were made of Temiskaming and Northern Ontario Railway locomotives and 24 inspections of logging locomotives, 1,879 inspections in all.

LOCOMOTIVE INSPECTION, 1927

Railway	Number inspected						Total No. Locomotives	Total number inspections							Inspections showing defects	Percentage defective						
	Times							1927	1926	1925	1924	1923	1922	1921		1927	1926	1925	1924	1923	1922	1921
	1	2	3	4	5 and over	1927																
C.P.R.	182	87	58	43	20	390	805	739	799	851	860	815	723	10	1.2	0.8	0.5	1.9	2.3	5.8	8.3	
C.N.R.	155	68	38	58	51	370	915	962	988	1,001	856	*681	*740	7	0.8	1.8	0.5	1.5	2.7	*3.5	*5.7	
A.C. & H.B.R.	11	4	15	19	20	45	45	29	45	35	2.2	22.8
A.E.R.	1	2	2	1	.....	6	15	18	21	15	15	22	28	.....	.....	.....	4.8	.....	6.6	.....	21.4
N.C.R.	.....	.....	.....	.....	.....	.....	.....	3	3	8	.....	.....	.....	.....	.....	.....	33.3	.....	.....	.....	.....
Totals	349	161	98	102	71	781	1,754	1,742	1,856	1,920	1,760	1,563	1,526	17	1.0	1.3	0.6	1.6	2.5	4.6	8.3	

Average cost per inspection: 1927, \$1.78; 1926, \$1.91; 1925, \$1.78; 1924, \$1.80; 1923, \$1.88; 1922, \$1.61; 1921, \$1.70.
 *Former C.N.R. and G.T.R. figures combined.

(8) *Improvements*

Considerable progress was made in the erection of buildings for the accommodation of personnel and equipment and in the erection of wooden and steel towers and telephone lines for the detection and reporting of fires. In a few districts the lookout tower and telephone system is nearing completion, but in most districts a number of towers and a considerable mileage of telephone lines have yet to be erected.

PERMANENT IMPROVEMENTS

Completed to October 31st, 1927

Cabins.....	224
Storehouses.....	40
Boathouses.....	22
Combined Storehouses and Boathouses, etc.....	12
Bunkhouses.....	21
Offices.....	11
Garages.....	33
Other Buildings.....	42
Hose Towers.....	29
Wooden Lookout Towers.....	135
Steel Lookout Towers.....	42
Permanent Telephone Lines (miles).....	1,531
Temporary Telephone Lines (miles).....	142

(9) *Air Patrol*

Aircraft were again used to supplement the ground staff in the control of forest fires, machines being located at Pine Ridge, Sioux Lookout, Kenora, Fort Frances, Kashabowie, Orient Bay, Longlac, Oba Lake, Sault Ste. Marie, Biscotasing, Mattagami Post and Sudbury, a total of 2,170 hours of flying time being for fire detection and 948 hours for transportation of men and supplies. A considerable proportion of the transportation flying was used in the Hudson Inspectorate, where the only other means of travel inland is by canoe.

Four Moth machines on floats were used for the first time in addition to the H.S. 2 L. type and proved very satisfactory for detection purposes.

(10) *Fire Hazard Disposal*

During the winter months a large amount of slash and debris was disposed of around mining camps and cordwood operations in the Red Lake district and the fire hazard in those areas greatly reduced. During the summer a further clearing was made around the townsite of Gold Pines. In all other parts of the Province strenuous efforts were made to have dangerous accumulations of slash disposed of and met with considerable success, particularly in the Clay Belt region. A great amount of debris was disposed of along the North Bay-Cobalt road and the Hydro-Electric Power Commission right-of-way through the Trent Inspectorate.

(11) *Travel Permits*

The introduction of the Travel Permit met with great success and received the hearty support of everyone concerned. A total of 6,548 permits were issued, the majority being for the North Bay-Cobalt Road.

(12) Special Investigations

In co-operation with the Dominion Meteorological Service investigations were continued in connection with the relation of different weather factors to fire hazard. Special forecasts were issued during hazardous weather and proved exceptionally useful.

Some experiments were carried out in connection with landscape maps for use in lookout towers and while it is yet too early to make definite predictions in this connection the landscape map appears to have great possibilities.

II.—REPORT OF THE DIRECTOR OF THE AIR SERVICE

Introduction.

The operating season of 1927 has been a successful, eventful period for the Provincial Air Service of the Ontario Government, and has again emphasized the value of aircraft for protection and conservation of Ontario's forest wealth. The success is largely due to those of the Ontario Government who showed their faith by the co-operation and fullest support of the development of aircraft for the work they are intended. One of the most important features of the season was the advent of the Moth seaplanes as an addition to the existing equipment for fire detection duties.

The seaplanes are the first light aeroplanes on floats, and the fact that they were first supplied to and put to practical use by the Provincial Air Service marks the year of 1927 an epoch not only in the history of the Service and Canada, but of the whole world.

Credit for the project is due to the Provincial Air Service, who maintained that with a few modifications the original land plane could be converted into a seaplane.

The success of the Moth as a seaplane has vindicated the venture, much to the satisfaction of the manufacturers, who had misgivings over the adaptability of their obvious land machines.

In the previous Annual Report, mention was made of the fact that the Service was faced with the problem of replacing the obsolescent type of aircraft with modern commercial design and economy in the first cost of aircraft equipment. As the aircraft used in previous years were "written off," the question arose, what moderately priced modern aircraft available could carry out similar work and with equal success to that assigned to the old type. After exhaustive inquiries in America and England the Moth, designed and built by the De Havilland Company, England, was chosen. It was chosen not only because of its low price, which is an important factor to be considered in all commercial flying enterprises, but because its factor of safety is the standard of which dispels any doubt as to its capabilities as a flying machine.

Doubts were expressed that the frail-looking Moth would stand up to the work of which it was required, but their subsequent performances have justified the expenditure and the expectancies placed in them.

The choice of the Moth was not made with a view to completely carrying out the work of the H.S. 2 L. in so far as transportation and suppression, but to lower the cost of fire detection, which constitutes a major item in the duties of the aircraft. A short narration of the characteristics of the Moth may be referred to:—

Cruising speed 75 m.p.h., which allows for much shorter patrols.

Climbing speed 550'/min., which allows the patrol to be commenced almost immediately on leaving the water, instead of circling the base until the required height is attained.

Gas consumption, 20 mls. per gal., or 3.75 gals. per hour.

Oil consumption, one pint per hour.

The H.S. 2 L. weight-lifting type cannot be dispensed with, because transportation, especially in the Western Area, plays a recognized role in fire suppression duties.

Organization—Flying Operations.

The organization of the Service was again altered, but only in respect to opening additional temporary bases in the Western and Eastern areas to render sketching services in the former and fire protection duties in the latter areas. The former object was attained by the establishment of a temporary base at Eva Lake, to which a machine though posted primarily for sketching duties, was invariably called upon to carry out fire protection duties under the direction of the Western Area Superintendent. The latter object was attained by opening a new base at Mattagami to comply with the wishes of the District Forester in that district for further extension of the field of operation. The advantages gained were more than offset by the disadvantages under which this latter base was operated. The lack of telephonic communication in addition to the costly method of transporting gas and oil, machine spares and supplies constitutes a problem which can only be overcome by the abandonment of this base. The Western operating district consisted of five permanent bases and one temporary base, seven flying boats and one seaplane. The Moth seaplane was used exclusively by the Superintendent at Headquarters, Sioux Lookout, and the flying boats allotted as follows:—OG. OT. Sioux Lookout; OH. OQ. Pine Ridge; OL. Fort Frances; OP Kenora; OR. Eva Lake; OT. was transferred to Sudbury District in June. OL. was "written off" in September through fair wear and tear.

This district carried out 2,276.33 hours' flying, which represents 46.88 per cent. of the total flying hours and an average of 284.34 hours per machine.

The Central District consisted of three bases and one sub-base at Port Arthur and three flying boats. OI. was at District Headquarters, Orient Bay; OM. at Shebandowan; and OS. at Longlac. ON. was posted as an additional machine to Orient Bay during July and remained there until the completion of the season.

Flying hours for the operations were 887.00 hours, which represents 18.24 per cent. of the total, an average of 221.45 hours per machine.

The Eastern operating area consists of four bases with four flying boats and three Moths. OK., OW., ON., OT. at Sudbury; OV. at Remi Lake; OX. at Bisco, and OF. at Mattagami; ON. was posted to Orient Bay in July, and OT. was posted from Sioux Lookout.

No actual flying on operations was made by OV. as the pilot left his base and machine without correct notice to participate in the Atlantic flight.

This district carried out 929.45 hours flying which represents 19.10 per cent. of the total flying for the Service, an average of 132.46 hours per machine.

The above low figures are occasioned by the fact that O V. only completed 21.20 hours flying before it was returned to storage, and OT. 7.20 hours from time arrival Sudbury base, flying before being classified as unserviceable. Further to these facts the district was served with but three machines until the arrival of the Moth seaplanes in July.

OK., which remained at Sudbury throughout the whole period, completed 253.30 hours' flying.

Sault Ste. Marie, the general headquarters, supervised the maintenance of the base, Oba Lake, which in previous years was worked under the administration of the Central District Superintendent.

OA. was stationed at the headquarters and OJ. at Oba Lake. These two machines carried out 768.00 hours' flying, which is 15.81 per cent. of the total flying, an average of 384.00 hours per machine.

OA.'s total flying of 485.55 hours, which includes approximately 80 hours on instructional flights, is a very creditable achievement in view of the age of the aircraft, it being the oldest in the Service.

Reconditioning.

The increased flying hours for the shorter operating period and the efforts made to keep the aircraft serviceable, made the overhauling of aircraft and engines a problem which was defeated by the endeavour of the personnel of the Service.

In numerous instances engines were changed overnight, which thus did not inconvenience the organization of the Forestry Branch.

In one instance, during the hazard period, a machine left on patrol in the morning, landed at the Headquarters, installed a new engine and was away on patrol in five hours. This case alone gives an example of the co-operation of the flying personnel in maintaining patrol efficiency.

During the operating period the engineers at the reconditioning base at Sault Ste. Marie, where all engines are completely overhauled every 100 hours, invariably worked all night to supply operating districts with engines.

The organization of the reconditioning period has experienced a complete change. The recommendation in the previous annual report, that pilots as helpers be dispensed with, has been adopted, and instead of the Chief Superintendent and two Assistant Superintendents, the management of the plant is now controlled by the Director, with the assistance of a Liaison Officer stationed at the plant's headquarters.

As the age of the machines increase, so extra precaution must be taken to ensure that they will conform to the Air Board Regulations and will withstand the strenuous work to which they are subject during the season. It is worthy of mention that the wings, hulls and engines are completely stripped and rebuilt each year before the machine is allowed to proceed on operations. The success of the Service in carrying out the requirements of the Forestry Branch has justified this policy, but it cannot be accomplished by allowing inexperienced workers to recondition the machines. It is a well-known fact that this Service can boast of having the best aircraft air engineers in Canada, but as aviation increases, so we must expect to lose some of our engineers. Thus we have to prepare ourselves for this day, which will inevitably arrive, by the formation of a reserve pool which is at present on the strength of the Service, surplus to requirements, but only during the operating season.

Figures have proved that the existing complement of mechanics is none too many for the short time and the amount of work which has to be done during the reconditioning period. In addition to the reconditioning of aircraft and engines, the personnel at the plant constructed various units of equipment for the Forestry Branch, in addition to a number of canoes for the R.C.A.F.

Detection.

As in previous years, the requisitions for fire detection were controlled by District Foresters and patrols were carried out according to their requirements.

Fire detection constitutes the major item of flying in the Provincial Air Service, as is proved annually by statistics, and in view of this endeavours are made to minimize the cost in maintaining this essential duty by the introduction of the Moth seaplane, which can be operated at a comparatively low cost.

During the operating season of 1927, 2,170.53 hours or 44.67 per cent. of the total hours were spent in patrolling the forest area of Northern Ontario. The fact that the percentage is smaller than in previous years can be ignored, in view of the total hours, which exceeds all other figures connected with this duty.

Suppression.

Flying has not supplanted the ground forces in suppressing fires, but they find in aircraft an instrument which increases the efficiency of their work to a great extent.

The total of 948 hours' flying denotes the increased activity in suppression and general transportation duties for the 1927 period.

The Western District, which supplied 640.20 hours, or 67.57 per cent. of the total hours, used aircraft as a means of transportation to remote districts, which otherwise have to be served by canoe.

On a number of occasions the crew of the aircraft whilst on detection duties put out small fires which if allowed to burn until the arrival of the ground forces, may have terminated in disastrous results.

The outstanding feature in connection with fire suppression and transportation during the season was the unfailing efforts of the personnel of the Service in maintaining a machine efficiency which conduced to the favourable results obtained by the suppression forces in fire fighting.

The procedure of issuing requisitions to observers for aircraft to carry out suppression and transportation flights is considered to be incompatible with the nature of the demand, because except on very few occasions observers were not carried and, therefore, have no apparent connection with these duties.

Sketching.

The hours flown during the season on classification forest types was 523.00 (10.47 per cent. of the total flying), an increase of 380 hours over the hours applied to similar service during 1926.

The increased activity in this connection is attributed to the detachment of one machine in the Western District to perform the principal portion of this duty, and the employment of other machines in times of patrol and suppression inactivity.

During this season Eva Lake was utilized as a temporary base, because of its proximity to the area surveyed and because it enabled the observer to collect valuable data for the ground study of forest conditions.

Since forest type sketching from the air is accepted as being quicker, accurate and cheaper, the solution for further economy in relation to this work is the establishment of temporary bases each year near the scene of operation, and the allocation of one or more aircraft exclusively for sketching.

This scheme would eliminate the expense in ferrying the machines daily from their respective bases, and the solicitude which might be felt at Headquarters over the absence of the machine from its primary duties.

Photography.

Topographical Survey accounted for 173.3 hours, which represents 3.56 per cent. of the total hours, which exceeds last year's figures by 74.10 hours.

This steady increase in flying in this particular phase of the year's programme emphasizes the growing importance of air photography for map revision.

A machine which is capable of climbing rapidly is an essential requisite for economy. The initial cost of a modern machine with this characteristic would be required in a few seasons, provided that photography was carried out on a large scale.

Instruction.

The success of the instructional work for the 1927 period would have equalled that of the preceding year had it not been for a regrettable accident which resulted in the death of one Junior B. pupil and injuries to a Junior A. pupil.

The deceased pupil had had 500 hours experience as pilot during the World War, but had not flown consistently since. He received eight hours five minutes instruction prior to solo and carried out solo flights with marked ability and keenness.

The Court of Inquiry which assembled to inquire into the cause of the crash gave a finding of "Error of Judgment" on the part of the pilot.

Whether his prolonged absence from flying suddenly affected his nerves, which made him lose control of the machine, cannot be determined. Evidence points toward this theory because during his instructional flights he showed that he had not lost the touch and nerve gained as a pilot during the war.

Flying, like all occupations requiring nervous and mental strain, cannot be shelved for any length of time. We have seen so often the effects on the nerves of pilots who have not flown for some years and then endeavour to come back.

Sixteen pupils received flying instruction during the season, the total devoted to this work amounting to 110.10 hours, which represents 2.47 per cent. of the total flying hours.

The majority of the pupils chosen to receive instruction were from the personnel of the Forestry Branch Air Service, or Observing Staff, as a result of valuable service rendered to the Service in previous years.

This policy, as outlined in the Annual Report for 1926, has proved a success, because not only does it promote competition amongst the personnel, which is the basis of efficiency and progress, but it gives to the Service pilots experienced in engineering or observing, the results of which will be recognized when two or single seater aircraft are used for forest protection duties.

Following is given the report of the officer in charge of instruction—Summary of Flying Instruction, 1927:—

One new pilot was given instruction in the handling of an H.S. 2 L. flying boat and passed in the Senior Category of pilots.

Two junior pilots graduated from the air engineer staff and passed for service as Junior Pilots B.

Two air engineers, two observers, and one junior pilot B. were given instruction and each successfully carried out a number of solo flights at Sault Ste. Marie. Four of these pilots received the R.C.A.F. Refresher Course at Camp Borden on three types of Avro machines and all passed the course satisfactorily.

One senior pilot was given instruction, owing to his long absence from flying, before proceeding to operating base.

Four junior pilots A. were given preliminary flying instruction, two of whom were returned, one posted as a pilot helper on operations and the fourth posted to engineers' shop under instruction at Sault Ste. Marie.

One senior pilot received instruction and carried out solo flights, but was turned down as not being up to the standard required by the Service.

One engineer (applicant pilot) received instruction and carried out solo flights, but was turned down and reverted to engineer's grade.

Service Flying.

1. *Forced Landings.*—The hours expended for this purpose are apt to create an impression that as the hours decrease yearly, so obviously must the number of forced landings decrease.

This impression is erroneous. Though the decrease for this period is consistent with the decreased forced landings, in reality it denotes the policy of decreasing the proportion of service flying to requisition flying.

In previous years many hours flown in search of aircraft which had forced landed for a minor trouble was naturally charged to service flying.

This unnecessary flying and expense was obviated during the 1927 period by the introduction of a regulation whereby, that in the event of a machine not returning to its base, a certain number of hours were to elapse before carrying out a search.

The success attributed to this regulation is signified by the total of 17.50 hours, a considerable decrease on last year's figures when the increase in flying hours and flights are observed. Of this total, 9.15 hours was consumed by machine OU. in searching for machine OS., which had forced landed in the Kenogami River, and for conveying the men to their respective bases.

2. *Ferrying.*—The total of 240.25 hours (4.9 per cent. of the total time) was assigned in transporting machines to and from their operating bases.

The above figures, which show a small increase on last year's, actually represent a decrease because the field of operation was extended considerably and an additional machine to the Service equipment was transported to the Western Area.

This flying is essential, but since it forms a big item in the expenses of the flying service, no reduction can be anticipated until the slow obsolescent type of aircraft now used are supplanted by a modern, fast and economical type.

Conclusion.

The successful termination of the flying operations for 1927 was largely due to the many other services which gave their whole-hearted support and untiring co-operation throughout the whole period.

A special tribute is due to the District Foresters and Observing Staff who, by their increasing efforts and goodwill, contributed to the congeniality which prevailed, and to the ultimate result of the season's operations.

The personnel of the Provincial Air Service, by their devotion to duty, marked 1927 an era in the history of the Service. Working hours had no limit. They were ever ready at all hours of the day and night to carry out the requirements of the Service.

The staff at Sault Ste. Marie invariably worked all night during a severe hazard period to sustain the supply of engines and the operating staff in the field also managed, by their unceasing efforts, to maintain the highest possible service and patrol efficiency.

We mourn the loss of Capt. T. B. Tully, who was associated with this Service since its inauguration, and who acted as Superintendent and Chief Instructor.

Capt. T. B. Tully's flying record with the Provincial Air Service, Ontario Government, was indeed a very enviable record and his loss to this Service and aviation in general is very keenly felt.

Operating Statistics.

The statistical summary attached indicates the increased activity in almost every phase of the season's operations and emphasizes the fact that the Air Service is becoming year by year a constituent of the Forestry Branch for the preservation of Ontario's forest wealth.

The marked increase in the hours flown on operation, administration and inspection duties was chiefly due to conveying Senior officers of the Provincial Government on inspection duty to remote districts which, before the advent of aircraft, were almost inaccessible.

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS

	1927		1926		1925	
	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.
Fire Detection	2,170.53	44.7	1,957.44	55.4	1,440.40	52.5
Suppression	948.00	19.5	640.17	18.1	155.45	5.7
Sketching	523.00	10.8	142.56	4.0	244.42	8.9
Photography	173.00	3.6	99.25	2.8	53.15	1.9
Special Transportation	127.10	2.6	194.50	5.5	197.40	7.2
Observers' Instruction	31.35	0.7	17.14	0.5	26.50	0.9
Forced Landings	17.50	0.4	29.25	0.8	36.04	1.3
Ferrying (to and from bases)...	240.25	4.9	234.36	6.6	330.41	12.0
Operation, Administration, In- spection	426.00	8.8	62.10	1.8	62.05	2.2
Flying Instruction and Demon- stration	137.05	2.8	117.50	3.3	144.48	5.7
Test	65.30	1.3	42.55	1.2	47.27	1.7
	4,861.03		3,539.22		2,739.52	

EFFICIENCY PROVINCIAL AIR SERVICE OPERATIONS, 1927

MONTH	Requisitioned	Attempted	Completed	Completed same day but delayed	Not completed same day	Percentage completed uninterrupted	Percentage completed same day but delayed	Mechanical causes	Weather
April	5	5	5	..	..	100.00	..	..	..
May	55	54	52	..	2	96.29	3.71	1	1
June	193	191	148	4	9	93.14	2.09	1	12
July	273	271	254	4	13	94.09	1.47	4	13
August	371	368	349	7	12	94.83	1.90	3	16
September	317	313	292	4	19	92.69	1.27	2	21
October	44	47	41	1	5	87.23	2.13	1	5
	1,261	1,251	1,171	20	60	94.03	1.79	12	68

	1927	1926	1925
<i>Flights.</i>			
Total number of flights.....	2,745	1,994	1,312
Average duration of flight.....	1.76 hrs.	1.46 hrs.	2.06 hrs.
Average miles flown per flight.....	105	115	129
Average altitude.....	2,610 ft.	3,197 ft.	1,990 ft.
Average number of flights per day.....	13.8	10.6	6.3
Average number of flights per day per machine, on days machines employed.....	2.10	2.11	.....
Number of miles flown.....	287,305	230,991	165,835
<i>Load.</i>			
Total load-weight carried.....	4,443,913	3,249,372	2,364,275
Total operating load.....	3,170,178	2,589,959	1,810,735
Effective or useful load.....	717,913	659,413	553,540
<i>Passengers Carried.</i>			
Total number of passengers carried.....	2,268	1,636	1,214
Average number of passengers per flight.....	.82	.82	.9
Average number of passengers per machine.....	119	102	71
Total number of passengers and personnel carried...	7,195	5,624	3,938
Machine days, one machine for one day machines employed.....	1,307	944	763
Fairweather machine days, machines available and idle.....	661	793	932
Machine days, machines available and weather unfit for flying.....	615	797	805
Total number of machine days supplied by the Service.....	2,583	2,534	2,500
Number of times one machine unserviceable one day.....	84	117	229
Total possible machine days in season.....	2,667	2,651	2,729
Number of patrols requisitioned.....	1,261	821	553
Number of times machines unable to complete patrol on account of machine trouble.....	12	20	15
Service patrol efficiency.....	96.85	95.59	91.61
Machine patrol efficiency.....	99.05	97.55	.....

III.—REPORT OF THE LIAISON OFFICER

Operations carried out during the past season include:—

- (1) Operations in connection with the use of flying.
- (2) Establishment of radio communication.
- (3) An investigation of lookout tower horizon map construction.
- (4) Improvement of photographic survey methods.
- (5) Classification of O.F.B. maps.

Flying.

The principal feature of the past season, from the standpoint of use as well as operation of aircraft, has undoubtedly been the purchase of a specialized type of machine for fire detection. The type of machine purchased has proven satisfactory and should appreciably reduce the cost of this type of aerial work. These machines are not, however, suited to forest type sketching or oblique photographic survey.

Flying records of the past season, while showing a general similarity to previous years, are distinguished by an increase from twenty-eight hundred to just over four thousand hours, by far the greatest recorded in any single year.

Of this twelve hundred hour increase fully two-thirds is chargeable to transportation of fire-fighting crews and equipment, mainly in the Red Lake

District, while the remaining one-third has been absorbed by survey requirements of various kinds. Regular patrol flying has remained at practically the same figure as in 1926.

Further reference to the increase in transportation flying in the Red Lake district is perhaps hardly required, it being generally realized that conditions in this section of the country require special methods and precautions. The greater use of machines for surveys can be largely explained by the increased experience of the observing staff, and also to a better appreciation on the part of district officers of the information which they can procure.

Some indication of the special administration problems confronting district organizations in different sections of the province and of the diversity of the information to be obtained by aerial survey can be obtained from a list of the surveys undertaken during the past year. These include:—

1. In the Sioux Lookout District:—

A sketch map of 250,000 acres, to show—

- (a) timber types;
- (b) areas of high hazard;
- (c) location of lakes suitable for aerial suppression flying and the country to be reached by canoe from them.

2. In the Port Arthur District:—

Location and examination of six Lookout Tower sites.

3. In the Oba District:—

- (a) Photographic survey of a strip one mile on both sides of all railway rights of way.
- (b) Location of lakes suitable for aerial suppression flying and the country to be reached from them by canoe.

4. In the Sault District:—

- (a) Photographic survey of forty townships.
- (b) Aerial sketching of poorly mapped areas to be patrolled during present season.

5. In the Sudbury District:—

- (a) Photographic survey.
- (b) Aerial Sketching of poorly mapped areas to be patrolled during present season.
- (c) Location of all lakes suitable for aerial suppression flying and country to be reached from them by canoe.

6. In the North Bay District:—

- (a) Photographic survey of poorly mapped townships.
- (b) Aerial forest typing.
- (c) Sketch map of area adjacent to Ferguson Highway.

7. In the Parry Sound District:—

Aerial photographic survey.

To the above, all of which was initiated by the district offices, must be added an almost equal amount of flying to provide type maps as a basis for the departmental forest survey in the Rainy River watershed. This work has provided detailed information over an area of 3,000,000 acres; an increase of 1,000,000 acres over last year's work.

Together with the continued satisfactory performance of regular fire patrols, the information obtained by the above surveys constitutes the Branch's most successful flying season.

Radio.

Radio communication, which was first tested in the period 1924-1925, was utilized during the past season for communication in the Hudson Inspectorate.

Operating with a main base at Sioux Lookout and three outside stations at Pine Ridge, Red Lake and Long Lake, the system handled over one thousand messages for a total of over fifty-eight thousand words. This increase in traffic is well illustrated by the records of the Sioux Lookout station, where thirteen hundred words handled in July—the opening month—increased to twenty-seven hundred in August, and again increased to thirty-seven hundred in September. Should the above condition continue during the coming season, it will be necessary to obtain authority either to inaugurate a charge system or to limit the number of messages accepted on any one day.

Horizon Map.

No practical results have as yet been obtained in this line of work. Briefly stated the problem is to provide a diagram or special map which can be used to relate the ordinary topographic sheet used in Forestry Branch towers to the landscape as seen by the tower observer. In the case of a tower which has been long established, in thoroughly mapped country, operating with a thoroughly competent and experienced tower man, the importance of a horizon map is negligible. Unfortunately, for a variety of reasons, these conditions do not apply to many O.F.B. towers already established. It should be noted further that the development of the horizon map contains the possibility of materially reducing the number of towers required in any territory, with a consequent saving in capital and overhead expenditure.

During the past season two photographic methods of preparing horizon maps were tested in co-operation with the Tweed District office. In the first of these, photographs were taken with a special photo-theodolite loaned by the University of Toronto. This instrument, which is specially designed for survey work, produced very sharp negatives. It was found, however, that in enlargement much of the desired detail was lost. A projection was, therefore, thrown on drawing paper and the detail required, which could be quite readily picked out, traced in by hand. The product of this experiment while partially successful was considered too costly.

Later in the season a special camera was constructed by the district staff and a set of experimental photographs obtained. While still not entirely satisfactory, these would appear to contain the essential information required.

Photographic Survey.

During the past season over two thousand aerial survey photographs were taken, a total which more than exceeds all previous Branch work of this kind.

Two major improvements in the office end of the Branch's methods should also be recorded; first, in the development of aerial film and, second, in the final construction in workable form of a perspective pantograph.

By the use of our own developing outfit, negatives and prints have improved very markedly. It has also been possible with this equipment to maintain much better co-operation with the photographers in the field than when developing and finishing were done by an outside organization.

The photographic plotting apparatus mentioned above, which has been constructed to a design evolved by members of the Branch, has proved successful. By its use plotting can be carried on twice as rapidly and with a considerable increase in accuracy. The apparatus is capable of still further development.

Classification of Maps.

This rather prosaic operation, carried out during the past summer, was made possible by the enlarged quarters of the Branch. Some five hundred documents were sorted, classified and catalogued.

IV.—REFORESTATION

Provincial Forest Stations:

St. Williams (Norfolk County).

Orono (Durham County).

Midhurst (Simcoe County).

Provincial Transplant Nurseries:

Sand Banks (Prince Edward County).

Kemptville (Grenville County).

County Forests:

Hendrie (Simcoe County).

Vivian (York County).

Northumberland (Northumberland and Durham Counties).

Uxbridge (Ontario County).

*Private Forests.**Tree Planting:*

Private Planting.

Demonstration Plots.

*Seed Collecting.**Summary of Nursery Stock.**Summary of Tree Distribution.*

SAINT WILLIAMS NURSERY

During the late fall of 1926, and winter of 1927, a small staff of fifteen men was retained for the purpose of carrying on essential work of a reparatory nature. These men included first and second foremen, clerk, nine gang bosses, and three teamsters.

When weather conditions were favourable for outside work, silvicultural operations were carried on over a section of natural woodland comprising a portion of the Station. This policy of improvement cuttings has been consistently adhered to for a number of years with the result that several hundred acres of young forest are now being managed on strict forest principles. This work, aside from providing an example for the proper handling of farm woodlots in the community, is effective in producing stands of superior species and an increased annual increment.

Inside operations, when the weather is stormy, include crate construction, seed extraction, painting and repairing of all tools and implements, and the many other small jobs that need to be cleaned up during the dormant season.

Nursery operations commenced on March 17th. A staff of seventy-three men were taken on strength, and lifting of stock for permanent distribution was commenced immediately. Approximately 4,910,300, all species, were lifted, and indicate the number of trees that were disposed of in the spring of 1927.

CONIFERS		DECIDUOUS	
SPECIES	Number	SPECIES	Number
White Pine.....	617,000	White Ash.....	68,000
Red Pine.....	1,167,000	White and Yellow Birch.....	11,000
Scotch Pine.....	896,000	Elm.....	117,000
Jack Pine.....	509,000	Honey Locust.....	3,900
White Spruce.....	216,000	Black Locust.....	1,200
Norway Spruce.....	293,000	Manitoba Maple.....	3,500
White Cedar.....	369,000	Soft Maple.....	82,000
European Larch.....	45,000	Hard Maple.....	9,000
		Red Oak.....	38,000
		Butternut.....	1,200
		Walnut.....	55,000
		Chestnut.....	10,000
		Basswood.....	5,900
		Willow Cuttings.....	7,600
		Carolina Poplar.....	385,000
	<hr/>		<hr/>
	4,112,000		798,300
Total.....			4,910,300

Concurrent with lifting operations, transplanting of seedlings was carried on. In all, 5,937,500 transplants were transferred from the seed-bed area to nursery lines and includes the following species and number of each lined out:

TRANSPLANTS LINED OUT DURING SPRING OF 1927

HARDWOODS		CONIFERS	
	Number		Number
Elm.....	40,000	White Pine.....	2,000,000
Carolina Poplar Cuttings.....	120,000	Red Pine.....	1,400,000
Willow Cuttings.....	2,000	Scotch Pine.....	270,000
Basswood.....	2,500	Jack Pine.....	490,000
White Birch.....	15,500	White Spruce.....	800,000
Yellow Birch.....	9,000	Norway Spruce.....	380,000
Red Oak.....	13,000	Sitka Spruce.....	2,800
Pepperidge.....	3,600	White Cedar.....	136,000
Beech.....	1,000	Red Cedar.....	1,800
Hackberry.....	500	Hemlock.....	10,000
Soft Maple.....	600	Balsam.....	55,000
Chestnut.....	1,200	European Larch.....	183,000
			<hr/>
Totals.....	208,900		5,728,600
Grand total.....	5,937,500		

New seeding was confined almost entirely to that of a fall operation. The number of beds put in were as follows:—

CONIFEROUS SEED SOWN

SPECIES	Number of Beds Sown	Total Seed Sown	
		Pounds	Ounces
White Pine.....	155	174	6
Red Pine.....	935	668	2
Red Pine.....	112	70	..
Scotch Pine.....	55	34	6
Scotch Pine.....	25	15	10
Jack Pine.....	85	53	2
White Spruce.....	76	57	..
Norway Spruce.....	130	113	12
White Cedar.....	46	28	12
White Cedar.....	24	12	..
Red Cedar.....	8	40	..
Japanese Larch.....	30	30	..
Totals.....	1,681	1,297	2

HARDWOOD SEED SOWN

Species	Number of Beds Sown	Total Seed Sown	
		Pounds	Bushels
Black Cherry.....	30	120	..
White Birch.....	26	26	..
Yellow Birch.....			
Basswood.....	6	28	..
White Ash.....	in belts	116	..
Hard Maple.....	"	130	..
Black Locust.....	"	18	..
Walnut.....	in rows	..	82
Red Oak.....	"	..	20
Totals.....	62	438	102

In addition to the foregoing disposal of transplants, shipments were made to other Provincial Forest Stations, viz.:—

SPECIES (Conifers)	Orono	Midhurst	Kemptville	Sand Banks	Total
White Pine.....	395,000	.....	12,000	4,000	411,000
Red Pine.....	380,000	.....	40,000	10,000	430,000
Jack Pine.....	100,000	.....	10,500	.....	110,500
Scotch Pine.....	75,000	.....	9,500	9,500	94,000
White Spruce.....	145,000	.....	26,500	.....	171,500
Norway Spruce.....	160,000	100,000	10,000	8,500	278,500
	1,255,000	100,000	108,500	32,000	1,495,500

SPECIES (Hardwoods)	Orono	Midhurst	Kemptville	Sand Banks	Total
White Ash.....	800	.....	800
Elm.....	400	.....	400
Soft Maple.....	1,200	.....	1,200
Hard Maple.....	1,200	.....	1,200
Carolina Poplar.....	100,000	100,000
	3,600	100,000	103,600
Total.....	1,599,100

Fertilizers.—As a result of heavy fertilizing over a period of years, our nursery area has been brought up to a high state of fertility, and it is now found unnecessary to fertilize so intensively as heretofore.

The policy of growing leguminous crops to be plowed under for green manure is, however, being consistently adhered to, and this procedure, supplemented by a light top dressing of decomposed manure appears to be all that is required to maintain an efficient soil condition for the production of nursery stock. Commercial fertilizer, true, is applied to a number of compartments that are not quite up to the mark, but the quantity of lime, phosphates and blood is in no degree as great as that which it has been the custom to use in former years.

FERTILIZERS APPLIED DURING 1927

ANIMAL		MINERAL	
Manure Tons	Dried Blood Pounds	Lime Tons	Rock Phosphate Pounds
336	1,325	Nil	12,700

Tree Seed.—Heavy inroads have been made on the surplus seed stock in storage at Saint Williams. Due partly to the fact that recent seed years have not been the best, but more particularly on account of increased production of all three Forest Stations, seed requirements are more than doubled.

Present amount of seed in storage includes:—

SPECIES	Weight (lbs.)
White Pine.....	11
Red Pine.....	41
Scotch Pine.....	None
Jack Pine.....	16
Norway Spruce.....	591
White Spruce.....	6
Hemlock.....	66
European Larch.....	67½
Balsam.....	132¼
White Cedar.....	2
Black Locust.....	11½
	944¼

Addition to Property.—The outstanding feature as regards addition to property, is the recent acquisition of what is known as the Turkey Point property. As the Norfolk Forest Station No. 2, this area, comprising some 1,500 acres of partly wooded sand land, is possessed of vast potentialities from the viewpoint that there are several areas suitable for the production of nursery stock, while other expansive stretches of waste land provide the possibility of establishing experimental forest plantations.

Rapid development of this area has been effected during the recent summer. Three and three-quarters miles of road have been graded thirty feet in width, after which gravel had been applied "three loads wide."

A legendary gravel pit on the property was brought to light as a result of systematic soundings having been taken. To date more than 10,000 yards of gravel have been mined, and soundings indicate an almost inexhaustible supply. The value of this pit is accentuated since it is located in a district where gravel is at a premium. Arrangements are being made to establish a small transplant organization with an experienced foreman in charge.

Aside from its unquestionable suitability as a Forest Station, the development of this area is not of less significance in that Turkey Point, already widely known as a summer resort, will become a spot of greater educational and recreational importance.

One mile of telephone line has been constructed, providing communication between this Forest Station at Turkey Point and Headquarters.

Roads.—In addition to the aforementioned road construction, all fire lines and wood roads were maintained in good condition.

Fencing.—A new nine-strand wire fence, approximately one mile in length, was erected along the crest of the escarpment at Turkey Point, for the purpose of preventing cattle and people from trailing up and down the steep hillsides. This year an endeavour has been made to prevent the very rapid erosion of these lake shore banks, by means of layering willow and planting pine thereon.

Plantations.—Extension work in connection with plantations assumed increased proportions this year. In excess of 700,000 trees were planted on the Turkey Point property alone, while several thousand conifers were set out at Headquarters to make new plantations and fill in thin places on existing woodland areas.

PERMANENT PLANTINGS AT THE NORFOLK FOREST STATION DURING 1927

SPECIES	Number
Carolina Poplar cuttings.....	133,000
Carolina Poplar rooted.....	25,700
Willow cuttings.....	67,500
Willow rooted.....	2,500
White Pine.....	111,000
Red Pine.....	158,280
Scotch Pine.....	103,000
Jack Pine.....	210,000
Black Locust.....	1,200
	812,180

Survey.—A survey of Station No. 2, at Turkey Point, has just been completed. The data procured will show types, crest contours, all roads, streams, plantations, and site classifications. The entire property of approximately 1,500 acres will be drawn to the scale of 400 feet to one inch, while a more detailed map 200 feet to one inch has been prepared of that section chosen as headquarters of the Station and at which point it is intended to develop the forest nursery.

A site comprising sixty acres of excellent nursery ground has been blocked off into compartments and is ready for nursery operations of 1928.

Protection.

Animals.—It appears to be absolutely imperative that all sections in the vicinity of a nursery be maintained in a clean and tidy condition. The accumu-

SPRING SOWING OF CONIFEROUS BEDS

SPECIES	Number of Beds Sown	Total amount of Seed Sown	
		Pounds	Ounces
White Cedar.....	12	9	..
Red Pine.....	35	26	4
Scotch Pine.....	20	12	8
White Pine.....	30	45	..
	97	92	12

FALL SOWING OF CONIFEROUS BEDS

SPECIES	Number of Beds Sown	Total amount of Seed Sown	
		Pounds	Ounces
White Cedar.....	50	37	8
Hemlock.....	5	6	4
Jack Pine.....	50	29	6
Red Pine.....	500	375	..
Scotch Pine.....	50	31	4
White Pine.....	105	157	8
Norway Spruce.....	50	62	8
White Spruce.....	50	50	..
	860	749	6

In addition to the above coniferous seed, the following hardwood seeds were sown:—

FALL SOWING OF HARDWOOD SEED

SPECIES	Total Amount of Seed Sown
	Bushels
White Ash.....	25
Basswood.....	1
Butternut.....	12½
White Elm.....	2
Hard Maple.....	16
Silver Maple.....	5
Red Oak.....	26
Walnut.....	58
	145½

Transplanting.—In the spring, 1,600,000 conifers and 75,000 hardwoods were transplanted, as follows:—

CONIFERS

SPECIES:	Number of Seedlings
White Cedar.....	47,000
Jack Pine.....	62,000
Red Pine.....	312,000
Scotch Pine.....	117,000
White Pine.....	709,000
Norway Spruce.....	147,000
White Spruce.....	229,000
	1,623,000

HARDWOODS

SPECIES:	Number of Seedlings
White Ash.....	6,500
White Elm.....	16,000
Hard Maple.....	2,400
Silver Maple.....	50,000
	74,900

Fertilizers.—Green manures were used extensively where possible, crops of fall rye and buckwheat being ploughed under. Two plots were seeded to sweet clover in the spring and a good catch has been obtained. In addition, the following fertilizers other than green manures, were applied during the year:—

ANIMAL		MINERAL		
Manure Tons	Dried Blood Pounds	Acid Phosphate Pounds	Sulphate of Ammonia Pounds	Muriate of Potash Pounds
130	1,150	1,500	325	800

Demonstration Plantations.—No additions were made to nursery demonstration plantations this season, the only activity in this section being confined to maintenance and the refilling of fail places.

In the Manvers township municipal demonstration plot, 12½ acres were planted to red, white, jack and Scotch pine and bands of poplar cuttings were run across the wind direction.

Property.—During the early part of the year a two hundred acre area, comprising lot 22, concession 1, Manvers township, Durham county, having been taken over by the Department of Lands and Forests, came definitely under the jurisdiction of this Forest Station.

This land, which supported an uneven aged mixture of white pine, red pine, red oak, hard maple and white birch, was logged for saw timber and ties (oak) in the winters of 1923 and 1924. It was cut over for cordwood in the winters of 1925 and 1926. Cutting, however, was restricted to a diameter limit of eight inches D.B.H. for pines, and six inches D.B.H. for hardwoods and, as a result, sufficient seed trees were left to ensure adequate reproduction. A splendid young growth is already established consisting mainly of white pine and red oak, with a fair percentage of red pine, hard maple and white birch interspersed. It is hoped that some silvicultural operations may be commenced next year.

Irrigation.—The most important single operation undertaken during the year was the laying out and installation of an irrigation system. As the success of our nursery operations are so dependent on irrigation, all other activities were made subordinate to this work.

The water supply is obtained from a spring creek which passes through the northeast corner of the property, along the east side and through the southeast corner. A retaining wall thirty feet long by three feet above water level and four feet below, was constructed along the creek and through an opening in this the water is conducted by means of a foot-square concrete chute, ten feet long, into a supply cistern 20 feet x 12 feet x 6½ feet. The water is screened in the chute by a series of graduated mesh screens.

The pump house—a 15 foot x 18 foot cottage-roofed building—is located fifteen feet beyond the cistern. In it are the engine and a three-stage centrifugal pump. The suction pipe is four inches by twenty feet long, fitted with a foot valve, while the discharge is three inches by 230 feet to the base of the tower, which is forty-five feet above the water level in the cistern. From the base of the tower the water is elevated 100 feet to the bottom of the 10,000 U.S. gallon tank.

A heater-house, ten feet by twelve feet and of cottage roof style, is located on the ground immediately beneath the tank, to which it is connected by a three-ply frost-proof box which protects the main feed pipe (4-inch), the heater pipe (2½-inch) and the overflow pipe (1½-inch). In this heater-house is a coal heater with a water jacket which causes sufficient circulation through the 2½-inch pipe to the tank to prevent freezing. A four-inch gate valve is located in this building, permitting control of the filling of the tank.

The four-inch distribution main is laid at a depth of from five feet to eight feet below the surface of the ground. Outlets (1½-inch) through tees and kerb cocks were located at intervals of 300 feet along the distribution main, while four hydrants (1½-inch) placed strategically among the buildings give excellent fire protection and four gate valves (4-inch) located on the pipe line give shut-off control over the various sections of the line. A total of 5,775 feet of four-inch main was laid.

Buildings.—Aside from the pump-house, heater-house, retaining walls, cistern and various concrete work necessitated by the irrigation installation, construction was confined to a tool-house fourteen feet by eighteen feet, located at the lower end of the seed-bed area. This will take care of tools and materials during seeding seasons and will fill a long-felt want.

A bush shack, fourteen feet by eighteen feet, with a shanty roof was erected on the 200 acre bush lot. This was sheathed inside and out with lumber obtained on the property and the walls loosely packed with sawdust. It is proposed to use this building as a temporary shelter for any men who are engaged in cleaning up operations on the property.

Roads.—A wagon road was constructed to link up the pump-house and tower with the main nursery road. This entailed considerable grading as a large section of the road was located on a steep side hill. Main nursery roads were graded and gravelled.

Publicity.—The fall fair exhibit was considerably curtailed this year, being confined to a tent exhibit at Colborne in Northumberland county, and at Orono. Favourable results were obtained in both cases and it is hoped that we may be enabled to carry on next year on the same scale as has previously been the case.

Co-operation with the Department of Agriculture through the Durham County Representative was continued and extended. Lectures on reforestation and forestry generally were given at the Agricultural Short Course at Blackstock, in Darlington township, during the winter. A small exhibit of trees with an appropriate explanatory card was also used to embellish the Durham and Northumberland counties exhibit in the Department of Agriculture section at the Canadian National Exhibition.

A splendidly attended lecture was also given before the Clarke township Horticultural Society.

These exhibits and lectures, together with the more general information issued from Toronto, are bearing splendid results. In Durham and Northumberland there are now two county forests totalling 1,800 acres, six or more municipal demonstration plots, and a steadily increasing interest in reforestation, woodlots and the forests generally, among the people as a whole.

TREES FOR DISTRIBUTION IN 1928

CONIFERS:		HARDWOODS:	
White Pine.....	515,000	Walnut.....	13,500
Red Pine.....	335,000	Butternut.....	5,000
Scotch Pine.....	475,000	Elm.....	22,000
Jack Pine.....	100,000	Ash.....	100,000
White Spruce.....	200,600	Soft Maple.....	51,500
Norway Spruce.....	125,000	Hard Maple.....	1,000
White Cedar.....	26,000	Red Oak.....	1,000
Red Cedar.....	4,000	Black Cherry.....	5,000
		Basswood.....	800
		Poplar Cuttings.....	30,000
		Willow Cuttings.....	25,000
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	1,780,600		254,800
Total.....			2,035,400

Other trees in various stages of development, 9,934,700.

MIDHURST NURSERY

A change in superintendents took place late in August. Only fifteen permanent men were carried through the winter, but the average monthly number of men on the pay-roll for the year was twenty-eight. No building was done during the year.

Silviculture.—Improvement cuttings were made during the winter, removing all diseased, crooked and undesirable trees from the woodlots. The poplar canker (*Hyphoxylon pruinaum*), which attacks large-toothed poplars up to ten inches D.B.H., continues to kill thousands of trees through this part of the country. Trees affected with this disease are removed on this station as quickly as they are detected.

From the trees removed 371 small logs were drawn to the local mill and sawn into lumber for making shipping crates.

Other Winter Work.—During the winter 401 loads of muck were drawn from the swamp and spread on the land to increase the humus content of the soil.

In all 360 shipping crates were made.

FERTILIZERS APPLIED TO SEED-BEDS AND NURSERY LINES, 1927

Manures.....	368 tons
Bone Meal.....	357 lbs.
Acid Phosphate.....	263 lbs.
Nitrate of Soda.....	63 lbs.

CONIFEROUS SEED BEDS

SPECIES:	Sown		
	Fall 1926	Spring 1927	Fall 1927
Red Pine.....	117	47	656
White Pine.....	44	52	173
Scotch Pine.....	42	9	16
Jack Pine.....	..	15	..
Norway Spruce.....	37	..	59
White Spruce.....	9	30	40
White Cedar.....	9	6	32
Hemlock.....	6
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	26	159	976

HARDWOOD SEED SOWN

SPECIES:	Number of Bushels
Black Cherry.....	15
Red Oak.....	45
Basswood.....	1
Sugar Maple.....	9
Butternut.....	23
Walnut.....	202
Hickory.....	1½
Silver Maple.....	10
American Elm.....	2
Green Ash.....	½
	309

The following seedlings were lined out during the season of 1927:

SPECIES:	Spring	Fall
Red Pine.....	382,896	181,960
White Pine.....	1,044,668	74,520
Scotch Pine.....	194,400	.....
Jack Pine.....	120,960	.....
White Spruce.....	206,128	.....
White Cedar.....	39,960	.....
Balsam.....	43,344	.....
Red Cedar.....	9,936	.....
	2,042,292	256,480
Total for season.....		2,298,772

Publicity.

The Provincial Forest Station exhibit was shown at the following township school fairs in the County of Simcoe: Vespra at Midhurst, Tay at Vasey, Tiny at Wyevale, Essa at Ivy, and Sunnidale at Sunnidale Corners. The exhibit was also sent to the following fall fairs: Oro, Orillia, Midland, Barrie, Collingwood, Elmvalle, Alliston, Bradford and Cookstown.

Community Centre.

Each year sees the Forest Station used more as a community centre. The athletic field and the open-air skating rink draw the young people for miles around. In September the Vespra Township school fair was held on the grounds and had a record attendance.

S STOCK ON HAND FOR 1928 DISTRIBUTION

CONIFERS:		HARDWOODS:	
White Pine.....	629,000	Silver Maple.....	22,500
Red Pine.....	270,000	Black Cherry.....	3,400
Scotch Pine.....	380,000	Butternut.....	2,000
Jack Pine.....	30,000	Walnut.....	6,900
White Spruce.....	100,000	Red Oak.....	25,000
White Cedar.....	355,000	Willow Cuttings.....	25,000
		Poplar.....	30,000
		Balsam.....	400
		Red Cedar.....	8,500
		Elm.....	10,500
		White Ash.....	1,000
		Hard Maple.....	300
	1,764,000		135,500
Total.....			1,899,500

Nursery stock in various stages of development, 6,259,113.

TRANSPLANT NURSERIES

SAND BANKS

The work already established in connection with holding the drifting sand was strengthened and supplemented where necessary this year. Planting of poplar and willow and some conifers was continued in sheltered places.

NURSERY STOCK FOR DISTRIBUTION, 1928

CONIFERS:		HARDWOODS:	
White Pine.....	8,600	Larch.....	80
Red Pine.....	8,755	Butternut.....	80
Jack Pine.....	2,430	Elm.....	180
Scotch Pine.....	12,624	Hard Maple.....	500
White Spruce.....	13,350	Soft Maple.....	80
Norway Spruce.....	7,440	Red Oak.....	556
White Cedar.....	17,870	White Ash.....	9,140
Red Cedar.....	5,000	Poplar Cuttings.....	150,000
		Willow Cuttings.....	50,000
	<hr/>		<hr/>
	76,069		210,616
	<hr/>		<hr/>
Total.....			286,685

Nursery stock in various stages of development, 12,970.

KEMPTVILLE

Trees were distributed locally from this nursery as in former years and several thousand were shipped by rail. The small area of this nursery is still a drawback in furthering the interest of reforestation in this section of the Province.

STOCK ON HAND FOR DISTRIBUTION, 1928

CONIFERS:		HARDWOODS:	
White Pine.....	4,000	Ash.....	800
Red Pine.....	37,500	Elm.....	400
Jack Pine.....	10,500	Hard Maple.....	1,200
Scotch Pine.....	9,500	Soft Maple.....	1,200
White Spruce.....	13,250		
Norway Spruce.....	9,000		
	<hr/>		<hr/>
	83,750		3,600
	<hr/>		<hr/>
Total.....			87,350

Nursery stock in various stages of development, 50,250.

COUNTY FORESTS

HENDRIE (Simcoe County)

Only seventy-four acres of the Simcoe County forest remain to be planted and this is already sparsely covered with young hardwoods. This 1,000-acre forest will be completely planted in the spring of 1928. All plantations are doing well. Hundreds of visitors have called to see this forest during the past year.

All fire roads were kept cultivated during the summer to keep down weeds.

A certain amount of silvicultural work was carried on during the winter. Scattered defective trees were cut into fuel.

The following trees were planted:

Red Pine.....	127,000
White Pine.....	23,500
Scotch Pine.....	22,000
Jack Pine.....	12,000
	184,500

VIVIAN (York County)

During the year 1,000 rods of fence were built, 100 rods of fire line cleared, and six acres of woodland were improved during the winter.

The following trees were planted:

Red Pine.....	48,000
White Pine.....	48,000
Scotch Pine.....	173,000
Jack Pine.....	33,000
White Spruce.....	5,000
Larch.....	3,000
White Cedar.....	150
Poplar Cuttings.....	100,000
Poplar, rooted.....	200
	410,350

NORTHUMBERLAND

(United Counties of Northumberland and Durham)

During the year 1927, 2½ miles of fire line were cut for the purpose of segregating the forest property from adjacent woodland. Ten rods of fencing were built and 8½ acres of woodland were improved.

Trees planted were as follows:

White Pine.....	61,000
Red Pine.....	110,000
Jack Pine.....	37,000
Soft Maple.....	500
Elm.....	500
Ash.....	500
	209,500

UXBRIDGE (Ontario County)

During the year forty rods of wire fence were built, $2\frac{3}{4}$ miles of fire lines were completed and five acres of woodland were improved. A caretaker's house with adjoining barn and poultry buildings were erected during the summer.

Trees planted were as follows:

White Pine.....	50,000
Red Pine.....	50,000
Scotch Pine.....	50,000
Jack Pine.....	50,000
	200,000

DURHAM

(United Counties of Northumberland and Durham)

During the late autumn the purchase of an additional 1,000 acre tract was commenced by these United Counties. The initial block consists of 790 acres in the Township of Clarke.

PRIVATE FORESTS

OSLER

The following trees were planted:

White Pine.....	30,000
Red Pine.....	70,000
Scotch Pine.....	63,000
Jack Pine.....	25,000
	188,000

WILLIAMS

The following trees were planted:

White Pine.....	1,000
Red Pine.....	15,000
Scotch Pine.....	2,000
Jack Pine.....	1,000
White Spruce.....	2,000
	21,000

MULOCK

The following trees were planted:

Red Pine.....	20,000
Scotch Pine.....	12,000
Walnut.....	9,000
Willow Cuttings.....	1,800
	42,800

PRIVATE PLANTING

This year 3,838 persons received trees for private planting. A total of 4,176,205 trees were distributed for this purpose.

DEMONSTRATION PLOTS

New plots established:

Hanover.....	White Pine.....	7,000
	Red Pine.....	17,500
	Scotch Pine.....	20,000
Laurier.....	Cedar.....	1,000
	Red Pine.....	150,000
Lindsay.....	White Pine.....	4,000
	Red Pine.....	250
	Scotch Pine.....	3,000
North Bay.....	White Pine.....	5,000
	Red Pine.....	5,000
Parry Sound.....	White Pine.....	4,000
	Red Pine.....	4,000
	Scotch Pine.....	2,250
	Jack Pine.....	2,000
	Red Maple.....	500
	Silver Maple.....	200
	White Birch.....	300
St. Marys.....	Red Pine.....	2,000
	Scotch Pine.....	2,000
	Cedar.....	1,000
	Elm.....	4,000
	White Ash.....	4,000
Welland Ship Canal.....	Soft Maple.....	4,000
	White Ash.....	10,200
	Poplar Cuttings.....	10,000
	Willow Cuttings.....	20,000

Additions to plots previously established:

Albermarle.....	Red Pine.....	3,000
	Scotch Pine.....	3,000
Barrie.....	White Pine.....	2,000
	Red Pine.....	1,000
Beeton.....	White Pine.....	5,000
	Scotch Pine.....	18,550
Burford.....	Scotch Pine.....	2,400
Camp Borden.....	White Pine.....	54,500
	Red Pine.....	73,700
	Scotch Pine.....	93,970
	Jack Pine.....	19,750
	White Spruce.....	23,800
	Cedar.....	3,370
	Larch.....	10,000
	Butternut.....	14,950
	Elm.....	24,570
	Soft Maple.....	19,380
	Red Oak.....	5,200
	White Ash.....	20,800
	Poplar Cuttings.....	3,370
Cramahe.....	Scotch Pine.....	1,000
	Jack Pine.....	500
	Poplar Cuttings.....	5,000
Devil's Elbow.....	White Pine.....	20,000
	Red Pine.....	20,000
Elizabethtown.....	Scotch Pine.....	1,000
Guelph.....	White Pine.....	5,000
	Scotch Pine.....	5,000
	White Spruce.....	100
	Soft Maple.....	5,200

Additions to plots previously established—*Continued*

Manvers.....	Scotch Pine.....	7,500
	Red Pine.....	10,000
	Jack Pine.....	7,500
	Poplar Cuttings.....	5,000
	Willow Cuttings.....	1,000
Mono.....	Red Pine.....	7,500
	Scotch Pine.....	7,500
Mulmur.....	Scotch Pine.....	10,000
Norfolk County.....	Red Pine.....	82,000
	Scotch Pine.....	5,000
	Norway Spruce.....	400
	Walnut.....	3,300
	Elm.....	37,000
	Rooted Poplar.....	4,000
Sunnidale.....	Scotch Pine.....	10,000
	Poplar Cuttings.....	10,000
Uxbridge.....	Scotch Pine.....	17,000
	Jack Pine.....	18,000
Windham.....	White Pine.....	5,000
	Red Pine.....	5,000
	Scotch Pine.....	5,000
Woolwich.....	Red Pine.....	2,000
	Scotch Pine.....	5,000

SEED COLLECTING

During the summer the main drying shed at Angus was struck by lightning and burned to the ground. Aside from the building the loss in cones was small as the extracting for the season was almost completed.

During the early autumn two new drying sheds were erected providing a total drying and storage area for 10,000 bushels of cones. Other improvements to the property included a foreman's residence, an underground vault for storing seed, a concrete water cistern, and the installing of a delco electric plant.

The following tree seed was gathered:

White Pine cones.....	6,330	bushels
Red Pine cones.....	1,485 $\frac{3}{8}$	"
Scotch Pine cones.....	47	"
Jack Pine cones.....	1,078 $\frac{7}{8}$	"
Austrian Pine cones.....	37 $\frac{3}{8}$	"
Hemlock cones.....	10 $\frac{5}{8}$	"
Tamarack cones.....	$\frac{7}{8}$	"
White Spruce cones.....	146	"
Norway Spruce cones.....	8 $\frac{1}{8}$	"
Black Spruce cones.....	1	"
Balsam cones.....	2 $\frac{3}{8}$	"
White Cedar cones.....	151 $\frac{1}{4}$	"
Red Cedar cones.....	4 $\frac{1}{2}$	"
Walnuts.....	51 $\frac{1}{4}$	"
White Ash.....	21 $\frac{1}{4}$	"
Red Oak.....	130 $\frac{5}{8}$	"
Sugar Maple.....	24 $\frac{7}{8}$	"
Manitoba Maple.....	$\frac{1}{2}$	"
Basswood.....	5 $\frac{1}{8}$	"
Hickory.....	1	quart
Butternuts.....	18 $\frac{3}{8}$	bushels

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SUMMARY OF NURSERY STOCK FOR PLANTING, 1928

NURSERY	Conifers	Hardwoods	Totals
St. Williams.....	5,165,000	817,600	5,982,600
Orono.....	1,780,600	254,800	2,035,400
Midhurst.....	1,764,000	135,500	1,899,500
Sand Banks.....	76,069	210,616	286,685
Kemptville.....	83,750	3,600	87,350
Totals.....	8,869,419	1,422,116	10,291,535

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private planting (reforestation and windbreaks).....	3,528,248	544,676	103,281	4,176,205
Demonstration Plots.....	800,820	156,300	54,370	1,011,490
Northumberland Forest.....	208,000	1,500	.....	209,500
Vivian Forest.....	310,150	200	100,000	410,350
Hendrie Forest.....	184,500	.....	.....	184,500
Uxbridge Forest.....	209,500	.....	.....	209,500
Private Forests.....	241,000	9,000	1,800	251,800
Northern Districts.....	52,650	350	2,000	55,000
St. Williams.....	576,400	1,200	332,100	909,700
Midhurst.....	62,100	1,100	.....	63,200
Sand Banks.....	49,995	3,480	54,792	108,267
Totals.....	6,223,363	717,806	648,343	7,589,512

V.—FOREST SURVEYS

The forest survey programme as outlined for 1927 involved the examination of the area in the Rainy River and Kenora districts draining to Rainy lake, exclusive of Quetico park.

This whole area comprises some 8,000 square miles or 5,120,000 acres and made too large a proposition for one season with the field force available. Consequently for 1927 only the country draining to Otukamamoan or Trout lake, the Big Turtle river, the Little Turtle river, the Seine river, the Atikokan river, and the Pipestone and Namakan rivers was considered.

Area.

This reduced area extends from the Sixth Meridian, run by Patton, 1921, east to the boundary of Rainy River and Thunder Bay, and from Quetico park north to the height of land.

The whole tract contains approximately 4,455 square miles or 2,850,977 acres. In this total, however, are 605 square miles or 387,200 acres under timber license. While the areas under license were sketched there was no effort made to secure an estimate.

Object.

The object of the survey was:

First, to classify the area according to existing forest types and age class conditions.

Secondly, to prepare a supplemented and improved map of the physiographic features.

Thirdly, to secure an estimate of the available pulpwood and timber resources.

Fourthly, to make general studies in immature stands to obtain an idea of their potential value.

Method.

Methods used in previous years were again employed to satisfy the object of the survey. The organization consisted in aerial sketching work in conjunction with field parties.

Aerial Sketching.—Work was carried on from two air bases, one at Eva lake south of Kawene on the Canadian National Railway, and the other at Fort Frances. Maps were prepared by direct sketching from the air, showing the existing waterways improved, plus any additional lakes and streams. With the waterways mapped more completely, sketching of forest types proceeded. Finally as the sections of the country were sketched these maps were turned over to the field parties.

Ground Work.—Strips were used to obtain samples for the estimate and check type boundaries. For most of the area strips were run at half-mile intervals, but in the better pine stands this distance was reduced to one-quarter mile. The width of strip also varied from eleven feet to sixty-six feet according to the class of timber and the density of the stand.

Strips thirty-three feet wide were run in selected young and second-growth stands and all trees were tallied. This supplied complete composition for the stand. Plots were then laid out and a growth analysis made on trees representing each diameter class.

As the plots were taken in representative stands from young growth to maturity the changes in composition and growth could be recorded.

General Forest Conditions.

Three type conditions were recognized by composition, namely, coniferous stands having less than 20 per cent. of the species hardwoods; mixed stands having 20-80 per cent. hardwoods; and hardwood stands having less than 20 per cent. of the species conifers. A further division of the type was made on the basis of age or maturity. Types were mapped as mature, second growth, or young growth. A mature stand is one now containing close to its maximum yield and is ready to be cut. Second-growth stands are more confusing to define. Where a stand of timber has originated after a fire—is now from 40-60 years old and the average diameter of the trees is 6"-7" for jack pine and 4"-5" for spruce the stand has been classed as second growth. Recently as a result of growth studies made for jack pine and spruce, a second growth-stand is one which if allowed to grow can reasonably be expected to double its value in another twenty years. Young growth stands represent a more immature growth, usually the growth from 15-40 years after a fire. Trees are from 1"-4" in diameter, so that the whole stand does not carry trees of commercial sizes.

Since so much of the surveyed area has been classified as "recent burn" this term deserves definition. After an area has been burned over there is a period, lasting up to fifteen years, during which the new growth does not express what the future composition might be. Consequently until such areas can be

designated as young growth either mixed, coniferous or hardwood no finer classification can be made. In reality such areas are young growth unclassified.

Over the entire tract of 2,463,777 acres, 735,574 acres or 29.9 per cent. is covered by the coniferous type; 361,251 acres or 14.7 per cent. by the mixed type, and the balance, 1,366,952 acres or 55.4 per cent. by recent burn, water, muskeg, and barren.

The age class relationships over the tract show 346,485 acres or 14.2 per cent. covered by mature growth; 252,252 acres or 10.2 per cent. by second growth; 492,543 acres or 20.0 per cent. by young growth; 946,315 acres or 38.4 per cent. by recent burn, and 426,182 acres or 17.2 per cent. by water and waste areas.

Timber Estimate.

The estimate of the timber on the tract is summarized to show the total quantity by watersheds. Both mature and second-growth stands are estimated but separately. In the total estimate second-growth stands furnish 7 per cent. of the white and red pine estimate; 48 per cent. of the jack pine cordage; 36 per cent. of the spruce cordage, and 35 per cent. of the balsam cordage.

Jack pine, spruce and balsam are the important contributors to the pulpwood estimate. Of the total estimate for these three species, jack pine furnished 54 per cent., spruce 42 per cent., and balsam 4 per cent. The white and red pine is located chiefly in the country at the headwaters of the Big Turtle river and in the country draining to the Seine river in the Kenora district.

At the completion of the survey there will be prepared a written report descriptive of the area; a set of maps showing watershed divisions, forest type and age class conditions, and a map showing the organization of the field work and the distribution of the strips on which the report is based.

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REPORT

OF THE

Minister of Lands and Forests

OF THE

PROVINCE OF ONTARIO

For the Year Ending 31st October

1928

Sessional Paper No. 3, 1929

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed and Published by the Printer to the King's Most Excellent Majesty
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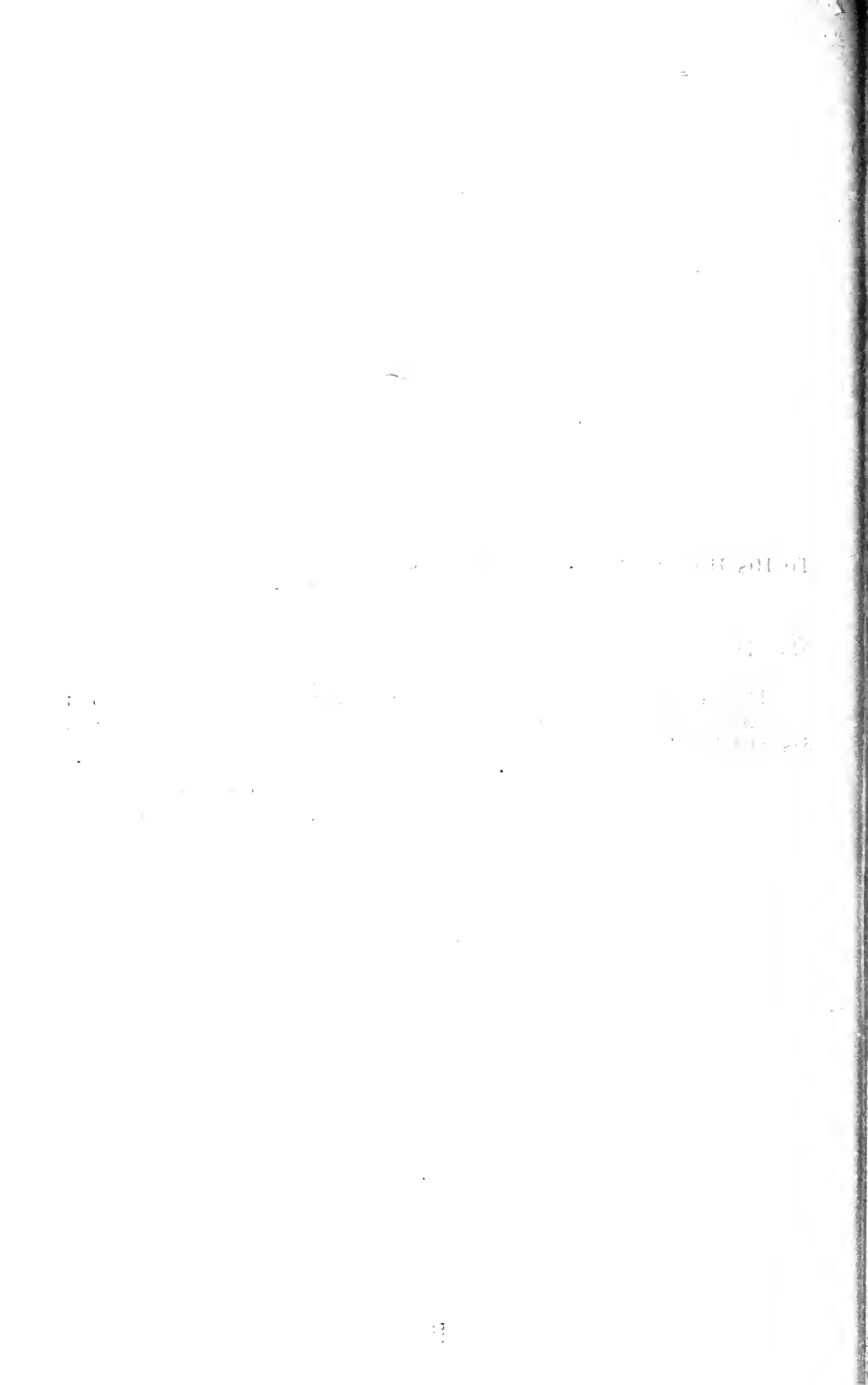


TO HIS HONOUR WILLIAM D. ROSS, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the Operations of the Department of Lands and Forests, for the fiscal year ending 31st October, 1928.

WILLIAM FINLAYSON,
Minister.



HONOURABLE WILLIAM FINLAYSON,
Minister of Lands and Forests.

We have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1928.

W. C. CAIN,
*Deputy Minister,
Lands and Forests.*

E. J. ZAVITZ,
*Deputy Minister,
Forestry.*

L. V. RORKE, -
Surveyor-General.

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

For the Year ending 31st October, 1928

GENERAL ADMINISTRATION

The close of the fiscal year, 1927-28, recalls with interest the season of 1827-28, or one hundred years ago, when the first Commissioner of Crown Lands, Peter Robinson, was appointed "Commissioner for the Sale and Management of Crown Lands in the Province of Upper Canada,"—his instructions from the Lords of the Treasury having been dated 18th July, 1827. He was also appointed to the office and trust of His Majesty's Woods and Forests by Commission bearing the same date.

To the Commissioner of Crown Lands was committed the management and disposal of all public lands reported by the Surveyor-General to be open for sale. The receipts from the sales of lands were credited to the respective funds such as Crown Lands, Clergy Reserves, Military Reserves and various Indian bands. All moneys received from licenses and duties in connection with timber also were received by and recorded in his office.

As a prospect one hundred years is a long time and yet as a retrospect it appears short when scanning the personnel of the Executive heads of the Department during this span, so many of the names having down to the present generation become household words. The terminology "Crown Lands Department" remained such practically for seventy-eight years or until 1905 when by special legislation it was changed to the "Department of Lands and Mines." The year following, however, in 1906, the title was again changed to "Department of Lands, Forests and Mines," each of the changes respectively admitting the growing importance of the mining and forestry industry. Because of the continued growth of the mining industry a further change was necessitated in 1920 when a separate and distinct Department of Mines was created, the parent Department thereafter becoming, as it is known at present, "The Department of Lands and Forests."

Since 1827 there have been in all 34 appointments of Commissioners or Ministers, these representing thirty-one individuals, three of the number having functioned in such a capacity for a second period under changed Governments.

The following is a complete list of the Department's heads with the dates of office holding:

Hon. Peter Robinson.....	17th July, 1827, to 14th July, 1836.
" R. B. Sullivan.....	14th July, 1836, to 30th June, 1841.
" John Davidson.....	23rd July, 1841, to 12th October, 1842.
" A. N. Morin.....	13th October, 1842, to 11th December, 1843.
" D. P. Papineau.....	3rd September, 1844, to 7th December, 1847.
" John A. Macdonald.....	8th December, 1847, to 10th March, 1848.
" J. H. Price.....	11th March, 1848, to 27th October, 1851.
" John Rolph.....	28th October, 1851, to 17th August, 1853.

- Hon. Louis V. Sicotte 17th August, 1853, to 26th August, 1853.
 " A. N. Morin 31st August, 1853, to 26th January, 1855.
 " Jos. Cauchon 27th January, 1855, to 30th April, 1857.
 " E. P. Taché 16th June, 1857, to 24th November, 1857.
 " L. V. Sicotte 25th November, 1857, to 1st August, 1858.
 " A. A. Dorion 2nd August, 1858, to 6th August, 1858.
 " P. M. Vankoughnet 7th August, 1858, to 18th March, 1862.
 " George Sherwood 27th March, 1862, to 23rd May, 1862.
 " William McDougall 24th May, 1862, to 29th March, 1864.
 " Alex. Campbell 30th March, 1864, to 30th June, 1867.
 " Stephen Richards 1st July, 1867, to 25th July, 1871.
 " Matthew C. Cameron 25th July, 1871, to 21st December, 1871.
 " Richard W. Scott 21st December, 1871, to 30th November, 1873.
 " Timothy Blair Pardee 4th December, 1873, to 19th January, 1889.
 " Arthur S. Hardy 19th January, 1889, to 21st July, 1896.
 " J. M. Gibson 21st July, 1896, to 21st October, 1899.
 " E. J. Davis 21st October, 1899, to 22nd November, 1904.
 " A. G. McKay 22nd November, 1904, to 8th February, 1905.
 " J. J. Foy 8th February, 1905, to 13th May, 1905.
 " F. Cochrane 13th May, 1905, to 11th October, 1911.
 " W. H. Hearst 12th October, 1911, to 22nd December, 1914.
 " G. H. Ferguson 22nd December, 1914, to 13th November, 1919.
 " B. Bowman 14th November, 1919, to 11th July, 1923.
 " Jas. Lyons 16th July, 1923, to 28th February, 1926.
 " G. H. Ferguson 28th February, 1926, to 18th October, 1926.
 " Wm. Finlayson 18th October, 1926.

A perusal of this list discloses such well-known names as Peter Robinson, the first Commissioner, who was instrumental in establishing an Irish settlement in the neighbourhood of what is now known as the city of Peterborough, named after the honourable gentleman. When considering the present-day point of view regarding immigration, with its attendant incidents, it is worthy of note that the first Commissioner in the summer of 1825, two years prior to his appointment, was the means of bringing from the old land no less than 2,024 settlers, all these taking up their pioneer work in the Peterborough section.

D. P. Papineau, of Lower Canada, was the brother of the famous Louis, though the very antithesis of the latter, being of a retiring disposition and very conservative. The great and only Sir John A. McDonald, though his Commissionership was of short duration, frequently reverted to his experiences in the administration of the natural resources and humorously recounted the many opportunities in this, the early period of his long and remarkable public career, of adjudicating upon the petty though interesting cases of land disputes. Hon. A. A. Dorion later became Chief Justice of the Province of Quebec. The Confederation Commissioner was a hardy, robust type, Hon. Stephen Richards, and was followed by Hon. Matthew Crooks Cameron, Richard W. Scott, T. B. Pardee and A. S. Hardy, later Prime Minister of the Province. In later years we meet Hon. J. M. Gibson, now Sir John, E. J. Davis, still enjoying excellent health and the head of a large industry. Hon. A. G. McKay and Hon. J. J. Foy, both then standing high in the legal profession, graced the Commissioner's chair, the latter having been for several years Attorney-General in the Government of Sir James Whitney. Hon. Frank Cochrane, the practical business man from Nipissing, administered the Department for over six years when he entered the Federal field as Minister of Railways and Canals. Hon. W. H. Hearst, now

Sir William, succeeded Mr. Cochrane, and on the death of Sir James Whitney became Prime Minister. Hon. Mr. Ferguson, the present Prime Minister, became sponsor for the Department when Mr. Hearst was chosen leader, and remained in office until November, 1919. Hon. Mr. Bowman was appointed in 1919, and was followed by Hon. Jas. Lyons in 1923, and the latter after a sojourn by Hon. Mr. Ferguson, by the present Minister, William Finlayson, in 1926.

Of these prominent administrators two, Sir E. P. Taché and Sir John A. Macdonald, attained to the Prime Ministership of Canada, and no less than three, Hon. A. S. Hardy, Sir W. H. Hearst, and Hon. G. H. Ferguson, to the Prime Ministership of their native Province, while four reached the Lieutenant-Governor's chair, viz., Hon. Wm. McDougall having been appointed in 1869 for the Northwest Territories and Rupert's Land, Hon. Jos. Cauchon for Manitoba in 1877, Sir Alex. Campbell for Ontario in 1887, and Sir John M. Gibson for Ontario in 1908. Upon eight, knighthood was conferred, John A. Macdonald, E. P. Taché, A. A. Dorion, Alex. Campbell, Matthew C. Cameron, R. W. Scott, J. M. Gibson, and Wm. H. Hearst.

While the early administrators, prior to Confederation, were filled with zeal and possessed of uncanny vision, they were largely concerned with an area of about 50,000 square miles, comprising but a portion of what we now term Old Ontario, and could scarcely have anticipated that within two generations the magnitude of the territory to be administered and developed would have grown eight hundred per cent., and the population from a few scattered thousand to three million.

The revenue from timber in 1827 amounted to only \$360.00, in 1828 to \$3,134.00, while in 1928, the year just closed, the revenue from the same was over \$4,000,000.

The Department of Lands and Forests, as the term implies, deals with the disposition of all Crown lands for settlement, summer resorts, ranching, timber cutting, pole lines, industrial sites, commercial enterprises, mining and numerous other purposes. In addition it administers the timber areas and provides for a judicious development of the forest wealth. It has control of the park system of the Province and establishes and supervises the large and important Forest Reserves.

Under its jurisdiction come the water powers with their assets of incalculable economic value. The responsibility of surveying the unsubdivided areas of the Province rests on the Department along with the supervision and control of its lakes, rivers and streams, except for navigation.

Because of the varied character of the land and its productiveness it is essential that proper data be gathered to enable an equitable disposition of the resources. The very magnitude of the province, some 400,000 square miles, forces the conclusion that a satisfactory inventory in detail of our potentialities cannot be made except after a long, close and continued examination. It is obvious that the regions unsuited for farming and adapted only for the production of certain timber types should be segregated and held in reserve for the prime purpose of reproducing timber, whereas the sections found to be well given to farming, in the real acceptance of the term, should be held for such.

The benefits derived from such segregation are quite noticeable in those substantial areas already set aside and held as Forest Reserves and Provincial Parks. Consequently the Department is continuing its intensive efforts towards getting technical and practical material upon the diversified resources of our Crown areas.

STATUTORY CHANGES

The growth of the Hydro-Electric industry in the Province brings into greater prominence the extensive water powers administered by and under the control of the Department of Lands and Forests. The need of acquiring further technical data upon the subject is obvious. The expanding mining industry, reaching the unsurveyed portions of the Province, has materially increased the work in connection with surveys.

To secure closer supervision over these matters and general engineering, the Public Lands Act was amended during the 1928 Session, whereby provision was made for the appointment by the Lieutenant-Governor in Council, of a Deputy Minister to be known as the Surveyor-General. This official is required to perform such duties in connection with the surveying of lands, investigation of water powers, engineering, inspection, research and such other matters as may be assigned to him by the Lieutenant-Governor in Council.

Mr. L. V. Rorke, O.L.S., who has been a valued officer of the Department for twenty years, and Director of Surveys for an extended period, was under date of April 19th, 1928, in pursuance of the Act, duly appointed Surveyor-General, and is now acting in that capacity.

Last year's report indicated that legislation would be sought to strengthen the hand of the Minister in dealing with the cutting of timber upon limits, particularly of the so-called perpetual kind, where no limitations as to time or size of trees were made. Consequently an Act was passed during the Session of 1928 and assented to under date of the 3rd April, 1928, which grants certain powers to the Minister to control the cutting. Authority is granted to him to fix the size and kind of trees and timber which may be cut on the unpatented lands where the trees and timber thereon remain the property of the Crown, and such authority may be exercised in any part of the Province or at any time that the Minister may direct. Penalties are provided for those who violate the Act. Already the Crown has through mutual co-operation with licensees undertaken to apply such restrictions as seem desirable to meet the purpose of the Act.

LAND TRANSACTIONS

Last year reference was made to the settlers that had, under the authority of the Forestry Act, been transferred from Haliburton District to the southern clay belt, and it was hoped that such settlers would be the vanguard of others. While it is rather early to make any definite predictions as to the general success of the experiment it can be confidently stated that the limited number already placed have made reasonably substantial progress and are content in their new lot; it is felt the experiment should be given a fair trial and if successful should be made applicable to others. It must not be overlooked that pioneer settlement in any circumstances is a slow process but the varied advantages offered by the clay plains of Northern Ontario make certain that real homemaking can be made more effective there than elsewhere.

The Supervisor of Settlement, Col. W. R. Smyth, reports that satisfactory progress is being made by group settlements in Thunder Bay and Cochrane Districts, these settlements having been started a few years ago. Where thrift and ambition are found, substantial improvements are noticeable. He indicates that while the problem in Old Ontario of retaining the young men on the wholly improved productive farms is still unsolved, too much should not be expected of the hardy young pioneer who has to plod his way midst trying times to break land and establish and maintain a home in the newer sections. And yet he

speaks with optimism of the efforts shown by numbers of the "trail blazers" who are making good in the great North land.

Details of land sold for all purposes and of areas that have been resumed to Crown may be found in Appendices 12 and 13.

Practical discussions have been held with the representatives of the Overseas Settlement Board and the Dominion Government in preparation of a tripartite agreement involving a co-operative arrangement for the placing of British migrants on improved farms in the clay belt of Northern Ontario, and it is earnestly hoped that the consummation of such an agreement will result in substantial numbers from the old land taking up residence in the Great Clay Belt.

Negotiations are under way with the Department of Indian Affairs, Ottawa, to conclude a Treaty with the Indians inhabiting an area North and West of the Albany River, comprising 128,000 square miles, the only remaining territory in Canada unceded by the Red Man.

CLERGY LANDS

While no new sales are being made under this heading moneys being arrears on old sales are still being collected to a very limited extent, only \$455.95 was received from this source.

COMMON SCHOOL LANDS

The collections from this source amounted to \$952.75, being moneys due on sales made years ago of land where the occupants failed to get title until recently.

UNIVERSITY LANDS

Some 499 acres were sold and on these and previous sales the sum of \$431.00 was collected.

GRAMMAR SCHOOL LANDS

Collection of arrears on sales of these lands made many years ago accounted for \$992.15.

CROWN LANDS

For agriculture, townsite, tourist and various other purposes the total area sold and leased comprised 92,218.21 acres, less than the year previous by 32,650.18 acres. Such sales and leases totalled \$120,618.60, but there was collected on such sales and leases and on others hitherto made, the sum of \$317,280.70, less than the last fiscal year by \$27,045.34. For details on the last five headings see Appendix No. 3.

PROVINCIAL LAND TAX ACT

For the year 1927, the first during which this tax was collectable, the sum of \$76,088.68 was collected. As anticipated this tax met with some opposition but the general principle is admitted to be just and that is that all property whether in organized or unorganized territory should bear a fair proportion of taxation for general benefits received. This tax is applicable only to property in unorganized districts where much land privately owned by persons and companies and corporations who are beneficiaries directly or indirectly of transportation facilities and other developments made at the expense of the

Province. The Act specifically exempts actual settlers and to get exemption all that is necessary is to furnish the information on a form prescribed by the Department and mailed to the settler.

The sum of \$157,551.83 was received for the year, or \$81,463.15 more than in 1927. It is fully expected that approximately a like amount will be collected the coming year.

MILITARY GRANTS

Following the South African war, where numbers of Canadians were engaged, the Government, as a concession to Ontario veterans, passed legislation under which each veteran was entitled to a location of 160 acres free, no particular section at that time having been allocated for the purpose. Such sympathetic treatment of the South African veteran gave rise to a demand for similar treatment towards the veteran of 1866, and this class likewise was granted the privilege. In consequence no less than 13,998 certificates were issued and to date but 1,024 are outstanding. Thousands of locations were made in the clay belt and pulpwood regions and many of these have since passed to other holders who exploit the timber thereon and who now very largely are reaping the benefit that was intended to accrue to the veteran himself for services rendered his King. A certain number accepted the alternative of surrendering the right to locate for a cash consideration of \$50.00. And as an amendment to the Act a few years ago provides that no further allocation of land be made, a few of the outstanding certificates are annually surrendered, this year the number being but three. It is generally admitted that that public sentiment towards the returned man obscured the vision of those wishing to concede him consideration and it was never anticipated that hundreds of square miles of excellent territory would be tied up indefinitely from the control of the Crown, as is the case in Northern Ontario where extensive blocks of such veteran lands are alienated. When it is realized that no obligations of settlement were imposed, the menace of these unoccupied areas to surrounding country is appreciated. Legislative enactments with a view to partly solving the problem have not materially affected the situation. Up until recently such holdings situated in unorganized territory were entirely free from taxation but now under the Provincial Tax Act they are assessed and liable for taxation.

Although the Veteran Act was passed in 1901, the Department still receives enquiries from individuals desirous of applying for the grant, these parties but now learning of the provisions for a grant. As the time limit for satisfying the requirements of eligibility has long since passed the belated ones are exempt from any benefits.

GREAT WAR VETERANS

Although the keenest possible sympathy went out towards our Great War returned men, the folly of the past was not perpetrated in their case and while special provision was made whereby they might be given free locations of 160 acres each, it was always subject to the actual performance of settlement duties. The result has not been gratifying as, generally speaking, the "get back and stay on the land" spirit is absent. An indication of this is evident from the figures during the last two years. In 1927, while 67 took advantage of so acquiring land, 57 abandoned their holdings and were cancelled. In 1928, 45 were located and a like number cancelled.

TOURIST AND SUMMER RESORTS

At no period in its history has Ontario been visited by so many tourists and visitors, with the resultant marked activity in the demand for summer homes and fishing or hunting sites. With its numerous placid lakes, rippling brooks and streams, verdant shores, islands and other picturesque features, this Province offers an array of attractive scenic wonders. The Department is meeting this increasing demand by selecting suitable wooded areas on well located lakes easily accessible by rail or automobile, and surveying them into small parcels, which are sold at reasonable prices. Not only the hunter and the angler are attracted, but the camera man, the painter and the author.

Wild life in Algonquin and Quetico Provincial Parks continues to increase. In the former, wild deer may be seen every day, during the summer months, even in the populated parts around headquarters. In Quetico the beaver is on the increase as is evidenced by the flooding of the portages and other highways through the park. In the past the Government has found it necessary through its own rangers to trap a certain number and the coming year like steps may be taken.

The value of these game preserves to the hunter, angler and other sportsmen cannot be estimated, as these wild animals, though scrupulously watched and protected within the parks, are free to roam at will outside these confines and sufficient appear to do so to make a continuous supply of game in the surrounding territory. Notwithstanding the varied opinions expressed and the occasional adverse criticism offered regarding the alleged wolf menace in Algonquin Park, the report from our Superintendent shows that the deer is abundant in the greater portion of the park. In one range of hills alone during the period when the deer forsake the swamps to come out on the sunny hillsides, two rangers counted no less than 70 deer. During the winter period when wood hauling, the rangers encounter deer on every hand.

During the past year with a staff of 30 rangers and 71 shelter houses, only 43 wolves were secured by shooting, traps and snares. Two years ago on the road to Big Opeongo Lake, 14 wolves were secured, but last winter not a wolf or a wolf track was to be seen on this road for a distance of 16 miles. There has been a decided increase in the game animals within the park and every indication in the general increase of wild life proves that the park is not the breeding ground of the ravenous wolf and that under a close patrol by the rangers he is being gradually hunted down and trapped.

Rondeau Park continues to be the increasingly attractive spot in the older part of the Province. With its suitably located sites there is a large demand for summer cottages for which long term leases are issued, substantial improvements have been made to the buildings, roads and general equipment until to-day it is one of the most attractive picnic and recreation grounds in Ontario.

The lure for the far North, the lust for exploration and the desire for the rustic and the wilds, away from the "madding crowds," is taking an increasing number of holiday seekers and vacation enthusiasts into the renowned Temagami Forest Reserve, where islands in Lake Temagami afford an abundant opportunity for pleasure seekers, holiday campers, boys' and girls' camps. Ontario offers a warm welcome to pleasure seekers of all classes.

SURVEYS AND WATER POWERS

The usual amount of survey of Crown lands was carried on during the year, comprising the running of base and meridian lines, township outlines, lake and river traverses, summer resorts and miscellaneous survey.

Control surveys have also been carried out in co-operation with the Dominion Government's aerial photographic work in different sections of the Province. Co-operation tends to make better and more up-to-date maps of the several sections covered by this work. The total expenditure under survey work for the past year shows a decrease of \$12,970.76 from the former year.

During the year the development of water power at Smoky Falls on the Mattagami River, at Calm Lake on the Seine River, and at the falls on the Eagle River, has been completed. Additional units have been added to the Island Falls power plant on the Abitibi River.

As provided in the agreement with the Dominion Government in the Lac Seul Conservation Act of 1928, a contract was entered into with Messrs. Morrow & Beatty, of Peterborough, for the construction of this conservation dam. It is expected that the work will be completed by the 1st of May, 1929.

Surveys have also been made to determine the shore lands which may be damaged by the new water elevation to be established. Special study was made of the water powers on the English River below the outlet of Lac Seul, with a view to determining the several power developments and the most advantageous method and location of such developments.

The revenue from the water power rentals shows an increase of \$25,524.29 during the past year.

TIMBER ADMINISTRATION

RESERVES

As pointed out in last year's report, the Department is undertaking to carefully guard old areas that may, under a mutual arrangement with timber licensees, be abandoned by them and resumed by the Crown.

The greatest protection to such areas for assuring future growth of timber is the elimination of those factors that menace the timber. Chief of these is fire, and if through an efficient fire-fighting force this dread menace can be appreciably reduced, much of our concern with respect to a sustained yield condition will disappear. No less menacing is the struggling so-called settler who under the guise of farming worms his way into taking up land for the purpose of exploiting the timber. Our problem in dealing with the forest areas of Old Ontario is accentuated by reason of the indiscriminate allocation of land in the distant past for agricultural purposes without any defined system of segregation. Blights, insects and disease are other enemies of the forest that are being gradually and successfully combatted with our technically trained staff of foresters.

The expansive areas heretofore set aside and held as forest reserves, such as Temagami and Mississauga, along with the two great parks, Algonquin and Quetico, afford a complete answer to the question, "What is being done for the natural reforestation of the timber wealth?" While artificial reforestation is eminently satisfactory and proves decidedly interesting and efficient in Ontario under our trained foresters, whose reputation has become world wide, it is admitted that such method has its limitations. Having regard to the magnitude of our Province, the extensive and widely separated areas and various timber types, it is freely conceded that natural reforestation is our salvation. When it is understood that not a single foot of land is alienated in any of our reserves and no farming blocks are permitted, one can appreciate how the above-mentioned menacing factors are being eliminated and nature is being aided in reproducing crops.

By gradually adding to existing reserves and applying modern methods of protection it is confidently expected that Ontario will be fully competent to provide constant and diversified industries in connection with her timber wealth for future generations.

With a view to carrying into further effect the policy of fostering the timber resources and the allied industries dependent thereon, legislation will this coming session be sought.

SALES

In pursuance of the declared policy and practices of the Government, timber areas throughout the past year were all offered for sale by public competition to provide opportunities, however, only for those individuals or companies with important vested interests concerned in continuing their established businesses. Quite true in certain cases the successful tenderer proved to be other than the prospective buyer, but this fact alone justifies advertising the areas and requiring sealed tenders.

The prices received were satisfactory; in over seventy per cent. of the sales the upset price of the Crown was exceeded while in no instance was a tender awarded at a price less than the upset one. Close cruises and estimates are made, the report of the officers with regard to local conditions being a guide in determining a fair upset competitive price.

From a perusal of the list of areas disposed of covered by Appendix No. 11 of this Report, it may be observed that of 71 areas sold only 11 might be deemed pulp propositions, some of these being very small. The general uncertain conditions of the paper industry did not justify offering pulp limits for sale. A declining market lessens competition and naturally interferes with the stumpage price. Prices for spruce pulp varied from simple dues of \$1.40 a cord in the Kenora District to \$3.27 a cord in the Thunder Bay District, while balsam prices ranged from \$1.20 a cord in the Cochrane District to \$3.15 a cord in the Thunder Bay District. Other types of pulpwood such as poplar, jack pine, etc., brought 50c. to \$2.15 a cord.

Log timber sales show an interesting study; the large pine areas were secured by such old reliable firms as Keewatin Lumber Co., Kenora, whose mills in this district are important labour users, Shevlin-Clark, Ltd., with a substantial plant at Ft. Frances, J. A. Mathieu, Ltd., with an extensive operating mill at Rainy Lake, Mageau Lumber Co., Ltd., with an excellent sawmill at Field on the Sturgeon River, George Gordon & Co., Ltd., of Cache Bay, and the Spanish River Lumber Co. Ltd., of Sudbury, both of which firms have been operating in the Sudbury region for many years and employing regularly throughout the year a large staff of workmen. While 71 areas were sold, 37 of these were under two square miles each, 16 were 10 square miles or under, and 18 over 10 square miles. The big operator that runs his mill on a mass production basis to the small portable mill owner was represented. The jobber and contractor also came in for a fair share of the offerings.

The estimated quantity of each type of timber is incorporated in the advertised conditions of sale, and a map of the area is furnished, and prospective bidders not only have such information before them but are invited to apply for further material bearing on the watershed area, driving and transportation facilities, and the quality of the timber offered.

Thus fortified, interested parties require much less time to investigate given areas than was necessary years ago when cruisers' estimates and reports upon the physical characteristics of limits were jealously guarded and privately main-

tained within the archives of the Department. The time elapsing between advertised and sales dates is determined by the geographical features of the area, general accessibility, nature of timber, density, etc., and possibility of competition, all of which factors enter into a consideration of the price. For red and white pine prices ranged from \$7.25 per M. ft. B.M. to \$13.50 per M. ft. B.M., while the range in respect of jack pine was equally wide. Details of the kind of proposition in the various sales are recorded in the tabulated statement.

LOGGING

A gradual improvement in the lumber trade was reflected in the cut of red and white pine throughout the year just closed. In last year's report for 1927, attention was directed to the marked decline in the cut of this class of logs in comparison with the year 1926, there being less by 70,000,000 feet B.M. But the year 1928 shows a return to a production in the log in excess of that of 1926, there being cut some 210,532,068 feet B.M., as against 128,314,028 feet B.M. for last year, while it is problematical to announce any figure for the coming year, it is hoped that a quantity approximating the cut of this year will result.

Jack pine operations increased considerably over the previous year, some seventy-four odd million feet having been cut against forty-eight million feet for the year 1927. In addition to the board measure jack pine, the tie output practically doubled that of last year, there being 1,719,471 pieces as against 829,627 for 1927.

In other classes of timber except pulpwood logs, the output was much the much the same as for the previous year, there being 3,410,524 feet B.M.

Considering the whole field of timber and lumbering operations, the Province has reason to be satisfied with the spirit of optimism displayed by the operators and dealers during the year just closed. The lumber industry, being the oldest with that of farming, must necessarily expect its fluctuating markets and be subject to a variety of competing factors. To maintain such an old-established industry and be one of the beneficiaries of its ramifications the Government is insisting on a close co-operation with the investors in the timber wealth, and every legitimate means is being employed to encourage a recognition on the part of all those engaged in logging operations that the forests, being a bounty of nature, must be so controlled that future generations may have a harvest to reap.

INSPECTION OF AGENCIES AND SUPERVISION OF OPERATIONS

The thirteen Timber Agencies throughout the Province were visited by Major Hartt, and with the exception of one were found to be satisfactory. A change was made in the excepted case and the work there is now being carried on in a very efficient manner. A very rigid checking up of pulpwood cutting in the clay belt region, where much wood cutting was being done by alleged settlers, has resulted in the elimination of the "pulpwood farmer," and in the encouragement of the well-intentioned settler to a keener appreciation of the need of following more closely the regulations respecting clearing and cultivating his land. The Supervisor of Operations has been instrumental in the settlement of various disputes and the solving of different problems that are of mutual concern to the Crown and the lumberman. The readiness with which the timber operator suggests and accepts the principle of mediation through an officer of the Crown and the general success resulting therefrom, amply justify the office of Inspector of Agencies and Supervisor of Operations. Actual visitations of this

officer to the scenes of timber and pulpwood operations make it possible for him to acquaint himself with actual conditions on the ground and give counsel and directions as to the best methods of economically cutting the timber that the interests of conservation and reforestation may be served. Generally speaking, the operators co-operate very satisfactorily along these lines and it is evident there is a more decided tendency in this age for the practical and technical viewpoints to be reconciled.

PULPWOOD

The hope expressed by the pulpwood dealers and newsprint manufacturers in 1927 that their apprehensions of a serious instability in the trade would not result was not realized. The newsprint industry upon which the pulpwood operators are so largely dependent displayed a very uncertain tendency throughout the year due to a variety of factors and a number of interests involved. Alleged undue expansion and overproduction were not the least of the causes of the affected market. The Government of Ontario being fully seized of the importance of the situation is closely in touch with the movement towards stabilizing the industry and encouraging the maintenance of certain Northern Ontario communities. The leaders in the trade have held numerous conferences, and negotiations to date justify confidence in their ability to adjust their differences and thus establish further assurance that this comparatively new though enormous business, that so largely now enters into the industrial and commercial life of the nation, will be placed on a firm foundation.

The cut of pulpwood on Crown lands during the year amounted to 684,582 cords, or a reduction from the year previous of 68,873 cords. Because of the present situation it is felt that this cut will not be increased the coming year unless prior to the opening of the season for operations a satisfactory solution of the newsprint problem has been found. Settlers and patented lands produced 1,111,224 cords and of this some 612,000 cords were exported. In other words, of the exportable material cut during the year less than 60 per cent. went out of the country. Over eighty per cent. of the exported wood came from patented lands, over which the Crown has no control; the balance came from lands of settlers who have not yet acquired absolute title.

The importance of the newsprint industry and its relation to the community life of certain portions of the Province warrant the Crown in providing legislative machinery to insure the gathering of detailed data and the adoption of plans towards stabilization. With this end in view a Bill for submission to the Legislature at its next sitting is being drafted.

FOREST FIRE PROTECTION

The season of 1928 was particularly favourable for forest fire control throughout the province with the exception of portions of Patricia in the northwestern part of the fire district. Eighty-seven per cent. of the total area burned in the province is accounted for through the fires occurring early in May and June in the inaccessible regions of northwestern Ontario.

The total number of fires was 536 and the total area burned was 100,383 acres, of which 51,750 acres were beyond the reach of the present organization.

Improvement work on communication and buildings was carried on this season with satisfactory progress.

Twenty-six steel lookout towers and 400 miles of telephone lines were erected. The Department has 68 steel lookout towers and 137 wooden ones, the

latter being replaced with steel as permanent locations are established. Telephone communication is being established in the older forest regions with a little over 2,000 miles of line now in use.

An interesting development in the more in accessible regions is that of wireless communication. Last season eight stations were maintained. These stations have made it possible to keep in daily touch with outlying regions, and have saved many hours of hazardous canoe and overland trips previously required to bring out messages from isolated points.

REFORESTATION

The distribution of trees this season reached a total of a little over eleven and one half million, an increase of four millions over the previous year.

Municipal forestry projects were enlarged by the addition of four new county forests.

FOREST SURVEYS

Forest surveys were continued this season, completing the Rainy River watershed, which was commenced last year. This season an area of 2,468 square miles was covered.

A forest survey was also carried out on portions of the watershed of the Mattagami, Montreal and Wanapitei rivers, covering an area of 1,222 square miles.

FOREST INVESTIGATIONS

Forest investigations were carried on in connection with several problems. Forest pathology studies were continued in connection with a fungus attacking white spruce. A survey of Parry Sound and Muskoka was made to determine the prevalence of white pine blister rust.

Co-operating with the Federal Entomological Branch experiments were carried out in controlling insect outbreaks by aircraft dusting.

Further work was done in studying growth of spruce to determine future yields.

REVENUE

The gross revenue of the Department for 1928 was the largest in its history, except for the year 1925, the total being \$4,741,229.31. Of this amount the sum of \$3,557,462.69 was ordinary revenue, the balance, \$1,183,766.62, capital. This represents an increase over the previous year of \$111,699.48 as regards ordinary income, and a decrease of \$34,895 as regards capital. Crown leases, licenses of occupation, including water power rentals, accounted for \$211,426.68, an increase over the previous year of \$24,533.07.

The Provincial land tax brought \$157,551.83, an amount greater than 1927 by over \$80,000. Land sales amounted to \$105,854.02. Ground rent and fire charges augmented the revenue by some \$472,426.40.

Other sources of revenue are the parks and reserves, where the sale of guide and fishing licenses, lot rentals and miscellaneous items accounted for \$35,649.30.

The largest percentage of the total revenue results from the timber resources and the fees and charges in connection therewith. From timber sales we received \$3,648,511.43, of which \$1,094,553.43 represented capital. For details covering all revenue see appendices Nos. 3 to 6 inclusive.

DISBURSEMENTS

The total expenditures for the year totalled \$2,857,235.45, an increase of \$330,089.38 over the year 1927. To ordinary expenditure was charged the sum of \$1,736,923.12, and to capital \$1,120,312.33.

The four largest items under this heading are fire ranging, forest ranging, reforestation, and surveys, these contributing no less than 75 per cent. of the total. An item of \$100,000 is due to the erection of Lac Seul dam under a joint arrangement with the Dominion Government, which bears 60 per cent. of the cost. Special warrants made up \$17,455.01, of which \$16,915.61 was spent in connection with the building of Long Point Road, while statutory expenses amounted to \$9,504.34.



APPENDICES

PART I

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1928

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks	
Main Office	Hon. Wm. Finlayson	Minister	1926, Oct. 18	\$8,000 00		
	W. C. Cain	Deputy Minister	1903, March 1	5,700 00		
	A. Ferguson	Assistant to Deputy Minister	1915, Dec. 15	3,000 00		
	J. B. Thompson	Minister's Secretary	1925, Feb. 2	2,600 00		
	M. E. Bliss	Secretarial Stenographer	1909, Aug. 16	1,500 00		
	E. G. Halliday	Clerk	1907, Feb. 21	1,500 00		
	E. Harrison	Senior Clerk Stenographer	1920, May 14	1,400 00		
	E. Rose	Clerk Stenographer	1927, Jan. 4	1,050 00	Resigned June 15th, 1928	
	Solicitor's Branch	F. E. Titus	Solicitor	1920, Mar. 2	3,500 00	
		L. McLeod	Clerk Stenographer	1926, April 9	1,050 00	
Lands Branch	S. Draper	Chief Clerk	1900, May 1	3,300 00		
	W. R. Ledger	Principal Clerk	1894, Feb. 15	2,400 00		
	C. E. Burns	"	1897, July 29	2,400 00		
	J. E. Drinkwater	Senior Clerk	1915, Oct. 19	2,100 00		
	J. B. Proctor	"	1897, Jan. 15	2,000 00		
	W. S. Sutherland	"	1900, Mar. 18	2,000 00		
	A. E. Roe	"	1906, Oct. 16	2,000 00		
	F. A. Lucas	"	1906, Dec. 18	2,000 00		
	S. A. Platt	"	1905, June 12	2,000 00		
	A. E. Robillard	Clerk	1894, May 4	1,900 00		
	A. R. Carey	Junior Clerk	1925, July 7	975 00		
	E. F. O'Neil	Senior Clerk Stenographer	1902, July 7	1,500 00		
	B. M. Benson	Clerk	1909, May 25	1,500 00		
Surveys Branch	S. Ross	Senior Clerk Stenographer	1917, July 9	1,500 00		
	E. Hills	"	1912, July 2	1,500 00		
	F. Griffith	Clerk Stenographer	1921, May 4	1,125 00		
	A. V. Pepler	"	1922, Sept. 14	1,125 00		
	M. I. Sutherland	"	1921, May 4	1,125 00		
	L. V. Rorke	Surveyor General	1909, May 1	5,000 00	Died Jan. 18th, 1928.	
	J. Hutcheon	Inspector of Surveys	1913, April 1	3,800 00	Resigned Nov. 19th, 1927	
Surveys Branch	H. C. Smith	Geographer	1919, Dec. 12	2,850 00	Transferred from Dept. of Highways, Feb. 1st, 1928.	
	N. A. Burwash	Senior Map Draughtsman	1917, April 26	2,200 00		

Appendix No. 1—Continued

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1928

Branch	Name	Designation	When Appointed	Salary per Annum.	Remarks
Accounts Branch—Continued . . .	M. A. Whyte	Clerk Stenographer	1921, June 1	\$1,200 00	
	M. E. Cox	Clerk Typist	1924, Oct. 27	1,125 00	
	E. M. Fox	Junior Cheque Writer	1927, Jan. 11	1,050 00	
Files Branch	S. K. Burdin	Senior Clerk	1916, April 6	2,500 00	Died March 14th, 1928.
	F. Samuels	"	1903, Dec. 5	1,800 00	
	C. Dies	Clerk	1905, June 14	1,700 00	
	J. T. Lee	"	1917, June 25	1,700 00	
	W. C. St. John	"	1906, July 9	1,500 00	
	N. B. Mathewson	"	1915, May 7	1,600 00	
	S. Mulholland	"	1918, May 6	1,300 00	
	R. N. Black	"	1915, Dec. 13	1,300 00	
	G. Harris	"	1925, Jan. 14	1,300 00	
	H. Brophy	Senior Clerk Messenger	1898, Oct. 1	1,300 00	
Provincial Land Tax Office	L. M. Ryan	Land Tax Collector	1925, July 1	2,300 00	
	G. J. Hinton	Clerk	1925, May 4	1,400 00	
	H. M. Lyons	Junior Clerk Stenographer	1926, May 31	900 00	

Appendix No. 2

List of Agents for the year ending October 31st, 1928

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
LANDS AGENTS					
Alexander, James A.	Fort Frances.	Part Rainy River District.	1921, May 26	.....	For salary see Crown Timber Agents.
Arthurs, E.	Espanola Mills.	" District of Sudbury.	1915, June 1	\$500 00	
Baker, R. H.	Minden.	" Haliburton.	1907, Oct. 1	350 00	Resigned May 14th, 1928
Blank, F.	Wilno.	" of Renfrew County and South Part of Nipissing District.	1921, April 1	500 00	
Both, C.	Denbigh.	" of Frontenac, Lennox and Addington.	1905, Oct. 20	300 00	
Bresnahan, John.	Hearst.	" District of Cochrane.	1924, April 28	1,050 00	
Brown, John.	Markstay.	" " Nipissing and Sudbury.	1916, July 3	600 00	Resigned Oct. 31st, 1928.
Cameron, Wm.	Stratton Station.	" " Rainy River.	1911, May 8	500 00	
Campbell, Miss I. M.	Parry Sound.	" " Parry Sound.	1914, Nov. 15	600 00	
Dean, Thos.	Sault Ste. Marie.	" " Algoma.	1920, Nov. 18	300 00	Also Homestead Inspector
Dempsey, S. J.	Cochrane.	" " Cochrane.	1911, Feb. 1	1,100 00	
Ellis, H. J.	Powassan.	" " Parry Sound.	1909, May 20	500 00	
Fink, J. Arthur.	Mattawa.	" " Nipissing.	1925, Mar. 18	300 00	
Fleming, A. W.	Minden.	" Haliburton.	1928, May 14	350 00	
Freeborn, J. S.	Magnetawan.	" District of Parry Sound.	1905, Nov. 10	500 00	
Freeland, A. W.	Emsdale.	" " Parry Sound.	1926, Nov. 1	500 00	
Fuller, David.	Bancroft.	" Hastings County.	1926, Mar. 20	500 00	
Gerhart, Wm. G.	Bracebridge.	Muskoka District.	1924, Oct. 14	.....	For salary see Homestead Inspectors
Gibson, J. E.	Dryden.	Part District of Kenora.	1914, Dec. 5	1,200 00	
Grigg, Albert.	Bruce Mines.	" " Algoma.	1925, Sept. 1	1,000 00	Also Homestead Inspector
Hales, W.	Apsley.	" County of Peterborough.	1911, July 17	250 00	
Hough, John A.	Matheson.	" District of Cochrane.	1926, April 20	1,200 00	
McCrea, J. R.	New Liskeard.	" " Temiskaming.	1924, Nov. 15	1,200 00	
MacLennan, J. K.	Sudbury.	" " Sudbury.	1905, July 3	700 00	
Marchildon, J. P.	Sturgeon Falls.	" " Nipissing and part Sudbury.	1923, April 27	1 60	per day
Parsons, W. J.	North Bay.	" " Nipissing and Parry Sound.	1908, April 8	1,300 00	

Appendix No. 2—Continued

List of Agents for the year ending October 31st, 1928

Branch	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
Smith, J. D. C.	Kenora	Part of District of Kenora	1921, May 9	.....	For salary see Crown Timber Agents and Mining Recorders
Sheppard, H. E.	Kapuskasing	" District of Cochrane	1909, Feb. 13	.....	For salary see Homestead Inspectors
Teasdale, R. A.	Massey	" " Sudbury	1917, July 1	\$600 00	
Trainer, W. J.	Hilton Beach	St. Joseph Island	1925, Sept. 12	300 00	
Watt, F.	Pembroke	Part Renfrew	1923, Sept. 11	300 00	
Wilson, A. N.	Kinmount	County of Peterboro and Haliburton	1915, May 6	175 00	
Wilson, S. H.	Port Arthur	" District of Thunder Bay	1921, Nov. 26	1,200 00	Died Oct. 2nd, 1928
Woollings, Jos.	Englehart	" " Temiskaming	1908, July 13	800 00	Also Inspector of Mining Recorders' Offices.
McArthur, T. A.	North Bay	Inspector of Crown Lands Offices	1912, May 1	900 00	Appointed Mining Recorder as from Aug. 16th, 1928.
<i>Homestead Inspectors</i>					
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec. 1	1,700 00	
Bastien, J. A.	Chelmsford	West part of Sudbury District	1913, May 12	1,300 00	
Cragg, W. V.	New Liskeard	South part of Temiskaming District	1913, April 1	1,800 00	
Dean, Thos.	Sault Ste. Marie	Part Algoma District	1908, Aug. 3	900 00	Also Crown Lands Agent
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct. 14	1,100 00	" "
Grigg, Albert	Bruce Mines	Part District of Algoma	1925, Sept. 1	.....	For salary see Crown Lands Agent
Hough, Wm.	Englehart	Centre part of Temiskaming District	1926, Jan. 18	1,300 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F.	Callander	District of Parry Sound	1920, June 10	1,700 00	
Owens, H. B.	Cache Bay	East part Sudbury and West part Nipissing Districts	1918, July 1	1,200 00	
Sheppard, H. E.	Kapuskasing	Part District of Cochrane	1909, Feb. 13	1,900 00	Also Crown Lands Agent
Smith, D.	Cochrane	" Cochrane District	1912, April 24	1,900 00	
Van Horn, L. E.	Monteith	" "	1920, Jan. 27	1,800 00	
Wigle, R. G.	Dryden	Kenora District	1914, June 1	1,700 00	

<i>Timber Agents</i>				Also Crown Lands Agent
Alexander, James A.	Fort Frances	Fort Frances District	1921, May 26	2,500 00
Fletcher, N. B.	Parry Sound	Part Parry Sound and Muskoka Districts	1923, Dec. 1	1,700 00
Hickson, A. H.	Sault Ste. Marie	" District of Algoma	1914, April 1	2,500 00
Larose, S. C.	Ottawa	" Ottawa District	1890, May 8	1,800 00
MacDonald, S. C.	New Liskeard	" Temiskaming District	1907, Jan. 1	2,400 00
MacDougall, J. T.	North Bay	Nipissing and part Sudbury Districts	1908, July 1	2,500 00
Milway, Jos. H.	Port Arthur	Part Thunder Bay District	1910, Oct. 1	2,400 00
Smith, J. D. C.	Kenora	Kenora District	1921, May 9	2,400 00
Stevenson, A.	Peterborough	Bellefleur District	1905, Oct. 4	1,900 00
Whelan, Patrick J.	Renfrew	Renfrew Agency	1908, Feb. 4	2,400 00
Hartt, J. I.	Orillia	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration	1923, Sept. 5	4,200 00
Hawkins, S. J.	Toronto	Relieving Crown Timber Agent	1905, Aug. 16	2,300 00

Also Acting Crown Lands Agent and Mining Recorder

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1928

Service	Acres Sold and Leased	Amount of Sales and Leases	Collections on Sales, Leases, Land, Taxes, etc.
<i>Lands Sold:</i>		\$ c.	\$ c.
Agricultural and Townsites.....	83,772.09	108,528 32	103,022 17
Clergy Lands.....			455 95
Common School Lands.....			952 75
University Lands.....	499.	249 50	431 00
Grammar School Lands.....			992 15
<i>Lands Leased:</i>			
Crown.....	7,896.54	11,100 78	208,532 21
Temagami.....	50.58	740 00	2,879 02
Sand and Gravel.....			15 45
Provincial Land Tax.....			157,551 83
	92,218.21	120,618 60	474,832 53

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1928

Service	\$	c.	\$	c.	\$	c.
LAND COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	72,765	43				
Townsites.....	30,256	74				
			103,022	17		
Clergy Lands.....	455	95				
Common School Lands.....	952	75				
University Lands.....	431	00				
Grammar School Lands.....	992	15				
			2,831	85		
					105,854	02
<i>Rent:</i>						
Crown Leases.....			191,736	10		
Algonquin Provincial Park.....			4,011	82		
Rondeau Provincial Park.....			7,265	50		
Bruce Beach.....			4,868	79		
Jordan Harbour.....			650	00		
Temagami Leases.....			2,879	02		
Sand and Gravel.....			15	45		
Provincial Land Tax.....			157,551	83		
					368,978	51
WOODS AND FORESTS						
Bonus.....			1,714,399	03		
Timber Dues.....			1,934,112	40		
Ground Rent.....			105,112	60		
Fire Protection.....			367,313	80		
Transfer Fees.....			7,858	47		
Mill License Fees.....			582	50		
					4,129,378	80
<i>Parks:</i>						
Algonquin Provincial Park.....			8,867	90		
Rondeau Provincial Park.....			1,212	27		
Quetico Provincial Park.....			5,984	00		
					16,064	17
Casual Fees.....					2,270	24
REFUNDS						
Agents' Salaries, etc.....			594	85		
Cullers' Act.....			192	00		
Forestry Act.....			130	44		
Forest Ranging.....			104,015	94		
Fire Ranging.....			3,818	27		
Insurance.....			111	81		
Legal Fees and Expenses.....			100	00		
Long Point Park Road.....			28	00		
Reforestation.....			7,945	32		
Surveys.....			1,746	94		
					118,683	57
					4,741,229	31

Appendix No. 5

Statement of Revenue Refunds of the Department of Lands and Forests for the year ending October 31st, 1928

Service	\$	c.
Algonquin Park—Rent.....	50	00
Casual Fees.....	202	75
Crown Rent (Crown Leases and Licenses of Occupation).....	162	75
Crown Lands Sales.....	2,032	33
Mill License Fees.....	14	00
Provincial Land Taxes.....	415	12
Rondeau Park—Rent.....	75	00
Rondeau Park—Miscellaneous.....	6	50
Temagami Leases—Rent.....	30	00
Timber Dues.....	5,070	78
Transfer Fees.....	15	00
	\$8,074	23

Appendix No. 6

Statement of Receipts of the Department of Lands and Forests for the year ending October 31st, 1928, which are considered as Special Funds.

Service	\$	c.	\$	c.
<i>Clergy Lands:</i>				
Principal.....	227	95		
Interest.....	228	00		
			455	95
<i>Grammar School Lands:</i>				
Principal.....	620	00		
Interest.....	372	15		
			992	15
<i>Common School Lands:</i>				
Principal.....	495	00		
Interest.....	457	75		
			952	75
<i>University Lands:</i>				
Principal.....	270	30		
Interest.....	160	70		
			431	00
			\$2,831	85

Appendix No. 7

Statement of Disbursements of the Department of Lands and Forests
for the year ending October 31st, 1928

Service	\$	c.
MAIN OFFICES AND BRANCHES:		
Salaries—Lands.....	134,282	82
Salaries—Forestry.....	33,100	02
AGENTS' SALARIES AND DISBURSEMENTS.....		
ALGONQUIN PROVINCIAL PARK.....	96,943	35
ALLOWANCE TO SCHOOL SECTION, SOUTH WALSINGHAM.....	33,850	68
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF VESPREA.....	150	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CLARKE.....	250	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CHARLOTTEVILLE.....	150	00
BOARD OF SURVEYORS.....	150	00
CONTINGENCIES.....	400	00
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....	81,203	45
CULLERS' ACT.....	71,075	34
DISPLAY AT TORONTO EXHIBITION.....	51	86
EXPENDITURES UNDER THE FORESTRY ACT.....	2,568	12
FIRE RANGING.....	44,933	20
FIRE RANGING.....	1,220,208	52
FIRE RANGING.....	444,654	32
FOREST RESERVES.....	7,058	66
FORESTRY INSECT CONTROL WORK.....	19,858	43
FOREST RESEARCH.....	7,548	73
GRANT TO THE CANADIAN FORESTRY ASSOCIATION.....	1,000	00
INSURANCE.....	5,882	00
LEGAL FEES AND EXPENSES.....	1,163	45
LAC SEUL STORAGE DAM.....	100,000	00
MOVING EXPENSES OF OFFICIALS.....	50	00
OTTAWA AGENCY.....	2,657	62
QUETICO PROVINCIAL PARK.....	19,971	25
REFORESTATION.....	375,187	82
RONDEAU PROVINCIAL PARK.....	13,927	03
SURVEYS.....	111,849	43
VETERANS' COMMUTATION.....	150	00
STATUTORY:		
Minister's Salary.....	8,000	00
Salaries not otherwise provided for.....	81	26
Refunds.....	1,423	08
SPECIAL WARRANTS:		
Exhibitions other than Toronto.....	250	00
Long Point Provincial Road.....	16,915	61
Compensation for Improvements on Grenville Island in Wabigoon Lake.....	289	40
	2,857,235	45

Appendix

Statement of Timber and Amounts accrued from Timber Dues, Ground

QUANTITY AND

PROVINCE OF ONTARIO	Area covered by timber licenses	Saw Logs					
		Red and White Pine		Jack Pine		Other	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet
		18,761	5,109,091	203,779,476	4,379,566	72,001,893	1,859,473	65,087,227

STATEMENT OF

PROVINCE OF ONTARIO	Lath- wood	Cedar Posts	Telegraph Poles	Pulpwood	Railway Ties	Stave Bolts	Car Stakes
	Cords	Pieces	Pieces	Cords	Pieces	Cords	Pieces
	604	27,933	33,687	684,582	1,719,471	452	500

Total amount received from all Forest sources, \$4,134,478.58. See Appendix No. 9.

No. 8

Rent, Fire Protection and Bonus, etc., during the year ending 31st October, 1928

DESCRIPTION OF TIMBER

Boom and Dimension Timber						Piling		Cordwood		Tan-bark
Red and White Pine		Jack Pine		Other		Lineal	Board Measure	Hard	Soft	
Pieces	Feet	Pieces	Feet	Pieces	Feet	Feet	Feet	Cords	Cords	Cords
47,604	6,752,592	21,032	1,979,469	30,814	3,410,524	151,447	209,335	5,203	44,606	254

TIMBER—Concluded.

Amounts Accrued

Timber Dues	Bonus	Trespass	Interest on Dues and Bonus	Ground Rent	Transfer Fees	Fire Tax	Mill License Fees	Annual Bonus	Total Accruals
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,868,991 56	2,011,708 40	30,811 02	27,256 12	86,275 00	7,873 47	325,301 60	596 50	6,860 00	4,365,673 67

Appendix No. 9

Statement of Timber Revenue, Year 1927-28

Timber Dues.....		\$1,939,083 18
Bonus.....		1,714,399 03
Fire Protection.....		367,313 80
Ground Rent.....		105,212 60
Transfer Fees.....		7,873 47
Mill License Fees.....		596 50
		<u>\$4,134,478 58</u>
Timber Dues.....	\$1,664,785 52	
Interest, Timber Dues.....	18,709 06	
Timber Sale Deposits.....	255,588 60	
		<u>\$1,939,083 18</u>
Bonus.....		1,714,399 03
Fire Protection.....		367,313 80
Ground Rent.....	\$104,645 37	
Interest, Ground Rent.....	567 23	
		<u>105,212 60</u>
Transfer Fees.....		7,873 47
Mill License Fees.....		596 50
		<u>\$4,134,478 58</u>
Less Refund Account, Timber Dues.....	\$5,070 78	
“ “ “ Transfer Fee.....	15 00	
“ “ “ Mill Licenses.....	14 00	
		<u>5,099 78</u>
		<u>\$4,129,378 80</u>

Toronto, December 4th, 1928.

Appendix No. 10

ACREAGE UNDER LICENSE

The area covered by timber licenses where the holder pays regulation ground rent and fire charges, at the end of the fiscal year 1928, was 18,761 square miles.

The number of Crown Timber Licenses issued for the license season of 1927-28 was 949.

Appendix No. 11

Timber areas disposed of from November 1st, 1927 to October 31st, 1928

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1927 Oct. 7	1927 Nov. 7	Mining Locations, Crow Rock Island, Lake of the Woods, District of Kenora.	1½	1	Keewatin Lumber Co. Ltd., Kenora	Red and White Pine..... Jack Pine..... Spruce..... Poplar..... Spruce Pulp.....	\$2 50	\$8 50 5 50 6 00 1 10	\$2 50 2 50 2 00 2 00 1 40	Logging	30704
Oct. 21	Nov. 15	Two small areas, East and West of Agimac Lake designated as Berth M-24, District of Kenora.	4	1	Keewatin Lumber Co. Ltd., Kenora	White Pine..... Spruce Pulp.....	1 00 05	8 00 80	2 50 1 40	Logging	72820
Oct. 21	Nov. 15	Berth J.A.-16, Quetico Park, District of Rainy River.	4	1	Shevlin-Clark Co. Ltd., Minneapolis, Minn.	Red and White Pine..... Jack Pine..... Spruce.....	..... ..... .....	7 00 2 50 3 50	2 50 2 50 2 00	Logging	69682
Oct. 25	Nov. 17	Marquis Township (Part), S. ½ 11, Con. 5, District of Timiskaming.	½	1	D. Colquhoun & Sons, North Bay	Jack Pine..... Fire killed Jack Pine.....	..... .....	4 50 1 00	2 50 2 50	Clean Up	46293
Nov. 1	Nov. 17	Area north of Mile Post 107, west of Ignace Station on C.P.R. District of Kenora.	1¼	2	Kelly & Kimberley, Kenora	Spruce Pulp..... Ties..... Fuelwood.....	31 11 10	60 10	1 40 10 25	Logging	33683
Oct. 25	Nov. 17	Marter Township (Part) Lots 8 and 9, Con. 6, Catherine Township (Part), Part Lots 8 and 9, Con. 1, District of Timiskaming.	1¾	1	J. A. Amm, New Liskeard	Spruce Pulp.....	15	60	1 40	Pulpwood	60136

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927 to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1927 Oct. 21	1927 Nov. 18	Area east of Kastabowie Lake and north of C.N.R. at Kaibagon Station, District of Thunder Bay.	15	5	McKenzie & Morrison, Ltd., Fort William	Spruce Logs..... Jack Pine..... Jack Pine Pies..... Spruce Pulp..... Balsam Pulp.....	\$6 50 8 50 15 80 1 50	90	\$2 00 2 50 10 1 40 70	Logging	16094
Oct. 28	Nov. 21	Widdifield Township (Part), N. 1/2's. 17-18, Con. 6, District of Nipissing.	1/2	1	Wm. Holden Lumber Co., Mulock	Birch..... Ash..... Spruce-Balsam..... Hemlock.....	5 00 3 00 3 00 3 00		2 50 2 50 2 00 1 50	Logging	37018
Nov. 9	Nov. 23	Aubrey Township (Part), S. 1/2 1, Con. 4, District of Kenora.	1/4	3	John A. Cretar and B. A. Brignall, Oxdrift	Jack Pine Pulp..... Spruce Pulp..... Fuelwood—Soft..... Fuelwood—Hard.....	55 35 75 50		40 1 40 25 50	Pulpwood	41454
Nov. 4	Nov. 25	S. 1/2 Stetiam Township, District of Sudbury.	18	1	W. C. Cochrane, Sudbury	Red and White Pine..... Jack Pine..... Spruce.....	8 00 4 00 4 50		2 50 2 50 2 00	Logging	74218
Nov. 23	Dec. 2	Shawanaga Township (Part), Lots 1 to 20, Con. 8 to 10, District of Farry Sound.	9	1	Beagan & Simpson, Shawanaga	Pine.....	10 50		2 50	Pine	61001

Nov. 22	Dec. 5	Bayly Township (Part), N. 1/2 12, Con. 3, S. 1/2 12, Con. 4, District of Timiskaming.	1/2	1	Tomstown Lumber Co. Ltd., Tomstown	White Pine..... Spruce..... Cedar.....	25 15 10	4 50 3 50 2 50	2 50 2 00 1 50	Logging	23516
Nov. 25	Dec. 10	Firstbrook Township (Part), Parts 6 and 7, Con. 3, Parts 11 and 12, Con. 4, District of Timiskaming.	1 1/4	3	Wm. E. Seed, Cobalt	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulp.....	1 50 1 05 1 25 50	5 50 4 00 4 50 10	2 50 2 50 2 00 1 40	Logging	3144A
Nov. 25	Dec. 10	Parts Hunter and McCraney Townships, District of Nipissing	17 1/4	3	J. D. McNeill, Kearney	Hardwood..... Hemlock..... Spruce and Balsam.....	2 00 1 50 3 00	4 50 4 00 6 00	2 50 1 50 2 00	Logging	74102
Nov. 28	Dec. 15	Auld Township (Part), N. 1/2 3-4, Con. 5, Part 4, Con. 6, District of Timiskaming.	1 3/4	1	F. Alderdice, New Liskeard	Red and White Pine..... Green Jack Pine..... Fire Killed Pine..... Spruce Logs..... Spruce Pulp.....	..... 25 1 10 25 50	5 50 4 00 1 00 4 50 10	2 50 2 50 2 50 2 00 1 40	Logging	20416
Nov. 22	Dec. 15	Fauquier Township (Part), Lots lying East of Remi Lake, District of Cochrane.	8 1/2	1	H. E. Dunbar, Haileybury	Spruce..... Spruce Pulp..... Balsam Pulp.....	..... ..... .....	4 00 0 50 0 50	2 00 1 40 0 70	Pulp	26805
Dec. 6	Dec. 20	Hagerman Township (Part), Lot 18, Con. 11, District of Parry Sound.	1/4	1	D. D. MacLennan, Dunchurch	Pine..... Birch..... Hemlock..... Hemlock Bark.....	20 20 20 10	10 00 3 00 2 50 40	2 50 2 50 1 50 60	Logging	14775
Nov. 22	Dec. 22	MacBeth Township (Part), District of Sudbury.	36	1	Geo. Gordon & Co., Ltd., Cache Bay	Red and White Pine.....	.....	10 00	2 50	Pine	74116
Dec. 15	Dec. 28	Miscampbell Township (Part) S.W. 1/4 of N. 1/2 5, Con. 3, District of Rainy River.	1/4	1	John Kunze, Crozier	Cedar Posts..... Fuelwood—Hard..... Fuelwood—Soft.....	..... 40 25	..... ..... .....	02 50 25	Fence Posts	60347

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927 to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1927 Dec. 15	1927 Dec. 28	Miscampbell Township (Part) N.W. $\frac{1}{4}$ of N. $\frac{1}{2}$ S. Con. 3, District of Rainy River.	$\frac{1}{4}$	1	John Damsted, Fort Frances	Cedar Posts..... Fuelwood—Hard..... Fuelwood—Soft.....	\$0 01 20 45	..... ..... .....	\$0 02 50 25	Fence Posts	60347
Dec. 15	Dec. 28	Miscampbell Township (Part) N.E. $\frac{1}{4}$ of N. $\frac{1}{2}$ S. Con. 3.	$\frac{1}{4}$	1	John Damsted, Fort Frances	Cedar Posts..... Fuelwood—Hard..... Fuelwood—Soft.....	01 20 45	..... ..... .....	02 50 25	Fence Posts	60347
Dec. 17	Dec. 29	Grenfell Township (Part), District of Timiskaming.	$\frac{1}{4}$	1	J. G. Goldthorpe, Goldthorpe	Jack Pine.....	.....	\$4 00	2 50	Logging	10857
Dec. 13	1928 Jan. 3	Berth M. 25, Woodchuck Bay, Lake of the Woods, District of Kenora.	1	1	Lake of the Woods Milling Co., Ltd., Keewatin	Poplar..... Poplar—Fuelwood.....	10 15	60	40 25	Barrel Staves	33882
Dec. 22	Jan. 10	Stirling Township (Part), W. $\frac{1}{2}$ 12, Con. 1, District of Thunder Bay.	$\frac{1}{4}$	2	Albert Lanktree, Hurkett	Spruce..... Spruce Pulp..... Balsam Pulp..... Cedar Posts.....	1 00 1 80 60 08	5 50 30 70 02	2 00 1 40 70 02	Logging	34146
Dec. 16	Jan. 23	Unwin, Leask, W. $\frac{1}{2}$ Haent- schel and E. $\frac{1}{4}$ Lamman Township, District of Sudbury.	108	1	Spanish River Lumber Co. Ltd., Sudbury	Red and White Pine..... Jack Pine.....	..... .....	8 00 4 00	2 50 2 50	Pine	74624

1928 Jan. 6	Jan. 25	Parts Crooks and Pardee Townships, certain Mining Locations, District of Thunder Bay.	2	2	Peter McKellar, Fort William	White Pine.....	1 00	6 00	2 50	Pine	74214
Jan. 11	Jan. 30	Vrooman Township (Part), N.E. corner, District of Sudbury	2	1	Poupoire Lumber Co., Ottawa	Red and White Pine.....	5 50	5 50	2 50	Pine	25524
Jan. 11	Jan. 30	S.E. $\frac{1}{4}$ Vrooman Township, N. part Edinburgh Township, District of Sudbury.	18	1	White & Plaunt, Ltd., Sudbury	Red and White Pine.....	5 50	5 50	2 50	Pine	25524
Jan. 13	Feb. 1	Part Melba Township, District of Timiskaming.	1	1	Robillard & St. Aubin, Ramore	Jack Pine.....	4 00	4 00	2 50	Lath	48563
Jan. 5	Feb. 2	Township 28 and 29, Range 21, Township 28, Range 22, District of Algoma.	108	1	Paul Vasseur, Hearst	White Pine..... Burnt Pine.....	1 25 65	4 50	2 50 2 50	Pine	8160
Jan. 17	Feb. 3	Glamorgan Township (Part), Lot 25, Con. 10, County of Haliburton.	$\frac{1}{4}$	1	Lorne Hunter, Gooderham	Hardwood..... Poplar Pulp.....	25 10	25 60	50 40	Hardwood	26207
Jan. 24	Feb. 6	Part Godfrey Township, Lots 2, 3, and 4, Con. 4, District of Cochrane.	$1\frac{1}{2}$	2	H. H. Rudolph, Weston	Jack Pine.....	1 05	6 50	2 50	Logging	40731
Jan. 21	Feb. 6	Area adjoining South Boundary of T.B. 54, Quetico Park, District of Rainy River.	3	1	Shevlin-Clarke Co., Ltd., Minne- apolis, Minn.	Red and White Pine.....	05	7 00	2 50	Pine	3145

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927 to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid					Proposition	File
						Kind of Timber	Bid	Upset	Dues			
1928 Jan. 19	1928 Feb. 6	Booth Township (Part), Lot 2, Con. 1, District of Thunder Bay.	¼	2	Silas Flatt, Nipigon	Spruce Pulpwood..... Balsam Pulpwood.....	\$0 90 90	\$0 85 1 55	\$1 40 70		Pulp	27508
Jan. 30	Feb. 7	Ledger Township (Part), Lots north half 9, 10, and 11, Con. 5, District of Thunder Bay.	1½	4	Thunder Bay Harbour Improvement Co., Ltd., Port Arthur	Piling.....	09½	.....	03½		Piling	56333
Jan. 12	Feb. 9	Loughrin Township, North Half, District of Sudbury.	18	6	Mageau Lumber Co., Ltd., Field	Jackpine..... Red and White Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	1 55 2 25 2 00 1 05 1 05 20	4 00 7 00 4 00 60 30 40	2 50 2 50 2 00 1 40 70 40		Logging	16063
Feb. 7	Feb. 22	Grenfell Township (Part), certain Mining Claims, District of Timiskaming.	½	1	J. C. Goldthorpe, Goldthorpe	Green, Jack Pine..... Fire Killed Jack Pine..... Spruce Pulpwood..... Poplar Pulpwood.....	..... ..... ..... .....	4 00 50 10 10	2 50 2 50 1 40 40		Logging	1443A
May 7	May 23	Radcliffe Township (Part), Lots 23 and 24, Con. 5, County of Renfrew.	½	1	J. P. Moran Killaloe Station	Pine..... Hardwood..... Spruce..... Hemlock..... Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood.....	4 30 4 50 1 00 1 00 50 50 40	3 00 1 00 2 50 1 50 50 1 00 40	2 50 2 50 2 00 1 50 1 40 70 70		Logging	46730

June 5	July 3	J.A. 14, Smooth Rock Lake, District of Kenora.	31	1	J. A. Mathieu, Ltd., Rainy Lake	Cedar Poles— 30 feet and less..... 31 to 40 feet..... 41 feet and over..... Cedar Posts.....	10 15 25 02	10 10 10 02	25 50 75 02		
June 5	July 3	J.A. 14, Smooth Rock Lake, District of Kenora.	31	1	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Spruce..... Jack Pine..... Spruce Pulpwood..... Jack Pine Pulpwood.....	10 1 50 10 20 15	1 00 50 20 15	2 50 2 00 2 50 1 40 40	Logging	5495
May 29	July 20	Berth 41, Quetico Park, District of Rainy River.	17	2	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Jack Pine Pulpwood.....	10	8 00 4 00 5 00 60 1 30 15	2 50 2 50 2 00 1 40 70 40	Logging	80749
May 29	July 20	Berth 42, Quetico Park, District of Rainy River.	9	2	Shevlin-Clarke Co., Ltd., Minneapolis, Minn.	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Jack Pine Pulpwood.....	13 13	9 50 4 00 5 00 60 1 30 15	2 50 2 50 2 00 1 40 70 40	Logging	80748
May 29	July 20	Berth 43, Quetico Park, District of Rainy River.	27	2	Shevlin-Clarke Co., Ltd., Minneapolis, Minn.	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Jack Pine Pulpwood.....	13 13	7 50 4 00 5 00 60 1 30 15	2 50 2 50 2 00 1 40 70 40	Logging	80748
May 29	July 20	J.A. 13, Quetico Park, District of Rainy River.	4	1	Shevlin-Clarke Co., Ltd., Minneapolis, Minn.	Red and White Pine..... Jack Pine.....	05	8 00 4 00	2 50 2 50	Pine	80747

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927 to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1928 May 29	July 20	J.A. 15, J.A. 18, District of Rainy River.	6	1	Shevlin-Clarke Co., Ltd., Minneapolis, Minn.	Red and White Pine....	\$0 08	\$8 25	\$2 50	Pine	80746
June 30	Aug. 1	J.A. 19, District of Rainy River.	10	2	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Spruce..... Jack Pine Lath.....	2 05 50 05	7 00 4 00 10	2 50 2 00 40	Logging	613B
July 10	Aug. 20	Chester & Neville Townships, District of Sudbury.	64	1	Poupore Lumber Co., Ottawa	Red and White Pine..... Jack Pine.....	..... .....	7 50 4 00	2 50 2 50	Pine	50528
July 21	Aug. 20	J.A. 20, Districts of Rainy River and Kenora.	35	3	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jack Pine..... Jack Pine Lath.....	5 10 3 57 32	2 50 50 05	2 50 2 50 40	Pine	80675
Aug. 4	Aug. 24	Auld Township (Part), south half Lot 10, Con. 6, District of Timiskaming.	1/4	2	Joseph Kirkey, Hanbury	Spruce Pulpwood..... Fuelwood.....	05	35	1 40 25	Pulp	20416
Aug. 4	Aug. 28	Connee Township (Part), north half Con. 9, District of Thunder Bay.	1/4	2	James A. Aitkins, Fort Arthur	Balsam Pulpwood..... Spruce Pulpwood..... Jack Pine Ties.....	..... ..... .....	1 05 1 00 12	70 1 40 10	Pulp	33966

July 25	4	Blocks 1, 2, 3 and 4, and areas East and South of K.18, District of Kenora.	193	3	Masahba Development Co., Ltd., Port Arthur	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood.....	30 15	60 1 30 10	1 40 70 40	Pulp	37584
Aug. 2	14	Simpson Township, District of Algoma.	81	1	Abitibi Power & Paper Co., Ltd., and Algoma Central & Hudson Bay Ry. Co.	Spruce Pulpwood..... Balsam Pulpwood..... Railway Ties..... Jack Pine..... Cedar Posts..... Poles.....	60 1 30 05 4 00 05	1 40 70 10 2 50 02 Dues		Logging	35461
Aug. 9	18	Garibaldi Township (South Part), District of Sudbury.....	14	1	Marshay Lumber Co., Ltd., Toronto	Red and White Pine..... Jack Pine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Jack Pine Pulpwood.....	7 00 4 00 4 00 50 30 30	2 50 2 50 2 00 1 40 70 4 00		Logging	61186
Sept. 10	24	Berth M-6A, District of Kenora.	1/4	1	A. B. Evans Fort William	Spruce Pulpwood.....	.....	1 40		Pulp	24745
Aug. 30	25	Henry Township (Part), Lots 7 to 12, Cons. 5 and 6, District of Sudbury.	6 1/4	3	H. A. Batsford, Warren	Jack Pine Logs..... Spruce Pulpwood..... Balsam Pulpwood..... Other Pulpwood.....	2 25 1 20 1 15 1 65	2 50 1 40 70 40		Pulp	11635
Aug. 31	25	Chandos Township, Lots 1 and 2, Cons. 14 and 15, County of Peterboro.	1/2	2	Peterboro Lumber Co., Ltd., Peterboro	Maple, Birch, Basswood and Elm..... Spruce and Balsam..... Hemlock.....	75 2 05 2 05	2 50 2 00 1 50		Logging	12338
Sept. 11	27	Henwood Township (Part), south half Lot 11, Con. 1, District of Timiskaming.	1/4	1	M. A. Wilson, Kenabeek	Red and White Pine..... Jack Pine..... Spruce.....	7 50 1 00 1 00	2 50 2 50 2 00		Pine	10853

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927, to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1928 Sept. 14	1928 Sept. 28	Auld Township (Part), north half Lot 11, Con. 5, District of Timiskaming.	1/4	2	Thos. Martindale, Cane	Cedar..... Spruce Pulpwood..... Cedar Poles— 30 feet and less..... 31 feet and over.....	\$0 15 10 10	\$3 50 25 25 25	\$1 50 1 40 25 50	Logging	20416
Sept. 12	Sept. 28	Lyon Township (Part), east half Lot 15, Con. 2, District of Thunder Bay.	1/4	3	J. E. Kallia, Port Arthur	Spruce Pulpwood..... Balsam Pulpwood.....	1 07 55	80 1 50	1 40 70	Pulp	20272
Sept. 25	Oct. 10	Firstbrook Township (Part), south half Lot 10, Con. 4, District of Timiskaming.	1/4	2	Wm. E. Seed, Cobalt	White Pine..... Jack Pine.....	50 50	4 00 3 00	2 50 2 50	Pine	3144 A
Sept. 21	Oct. 11	Widdifield Township (Part), Lot 2, Con. 6, District of Nipissing.	1/2	1	F. J. Stephen, Redbridge	Pine..... Birch..... Elm and Ash..... Spruce and Balsam..... Hemlock..... Spruce Pulpwood..... Balsam Pulpwood..... Cedar Poles— 30 feet and less..... 31 feet to 40 feet..... 41 feet to 50 feet..... 51 feet and over.....	50 50 25 25 3 00 35 1 05	8 00 4 00 3 50 4 50 3 00 35 1 05	2 50 2 50 2 50 2 00 1 50 1 40 70	Logging	37018

Oct. 8	Oct. 22	Berth M-28, District of Kenora.	2	1	Lake of the Woods Milling Co., Ltd., Keewatin	Poplar, Spruce, Balsam Pulp.	20	45	40	Barrel Staves	33882
							10		25		
Oct. 1	Oct. 22	Leitch Township (Part), Lot 13, Con. 2, District of Cochrane.	¼	3	Hawk Lake Lumber Co., Ltd., Cochrane	Spruce, Balsam Pulp.	2 15	4 00 40	2 00 70	Logging	52740
Sept. 28	Oct. 24	Monmouth Township (Part), Lots 24 to 27, Con. 16, and Lots 27 and 28, Con. 17, County of Haliburton.	1	1	Wm. Bryant & Son, Toronto	Hardwood, Balsam and Poplar, Hemlock and Cedar, Poplar Pulp, Cordwood (Hard).	50 50 50 10 10	2 50 1 00 1 50 40 50	2 50 2 00 1 50 40 50	Logging	11618
Oct. 5	Oct. 29	Williamson Township (Part), Lots 19 to 24, Cons. 7 and 8, District of Cochrane.	1¾	2	Eugene Levesque, Williamson	Spruce, Spruce Pulp, Balsam Pulp.	2 50 05	4 00 60 1 30	2 00 1 40 70	Pulp	61075
Oct. 5	Oct. 29	M-26, District of Kenora.	2½	1	Frank Haksell, Kenora	Red and White Pine, Jack Pine, Spruce.	1 00 1 00 1 00	7 50 5 50 6 00	2 50 2 50 2 00	Logging	10744
Oct. 6	Oct. 29	Kendall Township (Part), Lots 12, 13 and 14, Con. 2, and Lot 13, Con. 3, District of Cochrane.	1	1	Hallewood Lumber Co., Ltd., Hallewood	Spruce, Tamarac, Spruce Pulp, Balsam Pulp, Poplar Pulp.		4 00 4 00 35 1 05 05	2 00 1 50 1 40 70 40	Logging	1955
Sept. 29	Oct. 29	Part Horne Township, District of Thunder Bay.	19	6	Le Page Lumber Co., Ltd., Port Arthur	Jack Pine, Spruce, Poplar, Jack Pine Ties, Spruce Pulp, Balsam Pulp, Poplar Pulp.	4 50 6 00 35 07½ 80 30 20	6 00 6 00 2 50 15 60 70 10	2 50 2 00 2 00 10 40 70 40	Logging	51862

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1927, to October 31st, 1928.

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1928 Sept. 29	1928 Oct. 29	Marjorie Township (Part), southeast quarter, District of Algoma.	20 $\frac{1}{4}$	1	Chalykoff & Co., Hearst	Jack Pine Jack Pine Ties	\$0 10	\$4 00 07	\$2 50 10	Ties	39837
Sept. 29	Oct. 29	Godfrey Township (Part), northeast quarter, District of Cochrane.	9	2	H. H. Rudolph, Weston	Jack Pine Spruce Spruce Pulp Poplar Pulp	2 25 3 50 50 05	4 50 5 50 60 10	2 50 2 00 1 40 40	Logging	40731
Oct. 12	Oct. 31	Bond Township (Part), Lot 4, Con. 3, District of Cochrane...	$\frac{1}{2}$	1	Hawklake Lum- ber Co., Ltd., Cochrane	Spruce Spruce Pulp	..... .....	5 00 60	2 00 1 40	Logging	35051
Oct. 8	Oct. 31	Parts Hennessey and Garvey Townships.	10	1	Hope Lumber Co., Ltd., Bridgeburg	Red and White Pine	.....	5 00	2 50	Pine	987

Appendix No. 12

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, 1928

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	W. G. Gerhart,							2	200
Brunel	"	Bracebridge					2	200		
Cardwell	"	"								
Chaffey	"	"								
Draper	"	"								
Franklin	"	"			1	33			2	285
Freeman	"	"								
Macaulay	"	"	2	200			3	300	2	196½
Medora	"	"					1	95		
Morrison	"	"							3	390
Muskoka	"	"								
McLean	"	"								
Oakley	"	"							2	151
Ridout	"	"								
Ryde	"	"	1	102			5	599	1	143
Sherbourne	Haliburton	"					1	98		
Sinclair	Muskoka	"					1	100		
Stephenson	"	"							1	198
Stisted	"	"								
Wood	"	"			1	430				
Watt	"	"								
Blair	Parry Sound	Miss I. M. Campbell, Parry Sound								
Burpee	"	"								
Carling	"	"	1	100	2	132			1	186
Christie	"	"	1	95	1	67	4	380		
Conger	"	"							1	285
Cowper	"	"								
Ferguson	"	"							1	168
Foley	"	"								
Hagerman	"	"								
Henvey	"	"							2	225½
Humphrey	"	"							1	100
McConkey	"	"					1	100		
McDougall	"	"					2	368	1	200
McKellar	"	"					1	184		
McKenzie	"	"	1	101						
Monteith	"	"					1	200		
Wilson	"	"							1	194
Chapman	Parry Sound	J. S. Freeborn,	1	99			2	363		
Croft	"	Maganetawan.					3	643		
Gurd	"	"								
Lount	"	"	2	197	1	52	2	436		
Machar	"	"							2	400
Mills	"	"	1	100	1	5	2	200	6	1,286
Pringle	"	"					1	100		
Ryerson	"	"	3	300			3	380	1	100
Spence	"	"					1	100	1	149
Strong	"	"							2	200
Armour	Parry Sound	A. W. Freeland,								
Bethune	"	Emsdale	2	200			2	200		
Joly	"	"	3	328	1	100	1	128	1	100
McMurrich	"	"								
Proudfoot	"	"	1	200						

Appendix No. 12—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
Hardy.....	Parry Sound	H. J. Ellis,								
Himsworth....	"	Powassan.....	2	200			5	599	2	299
Laurier.....	"	"								
Nipissing.....	"	"	3	298			1	100	1	200
Patterson.....	"	"								
Bonfield.....	Nipissing...	W. J. Parsons,	1	100	1	100	1	100		
Boulter.....	"	North Bay...	1	100	1	1			1	101
Chisholm.....	"	"	1	100	1	6	1	99	2	200
Ferris.....	"	"								
Anson.....	Haliburton	A. W. Fleming,								
Glamorgan....	"	Minden.....					3	392	7	791½
Hindon.....	"	"								
Lutterworth..	"	"					1	53		
Minden.....	"	"								
Snowdon.....	"	"								
Stanhope.....	"	"								
Anstruther...	Peterboro'	Wm Hales,								
Burleigh, N.D.	"	Apsley.....					1	142	1	83
Chandos.....	"	"	1	100			1	55	2	224
Methuen.....	"	"					1	98¾	2	175
Cardiff.....	Haliburton	A. N. Wilson,	1	176½	1	70				
Cavendish....	"	Kinmount....			1	2	-1	198		
Galway.....	"	"					1	123	2	206
Monmouth....	"	"					2	221		
Bangor.....	Hastings...	David Fuller,							1	92
Carlow.....	"	Bancroft.....	1	50			2	226	8	895
Cashel.....	"	"	1	100			2	344	1	49
Dungannon...	"	"	1	90						
Faraday.....	"	"	1	92			1	100	1	188
Herschel....	"	"					1	60		
Limerick....	"	"							1	200
Mayo.....	"	"	3	243½			2	293½	4	556½
Monteagle...	"	"							1	100
McClure.....	"	"							1	189
Wicklow.....	"	"			2	107				
Wollaston...	"	"							2	215
Algona South..	Renfrew....	F. Blank, Wilno.	1	98			3	248		
Brougham....	"	"		173					2	198
Burns.....	"	"	2		1	50			1	250
Brudenell....	"	"	2	245			2	198	3	480
Hagarty.....	"	"	1	25			2	125		
Jones.....	"	"	5	364			1	128		
Lyell.....	"	"	3	303			1	105	1	150
Lyndoch.....	"	"	3	231	2	100			3	499
Matawatchesan.	"	"								
Radcliffe....	"	"	5	491			10	1,006	2	416
Raglan.....	"	"	1	50½			8	936	1	100
Richards....	"	"							2	367
Sebastopol...	"	"								
Sherwood.....	"	"			1	9½	1	100	3	344

Appendix No. 12—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
Algona North	Renfrew....	Finlay Watt,	.....	.....	.....	.....	.....	.....	1	50
Alice.....	"	Renfrew.....	.....	.....	.....	.....	.....	.....	1	100
Buchanan.....	"	"	2	293	.....	.....	2	293	1	259
Fraser.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Head.....	"	"	1	149	1	45	.....	.....	.....	.....
Maria.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Petawawa.....	"	"	1	100	.....	.....	.....	.....	.....	.....
Rolph.....	"	"	.....	.....	.....	.....	.....	.....	2	289
Wilberforce.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Wylie Pt.....	"	"	.....	.....	1	100	.....	.....	1	100
Calvin.....	Nipissing..	J. A. Fink,	1	100	.....	.....	2	200	.....	.....
Cameron Pt...	"	Mattawa.....	2	317	.....	.....	1	190	.....	.....
Lauder.....	"	"	3	314	.....	.....	.....	.....	.....	.....
Mattawan.....	"	"	2	204	1	2	.....	.....	.....	.....
Papineau.....	"	"	1	100	.....	.....	.....	.....	1	100
Park.....	Algoma....	Thos. Dean,	.....	.....	.....	.....	.....	.....	.....	.....
Prince.....	"	Sault Ste. Marie.	.....	.....	.....	.....	.....	.....	2	309
Galbraith.....	Algoma....	Albert Grigg,	.....	.....	.....	.....	1	160½	1	160½
Lefroy.....	"	Bruce Mines..	.....	.....	.....	.....	.....	.....	.....	.....
Aberdeen.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Hilton.....	Algoma....	W. J. Trainor,	1	100	.....	.....	1	100	2	213½
Jocelyn.....	"	Hilton Beach..	3	304	1	7	.....	.....	.....	.....
Baldwin.....	Sudbury...	Ed. Arthurs,	2	250	1	86	3	483	1	160
Merritt.....	"	Espanola.....	2	238½	.....	.....	.....	.....	2	215½
Blake.....	Thunder Bay	S. H. Wilson,	6	880	.....	.....	4	520	2	320
Conmee.....	"	Port Arthur...	17	2,234	3	130¼	4	590½	.....	.....
Crooks.....	"	"	5	674	.....	.....	.....	.....	2	285
Dawson Rd....	"	"	10	1,016	2	58	6	696	2	300
Dorion.....	"	"	.....	.....	.....	.....	.....	.....	1	159
Gillies.....	"	"	1	160	.....	.....	2	320	.....	.....
Gorham.....	"	"	2	245	.....	.....	1	106½	1	50
Lybster.....	"	"	6	720	.....	.....	4	480	.....	.....
Marks.....	"	"	4	591	1	1½	3	431½	1	157
McGregor.....	"	"	3	318	.....	.....	3	396	.....	.....
McIntyre.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Oliver.....	"	"	1	162	3	2	1	162	2	315
O'Connor.....	"	"	.....	.....	.....	.....	.....	.....	1	127½
Paipoonge,N.R	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Paipoonge,S.R	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Pardee.....	"	"	2	233	.....	.....	1	100	.....	.....
Pearson.....	"	"	3	320½	2	92	1	160½	3	479
Scoble.....	"	"	5	602½	.....	.....	6	840¼	1	160
Stirling.....	"	"	7	1,032	3	81	5	718½	13	1,984¼
Strange.....	"	"	3	248½	.....	.....	2	318½	.....	.....
Ware.....	"	"	9	1,496½	1	1	7	1,126½	.....	.....
Atwood.....	Rainy River	Wm. Cameron,	.....	.....	.....	.....	.....	.....	.....	.....
Blue.....	"	Stratton.....	2	237	1	2	2	237	3	403
Curran.....	"	"	.....	.....	.....	.....	1	160	1	164
Dewart.....	"	"	6	583	1	83½	5	721½	.....	.....
Dilke.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Morley.....	"	"	.....	.....	.....	.....	.....	.....	.....	.....
Morson.....	"	"	15	1,764½	3	70½	12	1,335¼	3	502
McCrosson.....	"	"	4	280½	.....	.....	4	436¼	4	633¼
Nelles.....	"	"	3	407	1	4	8	888	1	160

Appendix No. 12—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
Pattullo.....	Rainy River	Wm. Cameron, Stratton.....	1	81	1	2	2	320	1	162
Pratt.....	"	"	11	1,728 $\frac{1}{2}$	5	135	5	844 $\frac{1}{4}$	1	181
Richardson...	"	"	4	560			3	419	1	159
Shenston.....	"	"								
Sifton.....	"	"	18	1,238 $\frac{1}{2}$	1	1	10	1,329 $\frac{1}{4}$	3	517 $\frac{1}{2}$
Spohn.....	"	"	6	859 $\frac{3}{4}$	3	58 $\frac{3}{4}$	7	1,191 $\frac{1}{2}$		
Sutherland...	"	"	4	458 $\frac{1}{4}$			6	765 $\frac{3}{4}$	2	336 $\frac{1}{2}$
Tait.....	"	"	3	233			1	81	1	164
Tovell.....	"	"	8	847 $\frac{1}{4}$			7	804 $\frac{1}{4}$		
Worthington..	"	"								
Aylesworth...	Rainy River	J. A. Alexander.								
Barwick.....	"	Fort Frances..								
Burriss.....	"	"	1	170			1	170		
Carpenter....	"	"	1	162			3	300		
Crozier.....	"	"	2	200 $\frac{1}{2}$	1	4	3	364 $\frac{1}{2}$	3	331
Dance.....	"	"	3	477 $\frac{1}{2}$			5	716 $\frac{1}{2}$		
Devlin.....	"	"					1	164	1	161
Dobie.....	"	"	1	79 $\frac{3}{4}$	1	79 $\frac{3}{4}$			1	79 $\frac{3}{4}$
Fleming.....	"	"	1	160 $\frac{1}{2}$						
Kingsford....	"	"	1	130			3	407		
Lash.....	"	"	3	314			1	40		
Mather.....	"	"	1	160			2	320 $\frac{1}{2}$		
Miscampbell..	"	"	2	231 $\frac{1}{4}$			1	160		
Potts.....	"	"	3	450 $\frac{1}{2}$	1	1 $\frac{1}{2}$	4	610 $\frac{1}{2}$	2	400
Roddick.....	"	"	1	80						
Woodyatt....	"	"								
Aubrey.....	Kenora.....	J. E. Gibson,	4	649	3	97	5	744	2	261
Britton.....	"	Dryden.....	3	480	1	1	2	320	1	160 $\frac{1}{2}$
Eton.....	"	"	1	160			1	160	4	479 $\frac{1}{2}$
Langton.....	"	"	1	40			3	465	1	160
Melgund.....	"	"	15	2,099	2	156	4	613	1	160
Mutrie.....	"	"	1	81			3	515	1	130
Rowell.....	"	"	4	454 $\frac{1}{4}$			3	449 $\frac{1}{2}$	3	346
Redvers.....	"	"	3	477 $\frac{1}{2}$			2	318 $\frac{1}{2}$	1	151 $\frac{1}{4}$
Rugby.....	"	"	4	639			3	480	1	164
Sanford.....	"	"	1	145	2	155 $\frac{1}{2}$	3	446		
Southworth..	"	"	25	2,852 $\frac{3}{4}$	4	138 $\frac{3}{4}$	8	911	1	134 $\frac{1}{2}$
Temple.....	"	"	10	498	1	1 $\frac{1}{2}$	10	1,378	1	236 $\frac{1}{2}$
Van Horne...	"	"								
Wabigoon....	"	"	2	297 $\frac{1}{2}$			2	316 $\frac{1}{2}$		
Wainwright..	"	"	4	637 $\frac{1}{2}$			2	312	1	155
Zealand.....	"	"			5	181 $\frac{1}{4}$	6	723	8	1,062 $\frac{1}{4}$
Melick.....	Kenora.....	J. D. C. Smith,			1	100	8	1,095		
Pellatt.....	"	Kenora.....	1	159 $\frac{1}{2}$			7	925		
Balfour.....	Sudbury....	J. K. MacLennan'	2	156 $\frac{1}{4}$					7	820
Bleazard.....	"	Sudbury.....	1	146	1				1	160
Broder.....	"	"			2	114			5	1,051 $\frac{1}{4}$
Capreol.....	"	"			2	196 $\frac{3}{4}$	1	162	4	313 $\frac{1}{4}$
Chapleau....	"	"								
Dill.....	"	"	1	120					2	317 $\frac{1}{2}$
Garson.....	"	"	1	154			4	642	5	716 $\frac{1}{2}$
Hanmer.....	"	"	5	567	4	50 $\frac{1}{2}$	8	1,022	7	973
Lumsden....	"	"	2	240 $\frac{1}{4}$	1	1 $\frac{1}{2}$	3	392 $\frac{1}{4}$	4	402 $\frac{1}{4}$
Morgan.....	"	"	6	690	2	69 $\frac{3}{4}$	6	614 $\frac{1}{4}$	2	306 $\frac{1}{2}$
Neelon.....	"	"	1	160			1	80	1	150
Rayside.....	"	"							6	549 $\frac{1}{4}$

Appendix No. 13

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, 1928.

Township	District or County	Agent	No of acres sold	No of purchasers	No of lots cancelled	No of acres resumed	No. of patents issued	No of acres patented
Blount.....	Cochrane.....	S. J. Dempsey,	1,221 $\frac{1}{4}$	18	10	967 $\frac{1}{2}$	4	450.88
Brower.....	".....	Cochrane	230	3	3	390 $\frac{1}{4}$	1	160
Calder.....	".....	"	2,319 $\frac{1}{2}$	27	11	1,173	8	1,020.98
Clute.....	".....	"	622	8	6	740	10	1,450.88
Colquhoun.....	".....	"	373	5	.....	.....	.....	.....
Fox.....	".....	"	547	6	4	557 $\frac{1}{2}$	3	484
Fournier.....	".....	"	706 $\frac{1}{2}$	8	10	1,132 $\frac{1}{2}$	3	420 $\frac{1}{2}$
Fauquier.....	".....	"	588 $\frac{1}{4}$	6	17	2,330	.....	.....
Glackmeyer.....	".....	"	171.89	1	3	367 $\frac{1}{2}$	4	602
Kennedy.....	".....	"	75	1	.....	.....	.....	.....
Leitch.....	".....	"	1,453 $\frac{3}{4}$	19	7	752	.....	.....
Lamarche.....	".....	"	312 $\frac{1}{2}$	4	2	312 $\frac{1}{2}$	4	639.82
Machin.....	".....	"	524	7	4	483	.....	.....
Newmarket.....	".....	"	159	2	5	719 $\frac{1}{2}$	.....	.....
Pyne.....	".....	"	1,533 $\frac{1}{2}$	18	4	477 $\frac{3}{4}$	.....	.....
Shackleton.....	".....	"	128	2	8	1,200	2	358
Barker.....	".....	John Bresnahan,	444 $\frac{1}{2}$	6	1	72 $\frac{1}{2}$	.....	.....
Casgrain.....	".....	Hearst	817 $\frac{3}{4}$	10	6	758	4	516
Devitt.....	".....	"	2,431 $\frac{1}{2}$	34	16	1,568 $\frac{1}{2}$	.....	.....
Eilber.....	".....	"	1,276 $\frac{1}{2}$	18	11	975 $\frac{1}{2}$	3	446.01
Hanlan.....	".....	"	2,469	32	10	1,164	2	301
Kendall.....	".....	"	1,199 $\frac{1}{2}$	15	12	1,500 $\frac{1}{2}$	3	458
Lowther.....	".....	"	429 $\frac{1}{2}$	56	16	1,872 $\frac{1}{2}$	3	430
McGowan.....	".....	"	1,659	21	.....	.....	.....	.....
O'Brien.....	".....	H. E. Sheppard,	200	2	5	428	.....	.....
Nansen.....	".....	Kapuskasig	580	8	4	280	.....	.....
McCrea.....	".....	"	3,743 $\frac{1}{2}$	47	17	1,423	.....	.....
Owens.....	".....	"	995	11	20	1,994	4	403
Idington.....	".....	"	2,594	27	18	1,729	1	126
Williamson.....	".....	"	1,677	17	25	2,417	2	201
Haggart.....	".....	"	123.6	1	1	140	2	258.14
Kendry.....	".....	"	379.61	4	.....	.....	6	881.64
Bayley.....	Temiskaming.....	Nora Maclean,	.....	.....	.....	.....	.....	.....
Blain.....	".....	Acting Crown	.....	.....	.....	.....	.....	.....
Catharine.....	".....	Land Agent,	79 $\frac{1}{2}$	1	3	387	.....	.....
Chamberlain.....	".....	Englehart	232 $\frac{1}{2}$	3	4	662 $\frac{1}{2}$	2	319
Dack.....	".....	"	79 $\frac{1}{2}$	1	1	159 $\frac{1}{2}$	1	165 $\frac{1}{2}$
Eby.....	".....	"	319 $\frac{3}{4}$	4	3	479 $\frac{1}{2}$	3	238.20
Evanturel.....	".....	"	.....	.....	.....	.....	.....	.....
Ingram.....	".....	"	160	1	1	160	3	400
Marter.....	".....	"	80 $\frac{1}{4}$	1	2	320	.....	.....
Marquis.....	".....	"	551	7	1	158	1	5
Otto.....	".....	"	572 $\frac{1}{2}$	7	3	234 $\frac{1}{2}$	.....	.....
Pacaud.....	".....	"	237 $\frac{3}{4}$	3	3	296 $\frac{1}{2}$	6	948.91
Pense.....	".....	"	239 $\frac{1}{4}$	.....	.....	.....	.....	.....
Robillard.....	".....	"	133 $\frac{3}{4}$	2	1	161	3	483
Savard.....	".....	"	79 $\frac{1}{4}$	1	3	479 $\frac{1}{2}$	2	318
Truax.....	".....	"	.....	1	.....	147 $\frac{1}{2}$	.....	.....
Davidson.....	".....	"	.....	.....	.....	.....	1	43.81
Gross.....	".....	"	.....	.....	2	287 $\frac{1}{2}$	1	63.73
Sharpe.....	".....	"	.....	.....	2	319 $\frac{1}{2}$	.....	.....

Appendix No. 13—Continued

Township	District or County	Agent	No of acres sold	No. of pur- chasers	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Benoit.....	Temiskaming....	J. A. Hough,	504	7	6	754	1	159
Shaw.....	".....	Matheson	80	1	.....	.....	.....	.....
Beatty.....	Cochrane.....	"	80	1	4	605	2	326
Bond.....	".....	"	80	1	3	454	2	320
Bowman.....	".....	"	81	1	2	296	.....	.....
Calvert.....	".....	"	318	2	.....	.....	2	315
Carr.....	".....	"	.....	.....	1	159	3	419
Clergue.....	".....	"	80	1	3	411	3	438
Currie.....	".....	"	241	3	8	1,121	1	82
Dundonald.....	".....	"	.....	.....	1	159	3	298
Evelyn.....	".....	"	68	1	20	2,833	.....	.....
German.....	".....	"	152	2	7	980	.....	.....
Hislop.....	".....	"	739	8	2	326	8	1,346
Matheson.....	".....	"	526	6	9	1,171	1	160
Mountjoy.....	".....	"	.....	.....	2	318	2	313
McCart.....	".....	"	542	7	8	875	2	325
Playfair.....	".....	"	80	1	2	382	2	313
Stock.....	".....	"	310	4	10	1,256	.....	.....
Taylor.....	".....	"	81	1	.....	.....	3	322
Walker.....	".....	"	.....	.....	1	73	.....	.....
Armstrong.....	Temiskaming....	J. R. MacRea...	.....	.....	.....	.....	2	319
Auld.....	".....	New Liskeard	.....	.....	3	476	.....	.....
Beauchamp.....	".....	"	162	1	.....	.....	.....	.....
Bryce.....	".....	"	.....	.....	1	159	.....	.....
Cane.....	".....	"	162	1	1	160	1	40
Casey.....	".....	"	83	1	.....	.....	.....	.....
Dymond.....	".....	"	83	1	.....	.....	2	165
Firstbrook.....	".....	"	.....	.....	1	161	1	159
Harley.....	".....	"	.....	.....	2	240	1	160
Henwood.....	".....	"	242	2	.....	.....	5	686
Harris.....	".....	"	160	2	4	636	.....	.....
Hilliard.....	".....	"	159	1	.....	159	2	300
Kerns.....	".....	"	.....	.....	1	160	1	159
Lundy.....	".....	"	.....	.....	.....	.....	3	242
Tudhope.....	".....	"	159	2	3	411	3	239
Lorrain.....	".....	N. J. McAulay, Haileybury	.....	.....	1	160	.....	.....
Hugel.....	Nipissing.....	T.A. Millichamp,	160	1	.....	.....	2	350
Henry.....	".....	Markstay	1,597	9	.....	.....	.....	.....
Loughrin.....	".....	"	1,935	13	12	1,922	.....	.....
Phelps.....	Nipissing.....	W. J. Parsons,	962	9	19	3,043	1	160
Widdfield.....	".....	North Bay	2,565	16	10	1,590	1	159
Hallam.....	Sudbury.....	R. A. Teasdale,	651	4	1	168	4	580
May.....	".....	Massey	.....	.....	.....	.....	1	168
Bigwood.....	Sudbury.....	J. K. MacLennan,	536	4	.....	.....	3	158
Delamere.....	".....	Sudbury	531	3	.....	.....	1	144
Dowling.....	".....	"	696	6	4	607	3	371
Bright.....	Algoma.....	Albert Grigg,	331	3	1	145	1	59
Bright Add.....	".....	Bruce Mines	302	2	1	220	.....	.....
Cobden.....	".....	"	388	3	.....	.....	.....	.....
Day.....	".....	"	.....	.....	.....	.....	.....	12
Deroche.....	".....	"	147	1	.....	.....	1	151
Gladstone.....	".....	"	132	1	.....	.....	1	149
Galbraith.....	".....	"	.....	.....	.....	.....	1	160

Appendix No. 13—Continued

Township	District or County	Agent	No. of acres sold	No. of purchasers	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Gould.....	Algoma.....	Albert Grigg,			2	287	1	146
Lefroy.....	".....	Bruce Mines	31	1	1	3	1	31
Patton.....	".....	"			1	172		
Thompson.....	".....	"	762	5	3	480	1	160
Wells.....	".....	"			3	598		
Aweres.....	Algoma.....	Thomas Dean,			16	2,507		
Tarentorus.....	".....	Sault Ste. Marie					1	42
Vankougnet.....	".....	"	159	1				
Devon.....	Thunder Bay.....	S. H. Wilson,	3,603	25				
Forbes.....	".....	Port Arthur	2,909	18	6	980		
Fowler.....	".....	"			3	344		
Goldie.....	".....	"	2,512	16	2	336	1	160
Jacques.....	".....	"	4,212	28	6	840	2	314
Lyou.....	".....	"	161	1	3	402		
McTavish.....	".....	"	975	6	1	161		
Nipigon.....	".....	"	440	3	7	1,068	1	160
Sibley.....	".....	"	1,918	11	3	489		
Upsala.....	".....	"	1,542	10	10	1,487	4	666
Drayton.....	Kenora.....	J. D. C. Smith,	105	1				
Jaffray.....	".....	Kenora	279	5	1	50	3	199
Cherriman.....	Sudbury.....	J.P. Marchildon,	180	1				
Mason.....	".....	Sturgeon Falls						
Scollard.....	Nipissing.....	"	321	2				
Nairn.....	Sudbury.....	Edward Arthurs,	310	2				
		Espanola						
Alice.....	Renfrew.....	Unattached.....					1	100
Arran.....	Bruce.....	"					1	141
Badgerow.....	Nipissing.....	"	551	5	1	160		
Bagot.....	Renfrew.....	"	450	3	1	100	3	450
Brougham.....	".....	"					2	198
Barrie.....	Frontenac.....	"	80	1	2	180	2	252
Bentinck.....	Grey.....	"					1	100
Bedford.....	Frontenac.....	"	30	1	1	10		
Belmont.....	Peterborough.....	"			2	200		
Blythfield.....	Renfrew.....	"					1	100
Bastedo.....	Nipissing.....	"					1	160
Crerar.....	".....	"	160	1			2	319
Creighton.....	Sudbury.....	"					2	316
Clinton.....	Lincoln.....	"	50	1			1	50
Denison.....	Sudbury.....	"			1	163	1	160
Drury.....	".....	"	484	3	1	100		
Dryden.....	".....	"	40	1				
Derby.....	Grey.....	"					1	102
Dalton.....	Victoria.....	"					3	239
Darling.....	Lanark.....	"	81	1	1	81	2	158
Elzevir.....	Hastings.....	"			1	100		
Effingham.....	Lennox and Addington	"	100	1			1	100
Foster.....	Sudbury.....	"					1	150
Falconbridge.....	".....	"					4	385
Fredericksburg.....	Lennox and Addington	"	80	1			1	80
Field.....	Nipissing.....	"	11	1			1	11
Gibbons.....	".....	"					1	268

Appendix No. 13—Continued

Township	District or County	Agent	No. of acres sold	No. of purchasers	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Huron	Bruce	Unattached					2	75
Harvey	Peterborough	"	48	1			1	92
Hinchinbrooke	Frontenac	"	38	1				
Hallowell	Prince Edward	"					1	59
Houghton	Norfolk	"	37	1			2	200
Kinloss	Bruce	"					1	50
Kaladar	Lennox and Addington	"	87	1	7	702		
Kennebec	Frontenac	"	351	2			1	190
Lavant	Lanark	"	100	1	1	100	2	200
Louise	Sudbury	"	160	1			1	160
Lake	Hastings	"			1	80		
Lorne	Sudbury	"	155	1				
Laxton	Victoria	"					1	100
London	Middlesex	"	62	1				
Marmora	Hastings	"			1	130		
Matchedash	Simcoe	"	16	1	1	95	2	101
Madoc	Hastings	"			1	133		
Mara	Ontario	"					1	100
Nakina	Thunder Bay	"	756	23				
Otonabee	Peterborough	"	50	1			1	50
Oso	Frontenac	"	101	1			2	207
Olden	"	"			3	209		
Portland	"	"	19	1			1	19
Pakenham	Lanark	"	100	1				
Rama	Ontario	"					1	50
Snider	Sudbury	"	35	1			3	297
Saltfleet	Wentworth	"	21	1				
Saugeen	Bruce	"					1	25
Sandwich West	Essex	"	73	1			3	78
Sandwich East	"	"	55	1				
Somerville	Victoria	"					1	198
Tudor	Hastings	"			3	371	2	197
Tisdale	Timiskaming	"	159	1				
Verulam	Victoria	"					1	21
Wylie	Renfrew	"	100	1			1	100
Westmeath	"	"	32	1	1	32		
Unsurveyed Territory			198					
Total			80,156	791	541	68,136	252	31,069

No. of lots assigned 279

Number of acres assigned 33,513

Appendix No. 13—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Cochrane.....	12	9
Cochrane.....	Matheson.....	4	12
Cochrane.....	Kapuskasing.....	4	2
Cochrane.....	Hearst.....	1	3
Algoma.....	Bruce Mines.....	2	1
Temiskaming.....	Englehart.....	5	2
Temiskaming.....	New Liskeard.....	..	1
Nipissing.....	Markstay.....	1	1
Nipissing.....	North Bay.....	6	7
Thunder Bay.....	Port Arthur.....	9	7
Sudbury.....	Sudbury.....	..	..
Kenora.....	Kenora.....	1	..
		45	45

Statement showing the number of purchasers, acres sold and patents issued in Cities, Towns and Town Plots, during the year ending October 31st, 1928

Towns, etc.	District of County	Agent	No. of acres sold	No. of purchasers	No. of patents issued	No. of acres patented
Alexandra.....	Cochrane.....	Unattached.....	.25	1	3	.75
Armstrong.....	Thunder Bay..	".....	..	..	1	.20
Aweres.....	Algoma.....	Thos. Dean.....	.40	1	2	.40
Bartleman.....	Temiskaming..	C. A. Duval.....	3.15	4	4	.27
Capreol.....	Sudbury.....	Unattached.....	.11	1	1	.22
Colchester.....	Essex.....	".....	..	..	1	..
Dryden.....	Kenora.....	J. E. Gibson.....	..	..	1	1.84
Ford City.....	Essex.....	Unattached.....	..	..	2	10.84
Gogama.....	Sudbury.....	".....	.52	4	4	1.10
Gowganda.....	Temiskaming..	".....	.25	1	1	1.25
Hearst.....	Cochrane.....	Jno. Bresnahan..	..	..	2	.48
Hilton.....	Algoma.....	W. J. Trainor.....	4.00	3	1	1.50
Hornepayne.....	".....	Unattached.....	1.32	6	3	42.31
Killarney.....	".....	".....	4.25	1	1	3.25
Kapuskasing.....	Cochrane.....	H. E. Sheppard..	.45	3	15	10.23
Kirkland Lake..	Temiskaming..	Unattached.....	6.22	71	29	5.85
London.....	Middlesex.....	".....	..	..	1	.05
Longlac.....	Thunder Bay..	".....	.34	2	1	..
Missinabi.....	Algoma.....	J. A. Bresnahan..	.75	1	2	.85
Muskokaville..	Muskoka.....	W. G. Gerhart.....	17.50	1	1	17.50
Nakina.....	Thunder Bay..	Unattached.....	98.77	7	4	.76
Niagara-on-the-Lake.....	Lincoln.....	".....	1.00	1	1	1.00
Opasatika.....	Cochrane.....	".....	.49	1	..	..
Orillia.....	Simcoe.....	".....	.43	1	1	.43
Pembroke.....	Renfrew.....	F. Watt.....	..	..	1	9.08
Sandwich.....	Essex.....	Unattached.....	..	..	1	.12
Shrewsbury.....	Kent.....	".....	..	..	1	12.14
Sioux Look Out.	Kenora.....	".....	4.81	16	4	1.33
Swastika.....	Temiskaming..	".....	1.46	7	4	.83
Toronto.....	York.....	".....	..	..	1	.54
Windsor.....	Essex.....	".....	..	..	3	1.86
Winnipeg River Crossing.....	Kenora.....	".....	..	..	2	.46
			146.47	133	99	127.44

Appendix No. 13—Continued

ISLANDS SOLD

Statement showing Islands sold as Summer Resorts

Part or Parcel	Township	District or County	Agent	No. of acres sold
Lamb Islands, in St. Joseph Channel.....		St. Joseph Island.....		3.00
Island No. 25, Wahnapiatae Lake.....	Allen.....	Sudbury.....	Unattached.....	1.00
Weightman Island, or Island 37, St. Joseph Channel.....		".....		1.00
Island in Three-Legged Lake, opposite Lot 2, Cons. 4 and 5.....	Cowper.....	Parry Sound.....	Miss I. M. Campbell.....	7.00
Island No. 30, Bobs Lake.....	Bedford.....	".....	Unattached.....	.06
Rama Island, Parcel 3.....	Rama.....	Ontario.....	".....	.44
Parcel G.B. 52, Wahnapiatae Lake.....	Rathbun.....		".....	2.00
Island S, Lake Joseph.....	Humphrey.....	Muskoka.....	W. G. Gerhart.....	.04
Parcel 3.....	Baxter.....	".....	".....	4.04
Parcel 2 of Island 36, or Horse-shoe Island.....	".....	".....	".....	1.53
Location M.C. 9, Part of Island in Abram's Lake.....	Drayton.....	Kenora.....	Unattached.....	1.00
Island No. 45, South Bay, Lake Nipissing.....		Parry Sound.....	H. J. Ellis.....	
Island H, in French River.....	Mason.....	Sudbury.....	J. P. Marchildon.....	.45
Hemlock Island, Charleston Lake.....	Lansdowne.....		Unattached.....	3.11
Island in Pine Lake.....	Oakley.....	Muskoka.....	W. G. Gerhart.....	1.25
Island C, in Cariboo Lake, Part Lot 15, Con. 4.....	McConkey.....	Parry Sound.....	Miss I. M. Campbell.....	1.33
Island opposite S.E. quarter, Sec. 11.....	Aweres.....	Algoma.....	Thos. Dean.....	.15
Parcel 3, Pine Island, St. Mary's River.....		".....	".....	2.04
Island in McKay's Lake, opposite 287-3.....	Draper.....	Muskoka.....	W. G. Gerhart.....	2.50
Island 13, or Colby's Island.....		Algoma.....	Thos. Dean.....	15.00
				46.94

Appendix No. 13—Continued

ISLANDS PATENTED

Statement showing islands patented as Summer Resorts

Part or Parcel	Townships	District or County	Agent	No. of acres Pat'd
Goolscap Island, Matagamishing Lake.....	Rathbun.....	Sudbury.....	Unattached.....	.50
Island H.S. 107.....	.....	".....	".....	5.30
Island 36, Wahnapiatae Bay.....	Allen.....	".....	".....	4.00
Island 41, Wahnapiatae Bay.....	".....	".....	".....	1.00
Parcel 3 of Island D. 30, Georgian Bay.....	.....	Parry Sound.....	Miss I. M. Campbell.....	5.50
Island 517 "A".....	.....	".....	".....	.55
Part Island "C," French River.....	Mason.....	Sudbury.....	J. P. Marchildon.....	2.50
Island "B" 287, Georgian Bay.....	.....	Parry Sound.....	Miss I. M. Campbell.....	.90
Island 36, Severn River.....	Baxter.....	Muskoka.....	W. G. Gerhart.....	2.00
Parcel 2 of Horseshoe Island, or Island 36.....	".....	".....	".....	1.53
Island M, Six-Mile Lake.....	".....	".....	".....	3.00
Part Island B-648.....	Cowper.....	Parry Sound.....	Miss I. M. Campbell.....	6.00
North Sister Island, Kashiabagamon.....	Burton.....	".....	".....	.33
Island in Sayers Lake.....	Minden.....	Haliburton.....	A. W. Fleming.....	1.66
Island A, Pandash Lake.....	Cardiff.....	".....	A. N. Wilson.....	5.00
Island A.2, Rainy Lake.....	Watten.....	Rainy River.....	J. A. Alexander.....	2.70
Island D. 147, Georgian Bay.....	.....	Parry Sound.....	Miss I. M. Campbell.....	.54
Net Island, Surprise Lake.....	Gorhain.....	Thunder Bay.....	S. H. Wilson.....	1.00
Part Island P.P. 3548, French River.....	Mowat.....	Parry Sound.....	Miss I. M. Campbell.....	5.00
Island A.D., Gull Lake.....	Clarendon.....	Frontenac.....	Chas. Both.....	.11
Island, Trout Lake.....	Palmerston.....	.....	".....	1.00
Island T, Trout Lake.....	".....	.....	".....	2.00
Foster Island, Cross Lake.....	Marmora.....	.....	Unattached.....	.92
Island in Horseshoe Lake.....	Foley.....	Parry Sound.....	Miss I. M. Campbell.....	.50
Island opposite Lot 8, Con. 3.....	Cardwell.....	Muskoka.....	W. G. Gerhart.....	.25
Island 27, Devil's Lake.....	Bedford.....	Frontenac.....	Unattached.....	1.00
				54.79

Appendix No. 13—Continued

MAINLAND SOLD

Under Summer Resort Regulations

Part or Parcel	Township	District or County	Agent	Area Sold. acres
Trout Lake.....	Ware.....	Thunder Bay...	S. H. Wilson.....	2.36
Trout Lake.....	".....	".....	".....	2.13
Trout Lake.....	".....	".....	".....	2.09
Location P.P. 156, Lower She- bandowan Lake.....	".....	".....	".....	1.67
Location P.P. 279, Lower She- bandowan Lake.....	".....	".....	".....	4.08
Location P.P. 149, Lower She- bandowan Lake.....	".....	".....	".....	1.86
Location P.P. 249, Lower She- bandowan Lake.....	".....	".....	".....	2.15
Location P.P. 119, Lower She- bandowan Lake.....	".....	".....	".....	1.31
Location P.P. 228, Lower She- bandowan Lake.....	".....	".....	".....	2.55
Location P.P. 439, Middle She- bandowan Lake.....	".....	".....	".....	1.43
Location P.P. 440, Middle She- bandowan Lake.....	".....	".....	".....	1.78
Part Lot 8, Con. 1.....	McMahon.....	Algoma.....	Albert Grigg.....	5.00
Part Lot 5, Con. 1.....	".....	".....	".....	2.00
Part S. half Lot 12, Con. 4.....	Grassett.....	".....	".....	5.00
Location J.K. 169.....	Nakina.....	Thunder Bay.....	Unattached.....	.58
Location J.K. 170.....	".....	".....	".....	.64
Location J.K. 176.....	".....	".....	".....	.71
Part Lot 7, Con. 21.....	Hardy.....	Parry Sound.....	Wm. Jenkins.....	5.00
Part Lot 24, Con. 5.....	Cowper.....	".....	Miss I. M. Campbell.....	5.00
Part Lot 48, Con. 8.....	Carling.....	".....	".....	2.00
N. part Lot 56, Con. 12.....	".....	".....	".....	5.00
S. part Lot 56 Con. 12.....	".....	".....	".....	5.00
Part Lot 2, Con. 2.....	Rowell.....	Kenora.....	J. G. Gibson.....	2.00
S. part Lot 9, Con. 1.....	Maisonville.....	Cochrane.....	J. Atwell Hough.....	5.00
Part Lot 17, Con. 10.....	Wood.....	Muskoka.....	W. G. Gerhart.....	2.50
Part Lot 21, Con. 1.....	Matchedash.....	Simcoe.....	Unattached.....	16.00
Part Lot 27, Con. 10.....	Miller.....	Frontenac.....	Chas. Both.....	1.00
Part Lot 10, Con. 11.....	Augelsea.....	Addington.....	Unattached.....	14.19
Part Lot 19, Con. 4.....	Cavendish.....	Peterborough.....	A. N. Wilson.....	5.00
Part Lot 31, Con. 5.....	Dummer.....	".....	Unattached.....	1.33
Part Lot 2, Con. 10.....	Stanhope.....	Haliburton.....	R. H. Baker.....	3.50
Part Lot 5, Con. 10.....	Jones.....	Renfrew.....	Frank Blank.....	1.00
Part Lot 6, Con. 10.....	".....	".....	".....	2.00
Part Lot 1, Con. 2.....	Houghton.....	Norfolk.....	Unattached.....	2.00
				114.86

Appendix No. 14

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1927 to 31st October, 1928

Public Lands (Patents).....	548
Free Grant Lands (Act of 1913).....	237
“ “ “ (Act of 1901 Veterans).....	4
Mining Lands (Patents).....	670
Mining Leases.....	102
Crown Leases.....	4
Licenses of Occupation.....	229
Temagami Island Leases.....	20
Sand and Gravel Licenses.....	34
Pine Patents.....	8
Water Power Leases.....	1
Algonquin Park Leases.....	7
Rondeau Park Leases.....	38
Bruce Beach Leases.....	39
Jordan Harbour Leases.....	4
Total.....	1,945

Appendix No. 15

RECORDS BRANCH 1927-28

Communications received:

From Crown Land Agents.....	6,550
From Crown Timber Agents.....	5,185
From Mining Recorders.....	8,523
From Homestead Inspectors.....	1,785
From Superintendent Algonquin Park.....	642
From Superintendent Quetico Park.....	156
From Superintendent Rondeau Park.....	574
Orders-in-Council.....	219
Telegrams.....	302
Summer Home Booklets.....	1,500
All other sources.....	30,068
Total incoming (Minister's office and Land Tax Branch not included).....	55,504

Communications sent out:

To Crown Land and Timber Agents, Inspectors and Park Superintendents.....	17,436
To General Public.....	19,800
Circular letters re timber sales and mill licenses.....	4,000
Maps and blue prints by Surveys Branch.....	6,500
Total outgoing (Minister's office and Land Tax Branch not included).....	47,736

Files:

New files issued—General.....	6,359
New files issued—Accounts Chargeable.....	1,003
New files issued—Accounts free.....	305

Appendix No. 16

REPORT OF SURVEYOR-GENERAL

The following surveys were carried out under instructions from this Department during the past year:—

BASE AND MERIDIAN LINES

- Seventh base line west, district of Kenora, completed to the Manitoba boundary, by Ontario Land Surveyors, Phillips & Benner, Port Arthur.
- Seventh base line east, continued through Thunder Bay district, by Ontario Land Surveyors, Beatty & Beatty, Pembroke.
- Base and meridian lines, in the district of Kenora, by Ontario Land Surveyors, Speight & vanNostrand, Toronto.

TOWNSHIP OUTLINES

- Townships west of the Ottawa River, district of Nipissing, by Ontario Land Surveyor, E. W. Neelands, New Liskeard.
- Township outlines in the district of Sudbury, by Ontario Land Surveyor, J. R. Gill, Sudbury.
- Re-survey of township outlines, districts of Parry Sound and Nipissing, Ontario Land Surveyor, E. L. Moore, North Bay.

LAKE AND RIVER TRAVERSES

- Michipicoten River and tributaries, district of Algoma, Ontario Land Surveyor, G. R. Kenny, Sault Ste. Marie.
- Kamiskotia Lake and River, district of Cochrane, Ontario Land Surveyor, Arch. Gillies, Timmins, Ont.
- Lakes and rivers in the districts of Sudbury and Manitoulin, Ontario Land Surveyors, T. J. Patten, Little Current, and J. R. Gill, Sudbury.
- Part of Albany River, district of Thunder Bay, Ontario Land Surveyor, J. S. Dobie, Thessalon.

MISCELLANEOUS SURVEYS

- Surveys of roads, lines and water traverses for control of aerial survey work, districts of Parry Sound, Nipissing and Sudbury, Ontario Land Surveyors, W. F. B. Rubidge, Port Credit; J. T. Coltham, Parry Sound, and E. L. Cavana, Orillia.
- Survey of summer resort parcels, Timagami Island, Timagami Lake, district of Nipissing, Ontario Land Surveyor A. Matheson, Swastika.
- Summer resort parcels, Clearwater Lake, district of Rainy River, Ontario Land Surveyor, D. J. Gillon, Fort Frances.
- Summer resort parcels, township of Lutterworth (county of Haliburton), township of Cardwell (district of Parry Sound), Ontario Land Surveyor, C. E. Fitton, Toronto.
- Summer resort parcels in the township of Jacques, district of Thunder Bay, Ontario Land Surveyors, Phillips & Benner, Port Arthur.

Survey of part of the second concession road allowance, township of Ameliasburgh, county of Prince Edward, Ontario Land Surveyor, T. B. Speight.

Survey of part of concession line between Concessions 10 and 11, township of Lake, county of Hastings, Ontario Land Surveyor, C. E. Fitton, Toronto.

Survey at Rondeau Provincial Park, Ontario Land Surveyor, C. E. Fitton.

Town and park lot subdivisions of lands, patented subsequent to 1910 have been approved, pursuant to R.S.O., 1927, chapter 44, as follows:—

Part of mining claim L-1437 at Kirkland Lake, district of Timiskaming.

Part of mining claim L-2654 at Kirkland Lake, district of Timiskaming.

Part of mining claim TC-711 at Kirkland Lake, district of Timiskaming.

Part of Lot 12, concession 4, Tisdale (near Timmins), district of Cochrane.

Part of lot 27, concession 11, Idington (Opazatika), district of Cochrane.

Municipal surveys performed under instructions and authority of the Lieutenant Governor-in-Council were completed and confirmed as follows:—
The establishment of the boundaries of Goyeau Street in the City of Windsor, Ontario Land Surveyor, J. J. Newman, Windsor, Ont.

The following maps have been published during the year:—

New Maps

21-C—Timiskaming, Nipissing and Sudbury.

12-E—Whitesand Lake.

13-E—Kashabowie Lake.

14-E—Middle Shebandowan Lake.

15-E—Lower Shebandowan Lake.

Revised Reprints

21-C—Timiskaming, Nipissing and Sudbury.

Lake-of-the-Woods and Shoal Lake.●

Lake-of-the-Woods islands in the north-east part.

19-A—Huron and Ottawa.

22-C—Islands in front of Conger and Cowper townships.

10-A—Islands in front of Harrison.

Islands in the vicinity of McGregor Bay.

Islands in Whitefish Bay.

Township Plan of Medora.

Township Plan of Mowat.

Township Plan of Patterson.

Township Plan of Gibson.

Township Plan of Burton.

19-B—Algonquin National Park.

Extracts from the reports of the several surveyors employed during the year, describing the physical features of the country covered, will be found in Appendices 21 to 31.

L. V. RORKE,

Surveyor-General.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1928

No.	Surveyor	No.	Date of Instructions	Description of Survey
1	Maxim L. Gray	761	Jan. 19, 1928	Survey limits of Village of Chippawa in County of Welland.
2	Roger L. Lee	762	Aug. 31, 1928	Survey several county roads in County of Norfolk.
3	F. L. Rutherford . . .	763	Sept. 14, 1928	Survey original road allowance from the south boundary lat. 149 at southeast angle in Township Thorold northerly to northern boundary of the township.
4	John M. Watson . . .	764	Oct. 19, 1928	Survey and establish limits of several parcels of land on Kempenfeldt Bay, broken lot 28, concession 14, Township of Innisfil.

Appendix No. 18

Statement of Municipal Surveys confirmed during twelve months ending October 21st, 1928.

No.	Name of Surveyor	No.	Date of Instructions	Description of Survey	Date when confirmed under Ont. Statutes, 1920, chapter 48
1	J. J. Newman . . .	757	April 25, 1927	Survey several boundaries of Goyeau Street, City of Windsor	April 14, 1928

Appendix No. 19

Statement of Crown Surveys in progress during the twelve months ended October 31st, 1928

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	June 16, 1927	T. B. Speight.....	Certain side lines and concession lines, Township Ameliasburg, County Prince Edward.....	\$750 00
2	April 16, 1928	Beatty & Beatty.....	Base line district, Thunder Bay.....	7,500 00
3	April 16, 1928	Jas. S. Dobie.....	Traverse Albany River, District Kenora...	6,200 00
4	April 16, 1928	Phillips & Benner.....	Base line, District Kenora.....	4,550 00
5	April 25, 1928	Speight & Van- Nostrand.....	Base and meridian line, district of Kenora	5,940 00
6	May 1, 1928	J. R. Gill.....	Township outlines, district of Manitoulin and Sudbury (and traverse of lakes)....	1,725 00
7	May 10, 1928	E. W. Neeland.....	Township outlines district of Nipissing....	3,200 00
8	May 15, 1928	C. R. Kenny.....	Traverse certain rivers in Michipicoten area, district of Algoma.....	2,250 00
9	May 18, 1928	C. H. Wilkins.....	To establish monuments between Rat House Bay of Big Sandy Lake and Favorable Lake, District of Kenora....	400 00
10	May 15, 1928	C. E. Fitton.....	Summer resort lots on the shore and islands, Gull Lake, Township of Lutterworth....	1,920 00
11	May 10, 1928	D. J. Gillon.....	Summer resort locations, Clear Water Lake, district of Rainy River.....	3,250 00
12	May 10, 1928	T. J. Patten.....	Traverse of lakes and rivers near McGregor Bay, district of Sudbury and Manitoulin	1,000 00
13	May 21, 1928	J. T. Coltham.....	Miscellaneous surveys, district of Parry Sound.....	3,900 00
14	May 29, 1928	E. L. Moore.....	Certain township boundaries in districts of Nipissing and Parry Sound.....	4,900 00
15	June 16, 1928	Phillips & Benner.....	Summer resort locations, Two Island Lake, in township of Jacques, district of Thunder Bay.....	500 00
16	June 15, 1928	A. Gillies.....	Traverse Kamiskotia River, district of Timiskaming.....	1,488 75
17	June 15, 1928	A. Matheson.....	Summer resort locations on Timagami islands, district of Nipissing.....	5,940 00
18	.....	C. E. Fitton.....	Summer resort lots in Cardwell township, district of Parry Sound.....	800 00
19	May 9, 1927	C. E. Fitton.....	North part line between concessions 10 and 11, township of Lake, county of Hastings	300 00
20	May 21, 1928	W. F. B. Rubidge....	Certain miscellaneous surveys in district of Parry Sound.....	3,000 00
			Total.....	\$59,513 75

Appendix No. 20

Statement of Crown Surveys completed and closed during twelve months ending
October 31st, 1928

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	April 11, 1927	D. J. Gillon.....	Base line and meridian, district of Kenora and Rainy River district.....	\$2,911 46
2	April 11, 1927	Phillips & Benner....	Base line, district of Kenora.....	5,085 96
3	May 13, 1927	W. F. B. Rubidge....	Miscellaneous surveys, district of Muskoka	3,547 38
4	May 12, 1927	N. B. MacRostie.....	Islands in Gananoque Lake, county of Leeds	1,617 50
5	May 4, 1927	H. B. Proudfoot.....	Traverse line along water front from Lake St. Joseph, district of Kenora.....	2,851 47
6	May 6, 1927	J. S. Dobie.....	Traverse Lost Lake and district of Kenora	4,795 00
7	April 20, 1927	R. M. Gourlay.....	Traverse part of the shore, Eagle Lake, district of Kenora.....	3,280 00
8	April 11, 1927	Hugh Matheson.....	Subdivide a block of land, township of Panet, district of Sudbury.....	712 25
9	May 13, 1927	Jas. T. Coltham.....	Miscellaneous surveys in district of Muskoka.....	3,609 90
10	April 11, 1927	E. L. Moore.....	Base and meridian lines district of Thunder Bay.....	3,496 80
11	April 11, 1927	Speight & Van- Nostrand.....	Base and meridian lines, district of Kenora	2,459 74
12	May 12, 1927	C. E. Fitton.....	Inspector of Surveys, 1927.....	1,539 69
13	April 11, 1927	Beatty & Beatty....	Survey base line, district of Thunder Bay..	2,875 00
14	April 11, 1927	H. W. Sutcliffe.....	Township outlines, district of Thunder Bay	3,502 00
15	April 26, 1927	C. R. Kenny.....	Traverse of Shoal Lake, Lake of Woods, district of Kenora.....	4,058 00
16	May 18, 1927	Hydro-Electric Power Commission.....	Services of C. C. MacLennan re power possibilities on English River, district of Kenora.....	1,102 50
17	Aug. 31, 1927	N. B. MacRostie.....	Millers Island, Devil's Lake, township of Bedford, county of Frontenac.....	232 50
18	Mar. 28, 1928	C. E. Fitton.....	Survey Rondeau Park.....	562 15
19	April 11, 1927	R. S. Kirkup.....	Certain waters, district of Kenora and Rainy River.....	1,175 40
20	April 11, 1927	J. R. Gill.....	Township outlines, district of Patricia.....	3,078 60
				\$52,493 30

Appendix No. 21

Extract from report and field notes of the survey of part of district boundary between Kenora and Rainy River, from south-west corner of Bennett.—
D. J. Gillon, O.L.S., 1927.

SOIL AND TIMBER

There is no land suitable for agriculture in the territory through which these lines run and there is very little timber. Most of the pine has been cut and while there are a few isolated patches of timber which have been left there is now no pine timber in this territory except in the Rainy Lake pulp limit and on Timber Berth G 51 on Pipe Lake, just east of the meridian.

I have only shown on the timber plan the green timber and the burnt country traversed by the two lines, as practically the whole of the country has been burnt over. The first fire appears to have been about 1888, another fire overran the country in 1894, and since then there have been several fires as in 1911, again in 1918, and most recently in 1924, which reburnt much of the country from Seine River to and north of Mountain Lake. The actual extent of these fires may be realized by an examination of the timber plan, which shows that the base line runs through 45 miles of burnt country, while the meridian line runs through 24 miles of burnt country, while the J. A. Mathiew Co.'s road from Namakan River to La Seine Station runs through an entirely burnt country.

There are, however, many thousand cords of pulpwood unburnt in the region west of the Shevlin Clarke road between Dovetail Lake and the Township of Bennett, also in stretches along Big and Little Turtle rivers.

WATER POWERS

The baseline runs through the head waters of both Big and Little Turtle rivers and also crosses the waters tributary to Otukamamoan Lake. These waters supply about 20 per cent. of the inflow into Rainy Lake and will be available for use for both power and storage. All the Turtle waters flow into Little Turtle Lake, whose outlet is at Sand Island Falls, where considerable power could be developed. The waters of Otukamamoan run into the same bay of Rainy Lake as the Turtle waters and one transmission line could be used for both powers. A table on the plan shows the elevation and average outflow of the main rivers crossed by the base line. The horsepower which could be developed depends on the height of the dams and control works, but it may be noticed that the outflow of Little Turtle Lake at Sand Island Falls is practically the same as that at Sturgeon Falls on the Seine River, so that Big and Little Turtle rivers should be capable of producing at least 20,000 horsepower.

GEOLOGY

Much of the country traversed by the baseline is covered with glacial drift, sand, gravel and boulders. The country rock is all Laurentian gneiss, except along a short stretch of the shore of Crackshot Lake where some Huronian schists show up. No signs of any valuable minerals were seen during the progress of the survey.

The north part of the meridian runs over Huronian rocks in which, during 1895 and 1896, gold-bearing quartz veins were discovered and mining locations were laid out. Possibly in the near future new discoveries may be made. The line passed close beside a test pit of recent date so that it seems that prospectors

are not without hope of future discoveries. Further south only rock of the Koochiching series were seen until Thompson Lake was reached. Between Thompson Lake and Lac La Croix granitoid Laurentian gneiss appears.

Magnetic declinations shown on the observation table were all read direct from Polaris at elongation and full notes of the observations have already been sent to your Department.

Appendix 22.

Extract of Phillips & Benner's Report, Survey of the Seventh Base Line, 1928.

The country through which the line passes varies from almost level with good clay soil to rough, rocky granite hills. The principal stretches of good land were from the English river to mile 44, from the west side of the lake in the 53rd mile to the east side of the lake in the 54th mile, from the 55th mile to the 62nd mile, from the 77th mile to the 82nd mile. The remainder of the line contained small stretches of good land but was mostly rough and rocky, consisting of rock ridges and swamps, the swamps occurring more frequently near the Manitoba boundary.

The timber of any size was neraly all of mixed varieties, consisting of poplar, jack pine and spruce, principally; these occurred up to two feet and over in diameter, but the average would be considerably less. There were considerable stretches of small jack pine and spruce growing on rocky land, some of the trees being over forty years old, and it does not appear that these areas would ever have any commercial value. Burnt timber was noted on the east side to the lake in the 89th mile south of the line, also a burnt area was passed through extending from 91 miles 66 chains to 93 miles 50 chains; from mile 95, 66 chains to the provincial boundary the timber had been burnt but was growing up with small jack pine.

The rock exposures seen were granite throughout.

The work was entered from Quibell on the Canadian National Railway via the Wabigoon and English rivers. Supplies were taken in to the line via the Sturgeon river, the river which empties into Oneman lake near the Hudson's Bay Company's post and the chain of lakes running north from Umfreville lake. The party left the line from Shinewater lake by Ryerson lake to Winnipeg river to Manaki. The only route of any importance which might not be apparent from the map is that extending from the lake north of the 54th mile westward, which is a well-travelled route extending to the Sturgeon river. In general the maps furnished appear to be reasonably accurate, there being only one or two minor misplacements.

No water powers of any importance were located near the line, and the English and Winnipeg rivers and tributaries, having been explored and estimated, we believe, by parties especially engaged in this work, no estimate was made in connection with these.

In general the country passed through appeared to be well stocked with game, deer especially being very numerous in certain places. The only varieties of fish caught were pike and pickerel.

Appendix 23.

Extract from report and field notes of the Survey of Seventh Base Line west from Boundary between Kenora and Thunder Bay, Districts Kenora and Patricia, Phillips & Benner, O.L.S., 1927.

The line was run west in six-mile chords to the parallel of latitude at 50 degrees 24 minutes north. It was cut out of sufficient width as to give a sky line throughout its entire length. This entailed a great amount of labour as the line for a great portion of its length passed through a dense forest ranging upward of 100 years in age. Frequent observations were taken and these will be found recorded in the notes. A six-inch transit was used, the telescope of which was of sufficient power that observations could be made on Polaris at any time of day when weather conditions were favourable.

A leveller and rodman were attached to the party by the Topographical Surveys Branch and the line was levelled and check-levelled by these men. The results of their work was filed at Ottawa.

The line was chained twice, first with a tape graduated in chains and links and then with one graduated in feet and tenths. In only a few cases was it necessary to repeat the measurements in order that the closing error would not be greater than two feet. We had each chainer use a clinometer and are certain that their work was well and carefully performed. The country through which the line passed was not particularly rough.

Iron posts of standard pattern were planted at the points indicated in your instructions or near to those points as possible. It was necessary to witness a considerable number of the posts. In addition to these iron posts, several short iron posts or rock posts were set on prominent hills. It was not always possible to get these in at an even chainage, but the correct chainage was stamped upon the post and the positions of these will be found indicated in the notes. Cairns of rocks were built up around the wooden posts planted at the end of each mile. Your instructions stated that each wooden post should have a cairn, but in a few cases we could not get rock save from a great distance. Might we suggest, that in such cases as this, that the surveyor in future be allowed to have pits dug and mounds erected in lieu of the cairn.

Magnetic observations were taken and these were recorded in the books provided by your Department and have already been returned to you.

TOPOGRAPHY

The relief of the country through which the line passes is not at all rugged and in a few instances were the hills more than seventy-five feet in height. The results of the leveller's operations will give you a better view of this feature than we can.

Lac Seul was the most important topographical feature along the line and we were able to use this to great advantage for the transportation of our equipment and supplies. The level of the lake was about seven feet above normal in the early part of the summer and this flooding carried far up the rivers—especially the Vermilion.

The provisional sheets published by the Topographical Surveys Branch from their aerial photographs were found to be very accurate. The base line was plotted on these before going into the field and our line followed very close to its position as shown by the plotting. In only one instance did we notice any error in the plans and this was in the 52nd mile. The map here showed a small

lake in the open swamp. This proved to be a grove of timber, composed principally of poplar and birch which from the air in certain lights would possibly resemble a lake in appearance.

SOIL

The first twenty-seven miles of the base line passed through lands which were mostly sandy loam with many boulders. From here west to the Wabaskang Indian Reserve clay loam predominates and in many places the land is free from boulders and rocks for distances up to three and four miles. Judging by the stand of timber which this soil supports it must have some characteristics which would make it suitable for agricultural purposes. In some places, though, the clay bakes very hard and in some of the pits an axe had to be used to chop it out. This area of clay loam is by far the largest we have seen in the northwestern part of the province. West from the Wabaskang Reserve the land is of a more broken nature and the soil is less free from boulders.

ROCK FORMATION

There was an area of schist and greenstone noticed around Island lake and Schist lake. This was the only area which appeared to warrant prospecting. The formation passed through on the line was nearly all Laurentian. An outcrop of magnetic ore was noticed between the 19th and 20th miles, but otherwise no minerals of any economic importance were noticed.

TIMBER

A timber plan accompanies this report. On this is shown the areas of green and burned timber as crossed on the line. About eighty per cent. of the mileage passes through a green forest with timber around one hundred years old. Poplar predominates in many of the areas and this ranges up to twenty-four inches in diameter and is quite the largest stand of this species we have noticed in this western district. Spruce and jack pine of sufficient size for cutting is found well mixed in with the poplar, and also in many cases predominates over large areas. These species are generally of good size.

The burned areas shown on the plan are now growing up mainly with jack pine and poplar in about equal amounts. Most of these areas were burned over between 10 and 15 years ago and only a very small area of recent *brulé* was noticed.

Very few open or sparsely timbered swamps were noticed and these were usually indicated on the air maps.

The birch trees were this season attacked by some insect. Eggs were laid on the leaves and the worm stripped the trees of all foliage in many places in the late summer.

ROUTES, ETC.

Going in to the point of commencement we used the route, about two miles east of Ycliff station. This proceeds north through Tewatinaw and Lewis lakes to Island lake. The only portage of any consequence on this route is between Lewis and Island lakes and this is about 45 chains long. From Island lake supplies were taken westward into Schist lake and then northwest across the small lakes and portages indicated, which were cut out by our packers. The river flowing between the lake, which crosses our line in the 10th mile, and Dog

river has been used at one time but is now too much filled in with windfallen timber. Other portages were cut out as shown. Vermilion river is fairly flat and has only a few short portages between Highstone lake and Lac Seul.

West from Lac Seul we used the long bay running west from the southwest corner of Scout bay. The old portage into Wabaskang lake was opened up here. West from here we used the portages indicated on the air map. There is a portage from the northwest corner of Zizania lake into the river shown to the north of it.

From the end of our line at the English river we took the course down the English to the Wabigoon river and then up this to the track. This was a two-day trip.

GENERAL

No falls or rapids of any size suitable for power development were noticed except on the English and Wabigoon rivers, and these have apparently been covered by surveys and reports.

Big game was very plentiful. In only a few spots were indications of new beaver cuttings noticed. Partridge and rabbits are extremely scarce this season.

The lakes are well stocked with the ordinary species common to our northern waterways.

Appendix 24.

Extract from Report and Field Notes of the Survey of Township Outlines in vicinity of Savant Lake, District Thunder Bay, H. W. Sutcliffe, O.L.S., 1927.

Savant lake is fairly easily accessible by a canoe route, which leaves the Canadian National Railway at a point approximately $1\frac{1}{2}$ miles east of Savant Station (formerly known as Bucke).

The distance along this route from the railway to the nearest point on Savant lake is approximately 10 miles, including 3 portages from one-quarter to three-quarter miles in length. The portages are travelled a good deal and are in very good condition.

There are many beautiful lakes in Ontario, particularly in the northwesterly section of the province, but Savant lake is one of the prettiest I have ever been on. While it is true that much of the country around about there was destroyed by fire, along with thousands of square miles burnt during the time of the C. N. Railway construction, it is rather remarkable that only a very small part of the shore line of Savant lake was touched by fire, and the lake still remains in its original natural splendour.

There are many other lakes in all directions, to which many canoe routes lead from Savant lake, and as the fishing is generally speaking, good in these lakes, it would seem to me that unless this area should prove more useful in some other way, such as mining, it should eventually become a very desirable and popular tourist resort.

The months of July and August were chosen as the time in which to do this work.

Using O.L.S. Beatty's 1927 line as a base, I ran my lines north and south. The east and west lines were run in the direction which it was most convenient to do.

INSTRUMENT WORK

A light mountain Gurley transit was used. This transit had been previously sent to the Surveyor-General at Ottawa to have the compass needle tested. The magnetic variation varied from 2 to 8 degrees east, but in many places the local attraction drew the needle as much as 180 degrees.

CHAINAGE

Three-hundred-link steel tapes were used, and slope distances taken where necessary and corrected by use of a clinometer and slope tables.

POSTS AND BEARING TREE

The most durable wood obtainable was used for posts. Approximately 35 per cent. of the iron posts planted were short ones cemented into bed rock, in which case a rock mound of pyramid shape was built, the iron post being at the north angle of the pyramid. Where the standard long iron post was used, pits and mounds were made in authorized form. Practically all of the wooden posts are in a cairn of stones.

Two bearing trees were marked, care being taken to select them as nearly opposite as possible. In a few cases it was not possible to mark trees in burnt areas.

BLAZING OF LINES

The usual blazing was done, care being taken to mark the lines as plainly as possible. Where sky lines are cut out, it necessarily follows that there cannot be as much blazing done, as the trees which ordinarily would be blazed have been cut out.

TIMBER

A very large percentage of the country in this area was overrun by fire at the time of railway construction, and much of it now is slash with brush and young trees growing through it. There are, of course, patches of green timber, some of which apparently covers several square miles, but burnt areas extend as far north as our work took us. The air photographs show up this situation very well.

The green timber areas were somewhat typical of that found in the north-west portion of the province, viz., the spruce is of a size suitable for pulp and there are occasional patches of poplar and birch and jack pine. There is very little balsam in this section.

The burned areas are fairly well covered with new growth, and in parts of it the spruce regeneration is fairly good.

SOIL

No part of the area covered by us around Savant lake will ever be suitable for agriculture. It is a rock country. Where the rock is not exposed the soil is chiefly sand and boulders.

WATER COURSES

Around Savant lake there are innumerable smaller lakes, but being close to the height of land there are no large streams. Savant lake itself forms part

of a main route from the railway to Lake St. Joseph. There are no other main routes in this vicinity.

ROCK FORMATION

I will not attempt to submit anything on this, as it will be covered by Dr. Moore, who made a geological survey of this area during the past summer. I might mention, however, that encouraging gold finds have been made at the south end of Savant lake and large deposits of copper-bearing rocks exist in the vicinity of Never Freeze lake, which is west of Savant lake. I am led to believe that both sections offer some mining possibilities.

ANIMAL LIFE

Moose and bears are plentiful. There are also some red deer. While this country must have been a hunters' paradise at one time it does not seem so now, in particular reference to the fur-bearing animals. Fires may be partially responsible for this.

Fish chiefly consist of pickerel and lake trout and are fairly plentiful. There are two fishing outfits working on Savant lake at the present time.

Appendix 25

Extract from Report and Field Notes of the Survey of the Traverse north from Lake St. Joseph, District Thunder Bay—H. B. Proudfoot, 1927.

The water was very high on Lake St. Joseph, and the shore line at a point opposite the Indian Reserve was high. The overhanging cedars and rounded points made traverse work slow and the weather—rain, high winds—prevented fast work, all the way to the north end of Dog Hole bay, the northerly end of Lake St. Joseph, to which point the work was not completed until the 26th June.

From Dog Hole lake through Annimwash, Kasagaminnis, Little and Big Ochig lakes, work was considerably delayed by the same causes encountered on Lake St. Joseph, namely, high water and rounded points, necessitating a large amount of cutting, and added to that, shallow, mucky bottoms, rendering canoeing difficult and slow. The portages between these lakes were short and in fairly good shape. The fact that the large amount of supplies carried rendered it necessary to make three or four trips across each portage another cause of delays.

Like the rest of the country travelled, the timber, mostly spruce, was very small where not burned.

The portages from Big Ochig lake to Kapkishigama lake were long and in very bad shape, very wet and numerous windfalls.

Wimbabika lake is a good body of water, clear and free of muck. The route to Kawinogan river via Pickle lake is through Wimbabika lake though not much used on account of the long portages.

As will be seen by the plans, Kapkishigamaga lake is a considerable body of water, the north shores being fairly high but mostly old brulé. On the south, spruce predominates with some poplar and birch. Overhanging cedars, high water and rounded points delayed work. The shore line at the east to the end of this lake was of such a nature that I found it advisable to survey the same by triangulation.

The survey of Kawinogan's river, the outlet of the above lake, initiated the first real trouble in this work. The banks of the river (averaging about one chain

in width) are low and mostly in muskeg; shaky, rendering it necessary to drive posts on which to set the transit. The river flows through a very flat country, mostly moss and boulders. No rock in place was found excepting at one rapids where the face was almost perpendicular. In fact, no rock in place was found above water level on this or Badesdewaga lake and part of Spruce river. The timber is all spruce, small and growing like a grain field, being so thick and close that it has no chance to develop. There are several flat rapids in the river and two small falls.

The immediate shore of Badesdewaga lake is low and stony and the land rising, however, to considerable height to the southeast. The Indians do not give this body of water the name of a lake, but call it a river. Route followed traversed only about one-half the length of the lake, Otoskwin river entering the same on the north shore. The timber around the lake is the usual small spruce with a second growth of poplar and birch on the old burns.

That part of the lower stretch of Otoskwin river that was traversed flowed through low banks lined with a heavy thick growth of willows, the banks being very low and shaky, necessitating the driving of posts on which to set the transit. Grassy banks with the land rising a little to the north on which poplar and birch were noticed, but adjoining the river nothing but spruce. The river itself would average about seven chains in width.

Spruce river flows into the Otoskwin from the north. The river will average one chain and ten links to one chain and twenty links in width. It is not shown on any plans that I have seen. As a rule the banks are about three feet above the water and firm. It was seldom that stakes had to be driven for the transit set-ups. The river is well named "Spruce," for, with the exception of a few small areas, the timber is all spruce and as usual densely grown. There is only one fall in the river of any size not far from the mouth, but numerous flat rapids with falls of from six inches to one foot. These rapids have only winter dog portages and new portages had to be cut around them, which took time; the canoes were generally "poled" up the rapids. The country through which the river flows is flat and apparently only boulders covered with moss adjoining the river. Cedar is conspicuous by its absence. In fact, cedar fit for posts was not found on Badesdewaga lake, Spruce river or Spruce lakes. Balsam also was scarce. The above description covers the whole of this river.

The three Spruce lakes were found to be clear water but very shallow on the north shores. The shores have some fine sandy beaches and pebbly bays; land rising from six to ten feet and then flat for a considerable distance—mostly burned. The rivers connecting these lakes flow through marsh lands, grass and willows.

The photographs supplied of that kind of country are difficult to recognize as the marsh photographs the same as water.

Appendix 26

Extract from Reports of Survey of Control Traverse, District Muskoka and Parry Sound—J. T. Coltham, O.L.S., 1927.

The districts of Muskoka and Parry Sound, over which our work extended, is mostly rough and rocky with hills of varying heights. While most of the timber has been removed by lumbermen and the fertile stretches cleared for

agricultural purposes, there remains considerable bush and scrub. Highways have been constructed and improved, serving the settlers throughout the different parts of these districts, but owing to the nature of the country, many of these avenues of travel are not built along the original road allowances, but along the valleys where the obstacles encountered on the road construction were not so great. The nature of the country throughout the southern portion of our territory is somewhat different, as the greater portion of the land is free from rock, thus allowing roads to be easily constructed along most of the original sideroad and concession lines.

Two different lines of railways, the Canadian Pacific Railway and the Canadian National Railway, are running north and south through the country to be mapped.

The locations of the highways and railroads, as well as the presence of the Georgian Bay, the western boundary of our survey, guided us more or less in the selection of control routes to be traversed.

The operations were carried out from one main camp with fly camps to different parts of the territory as they were required. From the main camp, as much work was carried out as was deemed advisable in the best interest of the progress of the survey, with fly camps serving as quarters for the more remote sections.

Camp sites were selected at different points throughout the field of our operations with the view of occupying positions that were economically advantageous as regards mileage of travel to and from work, with due consideration being paid to condition of the highways serving that particular locality.

The whole camp, under the direction of J. W. Pierce, O.L.S. and D.L.S., comprised two transit parties complete besides the necessary assistance to cut out lines and operate cars, with a small staff to look after the office work. There was in addition a topographical party.

The territory over which our work extended was divided into blocks, by following some road, railroad or other avenue that was not too difficult to force a traverse line along. These blocks ranged from twenty-five to approximately one hundred miles around. Where it was not practical to complete one of these blocks or circuits without ranging far beyond the limits of the field of our work assigned to us, spur lines were run in order that we might gain the required information for control.

Within the limits of the area to be mapped, two geodetic points had been established by triangulation survey some years previous. These two points we incorporated in our lines of control traverse.

In order that our survey would be more or less permanent, metal posts were set in rock, wherever possible, at approximately three miles apart, at suitable locations along our lines of traverse. From the position of these rock posts, bearings were taken to distant objects, as gables of buildings, brick chimneys and church spires, and recorded, as well as proper sketches of the objects.

As the country along the southerly limit of our work is more or less free from rock, concrete posts three feet in length were planted in the ground, with the metal posts set in the top. Each post was given a number, plainly marked on the top, and also a distinguishing sheet number. A carbon impression of the markings of each post was taken and retained.

One main control traverse was run from a point in the vicinity of our first camp near Bracebridge to and along the Canadian National Railway, to Scotia Junction and then westerly following the railway to a point near Rosseau Road and then along the Canadian Pacific Railway beyond Parry Sound. The whole

of this traverse line was check chained with a view of eliminating as far as possible any error in chainage. Owing to the reliance that can be placed upon this checked control traverse, it can be used as a base for fitting the blocks more accurately to their relative positions.

The actual survey of this ground control was carried out by transit, chain and level, with automobiles serving as conveyances to and from the work, except in a few cases where canoes or motor boats were required. However, later on the topographical survey party will complete the operation with plane table, barometers and other instruments that may be necessary.

TRANSIT AND TAPE TRAVERSE

All angles were measured by the transit and all distances by steel tape.

The custom adapted was to set up the instrument at the angle point or station, then setting the vernier at the corrected bearing of the last course with the instrument sighting on the back picket or station and then by transiting the barrel of the instrument and sighting on the station ahead the bearing for the forward course may be read direct. This original bearing was recorded and used as check for gross error. The corrected bearing was calculated by taking the mean of the sum of the four interior angles at that angle point of the traverse and from your last corrected bearing you will be able to calculate your corrected bearing for the forward course.

Frequent observations for azimuth were taken from time to time throughout the survey.

All distances between angle points or stations were measured by steel tape three hundred feet in length, with all the slopes measured by clinometers. Thermometers were carried to record the temperature at different times of the day, and the correction applied, as well as great care was exercised as regards the tension or pull on the chain as well as keeping the proper alignment.

The allowable error of closure of all blocks, both as regards the instrument work and chainage, was one in five thousand (1/5000) or approximately one foot to the mile. Where it was found necessary to run a spur line only, the circuits not being completed, all traverse angles were checked, if it was impossible to get an observation, as well as all the distances between stations were rechainned.

Wherever we had the advantage of having the photographs in advance of the survey, the chainmen carried the pictures in the field, marking upon them in their proper positions all transit station, control points or any other information that would be valuable in ascertaining the scale of the picture. This method appeared very satisfactory, as it is much easier to interpret the objects in the photograph when viewing the originals of these objects on the ground.

LEVEL PARTY

The level party followed generally along the lines of traverse except in a few cases where a nearby road was more convenient. The elevations of all lakes within a reasonable distance of the traverse lines were taken and recorded, as well as the levels of all bridges, culverts and watercourses. The precise levels of different points along the railways, of which we had a record, were taken advantage of as checks against our own elevations. The allowable error in levelling was one-tenth of the square root of the distance in miles.

Appendix 27

Extract from Report and Field Notes of the Traverse of the Eastern Part of Lac Seul and of Root River, District of Kenora and Patricia—J. S. Dobie, 1927.

Levels were run up Root river and over the Height-of-land portage to Lake St. Joseph. Actual levels were only run over the portages on Root river, the difference in elevation between the portages being estimated. The possibility of any serious errors resulting from this is very remote as there is no fast water between the portages on Root river. The level of Lake St. Joseph was found to be 1218.73 feet on August 18th, 1927, while the level of the water in Root River at the south end of the Height-of-land portage on the same date was found to be 1214.20, so that the diversion of the water of Lake St. Joseph to Lac Seul and thence to the English river would be an easy matter, should it ever be considered advisable to undertake it. The portages run over two low gravel ridges with a short muskeg between, and the highest point on the portage has an elevation of 1239.00 feet.

A detailed description of the country adjacent to the waters surveyed during the season is hardly possible in written report such as this. As the survey proceeded, notes were made on practically every traverse course as to the nature of the country, character of the timber, probable distance back to the 1,172-foot contour, and any other information which it was thought might be of interest and which could be obtained without holding up the survey. This information is shown in detail on the plan submitted herewith.

Generally speaking the country is broken and rocky although in very few instances do the hills rise to an elevation of more than a couple of hundred feet above the level of Lac Seul. There are some fairly large areas of low-lying land, particularly around the mouths of the streams entering Lac Seul. In nearly all of these cases the water level of Lac Seul extends for a considerable distance up stream and as the land at the mouths of these streams is invariably low-lying and covered with clumps of willows, it was impossible to carry the survey up stream to where any considerable rise in elevation would occur. These willow flats were invariably covered with from three to four feet of water during the summer of 1927, owing to the extreme high water which prevailed during the season.

The largest areas of low-lying land appear to occur north of the base line run by O.L.S. Benner in 1927. At the mouth of Vermilion river, which is close to O.L.S. Benner's base line, there is an extensive area of low-lying land, and it is quite probable that the proposed raising of the water level of Lac Seul would back the water up Vermilion river for a long distance. From the Vermilion river north the country is generally much lower with, however, a few places where higher rock ridges come out to the shore. Much low ground exists in the neighbourhood of Root river. About two miles up Root river there is a rapids with a normal fall of about two and a half feet, but during the season of 1927 this rapids was completely flooded out, and there was over a foot of water on the floor of a building above the rapids.

The timber along the shores of Lac Seul and other waters surveyed is largely second growth of varying ages. There are some fairly large areas of young second growth, resulting from comparatively recent fires, but there are large areas where the timber has matured and the amount of commercial timber tributary to Lac Seul is very great. The prevailing varieties of timber are jack-pine, spruce, poplar, white birch and balsam. As one goes back into the woods

from the shore the quality of the timber is almost invariably found to be much better than one would expect from inspection from the shore. An occasional red and white pine tree is seen along the shore or on the island, but these are for the most part scrubby and of no commercial value. The most northerly white pine tree seen was on the shore of Lac Seul, about four miles from the mouth of Root river.

There are some small areas of good clay land suitable for agriculture, the largest being along the shore of Lost lake in Indian Reserve No. 28. Some of the Indians have small garden plots and in seasons when the water is not abnormally high, wild hay is cut on some of the hay flats close to the Indian reserve. Generally speaking, the country adjacent to the waters surveyed is not adapted for agriculture.

There are some fairly extensive burnt areas, the largest being in Deception bay, and along the banks of Root river. Notes are made on the plan submitted herewith as to burnt areas and also as to the class of timber along the shore.

The rock formation is invariably granite, and no evidence was seen of valuable mineral deposits.

The magnetic variation averages about three degrees east of north, although local variations of from one to two degrees, either to the east or west of the average, were continually being noticed, and in one or two instances there was considerable local attraction. A large number of observations of magnetic variation are noted on the plan. The two small books supplied by the Topographical Survey at Ottawa for recording magnetic variations were filled with details of observations taken, and are returned herewith.

Very little game was seen during the season. The larger animals did not come out to the shore to feed on account of the extremely high water, but it is said that they were very plentiful on the smaller lakes inland where the water did not rise above the normal level. Ducks were fairly plentiful, but the part-ridge have almost disappeared.

Appendix 28

Extract of Report and Field Notes of Traverse of Manitou Lakes and Boyer Stormy Lakes, District of Kenora and Rainy River—R. S. Kirkup, O.L.S., 1927.

I started the traverse on the 18th of May, commencing at the 16-mile post on O.L.S. Niven's 3rd base line where it intersects Grassy narrows, and proceeded up through Minnehaha and Peak Lakes, and over the height of land into Summit, Mud, Selby and Power lakes and so into the Manitou straits, where we camped a couple of weeks while traversing the Upper Manitou lake.

The country surrounding this lake is very hilly and broken, and presents a rather forlorn appearance on account of the timber having been burned, no doubt, during the great mining boom twenty years ago. Here one stumbles across many relics of that old gold rush—many derelict mine shafts and dumps and others like the Laurentian, Big Master and Little Paymaster, where the building and equipment are yet in excellent shape, but not modern enough for present day mining operations.

Passing on down the Manitou straits we ran into another relic, of human element this time—a regular old time prospector, in the person of "Rattlesnake Bill" Watson, who went in there with the first rush, and is still an ardent booster

for that area. He has several properties, and informed me that on one particular vein one could stand off fifteen feet and see the free gold—and lots of it.

I then carried the traverse forward through the Lower Manitou lake. The country surrounding this Expansion is very similar to Upper Manitou region, in that it is mostly brute and high rocky hills.

Continuing down through the Lower Manitou stretch the country seems to change its vesture, and assumes a pleasing verdant aspect, and the accompanying change of timber is very acceptable; and so we reached Pickerel Lake and the Rainy River District, and well has it been named—for while we were in it there was hardly a day that we did not have some rain. From Pickerel on it narrows down to a mere stream with rapids and the one expansion at Sphene lake, until we drop over the Devil's cascade into Rainy lake and the end of the first portion of the traverse—this last falls would make an excellent site for a dam, with a total fall of 46 feet and a considerable drainage area behind it; it is also rather a tourists' paradise by the crowds that came there from Fort Frances and the United States to enjoy the fishing and beautiful scenery.

Appendix 29

Extract of a Traverse of Sturgeon Lake, District of Thunder Bay—E. L. Cavana,
O.L.S.

The nature of the country and timber along the shores was noted. The shores are mostly rock and boulders with more sand and boulder shore at the southwest end of the traverse. The soil where noted was mostly sand or sand and clay, with boulders, and occasionally a little loam. No area suitable for agriculture was noticed.

The country is generally low rock ridges and there is very little timber of commercial size or quantity around the lake, being mostly small second-growth spruce, poplar, birch and Banksian pine on an old brule, and where larger timber was met with it was not in very extensive areas. By using an outboard motor we were able to cover a large extent of shore from each camp, and while the usual difficulties were met with, such as rainy weather, rough water on exposed shores, and shores thickly overhung with scrub, cedar and tag alder, steady progress was made with the work.

There appears to have been considerable prospecting and mining activity around the lake several years ago, but nearly all traces of this have disappeared and nearly all the buildings are gone or in ruins. The mill building and machinery at St. Anthony gold mine are kept in order, and another small mill building was noted about three miles north of the St. Anthony mine. Both are on the east shore of North bay. Two other small mills were noted at Northern Light bay and Belmore bay, arms of North East bay. There does not appear to have been any active mining for several years past. Where possible, mining posts were located and tied into the traverse.

There are no Indians living around this lake, and only three trappers and two parties engaged in commercial fishing, operating from the railway at the north and south end of the lake. Fur-bearing animals appear to be scarce; a few beaver, otter, fox, muskrat and mink were seen. Rabbits and partridge are very scarce. There is not much feeding ground for ducks and only a few whistlers and fish ducks were seen, also a few bear, moose and red deer. The lake appears

to be well stocked with fish, lake trout, pike, pickerel, whitefish, tulabie and suckers.

Appendix 30

Extract of a Report of Survey of Part of Harris Lake and Little Abitibi River, District of Cochrane—A. Matheson, O.L.S., 1927.

Little Abitibi river is swift in most places and has a current rate of from two to four miles per hour. A great many rapids were encountered, many of which were too rough and swift to cross without portaging. The drop of these rapids was measured and the results are shown on my plan of survey.

The land for a distance of about one-quarter of a mile on each side of the river consists mostly of clay loam, and contains many large areas of good commercial spruce, interspersed with poplar and birch. Farther back from the river the timber is more scrubby and the land more swampy with, as a rule, clay bottoms.

There are very few rock outcroppings along the part of this river covered by my survey. The rock, where noted, was a sort of grey granite containing very little mineralization. Even boulders are very rare, beside or in the bed of the river, with the result that the banks and bottom of the stream are being eroded and the land on each side is slowly sliding towards the stream. Proof of this is evident as trunks of large trees were often noted firmly rooted in the ground under three feet of water.

This part of the country is entirely uninhabited, during the summer months at least, and when the survey approached the north where rapids were more numerous, we were often obliged to cut out our own portages when it was necessary to disembark on account of swift water.

Appendix 31

Extract of a Traverse Shoal Lake, Lake of the Woods, District of Kenora—C. R. Kenny, O.L.S., 1927.

At the North West Angle Inlet the shores are low and boggy, but farther inland the ground consists of clay soil thickly covered with small poplar. The water of this section is very dark in colour from the vegetable matter.

The shores and islands, except for this inlet, are typical of the Laurentian formation so characteristic in this province, only in a few places rising to any considerable height. I noticed no sand beaches of any considerable extent. The shores generally have a moderate upward slope timbered down to the shore line.

The timber adjacent to the shores is mixed, consisting of principally poplar and birch, balsam, spruce and red and white pine, ranking in the order named. The poplar and birch is generally small, having an average diameter of about eight inches. The spruce and balsam is scattered and no very good stands were seen. The pine is also scattered and some of merchantable size.



REPORT
OF THE
MINISTER OF LANDS AND FORESTS
ONTARIO
1928

Part II—Forestry Branch

Appendix No. 32

I.—FOREST FIRE PROTECTION

(1) *Legislation*

On the fourteenth day of September, 1928, an Order-in-Council was passed, designating the following areas as "Travel Permit" areas:

The townships of Kenny, Sisk, McLaren, Gladman, Lyman, Notman, Blyth and Merrick.

There was no other change in legislation.

(2) *Organization and Personnel*

Early in the year the Forest Assistant in the Hudson Inspectorate was transferred to the Sudbury Inspectorate.

Due to a special slash disposal campaign in the clay belt region, the Kapuskasing Chief Ranger District was changed from the Cochrane Inspectorate to the Oba Inspectorate and a district office opened at Kapuskasing under the direction of the District Forester previously located at Oba. The Forest Assistant at Sault Ste. Marie was transferred to the Oba Inspectorate as Forest Assistant and a new assistant appointed for the Soo Inspectorate.

New assistants were also appointed for the North Bay and Georgian Bay Inspectorates.

The total field supervisory staff for the eleven inspectorates was as shown in the following table and consisted of nine District Foresters, one Assistant District Forester, seven Forest Assistants, one Forest Supervisor, four Fire Inspectors, one Assistant Fire Inspector, thirty-six Chief Fire Rangers and one hundred and eighteen Deputy Chief Fire Rangers. The Fire Inspectors at Goldpines, Gogama, Biscotasing, and the Assistant Fire Inspector at Longlac also acted as Chief Fire Rangers.

There was direct supervision of one Chief or Deputy Chief Ranger to an average of every six rangers.

ORGANIZATION AND PERSONNEL

Inspec- torate	Area (acres)	Head- quarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Hudson...	23,616,000	Sioux Lookout	1—District Forester..... 1—Fire Inspector and Chief Ranger..... 2—Chief Rangers..... 10—Deputy Chief Rangers	Red Lake..... C.G.R. West.... C.G.R. Central..	Goldpines Sioux Lookout Armstrong
Kenora...	9,099,000	Kenora...	1—District Forester..... 2—Chief Rangers..... 3—Deputy Chief Rangers	Kenora..... Minaki.....	Kenora Minaki
Western..	16,310,000	Port Arthur	1—Forest Supervisor..... 3—Chief Rangers..... 12—Deputy Chief Rangers	Rainy River... Thunder Bay... Nipigon.....	Fort Frances Port Arthur Macdiarmid
Oba.....	23,360,000	Oba.....	1—District Forester..... 1—Forest Assistant..... 1—Asst. Fire Inspector... 5—Chief Rangers..... 17—Deputy Chief Rangers	C.G.R. East... Longlac..... Oba..... Franz..... Hearst..... Kapuskasing...	Nakina Longlac Oba Franz Hearst Kapuskasing
Cochrane.	14,410,000	Cochrane.	1—Fire Inspector..... 5—Chief Rangers..... 15—Deputy Chief Rangers	Smoky Falls... Cochrane..... Abitibi..... Timmins..... Matheson.....	Smoky Falls Cochrane Stimson Timmins Matheson
North Bay	5,105,000	North Bay	1—District Forester..... 1—Forest Assistant..... 3—Chief Rangers..... 11—Deputy Chief Rangers	Temagami North Temagami East. North Bay.....	Elk Lake Temagami North Bay
Sudbury..	12,748,000	Sudbury..	1—District Forester..... 1—Asst. District Forester. 1—Forest Assistant..... 2—Fire Inspectors and Chief Rangers..... 6—Chief Rangers..... 23—Deputy Chief Rangers	Foley West... Foley East... Mississagi West. Mississagi East. Webbwood.... Temagami West. Sudbury North.. Sudbury South..	Elsas Gogama Chapleau Biscotasing Espanola Mattagami Post Skead Sudbury
Soo.....	7,394,000	Sault Ste. Marie	1—District Forester..... 1—Forest Assistant..... 3—Chief Rangers..... 10—Deputy Chief Rangers	A.C.R..... Blind River... Mississagi South.	Sand Lake Blind River Ranger Lake
Georgian Bay	4,591,000	Parry Sound	1—District Forester..... 1—Forest Assistant..... 3—Chief Rangers..... 7—Deputy Chief Rangers	Georgian Bay W. Georgian Bay E. Georgian Bay S.	Parry Sound Powassan Coboconk
Algonquin	3,522,000	Pembroke	1—District Forester..... 1—Forest Assistant..... 2—Chief Rangers..... 6—Deputy Chief Rangers	Algonquin North Algonquin South	Pembroke Brule Lake
Trent....	3,513,000	Tweed...	1—District Forester..... 1—Forest Assistant..... 2—Chief Rangers..... 4—Deputy Chief Rangers	Trent..... Madawaska....	Bancroft Dacre

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 134; May, 667; June, 1,022; July, 1,074; August, 1,060; September, 702; October, 147. The largest number of men on duty at any one time, including Chief and Deputy Chief Rangers, was 1,080.

NUMBER OF MEN ON DUTY INCLUDING CHIEF AND DEPUTY CHIEF RANGERS

	1928	1927	1926	1925	1924	1923	1922
April 1st.....	49	44	19	24	22	4	7
April 15th.....	98	159	42	62	60	9	21
May 1st.....	293	361	168	360	215	205	144
May 15th.....	628	675	549	648	525	699	595
June 1st.....	992	958	896	822	756	1,104	1,002
June 15th.....	1026	1040	966	842	810	1,166	1,052
July 1st.....	1071	1046	982	847	812	1,198	1,065
July 15th.....	1080	1062	992	848	813	1,257	1,054
August 1st.....	1068	1051	987	845	806	1,220	1,044
August 15th.....	1055	1019	983	841	792	1,223	1,040
September 1st.....	988	926	918	835	745	1,115	980
September 15th.....	778	865	798	806	626	968	545
October 1st.....	242	240	257	245	148	291	101
October 15th.....	131	120	129	82	47	111	44
October 31st.....	93	57	44	.....	.....	.....	.....

(3) *Expenditures*

The total expenditure for the year was \$1,271,776.72, less \$60,000.00 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Fire Protection at \$1,211,776.72. The amount of fire tax collected for the year was \$367,313.80.

CLASSIFICATION OF EXPENDITURES

Item	1928	1927	1926	1925	1924	1923	1922
Pay roll.....	\$786,600 74	\$780,527 29	\$664,260 69	\$615,811 09	\$480,481 98	\$535,810 35	\$417,023 88
Equipment.....	121,973 24	103,167 66	101,981 12	130,353 42	139,894 00	127,186 92	44,504 49
Expendable equipment.....	15,097 52	6,328 39	6,406 00	4,338 76	4,646 75	5,869 55	3,048 16
Travel (inspection).....	58,259 25	39,494 42	29,065 24	33,649 18	32,797 35	31,436 73	23,088 33
Improvement work.....	76,496 09	63,333 45	19,097 63	225,723 85	61,427 30	54,876 42	40,999 77
Extra fire fighting.....	21,028 90	43,509 13	34,728 85	67,023 32	16,450 78	143,508 13	40,969 67
Express, postage, etc.....	16,866 97	20,951 71	30,105 86	39,472 70	33,818 69	28,083 20	9,561 17
Air operations.....						86,404 71	23,437 84
Maintenance.....	112,716 04	89,888 11	95,931 36	98,520 56	28,877 18	7,419 24	17,670 45
Miscellany.....	4,192 22	13,273 84	17,327 48	11,964 07	8,921 53	15,328 44	23,598 77
Gasoline and oil.....	51,797 50	72,295 61	67,720 04	26,924 17	40,527 77	7,485 69	.....
Rent.....	6,748 25	7,226 40	5,920 17	7,528 62	7,206 91	5,251 41	.....
Brush-burning.....	.....	.....	.....	.....	.....	229 00	.....
Advertising.....	.....	.....	.....	.....	.....	14,066 45	.....
Totals.....*	\$1,271,776 72	*\$1,239,996 01	*\$1,072,544 44	*\$1,261,309 24	\$855,050 24	\$1,062,956 24	\$643,902 63

*Of this total \$80,000.00 was transferred in 1925, 1926, and 1927, and \$60,000.00 in 1928, to a charge against Forest Ranging to cover air operations in connection with that work.

CLASSIFICATION OF AREA BURNED OVER
BY MONTH

INSPECTORATE	April		May		June		July		August		September		October		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....			35,595	40.6	6,485	7.4	45,416	51.9	81	0.1		3				*87,580
Kenora.....			688	95.3	7	1.0			21	3.0						722
Western.....	61	0.9	5,478	82.2	46	0.7	90	1.4	985	14.8			2			6,662
Oba.....			37	5.2	1	0.2	20	2.8	650	91.5		2				710
Cochrane.....					13	9.6	119	88.2	3	2.2						135
North Bay.....			113	89.7	12	9.5	1	0.8								126
Sudbury.....	32	1.6	1,957	94.8	67	3.2	6	0.3	3	0.1						2,065
Soo.....			405	56.3	167	23.2	1	0.2	116	16.1		30				719
Georgian Bay.....	80	13.6	454	77.2	54	9.2										588
Algonquin.....			62	68.9	27	30.0	1	1.1								90
Trent.....	33	3.4	879	89.1	69	7.0	2	0.2	2	0.2		1				986
Totals.....	206	0.2	45,668	45.5	6,948	6.9	45,656	45.5	1,861	1.9		36			8	100,383

*51,750 acres were burned in areas beyond the reach of our organization.

CLASSIFICATION OF AREA BURNED OVER
BY ORIGIN

Inspectorate	Settlers		Campers		Railways		Lightning		Logging Operations		Smokers		Road Construction		Miscellaneous		Unknown		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	88	0.1	82,241	93.9	8	.....	28	.....	.....	.....	.....	.....	.....	74	0.1	5,141	5.9	.....	.....	*87,580
Kenora.....	330	45.7	59	8.1	22	3.1	.....	.....	.....	.....	84	11.7	150	20.8	27	3.7	50	6.9	.....	722
Western.....	255	3.8	189	2.8	77	1.2	.....	.....	5,324	79.9	125	1.9	.....	.....	10	0.2	682	10.2	.....	6,662
Oba.....	108	15.2	255	35.9	23	3.2	291	41.0	20	2.8	.....	.....	.....	.....	7	1.0	6	0.9	.....	710
Cochrane.....	44	32.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27	20.0	64	47.4	.....	135
North Bay..	31	24.6	6	4.7	4	3.2	.....	.....	5	4.0	12	9.5	.....	.....	33	26.2	35	27.8	.....	126
Sudbury.....	32	1.5	1,531	74.2	27	1.3	1	.....	24	1.1	387	18.8	55	2.7	6	0.3	2	0.1	.....	2,065
Soo.....	36	4.9	316	43.9	117	16.3	5	0.7	205	28.6	35	4.9	3	0.4	.....	.....	.....	.....	.....	719
Georgian Bay	74	12.6	212	36.1	12	2.0	.....	.....	10	1.7	60	10.2	.....	.....	130	22.1	90	15.3	.....	588
Algonquin....	8	8.9	45	50.0	5	5.6	.....	.....	.....	.....	12	13.3	.....	.....	.....	.....	20	22.2	.....	90
Trent.....	604	61.3	75	7.6	43	4.4	.....	.....	93	9.4	21	2.1	.....	.....	48	4.9	102	10.3	.....	986
Totals...	1,610	1.6	84,929	84.6	338	0.3	325	0.3	5,681	5.7	736	0.7	208	0.2	364	0.4	6,192	6.2	.....	100,383

*51,750 acres were burned in areas beyond the reach of our organization.

**AVERAGE NUMBER OF RAILWAY FIRES PER HUNDRED MILES OF LINE
THROUGH FOREST SECTIONS**

RAILWAY	1928	1927	1926	1925	1924	1923	1922
Canadian National Railways (exclusive of northern line).....	1.4	1.7	1.7	2.4	3.3	6.2	*3.2
Canadian Pacific Railway.....	3.4	1.5	3.5	2.4	2.0	5.3	2.7
Canadian National Railways (northern trans-continental line only).....	0.7	.....	1.0	0.3	0.5	2.0	2.4
Temiskaming and Northern Ontario Railway.....	0.5	2.3	1.9	1.1	3.7	7.3	7.3
Algoma Eastern Railway.....	1.1	.....	.....	9.4	8.2	1.1	4.5
Algoma Central and Hudson Bay Railway..	1.6	3.4	3.3	6.1	4.5	3.0	4.2
Nipissing Central Railway.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous Private Railways.....	2.1	11.2	2.2	7.7	.....	.....	.....
	1.8	1.7	2.2	2.4	2.7	4.9	3.3

*Former C.N.R. and G.T.R. figures combined.

RAILWAY	Per cent. of Total Number of Railway Fires						
	1928	1927	1926	1925	1924	1923	1922
Canadian National Railways (exclusive of northern line).....	29.6	39.3	29.7	38.3	50.3	45.9	*36.1
Canadian Pacific Railway.....	54.1	27.0	46.6	29.7	21.9	32.5	25.3
Canadian National Railways (northern trans-continental line only).....	5.1	.....	6.8	1.6	3.0	7.6	13.3
Temiskaming and Northern Ontario Railway.....	2.0	10.1	5.9	3.1	8.8	9.6	14.5
Algoma Eastern Railway.....	1.0	.....	.....	6.2	5.1	0.4	2.4
Algoma Central and Hudson Bay Railway..	5.1	12.4	9.3	15.6	10.9	4.0	8.4
Nipissing Central Railway.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous Private Railways.....	3.1	11.2	1.7	5.5	.....	.....	.....
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Former C.N.R and G.T.R. figures combined.

CLASSIFICATION OF FOREST AREAS BURNED OVER

INSPECTORATE	Number of fires	Timber land, mainly coniferous, i.e., softwood	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)
Hudson.....	71	36,767	.....	62	.....	28,431	18	22,252	50	*87,580
Kenora.....	32	13	.....	352	.....	293	27	13	24	722
Western.....	51	194	.....	5,595	253	354	55	94	117	6,662
Oba.....	39	234	3	120	.....	282	.....	63	8	710
Cochrane.....	7	.....	.....	134	.....	.....	.....	1	.....	135
North Bay.....	25	.....	.....	5	33	.....	13	32	43	126
Sudbury.....	121	11	.....	72	201	258	224	706	593	2,065
Soo.....	41	.....	.....	122	8	97	87	364	41	719
Georgian Bay.....	32	.....	3	50	26	2	220	181	106	588
Algonquin.....	23	1	.....	1	5	2	9	61	11	90
Trent.....	94	.....	15	17	108	39	448	257	102	986
Totals.....	536	37,220	21	6,530	634	29,758	1,101	24,024	1,095	100,383
1927 totals.....	924	831	119	4,202	974	4,294	2,041	18,061	5,220	35,742
1926 ".....	1,110	10,266	2,468	12,866	9,378	17,583	11,303	19,262	5,248	88,374
1925 ".....	1,149	4,634	5,555	13,555	21,588	22,391	34,164	68,414	19,242	189,543
1924 ".....	851	24,067	6,592	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 ".....	1,343	567,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148
1922 ".....	1,021	39,946	6,449	37,416	32,693	46,798	40,325	131,370	11,196	346,193

*51,750 acres were burned over in areas beyond the reach of our organization.

CLASSIFICATION OF FOREST AREAS BURNED OVER

FOREST CONDITIONS	1928		1927	1926	1925	1924	1923	1922
	Acres	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Timber land.....	37,241	37.1	2.6	14.4	5.4	21.0	28.0	13.4
Cut-over land (some timber left) ..	7,164	7.1	14.5	25.2	18.5	15.9	14.7	20.2
Young growth (below six inches)	30,859	30.8	17.7	32.7	29.8	32.6	36.6	25.2
Barren and grass land.....	25,119	25.0	65.2	27.7	46.3	30.5	20.7	41.2
Totals.....	*100,383	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*51,750 acres were burned in areas beyond the reach of our organization.

CLASSIFICATION OF LAND BURNED OVER

INSPECTORATE	Fires burning on one class of land only				Fires burning on both Crown and private land								Totals				
	Crown land		Private land		Originating on Crown land				Originating on private land								
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.		No. of fires	Area in acres		
Hudson.....	53	87,371	99.8	18	209	0.2									71	*87,580	
Kenora.....	15	160	22.2	16	512	70.9						1	40	5.5	10	1.4	
Western.....	21	6,285	94.3	25	370	5.6						5	6	0.1	1		
Oba.....	8	543	76.5	31	167	23.5											
Cochrane.....				7	135	100.0											
North Bay.....	12	44	34.9	12	80	63.5						1	2	1.6		126	
Sudbury.....	32	101	4.9	84	754	36.5	2	850	41.2	350	17.0	3	9	0.4	1	2,065	
Soo.....	4	117	16.3	37	602	83.7										41	
Georgian Bay.....	10	197	33.5	21	266	45.2						1	100	17.0	25	32	
Algonquin.....	16	64	71.1	6	26	28.9						1				90	
Trent.....	29	521	52.8	62	429	43.6	1	7	0.7	1	0.1	2	19	1.9	9	94	
Totals.....	200	95,403	95.0	319	3,550	3.5	3	857	0.9	351	0.4	14	176	0.2	46		536
																	100,383

*51,750 acres were burned in areas beyond the reach of our organization.

MEANS OF FIRE DETECTION

INSPECTORATE	CHIEF RANGER DISTRICT	TOTAL Fires	BY AIR SERVICE		BY TOWERS		BY RANGERS		BY PUBLIC	
			Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hudson	Red Lake.....	42	24	57.1	No towers in use	4	9.5	14	33.4	
	C.G.R. West.....	15	4	26.6		..	..	11	73.4
	C.G.R. Central.....	14	4	28.6		4	28.6	6	42.8	
Kenora	Kenora.....	71	32	45.1	No towers in use	8	11.3	31	43.6	
	Minaki.....	28	7	25.0		8	28.6	13	46.4	
Western	Minaki.....	4	2	50.0	No towers in use	1	25.0	1	25.0	
	Rainy River.....	32	9	28.1		9	28.1	14	43.8	
	Thunder Bay.....	18	7	38.9		2	11.1	4	22.2	
	Nipigon.....	30	2	6.7		1	3.3	24	80.0	
Oba	Nipigon.....	3	..	..	2	66.7	..	..
	Nipigon.....	51	9	17.6	5	9.8	8	15.7		
Cochrane	C.G.R. East.....	9	4	44.4	..	..	..	5	55.6
	Longlac.....	1	..	..	..	..	..	1	100.0
	Oba.....	4	..	..	..	..	..	4	100.0
	Oba.....	4	..	..	1	20.0	4	80.0	
	Franz.....	5	..	..	2	18.2	5	45.4	
	Hearst.....	11	..	..	..	..	7	77.8	
	Kapuskasing.....	9	..	..	..	..	2	22.2	
	Kapuskasing.....	39	4	10.3	3	7.7	11	28.2		
	Smoky Falls.....	..	..	..	..	..	..	..	53.8
	Cochrane.....	5	..	..	..	..	..	..	..
Abitibi.....	1	..	..	..	..	2	40.0	3	60.0
Timmins.....	..	..	..	..	..	..	..	1	100.0
Matheson.....	1	..	..	..	..	..	..	..	..
Matheson.....	1	..	..	..	..	1	100.0	..	..
Matheson.....	7	..	..	..	..	3	42.9	4	57.1

(5) Permits

The number of burning permits issued during the season totalled 13,611 for an area of 62,905 acres. It is regrettable, however, that in some districts less than half the permits were made use of. The wet weather made it practically impossible to burn slash in some areas.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1928	1927	1926	1925	1924	1923	1922
Red Lake.....	129	24	31	99	70	28	23
C.G.R. West.....	40	103	26				
C.G.R. Central.....	5	28					
Kenora.....	611	497	179	3	128	362	180
Minaki.....	44						
Rainy River.....	29	61	31	19	16	216	39
Thunder Bay.....	333	433	264	235	100	139	59
Nipigon.....	4	10					
C.G.R. East.....	42	37	51	95	36	18	
Hearst.....	1,501	1,264	1,804	1,656	1,011	1,000	1,774
Longlac.....	5		2			50	
Oba.....	24	34	29	11	16		
Franz.....	6	14	5	10			
Kapuskasing.....	2,274	1,245	1,022	1,187	668	531	587
Smoky Falls.....		84	76				
Cochrane.....	2,637	2,871	2,506	2,486	1,815	1,480	2,497
Abitibi.....		5	65	157	2	2	61
Matheson.....	1,236	1,482	1,603	1,515	1,275	1,122	2,126
Timmins.....	1,034	1,173	1,407	1,212	580	406	754
New Liskeard.....			836	637	408	361	
A.C.R.....	51	72	97	82	18	10	
Blind River.....	134	298	164	126	100	36	6
Mississagi South.....	2	3					
Foley West.....	43	59	58	3	34	11	
Foley East.....	185	163	175	169	102	1	
Mississagi West.....	22	77	67	20	15	1	
Mississagi East.....	12	26	18	12	9		
Webbwood.....	169	322	183	162	119	25	16
Sudbury North.....	15	18	16	36	173	36	
Sudbury South.....	540	766	580	411	149		
Temagami West.....	12	11	14	19			
Temagami North.....	951	765	294	253	200		387
Temagami East.....	139	223	395	174	86	11	48
North Bay.....	724	829	971	691	360	61	46
Georgian Bay West.....	111	87	83	100			
Georgian Bay East.....	155	162	207	159			
Algonquin North.....	29	45	14	33	29		
Algonquin South.....	105	73	103	84	58		
Trent.....	77	57	31	106	24		
Madawaska.....	181	172	59				
Totals.....	13,611	13,593	13,466	11,962	7,602	5,907	8,603

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage Covered by Permits						
	1928	1927	1926	1925	1924	1923	1922
Red Lake.....	109	56	15}	416	215	95	26
C.G.R. West.....	85	189	63}				
C.G.R. Central.....	18				1		
Kenora.....	1,671}	3,123	442	2	325	35,006	624
Minaki.....	5}						
Rainy River.....	378	1,162	2,144	174	57	1,374	331
Thunder Bay.....	7,777	2,428	993	1,029	463	1,081	1,251
Nipigon.....	2	110					
C.G.R. East.....	18	19	35	28	25	53	
Hearst.....	7,119	3,358	3,435	3,721	2,311	2,335	3,837
Longlac.....						64	
Oba.....	7	7	28	1	60		
Franz.....				1			
Kapuskasing.....	13,807	5,085	4,106}	4,222	2,351	2,126	2,017
Smoky Falls.....		72	205}				
Cochrane.....	16,901	5,577	5,623	4,462	4,010	4,348	8,108
Abitibi.....		4	213	426		1	968
Matheson.....	5,031	3,251	4,884	5,211	4,573	5,027	7,613
Timmins.....	2,222	1,812	2,354	2,064	1,421	918	2,591
New Liskeard.....			2,039	2,154	1,345	1,160	
A.C.R.....	1,121	269	408	1,257	100	36	
Blind River.....	130	1,199	1,041	1,119	619	294	67
Mississagi South.....	1	27					
Foleyet West.....	29	1,370	1,008	25	2,959	52	
Foleyet East.....	87	2,280	1,613	3,152	3,402	5	
Mississagi West.....	310	2,373	2,208	2,555	81	408	
Mississagi East.....	26	2,984	2,843	4,741	2		
Webbwood.....	449	7,565	4,125	2,768	2,009	81	66
Sudbury North.....	14	556	137	293	425}	187	
Sudbury South.....	941	5,105	2,089	1,957	6,900}		
Temagami West.....	3	7	27	6			
Temagami North.....	1,272	1,412	319	1,197	303		1,657
Temagami East.....	217	514	458	819	172	41	196
North Bay.....	1,366	1,348	1,830	1,384	518	92	103
Georgian Bay West.....	157	297	201	742			
Georgian Bay East.....	380	456	558	418			
Algonquin North.....	33	15	148	377	719		
Algonquin South.....	141	139	199	121	599		
Trent.....	268	550	111}	326	60		
Madawaska.....	810	1,043	86}				
Totals.....	62,905	55,762	45,988	47,168	36,025	54,784	29,455

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1928	1927	1926	1925	1924	1923	1922
April.....	116	663	100	451	127	.....	.....
May.....	3,372	2,857	3,580	2,185	849	2,131	1,992
June.....	4,494	4,641	3,341	2,273	3,614	711	3,034
July.....	2,581	2,082	2,643	2,172	1,388	1,314	1,502
August.....	2,139	1,671	2,065	2,484	1,093	1,077	1,580
September.....	899	1,656	1,672	2,367	528	566	495
October.....	10	23	65	30	3	108	.....
Totals.....	13,611	13,593	13,466	11,962	7,602	5,907	8,603

MONTH	Acreage Covered by Permits				
	1928	1927	1926	1925	1924
April.....	701	7,138	3,686	7,981	4,956
May.....	21,435	15,265	13,484	12,397	2,812
June.....	23,453	13,896	12,020	5,851	10,188
July.....	9,589	5,662	7,521	7,685	3,546
August.....	5,796	8,408	4,434	6,667	5,021
September.....	1,812	4,742	4,800	6,546	9,450
October.....	119	651	43	41	52
Totals.....	62,905	55,762	45,988	47,168	36,025

(6) *Equipment*

The use of efficient fire-fighting equipment is of no less importance in forest fire protection than in urban fire protection and considerable expenditure must be incurred each year in this connection.

In some districts the stock of equipment has almost reached the maximum for normal seasons but in the more northern and western areas, where each year sees some new development, the stock must be augmented.

With such a vast area to protect, requiring such a large organization, the replacement of worn-out equipment will always be an important factor.

The following table shows the major equipment purchased during the season and the total in use.

MAJOR EQUIPMENT PURCHASED AND IN USE

INSPECTORATE	Fire fighting units		Fire fighting hose (feet)		Portable hand pumps		Tents		Blankets (pairs)		Canoes		Small motor boats		Launches		Auto trucks		Railway motor cars		Velocipedes	
	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use	Purchased 1928	Total in use
Hudson.....	14	54	16,000	101,900	6	89	3	77	50	384	3	56	4	6	2	3	1	3	2	2	1	5
Kenora.....	3	13	9,000	27,700	6	36	6	21	75	177	3	122	2	2	2	3	1	4	3	3	1	9
Western.....	1	23	3,200	41,300	12	20	12	39	50	220	15	35	5	5	4	4	1	4	3	3	3	25
Oba.....	6	33	8,000	77,200	42	192	26	139	56	711	2	67	5	5	2	2	1	3	2	13	2	30
Cochrane.....	5	30	11,000	63,800	60	165	6	65	30	412	6	62	3	3	5	5	2	11	1	4	3	9
Soo.....	19	5,000	37,900	20	76	37	74	...	430	37	9	37	1	1	1	1	3	5	8	3	3	6
Sudbury.....	1	63	3,000	160,900	12	213	10	175	25	1,118	14	162	2	10	1	8	5	5	5	7	3	21
North Bay.....	1	23	...	55,300	...	82	15	82	25	601	5	80	3	3	2	9	5	12	...	...	...	4
Georgian Bay.....	...	16	3,000	34,100	24	98	...	43	25	281	3	45	2	2	1	7	2	7	...	...	...	7
Algonquin.....	10	10	...	19,200	6	84	...	61	...	387	1	55	3	3	1	4	1	3	...	...	...	4
Trent.....	...	6	...	18,600	...	69	2	18	...	182	...	17	...	...	...	...	1	7	...	...	...	1
Totals.....	31	290	58,200	637,900	188	1,124	80	794	336	4,903	52	638	13	32	7	46	22	62	3	37	2	117

(7) *Locomotive Inspection*

Two men again devoted their whole time to the inspection of fire protective appliances on locomotives operating within the Fire Districts of the Province.

A total of 1,925 locomotive inspections were made, covering 862 locomotives operating on railway lines under the jurisdiction of the Board of Railway Commissioners for Canada, the two inspectors having appointments as officers of the Board. In addition, 112 inspections were made of Temiskaming and Northern Ontario Railway locomotives and 38 inspections of logging locomotives, 2,075 inspections in all.

LOCOMOTIVE INSPECTION

Railway	Number inspected					Total No. Locomotives	Total number inspections										Inspections showing defects	Percentage defective											
	Times						1928	1927	1926	1925	1924	1923	1922	1928	1927	1926		1925	1924	1923	1922								
	1	2	3	4	5 and over																								
C.P.R.	180	98	58	41	39	416	918	805	739	799	851	860	815	1928	1927	1926	1925	1924	1923	1922	5	0.5	1.2	0.8	0.5	1.9	2.3	5.8	
C.N.R.	196	84	50	49	41	420	925	915	962	988	1,001	856	*681	14	1.5	0.8	1.8	0.5	1.5	2.7	*3.5	14	1.5	0.8	1.8	0.5	1.5	2.7	*3.5
A.C. & H.B.R.	8	8	5	4	3	20	65	19	20	45	45	29	45	22	22	15	15	15	15	15	22	22	22	22	22	22	22	22	22
A.E.R.	2	2	2	2	2	6	17	15	18	21	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
N.C.R.	376	190	117	96	83	862	1,925	1,754	1,742	1,856	1,920	1,760	1,563	19	1.0	1.0	1.3	0.6	1.6	2.5	4.6	19	1.0	1.0	1.3	0.6	1.6	2.5	4.6
Totals	376	190	117	96	83	862	1,925	1,754	1,742	1,856	1,920	1,760	1,563	19	1.0	1.0	1.3	0.6	1.6	2.5	4.6	19	1.0	1.0	1.3	0.6	1.6	2.5	4.6

Average cost per inspection: 1928, \$1.74; 1927, \$1.78; 1926, \$1.91; 1925, \$1.78; 1924, \$1.80; 1923, \$1.88; 1922, \$1.61.
 *Former C.N.R. and G.T.R. figures combined.

(8) *Improvements*

Advantage was taken of the wet season to push forward the lookout tower and telephone system and the completion of several necessary buildings. A total of twenty-six steel towers and over four hundred miles of telephone lines were erected.

The use of wireless as a means of communication has been most satisfactory. Four stations were installed in the District of Patricia in 1927 and these were added to during the past season, stations being opened at Swain's lake, Savant lake and Fort Hope.

In such a remote district, with no other means of communication, it was inevitable that a demand would be made for the transmission of private messages through these wireless stations which were intended primarily for forest protection. So great became this demand that it was found necessary last season to inaugurate a charge system for all private messages. The revenue derived from this source is practically sufficient to carry the wireless service.

In addition to the wireless stations in operation in the District of Patricia two stations were installed in Temagami Forest Reserve, one at the Chief Ranger Headquarters at Temagami and the other thirty miles distant at a steel lookout tower on Maple mountain in Rorke Township.

PERMANENT IMPROVEMENTS

Completed to October 31st, 1928

Cabins.....	256
Storehouses.....	51
Boathouses.....	28
Combined Storehouses and Boathouses, etc.....	10
Bunkhouses.....	35
Offices.....	13
Garages.....	41
Other Buildings.....	58
Hose Towers.....	36
Wooden Lookout Towers.....	137
Steel Lookout Towers.....	68
Permanent Telephone Lines (miles).....	1,942
Temporary Telephone Lines (miles).....	136

(9) *Air Operations*

Aircraft continue to be an important supplement to the regular organization as a means of fire control. With increasingly better means of ground detection, however, aircraft are becoming of less importance as a means of detection and of increasing importance as a means of transportation, especially in the more remote areas.

During the past season machines were located as follows:—

Goldpines.....	2	H.S.2	L's.
Sioux Lookout.....	3	H.S.2	L's.
			2 Moths.
Kenora.....	1	H.S.2	L.
			1 Moth.
Fort Frances.....	1	H.S.2	L.
Shebandowan Lake.....	1	H.S.2	L.
Orient Bay.....	1	H.S.2	L.
Longlac.....	1	H.S.2	L.
Oba Lake.....	1	H.S.2	L.
			1 Moth.

Remi Lake.....	1 Moth.
Sault Ste. Marie.....	1 Moth.
Biscotasing.....	1 Moth.
Sudbury.....	2 Moths.

(10) *Hazard Disposal.*

A special effort which was made to dispose of the great amount of slash which has been accumulating in the clay belt region during the last few years met with considerable success. In some districts special crews of men were employed to handle particularly bad slashes but ordinarily settlers were encouraged to dispose of their own slash.

In addition to the above bad hazards were disposed of along travelled routes and around some northern settlements.

(11) *Travel Permits*

The practice was continued of requiring persons to obtain travel permits before entering certain sections of Temagami and Mississagi Forest Reserves and before travelling along the Ferguson Highway between Cook's Mills and Latchford.

A total of 15,406 travel permits were issued during the season, 224 of these being for Mississagi Forest Reserve, 1,565 for Temagami Forest Reserve and 13,617 for the Ferguson Highway.

The permits issued for the highway all covered automobiles, one permit to a car, so that these 13,617 permits probably covered over 40,000 people.

(12) *Meteorological Studies*

The Dominion Meteorological Service provided daily special weather forecasts throughout the fire season which were of great value. This service also continued to co-operate in a study to determine the relationship between different weather factors and forest fire hazards.

(13) *Miscellaneous*

A considerable amount of aerial photography and mapping was undertaken to provide more accurate information on topography and forest types. Reliable information of this kind is particularly important for forest fire suppression.

Further experiments were carried out in connection with the development of landscape maps for use in lookout towers. These experiments warrant the conclusion that a satisfactory map of this type is possible.

An effort was also made to determine the possibility of classifying by aerial survey the different ground covers on the basis of relative inflammability. No conclusions are yet possible in this connection.

II.—REPORT OF THE DIRECTOR OF AIR SERVICE

Introduction.

The season of 1928 was the most successful yet enjoyed by the Provincial Air Service of the Ontario Government. In 1927, the Moth seaplane was introduced as an addition to the existing equipment for detection duties.

This type of aircraft proved so successful that in 1928 a further five machines of this type were added, making a total of nine.

In order that the equipment of the service might be further brought up to date, purchase was made of the De Havilland 61 float seaplane powered with a Bristol Jupiter engine of 500 h.p. This machine carries eight passengers, baggage and equipment, fuel for five hours and a range of some 550 miles at cruising speed.

The usefulness of a machine of this type is at once apparent as it means that it can be employed for transporting rangers, pumps and equipment to remote parts of the province, which ordinarily would be outside the range of the existing types of machines of the Service.

In addition, complete dusting apparatus can be installed and the preliminary tests of this have proved satisfactory.

The Minister of Lands and Forests was flown on an extensive tour of the province in the D.H. 61 machine. This flight covered the areas from Temagami north to Rupert House across James Bay to Albany Post and thence to Red Lake and Woman Lake areas in the Patricia District of the province. Thus in some 14½ hours' flying a vast area of Ontario was covered, an area which by any other means would have taken months.

The H.S.2. L. flying boat still maintains its usefulness for heavy duty work, such as fire suppression duties and transportation.

Organization—Flying Operations.

For the operating season of 1928, an alteration was made in the district administration.

The Central District was dispensed with and the bases previously in this district were absorbed by the Eastern and Western. Headquarters in these districts were at Sault Ste. Marie and Sioux Lookout, respectively. The disposition of aircraft in the Western District was as follows:—

Sioux Lookout	Moths—PA. and OV. H.S.2.L.—OG, OK, ON.
Gold Pines	H.S.2.L.—OF, OQ.
Fort Frances	H.S.2.L.—OJ.
Kenora	Moth—PB. H.S.2.L.—OP.
Orient Bay	H.S.2.L.—OR.
Shebandowan	H.S.2.L.—PE.

The Eastern District consisted of:—

Sault Ste. Marie	Moth—PC.
Sudbury	Moths—OW and OX.
Biscotasing	Moth—OZ.
Remi Lake	Moth—OY.
Oba Lake	Moth—OU. H.S.2.L.—OA.
Long Lac	H.S.2.L.—OI.

Reconditioning.

As in previous years during the operating period, the work of reconditioning aircraft engines, when they became due for their overhaul, was carried out at the base at Sault Ste. Marie. In order that the utmost efficiency may be maintained at this base, all the work in connection with the overhaul of aircraft and engines is supervised by the plant superintendent, who is directly responsible to the director.

As it has been found that in most years some of the operating bases of the Western District are free of ice before it is possible to fly machines away from Sault Ste. Marie, it was decided to keep at least two of the Moth aircraft at Sioux Lookout over the winter months so that they would be available for patrol immediately conditions there permitted.

In order that this might be put into effect, a suitable hangar was built at Sioux Lookout, capable of housing four or five Moth aircraft. Thus at the termination of summer operations, both machines and engines are overhauled there and equipped with skis, thus being available for winter flying when required.

Detection.

As in previous years, the requisitions for fire detection were controlled by the District Foresters and patrols were carried out according to their requirements.

During the period under review, 1,736.10 hours flying was carried out in connection with fire detection work. The greater part of the time was flown by Moth aircraft though the H.S.2.L. was also employed for this work when fire hazard and other conditions necessitated it.

Suppression.

A very great amount of suppression work was carried out, especially in the western part of the province. A very severe fire in the Cairns Lake District was combated entirely by means of aircraft, as this district was entirely inaccessible by any other means except a long and devious canoe route which would have rendered operations on this fire impossible except by aircraft.

Some 300 odd hours' flying were carried out by aircraft in connection with this one fire. Split canoes were carried out on all H.S.2.L. machines, thereby enabling those fighting the fire to have some means of movement whilst operating in the areas of conflagration.

A considerable amount of suppression work was also carried out by the H.S.2.L. boat stationed in the Long Lac District.

It is thus becoming more evident every year of operation that the suppression type of aircraft is a vital necessity, especially in those parts of the Patricia District inaccessible except by canoe, and where each year sees an increasing traffic of prospectors through the bush, thus considerably increasing fire hazard.

Sketching.

The hours flown during the 1928 season on classification of forest types again showed an increase over previous years. The majority of this sketching was in the Rainy River District and carried out by the machines stationed at Fort Frances and Shebandowan. The temporary base at Eva Lake, which was used in 1927 for this purpose, was again utilized, but only as a refuelling base when occasion and conditions necessitated it.

Photography.

Topographical survey accounted for 163.15 hours.

This figure covers both vertical and oblique photography.

Instruction.

As it was decided that a future policy of the service would be to train its own pilots as far as possible, a winter school of instruction was started at Sioux Lookout. For this purpose Moth aircraft equipped with skis were used.

Five pupils commenced instruction during the early part of the year. Of these, two were air engineers selected for pilots' training, two observers who had long been associated with the service in this capacity, and one ex-war pilot who had not been engaged in flying for some considerable time.

All five of these pupils successfully graduated from this school and as soon as conditions became favourable in St. Mary's River, further instruction was given them on H.S.2.L. boats and Moth seaplanes.

Other pilots were given refresher courses on the types of machines they were selected to fly for the coming season.

In all, eleven pilots were given instruction and refresher training during the period under review.

The policy referred to above of the Service training its own pilots has proved entirely successful and even if the supply exceeds the demand at any time it enables a pool of reserve pilots to be kept available in cases of emergency.

Special Transportation.

A considerable amount of special transportation was carried out during 1928, a great proportion of which was in connection with the establishing and maintaining of the numerous radio stations that were established throughout the Western District.

Equipment for the construction of these stations was flown to the various bases selected, personnel transported and all their supplies taken in when required.

In addition to this much co-operation was maintained with other Departments, notably, the Departments of Mines, Game and Fisheries, Provincial Police, Department of Health, and the Red Cross Nursing Association. In connection with the latter, nurses were flown into the hospital that was established at Woman Lake.

The Inspector of the Department of Health in one week was transported by air into the mining districts and thus was able to cover his entire territory in the minimum of time. By any other means of transport this would have probably entailed at least a month. Contact was maintained with the officials of the Department of Mines during an extensive tour in the north country and the mineralogical specimens obtained were, as occasion demanded, flown out for despatch to the Department.

Service Flying.

1. *Forced Landings.*—30.35 hours were flown in connection with forced landings of aircraft. As in the previous year unnecessary flying and expense was obviated in this connection by the carrying out of the regulation whereby in the event of a machine not returning to its base a certain number of hours were to elapse before carrying out a search.

2. *Ferrying.*—The total of 345.15 hours was assigned in transporting machines to and from their operating bases.

Conclusion.

The successful termination of the flying operations of 1928 was once again largely due to the whole-hearted support and untiring co-operation given throughout the whole period by the many other services which co-operated with us. In this connection one must especially mention the District Foresters, ranging and observing staff who helped so much towards this end,

The entire personnel of the Provincial Air Service gave of their best in every respect whether ground or flying staff and were ever ready at all hours of the day and night to carry out the requirements of the Service.

The staff at Sault Ste. Marie never failed to keep up with the calls made upon them in maintaining a steady output of engines and equipment necessary for keeping machines in action throughout the whole season and especially during the severe hazard periods. Without their unceasing efforts it would have been well-nigh impossible to have carried on and have produced the results which were achieved.

Operating Statistics.

Attached hereto is a statistical summary which indicates the increasing activity in every phase of the Service's work and which shows the important part it is privileged to play in connection with the preservation of Ontario's forest wealth.

Once again the marked increase in hours flown in connection with operation, administration and inspection was entirely due to the transportation by air of Senior Officers of the Provincial Government, District Foresters and their staff on tours of inspection to the remote parts of the District, which, were it not for the use of aircraft, could not be reached by them in an ordinary course of the summer period.

	1928	1927	1926	1925
<i>Flights.</i>				
Total number of flights.....	4,130	2,745	1,994	1,312
Average duration of flight.....	1.47 hrs.	1.76 hrs.	1.46 hrs.	2.06 hrs.
Average miles flown per flight.....	83	105	115	129
Average altitude.....	2,354 ft.	2,610 ft.	3,197 ft.	1,990 ft.
Average number of flights per day.....	17.9	13.8	10.6	6.3
Average number of flights per day per machine on days machines employed.....	2.55	2.10	2.11	.....
Number of miles flown.....	342,343	287,305	230,991	165,835
<i>Load.</i>				
Total load-weight carried.....	4,258,984	3,888,091	3,249,372	2,364,275
Total operating load.....	3,495,552	3,170,178	2,589,959	1,810,735
Effective or useful load.....	763,432	717,913	659,413	553,540
<i>Passengers Carried.</i>				
Total number of passengers carried.....	2,606	2,268	1,636	1,214
Average number of passengers per flight.....	.63	.82	.82	.9
Average number of passengers per machine.....	172	119	102	71
Total number of passengers and personnel carried	8,938	7,195	5,624	3,938
Machine days, one machine for one day, machines employed.....	1,614	1,307	944	763
Fair weather machine days, machines available and idle.....	754	661	793	932
Machine days, machines available and weather unfit for flying.....	805	615	797	805
Total number of machine days supplied by the Service.....	3,173	2,583	2,534	2,500
Number of times one machine unserviceable one day.....	161	84	117	229
Total possible machine days in the season.....	3,334	2,667	2,651	2,729
Number of patrols requisitioned.....	1,540	1,261	821	553
Number of times machines unable to complete patrol on account of machine trouble.....	16	12	20	15
Service patrol efficiency.....	95.2	96.85	95.59	91.61
Machine patrol efficiency.....	98.95	99.05	97.55	.....

EFFICIENCY PROVINCIAL AIR SERVICE OPERATIONS, 1929

MONTH	Requisitioned	Attempted	Completed	Completed same day but delayed	Not completed same day	Percentage completed uninterrupted	Percentage completed same day but delayed	Mechanical causes	Weather
March.....	13	13	13	..	..	100.00	.....	..	..
April.....	9	9	9	..	..	100.00	.....	..	..
May.....	221	221	217	..	4	98.20	1.80	..	4
June.....	291	291	270	2	19	92.75	0.62	4	17
July.....	296	294	269	3	22	91.50	1.00	5	20
August.....	346	343	321	1	21	92.50	.27	3	19
September.....	246	242	233	2	7	96.28	.82	3	6
October.....	118	118	108	3	7	91.52	2.54	1	9
.....

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS

	1928		1927		1926		1925	
	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.
Fire Detection.....	1,736.10	28.4	2,170.53	44.7	1,957.44	55.4	1,440.40	52.5
Fire Suppression.....	1,717.55	28.1	948.00	19.5	640.17	18.1	155.45	5.7
Sketching.....	583.20	9.5	523.00	10.8	142.56	4.0	244.42	8.9
Photography.....	163.15	2.7	173.00	3.6	99.25	2.8	53.15	1.9
Special Transportation.....	185.10	3.0	127.10	2.6	194.50	5.5	197.40	7.2
Observers' Instruction.....	.....	.....	31.55	.07	17.14	0.5	26.50	0.9
Forced Landings.....	30.35	0.5	17.50	.04	29.25	0.8	36.04	1.3
Ferrying (to and from Bases).....	345.15	5.6	240.25	4.9	234.36	6.6	330.41	12.0
Operation, Administration and Inspection.....	1,016.20	16.6	426.00	8.8	62.10	1.8	62.05	2.2
Dusting Operations (Muskoka).....	20.10	0.3	.....	.....	.....	.....	.....	.....
Test Flights.....	117.35	1.9	65.30	1.3	42.55	1.2	47.27	1.7
Flying Instruction and Demonstration.....	192.55	3.0	137.05	2.8	117.50	3.3	144.48	5.7
.....

III.—REPORT OF LIAISON OFFICER

During the season of 1928, operations carried out fall under four headings, viz.:—

1. Aerial Forest Type Mapping.
2. Aerial Photographic Survey.
3. Radio Communication.
4. Miscellaneous Investigations.

1. *Aerial Forest Type Mapping.*

Two projects of this class were worked on during the past season, (a) in the Rainy River, (b) in the Sudbury and North Bay Districts. Of these, the Rainy River comprising an area of 3,500 square miles completed forest typing in connection with the Rainy River Watershed Survey, which was commenced in 1927. One hundred and seventy hours were used on this operation, one flying boat being employed for the season and operating, first, from Fort Frances and later from a base established on Shebandowan Lake, approximately seventy miles west of Port Arthur. Forest typing in the Sudbury District was mainly undertaken to provide information for the Branch estimating parties, working in the northwest section of the Timagami Reserve. Some twenty-two townships were covered and seventy-one hours flying used in this work. In addition, when opportunity afforded, work was carried out on a section of the North Bay District, lying between the T. & N. O. Railway and the Ottawa river. This latter being a district operation was secondary to work on the Timagami area mentioned above and was only carried out when weather was unsuitable for survey flying over this area. Some 360 square miles were covered in this latter work and approximately fifty-one hours flying used. Flying for both these operations was undertaken from Bear Island Timagami, this being the nearest suitable base. One machine was employed from early in July until the end of the season.

From the experience of this year, it would be much more satisfactory, if for future work on this area, provision could be made for a machine to operate from Mettagami Post. This will, however, necessitate the establishment of mooring facilities at this point, as there is no adequate natural protection.

2. *Photographic Survey.*

Four major survey projects, based on Aerial Photography, were undertaken during the past season. Three of these utilized oblique photographs and one vertical. All were district projects, the districts involved being the Hudson, Oba, Sault Ste. Marie and North Bay.

In the Hudson District, it was proposed to prepare a detailed map, based on vertical photographs of the area adjacent to all railway lines in the district. It was considered that such a map would be extremely useful in the control of railway and other fires occurring on the right-of-way. As the machine capable of doing this to best advantage, the D.H. 61, was engaged in a variety of other work and was not fitted for photograph when delivered by the company, delays were inevitable. Added to this was the drawback of a very unfavourable season. As a result, only a small portion of the operation was completed.

In the Oba District, a railway right-of-way map, prepared from photographs taken during the season of 1927, was checked by aerial sketching and ground examination. In addition, some weaker sections of the Branch's aerial survey

of the Pukaskwa Area were photographed, and in certain portions additional information added by sketching. Both of the above operations were completed.

In the Sault District, it was proposed to survey a tier of townships lying adjacent to the Mississaga Reserve and extending along the south and southwest boundaries. Owing to the impossibility of allotting suitable flying for this operation, except in the early spring and late fall, when machines were respectively leaving and returning to the hangar, this operation was not entirely completed.

In the North Bay District, it was proposed to prepare a map of all of the district lying north of the Timagami Lakes and west of the T. & N.O., with the exception of those settled townships in the Haileybury clay belt. Eighty per cent. of this area has been covered, but here again unfavourable weather prevented completion.

On the whole, weather during the past season has been very unfavourable to Aerial Survey, rain and cloudy weather having been above average over the majority of the Provincial Fire Districts. This is indicated by a drop in the proportion of survey flying, as shown in flying records for the current season, and also by the fact that despite a larger allotment of personnel and machines than in 1927, only two out of six major survey operations were completed.

In addition to interfering with proposed survey schedules, however, weather conditions in the past season have also served to emphasize the advantages which a better type of aircraft would provide. This arises from the ability of such aircraft to take advantage of a greater proportion of available survey weather. Since neither aerial sketching nor photography can be carried out until the machine has reached a certain position and altitude, some portion of all survey flying—even under ideal weather conditions—is non-effective. Under adverse weather conditions and with relatively poor performing aircraft, this wastage is at a maximum. Figures can be readily prepared to show that the increase in the effective time will more than offset the cost of higher grade aircraft for survey work.

Apart from weather conditions, however, Aerial Survey enjoyed a most successful season. This resulted from the fact that for the first time since the beginning of Departmental Flying, personnel and machines were specially allotted for this work. It is recommended that this arrangement be continued.

3. *Radio Communication.*

As a result of last year's experience, three new stations were installed in the Hudson District, bringing the total in this area to seven. Beginning with July 1st, all western stations were put on a commercial basis and up to October have collected sufficient revenue to make radio communication self-supporting in this district. Records show that these charges have not decreased the amount of *bona fide* traffic; they have to a great extent weeded out indiscriminate messages, however, to the benefit of the whole operation. It is also worthy of note that this service supplied at cost to the public has not interfered with the Branch's use of the radio service, Branch messages having received priority over all other traffic at all times. It has been decided to keep four stations in operation over winter, in order to accommodate the mining development in the Red Lake District.

In addition to this service in the Hudson District, two stations were established this year in the North Bay District, to provide communication between Timagami Ranger Headquarters and Maple Mountain Tower. This is the Branch's first radio tower communication installation. Communication was

maintained at all times, with the exception of one series of three minor interruptions of several hours' duration each, shortly after communication was opened. In this connection, it may be worthy of note that these sets which were designed to operate over a distance of not more than seventy-five miles have consistently operated over the 600 miles separating Sioux Lookout from Timagami.

Records show that total traffic for the season has increased by 401 per cent. or from 58,239 words in 1927 to 233,855 in 1928. Tables attached show traffic of the Hudson District up to the close of the present fiscal year.

In order to develop this service properly, it will be necessary to provide permanent space for storage, testing and construction. This space should be in Toronto.

4. *Miscellaneous Investigations.*

In addition to the above-mentioned operations, two minor projects have been carried on during the past season. Of these, the more fully developed is the project to provide a photographic horizon map for lookout towers. Maps of this type which would serve as a connecting link between a standard tower table map and the actual appearance of the landscape as seen from the tower, are of importance since the number and use of towers is rapidly increasing. Investigation of the possibilities of this work have now gone far enough to warrant the conclusion that a satisfactory solution is possible. Details of apparatus and procedure are, however, still unsettled and since much of the work depends on suitable photographic weather, their completion is uncertain. Field work for the past season was carried out in co-operation with the North Bay office from the Timagami lookout tower. The second project of potential importance was undertaken for the Sudbury office, to determine the possibility of mapping different classes of ground cover on the basis of relative inflammability. In particular, it was desired to determine the possibility and the extent to which this work could be carried out, by aerial survey methods. Two townships were partially completed, but, owing to the unfavourable season and shortage of survey flying, no conclusive tests could be made.

COMMERCIAL TRAFFIC

JUNE 1ST TO OCTOBER 31ST

Stations	Words Transmitted	Words Received	Total Words
Sioux Lookout, CFB.....	46,091	51,880	97,971
Red Lake, CFJ.....	18,183	16,893	35,076
Woman Lake, CFI.....	7,284	11,561	18,845
Gold Pines, CFG.....	9,016	17,619	26,635
Swain's Lake, VE9BD.....	940	660	1,600
Savant Lake, VE9BG.....	23	150	173
Fort Hope, VE9BH.....	826	440	1,266
Totals.....	82,363	99,203	181,566

Total, Commercial Traffic..... 181,566

NON-COMMERCIAL TRAFFIC (*Classified*)

Station (License Call)	JUNE 1ST TO OCTOBER 31ST									
	NUMBER OF WORDS TRANSMITTED					NUMBER OF WORDS RECEIVED				
	A	B	C	D	Totals	A	B	C	D	Totals
Sioux Lookout, CFB.	9	225	6,773	1,664	8,671	402	1,144	9,362	1,258	12,165
Red Lake, CFJ.....	26	.....	2,165	585	2,776	14	55	1,656	234	1,959
Woman Lake, CFI...	21	335	1,354	218	1,928	.....	161	1,263	32	1,456
Gold Pines, CFG....	426	1,185	5,276	1,185	8,072	231	765	6,707	1,786	9,489
Swain's Lake, VE9BD.....	.....	194	537	.....	731	.....	437	278	24	739
Savant Lake, VE9BG.....	.....	45	1,200	.....	1,245	.....	.....	417	.....	417
Fort Hope, VE9BH..	.....	94	1,885	13	2,110	.....	59	457	14	530
Totals.....	482	2,878	19,190	3,665	25,533	647	2,621	20,140	3,348	26,756

Total, Non-Commercial Traffic..... 52,289

COMPARISON OF TRAFFIC

1927 - - - 1928

IN WORDS

TOTAL, TRAFFIC—ALL STATIONS		
1927	1928	Per Cent. Increase
58,239	233,855	401%

TRAFFIC FOR SAME PERIOD AND SAME STATIONS

1927	1928	Per Cent. Increase
58,239	320,435	450%

IV.—REFORESTATION

Provincial Forest Stations:

St. Williams (Norfolk County).
Orono (Durham County).
Midhurst (Simcoe County).

Provincial Transplant Nurseries:

Sand Banks (Prince Edward County).

Kemptville (Grenville County).

County Forests.

Private Forests.

Northern Plantations.

Demonstration Plots.

Private Planting.

Seed Collecting.

Summary of Trees Planted Permanently.

Summary of Nursery Stock for Planting 1929.

Income.

ST. WILLIAMS

Station No. 2, situated seven miles from headquarters, has during the current year, been the scene of active establishment. Although the progress of this station may warrant individual consideration, the two nurseries will be reported upon collectively for the purpose of simplicity.

During the fall of 1927 and winter of 1928, a small staff was retained for the purposes of carrying on maintenance work. When the weather permitted, outside operations included silvicultural activities. Twenty-five acres of scrub oak country were cleared of inferior growth permitting white oak and white pine to remain standing. At Station No. 2 there were thirty-two acres of similar sites treated in a like manner. The purposes of these improvement cuttings may be said to be three-fold, in that they remove all ill-formed, diseased and otherwise inferior trees, provide an example for the proper handling of such areas, and prepare new planting sites on which extensive reforestation of superior species may be effected.

When inclement weather prohibited outdoor work, the staff found sheltered employment, constructing shipping crates, extracting and cleaning seed, painting and repairing all tools, implements and other equipment. In addition to these various inside occupations in excess of one-half million Carolina poplar cuttings were manufactured during the dormant season. This latter winter work is most essential, as it is imperative that cuttings be made not later than February in order that the end cuts have time to heal over before the cuttings are planted in the spring.

Nursery operations commenced on April 2nd, rather later than in former years. In addition to the permanent staff, 106 temporary labourers were taken on strength, eighty-eight men at Station No. 1, and eighteen operatives at the Turkey Point Nursery. Lifting of nursery stock for permanent distribution immediately proceeded.

(1) *Nursery Operations*

(a) *Fertilizers.*

Forty acres of the transplant section were sown to soy beans in late June, and a top dressing of ten tons per acre of decomposed manure was applied after seeding. The beans were inoculated with a nitro culture, which proved exceptionally effective in producing nitrogen-forming nodules on the root fibres. An excellent crop of soy beans resulted over the entire area. These were ploughed down as green manure in August after which the land was lightly "top" worked until late fall. Twenty tons per acre of well rotted manure were again spread

on the same area on which it is planned to line out transplants next spring. These two applications of manure coupled with the green crop should create a high state of soil fertility, and produce No. 1 nursery stock for 1930 distribution.

No lime was applied this year, and only a modest quantity of dried blood, acid phosphate, and bone meal was considered necessary. Quantities used were as follows: Manure, 430½ tons; blood, 3,400 pounds; phosphate, 7,500 pounds; bone meal, 1,400 pounds.

(b) *Seed.*

Seed gathered during the year totalled 85 bushels scotch pine, 175 bushels jack pine, walnuts 638 bushels.

Since the Angus Seed Extracting Plant has been extended, and a seed storage vault erected at that point, the greater quantity of seed in storage is held at the place of extraction.

Present seed on hand at the Norfolk Forest Station:—

SPECIES:	Weight in Pounds
White Pine.....	185
Red Pine.....	40
Scotch Pine.....	57
Jack Pine.....	21
White Spruce.....	196
Norway Spruce.....	320
Sitka Spruce.....	10
Hemlock.....	79
European Larch.....	10
Balsam.....	104
Austrian Pine.....	12
	1,034

(c) *Seed-beds.*

CONIFERS

Species	Origin	When Sown	Number of Beds Sown	Total Seed Sown	
				Pounds	Ounces
White Pine.....	Simcoe Co.....	Nov. 2	253½	253	8
Red Pine.....	Simcoe Co.....	Nov. 30	596½	447	7
Scotch Pine.....	Scotland (Rafn)....	May 3	4	2	...
Scotch Pine.....	Finland (Rafn)....	May 3	4	2	...
Scotch Pine.....	Sweden (Rafn)....	May 3	12	6	...
Scotch Pine.....	Sweden (Rafn)....	Nov. 2	45	28	2
Scotch Pine.....	Norfolk Co.....	Nov. 5	84	61	5
Jack Pine.....	Norfolk Co.....	Nov. 7	210½	157	13
Austrian Pine.....	Sweden (Rafn)....	May 3	8	8	...
Pitch Pine.....	Sweden (Rafn)....	May 3	4	2	...
Mugho Pine.....	Sweden (Rafn)....	May 3	5	1	14
Silver Fir (A. con.).....	Sweden (Rafn)....	May 3	2	1	...
White Spruce.....	North Bay.....	Nov. 29	275½	172	5
Norway Spruce.....	Norfolk Co.....	Nov. 9	119	119	...
Norway Spruce.....	Simcoe Co.....	Nov. 29	28	17	8
White Cedar.....	Simcoe Co.....	Nov. 9 & 29	120	99	7
White Cedar.....	Simcoe Co.....	May 3	30	22	8
Pyramid Cedar.....	T.P. compacta, Q.V.R.....	May 3	1	8	8
Red Cedar.....	Simcoe Co.....	Nov. 14	14½	91	7
European Larch.....	Sweden (Rafn)....	Nov. 1	20	20	...
Korean Larch.....	Sweden (Rafn)....	Nov. 1	18	18	...
Siberian Larch.....	Sweden (Rafn)....	Nov. 1	10	10	...
Balsam.....	Simcoe Co.....	Nov. 1	15	15	...
			1,879½	1,564	12

Deciduous		When Sown	Number of beds sown	Total Seed Sown	
Species	Origin			Pounds	Bushels
Soft Maple.....	Simcoe Co.....	June 13	In belts	495	...
Elm.....	Simcoe Co.....	June 22	In belts	76	...
White Ash.....	Simcoe Co.....	Oct. 29	In belts	326	...
Basswood.....	Simcoe Co.....	Oct. 10	In belts	200	...
Black Cherry.....	Simcoe Co.....	Oct. 10	In belts	160	...
Hard Maple.....	Simcoe Co.....	Oct. 31	In belts	292	...
Red Oak.....	Simcoe Co.....	Nov. 5	Drills	40	...
White Oak.....	Simcoe Co.....	Nov. 5	In belts	40	...
Hickory.....	Simcoe Co.....	Nov. 5	Drills	50	...
Walnut.....	Norfolk Co.....	Nov. 5	Drills	...	638
Black Locust.....	Norfolk Co.....	Nov. 15	Drills	11	...
				1,690	638

(d) *Transplanting.*

The following trees were lifted from seed-beds and lined out in transplant beds:—

White Pine.....	863,000
Red Pine.....	1,142,000
Scotch Pine (Swedish).....	555,000
Scotch Pine.....	282,000
Jack Pine.....	520,000
White Spruce.....	1,770,000
Norway Spruce.....	743,000
Sitka Spruce.....	2,000
White Cedar.....	146,000
Red Cedar.....	6,000
Japanese Larch.....	105,000
European Larch.....	360,000
Austrian Pine.....	2,000
Hemlock.....	9,000
Tamarac.....	3,000
Poplar Cuttings.....	148,000
Willow.....	5,000
Red Pine (filling in).....	600,000
7,261,000	

(e) *Stock on Hand.*

Nursery stock on hand for 1929 distribution is as follows:—

CONIFERS	Number	HARDWOODS	Number
White Pine.....	1,000,000	Soft Maple.....	308,000
Red Pine.....	1,060,000	Hard Maple.....	16,000
Scotch Pine.....	600,000	Manitoba Maple.....	1,000
Jack Pine.....	400,000	Elm.....	285,000
White Spruce.....	1,000,000	White Ash.....	170,000
Japanese Larch.....	307,000	Walnut.....	9,000
Norway Spruce.....	462,000	Red Oak.....	39,000
White Cedar.....	90,000	Rooted Poplar.....	38,000
Balsam.....	30,000	Poplar Cuttings.....	600,000
		Willow Cuttings.....	5,000
		Black Locust.....	34,000
		Black Cherry.....	33,000
		Birch.....	11,000
		Basswood.....	2,000
Totals.....	4,949,000		1,551,000
	1,551,000		
Grand Total.....	6,500,000		

In addition to the above totals representing available permanent planting stock for the spring of 1929, there remain 19,072,000 trees in various stages of development.

(2) *Improvements*

Satisfactory progress has been made at Turkey Point, now described as Norfolk Forestry Station No. 2. This station is only seven miles distant from Headquarters, and a good gravel road connecting the two points, accessibility by motor is but a question of a few moments.

The staff comprises head foreman, one assistant foreman, teamster and sixteen men. When additional help is required, men from Station No. 1, or Headquarters, are transferred by truck. This has been found to be a satisfactory procedure, and during 1928 has been consistently practised.

Approximately one mile of first class gravel road (three loads in a place) has been constructed on Station No. 2 this year. In addition to this, Turkey Point hill has been cut down further, concrete gutters built on either side of the roadway and the grades turfed with twitch grass sod.

Another very bad section of road, known as "Gibson's Gully," was widened from ten feet to twenty-four feet, cribbed, graded and gravelled. Permanent road signs were established throughout the property.

Three buildings were erected at Station No. 2 Headquarters, viz., barn forty feet by sixty feet, an implement shed and workshop combined, thirty feet by sixty feet, and a drive shed twenty-eight feet by forty-eight feet. These buildings were all built to meet maximum requirements, and are of first-class construction.

Several parcels of land lying within the original property, have been acquired this year, squaring out the area into one solid block of approximately 1,627 acres of Crown land.

(3) *Permanent Planting*

Stock of this kind supplied for planting in different parts of the province totalled 4,904,000 in the spring of 1928. The number planted on the two Forestry Stations in Norfolk County amounted to 363,700, making a total of 5,267,700 supplied for permanent planting.

Twenty-five acres of cut-over land on Station No. 1 were planted to jack pine. In addition to this, all fail places in plantations already established were filled in.

Reclamation work at Station No. 2 entailed the planting of 240,000 conifers and 16,000 hardwoods.

The first step toward establishing permanent experimental plantations was made during the fall of 1928. With the exception of plantings carried out on blowing, hillside, and other hazardous sites where erosion from wind and water is imminent, the entire area at Station No. 2, other than that retained for nursery work, has been surveyed into standard two-acre plots. Each plot is 264 feet by 330 feet in size. Sixteen experimental plots—an area covering 32 acres—were planted this fall, and comprise the white spruce group.

The need of such experimental plantations has been long felt. Accurate records are kept as to cost of planting material, cost of establishment, and subsequent management. With such information at hand it will be possible to not only authoritatively advise prospective planters, but they will be able to actually see how the different plantations are responding to the various soils, sites and planting systems, and relate existing conditions to their own particular projects,

(4) *Protection**Animal.*

The most effective way to keep mice away from nursery areas rests with cleanliness. An accumulation of leaves, pine needles, and other debris, provides an excellent nesting place for such rodents, that can do a great deal of damage if not impeded. Mice are particularly fond of tree seed, and can get away with an alarming quantity. They are also profusely given to girdling.

As a preventative measure in this respect, the practice of cleaning out all hedges, and raking up litter about the nursery, particularly the seed-bed area, has been rigidly adhered to and has proved of merit.

Squirrels are also a nuisance. During an off nut year they are exceptionally active in girdling, especially Scotch pine, and in seed thieving. A general clean-up around the productive area, and shooting the arboreal rodents themselves, seems to be most effective.

Snaring and shooting rabbits has been effective in reducing damage from this source to a minimum.

Insects.

I am pleased to report that insect damage during 1928 has not been serious. The white pine weevil persists, however, and demands consistent combating.

Three men under supervision made a detailed inspection of all white pine plantations, removing weeviled pine leaders, which were afterwards deposited in tightly screened containers. An accurate count of the number of infested trees is now kept with a view of acquiring information from year to year as to the degree of damage, and whether we are gaining ground in this preventative effort.

Disease.

Several jack pine plantations went off colour this year. The foliage turned a sickly pale yellow, and needle drop was abnormal during the months of September and October. Mr. A. W. McCallum, Forest Pathologist, of Ottawa, made a two-day inspection of the Forestry Station, and after careful investigation stated that he could discern no evidence of a pathological disturbance that might account for the discoloration of the jack pine. These plantations in question will be the subject of further observation.

An outbreak of white pine blister rust was discovered within one mile of the nurseries on domesticated currant bushes. The owner has kindly co-operated with us and has destroyed his plants. Three (approximately) forty-year-old pine standing about 150 feet from the diseased currant bushes are dead, two others dying. These trees are being removed.

Members of the family ribes have again been eradicated on and about the Forestry Station. A count of the number of bushes dug up has also in this case been kept. Work in this connection has been carried out much more intensively than in former years.

Scotch Pine Gall.

Inspection was made this year for evidence of Scotch pine gall. This disease was found on widely separated trees, and has not assumed alarming proportions. How it has occurred at all is a mystery, as no alien nursery stock has been imported for over fifteen years. All trees infected badly were cut out and burned, while, where but one or two galls were found, these were removed, and the trees marked for further observation.

(5) *Woodlot Improvement*

The primary object of woodlot improvement as enacted during the late fall of 1928 had in view the removal of all inferior species as a preparatory measure for the reinstatement of such species that were potentially adapted to existent site and soil conditions. With reference to both stations, Nos. 1 and 2, black oak predominates, having come in after pine lumbering. Thickly dispersed stumps of large diameters indicate a one-time heavy stand of pine. The present scrub oak growth will never amount to anything of extensive value, as practically 90 per cent. of the trees are fire-scarred or diseased. An occasional black oak does manage to get away to a fair development if situated in depressions or pockets where the soil is relatively fertile. For the greater part, however, it is felt that our soils possess consistent properties potentially adapted to the successful production of red and white pine.

During 1927 and 1928, 69.4 acres of scrub oak country were subjected to cutting. All members of the black oak family were cut out. Log sizes were converted into planking, while the smaller trees were sawn into fuel wood, yielding approximately 800 cords of 16-inch stove wood. At Station No. 2, Turkey Point, 25 acres of similar oak land were cleared up, giving a yield of 264 cords of No. 1 fuel wood.

Since there is quite an extensive local market for firewood, the sale of this wood more than covered the cost of labour entailed. Aside from this satisfactory condition, the real object, however, is to remove the poor type of woodland that prevails, and reforest the cleaned up area with species suited to the site.

Of course, healthy specimens of white pine and white oak are allowed to remain, in fact, from 25 to 50 trees to the acre of these species is considered advantageous to the development of the plantation.

One special feature worthy of note, in that it probably initiates a method of procedure in this country as regards woodlot improvement, entails the leaving of clumps or islands of trees, for the purpose of providing natural fertilizer from leaf drop. As far as possible these clumps, varying from one-eighth to half an acre in size, are restricted to the apex of knolls and ridges. The tree clumps which are left serve as a wind-break, a fire preventive, and, furthermore, increase the distance or extent of leaf distribution. Although such clumps are not left so as to be diagrammatically arranged, an effort is made to leave enough of them that they will be sufficiently close to each other to be effective in "leaf mulching" the entire intervening areas which have been more or less clean-cut and on which tree-planting is to be carried out.

(6) *Publicity*

Several addresses given at community gatherings appear to be bearing fruit when one considers the interest shown, and number of enquiries received regarding private reforestation projects.

Through the co-operation of various chambers of commerce in south-western Ontario the principles and values of tree-planting are being forcibly presented to private individuals, municipalities and counties.

A comprehensive planting scheme is now in progress of being drawn up in Norfolk County. Through the offices of the reforestation section of the local chamber of commerce, options are being procured on abandoned farms suitable for reforestation. Three exhibits were shown last fall at county fairs, and two at flower shows under the Horticultural Society. Requests for additional exhibits

in 1929 indicate an increased appreciation of the work being done, while applications for planting material directly traceable to exhibition activities warrant an aggressive continuation of same.

Organized picnics, comprising several hundred persons in many cases, visited the Forestry Station during 1928, and were shown over the property by trained guides. It is estimated that in excess of 10,000 people totalled the year's visitors. The delightful Spring Lake Park provided adequate recreation grounds for all, where a booth was at their disposal, fresh water available, stoves to facilitate cooking, while stationary tables accommodated individual parties of varying sizes ranging from five to one hundred.

A small library, situated in the park, replenished with pertinent literature on reforestation, and circulars of a descriptive nature, provides a means by which small unattended parties may inspect the property, and by referring to such guides be in a position to more intelligently understand the intricacies of the work that is being carried on.

ORONO

Weather conditions throughout the year have been unfavourable to nursery operations. A severe drouth in the spring, just as germinating was getting under way, caused very severe losses in the seed-beds, while a cold, wet summer with continued immoderate precipitation this fall, resulted in poor growth throughout the year in both transplant and seed-bed lines.

(1) *Nursery Practice.*

(a) *Fertilizers.*

Green manures were used extensively where possible. A very successful catch of sweet clover was ploughed under, as well as crops of fall rye and buckwheat. In addition, the following fertilizers, other than green manures, were applied during the year:—

Manure Tons	Dried Blood Lbs.	Acid Phosphate Lbs.	Sulphate of Ammonia Lbs.	Muriate of Potash Lbs.
200	1,000	1,500	400	800

(b) *Seed.*

No seed in storage.

(c) *Seed-beds.*

During the year a total of 931 coniferous seed-beds were sown and 475 bushels of hardwood seed were planted. In addition 225 bushels of hardwood seed were stratified for spring sowing.

Species	Origin	When sown	No. of beds sown	Amount of seed sown per bed		Total amount of seed sown		No. of bush.
				lbs.	oz.	lbs.	oz.	
Jack Pine	Simcoe	Spring	20	12	15			
Jack Pine	Simcoe	fall	64	6	24			
Red Pine	Simcoe	spring	55	12	41	4		
Red Pine	Northern Ontario	fall	295	12	221	4		
White Pine	Simcoe	spring	35	1	8	37	8	
White Pine	Simcoe	fall	173	1	8	259	8	
Scotch Pine	Norfolk	fall	52	10	33	12		
White Cedar	Simcoe	fall	60	12	45			
Norway Spruce	Imported	fall	18	1	8	27		
Norway Spruce	Imported	fall	55	12	41	4		
White Spruce	Northern Ontario	fall	107	1	107			
European Larch	Imported	fall	7	1	4	8	12	
White Ash	Simcoe	fall	Bands					58
Basswood	Simcoe	fall	Beds					16
Butternut	Simcoe	fall	Dibbled in					2
White Elm	York	summer	Bands					10
White Hickory	Simcoe	fall	Dibbled in					2
Hard Maple	Prince Edward	fall	Dibbled in					1
Hard Maple	Simcoe	fall	Bands					5
Red Maple	Simcoe	summer	Bands					6
Silver Maple	York	summer	Bands					25
Burr Oak	York	fall	Dibbled in					1
Grey Oak	York	fall	Dibbled in					1
Walnut	Durham	fall	Dibbled in					44½
Walnut	Simcoe	fall	Dibbled in					277

(d) *Transplanting.*

In the spring 2,146,000 conifers and 105,000 hardwoods were transplanted as follows:—

White Cedar	296,000
Red Pine	46,000
Scotch Pine	876,000
White Pine	390,000
Norway Spruce	96,000
White Spruce	442,000
White Ash	50,000
Silver Maple	55,000

(e) *Stock.*

2,251,000

The following nursery stock is on hand for spring shipment:—

CONIFERS

SPECIES:	Number
White Pine	790,000
Red Pine	740,000
Scotch Pine	890,000
Jack Pine	190,000
White Spruce	310,000
Norway Spruce	170,000
White Cedar	377,680

3,467,680

HARDWOODS

White Ash	550,000
Butternut	1,650
Black Cherry	700
White Elm	175,000
Silver Maple	320,000
Hard Maple	84,000
Red Oak	1,500
Walnut	1,200
Carolina Poplar	25,000
White Willow	25,000

689,050

Grand Total..... 4,156,730

In addition to the foregoing there are also 6,550,000 other trees in various stages of growth in the nursery.

(2) *Improvements.*

Building operations this year were largely confined to the completion of and putting the finishing touches on those structures erected last year in connection with the irrigation installation.

We had the misfortune to lose by fire the lunch-room which had been adapted from the old farm house on the property. We had no fire-fighting equipment and, as the fire was at midnight, the building was a total loss although fully covered by insurance. This loss greatly inconvenienced us throughout the year. A start was made in the replacement of the building by a combined office, lunch-room and store-room, 36 feet by 26 feet. The foundations were dug and concrete walls built.

Waggon roads were opened through the south section of the nursery property and all other roads graded and gravelled. The main bridge on the approach from the village was raised eighteen inches by jacking up the timbers and pouring a slab of cement of that thickness on top of the abutments. The road was then graded to that height.

On the bush lot in Manvers township, 775 rods of wire fence 7, No. 9 gauge, 48 inches high was built with seven gates, on main trails and opening into separate blocks. Five hundred rods of old fence was rebuilt or repaired. As before steel posts were used throughout, with the exception of brace and corner posts which are of oak.

The irrigation system has occupied a major portion of the time consumed on construction work during the year. At the close of 1927, a 10,000 U.S. gallon wooden tank on 100 feet of steel, was erected, all mains were laid and hydrants, etc., established. This work was completed on January 17th and immediately put into operation.

(3) *Permanent Planting.*

No additions were made to nursery demonstration plantations. The only activity in this direction was confined to maintenance and the refilling of fail places.

(4) *Protection.*

Twenty-foot fire-guards were opened up on the fence lines on the two hundred-acre bush lot and all roads and trails are being opened up as an additional protection.

A party of two men were engaged in the vicinity of the nursery during the summer in ribes eradication. Wild currants and gooseberries for a space of one half mile on all sides of the nursery were pulled out by the roots and destroyed. Three plantations in the vicinity of the nursery are infected with white pine blister rust, varying in degrees of severity.

(5) *Woodlot Improvement.*

Improvement cuttings were carried out in the two hundred-acre bush lot belonging to this nursery and situated in Manvers Township. A considerable number of "wolf trees" and trees of inferior species were felled, cut into cord-

wood lengths and piled. Young hardwood growth was cleared of the entanglement of slash and pine poles and conifers reproduction were thinned. A large number of sound pine tops were skidded out of the bush, limbed and piled in full length pieces for sale as "light wood."

(6) *Publicity.*

The exhibit at the fall fairs was greatly curtailed again this year, owing largely to transportation difficulties. Our exhibit does not lend itself readily to other than truck carriage and as we have no truck available and there was a scarcity of trucks of sufficient size for hire we confined ourselves to exhibits at Orono and at Norwood in Peterborough County. At the latter place especially our exhibit was viewed with greater interest than ever before.

As on previous occasions we have received the greatest co-operation from the Agricultural Representative for Durham County, whose work brings him constantly into touch with prospective planters. A small exhibit of trees, with an appropriate card, was also used to embellish the Durham and Northumberland Counties' exhibit at the Canadian National Exhibition.

The fact that this publicity work is yielding results is seen in the requests of the Durham County and Peterborough County Agricultural Representatives for lecturers to give a talk on reforestation at the agricultural short courses in their respective counties this winter.

MIDHURST.

(1) *Nursery Operations.*

(a) *Fertilizers.*

As soon as a crop of trees has been removed from a compartment, the land is well cultivated and a green manure crop is sown to build up the soil and give the land a rest. This is usually peas, soy beans, or sweet clover. After a legume crop has been ploughed under, a coat of well decomposed manure is applied and cultivated well into the soil, forcing the weed seeds to sprout. In addition the following fertilizers were applied during 1928:—

Manure.....	840 tons
Lime.....	8 "
Ground Blood.....	100 lbs.
Bone Meal.....	1,270 "
Acid Phosphate.....	2,539 "
Nitrate of Soda.....	3,175 "
Ammonium Sulphate.....	370 "
2-8-10.....	500 "
4-8-10.....	500 "
Muriate Potash.....	137 "
Sulphate of Potash.....	155 "
Carbonate of Potash.....	100 "
Tankage.....	450 "


(b) *Seed.*

No seed in storage.

(c) *Seed-beds.*

On account of the late fall it was not found advisable to start planting seed-beds until November 3, 1927.

CONIFERS

SPECIES:	Beds sown fall, 1927	Beds sown spring, 1928	Total beds	Total	
				Lbs.	Ozs.
Red Pine.....	652	4	656	492	4
White Pine.....	133	80	213	242	8
Norway Spruce.....	59	21	80	60	6
White Spruce.....	40	33	73	48	7
Jack Pine.....	..	34	34	15	2
White Cedar.....	31	..	31	24	2
Scotch Pine.....	16	4	20	13	5
European Larch.....	..	7	7	6	2
Hemlock.....	..	1	1	1	6
Red Cedar.....	..	..	..	46	6
 Totals.....	931	184	1,115	950	....

HARDWOOD

SPECIES:	Total amount of seed Bushels
Red Oak.....	30.0
White Ash.....	13.0
Hard Maple.....	11.0
Walnut.....	10.0
Butternut.....	10.0
White Elm.....	10.0
Silver Maple.....	5.0
Red Maple.....	5.0
Basswood.....	1.0
Birch.....	.1
Rock Elm.....	.1
Total.....	95.2

(d) *Transplanting.*

CONIFERS

Red Pine.....	1,623,076
White Pine.....	738,360
White Spruce.....	480,505
Norway Spruce.....	329,460
Scotch Pine.....	262,096
White Cedar.....	216,000
Jack Pine.....	28,400
Red Cedar.....	1,500
Total.....	3,679,397

SPECIES:

(e) *For Distribution 1929.*

CONIFERS

SPECIES:	
Red Pine.....	1,412,926
White Pine.....	767,116
Norway Spruce.....	285,875
Scotch Pine.....	244,671
White Spruce.....	188,875
Jack Pine.....	57,063
Total.....	2,956,526

HARDWOODS

SPECIES:	
Red Oak.....	17,904
Silver Maple.....	15,989
Elm.....	7,245
Walnut.....	6,446
Hard Maple.....	5,160
Black Cherry.....	2,000
Total.....	54,744
	2,956,526

Grand Total.....3,011,270

Nursery stock in other stages of development 12,420,247.

(2) *Improvements.*

Due to changes in the highway and the addition of new property, over one mile of fence was erected and an equal amount left over for another year. All fence posts used were grown on the property and the butts creosoted.

All compartments were rearranged into two-acre blocks, with the long sides of the compartments at right angles to the prevailing winds, and the narrow ends opening on the new highways.

During the year 4.6 miles of hedges were planted, 1.2 miles of which were white cedar and the remainder spruce. The cedar was planted chiefly along Highway No. 26 and along the fences of the main line of the Canadian Pacific Railway. The spruce was planted chiefly as boundaries for compartments and internal roads.

It has been found necessary to give the seed-bed ground a year and a half rest by growing a legume crop before again planting to seed-beds. This has meant the changing of the seed-bed ground from a three to a four-year rotation. For this reason, new seed-bed areas had to be piped with 4-inch mains. Altogether 2,000 feet of mains were laid.

In the season of 1927-28 a total of 1,150 feet of field tile were laid. Most of this was needed to drain spring-holes and low spots in good fields.

During the year seven parcels of land totalling 261 acres were added to the station as follows:—

TOWNSHIP OF VESPREA

Con. 5, Lot 11, E. $\frac{1}{2}$ portion.....	15.0 acres
Con. 5, Lot 11, W. $\frac{1}{2}$ portion.....	.75 "
Con. 5, Lot 12, N.E. portion.....	14.6 "
Con. 5, Lot 13, E. $\frac{1}{2}$ portion.....	100.0 "
Con. 6, Lot 10, W. $\frac{1}{2}$ portion.....	100.0 "
Con. 6, Lot 12, S.E. $\frac{1}{4}$ portion.....	27.2 "
Con. 6, Lot 13, N.E. $\frac{1}{4}$ portion.....	3.45 "
Total.....	261 "

This brings the total acreage of the Provincial Forest Station up to 1,191 acres.

In acquiring the above new property, there was one brick house, one small frame house, one large barn and a smaller one added to those now possessed. The large barn was moved a distance of one mile on four logging sleighs to the headquarters group of buildings in March. During the summer this was raised on a foundation. The board siding was taken off and used for mow bottoms and was replaced by corrugated iron siding. The smaller barn was moved to an inconspicuous position and is being fitted up to hold several teams so that they can be fed at noon without bringing them back to the stables.

Some repairs were made to the two newly acquired houses, such as new roofs, eavetroughs, etc. A new headquarters house with office attached was built to the east of the present headquarters buildings. The lower story is of brick veneer and the upper story of stucco.

A small portable gyproc building 10 feet by 12 feet was made to be used for moving to whatever part of the property that large numbers of men will be employed for any length of time. It will be used as a shelter in case of rain and a place where the men may eat their dinners with a saving of much time in walking to and from the headquarters. The building formerly used as an outer

office and men's eating house, was raised and a cellar dug beneath it. The office was enlarged and the rest of the building converted into a tool house. Seven portable lavatories were built as well as twenty-eight bird houses.

Since the property is traversed with highways and the main line of the Canadian Pacific Railway passes through it, it has been necessary to pay more attention to beautification.

The lawns in front of the houses have been improved and clumps of trees and flower plots have been started where they will most impress the tourists and visitors.

Old rail, stump and wire boundary fences have been removed and replaced with better and stronger wire fences. All unsightly objects are being removed or else covered from view by planted trees. The land adjoining the pump-house has been improved in appearance and laid out as the future park.

(3) *Permanent Planting.*

A new piece of property consisting of one hundred acres adjoining Highway 26 was laid out into two-acre compartments. These are being permanently planted with different species and mixtures at different spacings, so that it will be a large experimental forest, with no two blocks exactly the same.

The following species were planted:—

SPECIES:	Number
Red Pine.....	23,100
White Pine.....	4,000
Scotch Pine.....	3,200
European Larch.....	2,420
White Spruce.....	900
Jack Pine.....	300
	<hr/>
Total.....	33,920

During the spring the output of the Nursery for permanent planting was 2,604,810.

(4) *Protection*

All plantations were thoroughly inspected during the summer. A few isolated patches infested with pine-needle eating caterpillar were sprayed and all pine leaders infected with the white pine weevil were destroyed.

The poplar cankers (*Hypoxylon pruniatum*) which attacks large-toothed poplars up to ten inches D.B.H., continues to kill hundreds of trees through this part of the country. Trees affected with this disease are removed on this station as soon as they are detected. A few small patches of pine-needle eating caterpillars were again discovered this year and destroyed.

There were very few cases of pines being affected with weevils. Those that were affected were Scotch pine and their leaders were removed and placed in screened barrels.

All fire-guards were kept clean and several guards along the railway track and highways were widened and stumped.

On account of the drive by the Department of Agriculture and the township councils against weeds in the County of Simcoe, a special effort was made this year to keep the property in as clean a condition as possible. This was a difficult task because of the rainy summer and the abundance of weed seeds in the soil of newly acquired property.

(5) Woodlot Improvement

During the winter, whenever the swamps were in such a condition that horses could not be driven through them, the men were employed in improving the existing woodlots by cutting out dead and defective trees and thinning out the suppressed trees in dense stands. Ten acres of swamp land composed of spruce, balsam, tamarack and poplar were so treated and five acres of highland pine and mixed hardwood with some scattered trees in new plantations yielded twenty-five cords of fire-wood besides 640 fence posts and 12.4 M.Bd.Ft. of lumber.

In addition to the above work, many stands containing poplar that had been thinned in previous winters were again gone over and all poplars showing signs of cankers were removed.

(6) Publicity

The Provincial Forest Station exhibit, last year created so much interest that it was decided to continue sending it to fairs. This year the following fall fairs were visited: Midland, Oro, Coldwater, Orillia, Barrie, Collingwood, Elmvalle, Alliston, Bolton, Bradford and Cookstown.

In addition to the above, the following townships' school fairs were visited—Tay, Waubaushe, Sunnidale, Innisfil, Essa, West Gwillimbury, Vespra, Oro, Adjala, Tossorontio, North Nottawasaga, North Orillia, Morrison and South Nottawasaga.

This year saw a great increase in the use of the Forestry Station as a community centre. Several large conventions came to Midhurst during the year. The Forestry Recreation Club composed of the employees, their families and neighbours, again operated an open air hockey and skating rink, and on July 2nd conducted a large baseball tournament on the athletic grounds.

SAND BANKS

Seven acres of rooted poplar and cuttings were planted on the banks. Experiments were also continued with straw, sweet clover and brush, and eighteen rods of new plank fence were erected.

Nursery stock for distribution 1929 amounts to 92,000 conifers, 17,000 hardwoods and 108,000 cuttings.

KEMPTVILLE

Trees were distributed locally from this nursery but the few thousand which it contains are wholly inadequate for the demand which is required for this section of the province.

Nursery stock on hand for distribution in 1929 amounts to 115,000.

COUNTY FORESTS

Four new county forests were established during the year. Two of these, Orr Lake and Durham, were commenced by counties which already had forests, namely, Simcoe and the united counties of Northumberland and Durham.

The following trees were planted:

HENDRIE (Simcoe County)

White Pine.....	129,600
Red Pine.....	7,500
Larch.....	5,000
	<hr/>
	142,100

VIVIAN (York County)

White Pine.....	75,000
Red Pine.....	80,000
Scotch Pine.....	5,000
White Spruce.....	5,000
Larch.....	11,000
Cuttings.....	10,000
	<hr/>
	186,000

NORTHUMBERLAND (Northumberland and Durham)

White Pine.....	45,000
Red Pine.....	47,000
Soft Maple.....	1,000
Elm.....	1,000
Ash.....	1,000
	<hr/>
	95,000

UXBRIDGE (Ontario County)

White Pine.....	75,000
Red Pine.....	75,000
Scotch Pine.....	23,000
Jack Pine.....	8,000
White Spruce.....	6,000
Larch.....	7,000
	<hr/>
	194,000

DURHAM (Northumberland and Durham Counties)

White Pine.....	50,050
Red Pine.....	30,600
Scotch Pine.....	60,150
Larch.....	10,100
	<hr/>
	150,900

LAROSE (Prescott and Russell Counties)

White Pine.....	37,000
Red Pine.....	35,000
Scotch Pine.....	50,000
Jack Pine.....	25,000
	<hr/>
	147,000

VICTORIA (Victoria County)

White Pine.....	59,400
Red Pine.....	33,000
Scotch Pine.....	50,000
Jack Pine.....	41,000
White Spruce.....	10,000
	<hr/>
	193,400

ORR LAKE (Simcoe County)

White Pine.....	84,000
Red Pine.....	105,000
Jack Pine.....	4,000
	<hr/>
	193,000

PRIVATE FOREST

OSLER

White Pine.....	60,000
Red Pine.....	12,000
Scotch Pine.....	44,000
	<hr/>
	116,000

NORTHERN PLANTATIONS

Planting in the northern districts was extended this year and seven new areas were commenced. These, with the number of trees planted in each, are as follows:

SAND DAM (Nipissing)

White Pine.....	150,000
Red Pine.....	12,000
Jack Pine.....	17,000
	<hr/>
	179,000

NAIRN (Sudbury)

White Pine.....	100,000
Red Pine.....	20,000
Jack Pine.....	25,000
Scotch Pine.....	20,000
	<hr/>
	165,000

ABINGER (Lennox and Addington)

White Pine.....	150,000
Red Pine.....	13,000
Jack Pine.....	17,000
	<hr/>
	180,000

KIRKLAND (Algoma)

White Pine.....	142,000
Red Pine.....	35,000
Scotch Pine.....	40,000
Jack Pine.....	8,000
	<hr/>
	225,000

ROCK LAKE (Nipissing)

White Pine.....	175,000
Red Pine.....	15,000
Scotch Pine.....	50,000
	<hr/>
	240,000

LOST CHANNEL (Parry Sound)

White Pine.....	100,000
Red Pine.....	10,000
Jack Pine.....	10,000
White Spruce.....	5,000
	<hr/>
	125,000

LITTLE BLACKSTONE (Parry Sound)

Trees—Red Pine.....	10,000
Seed—Jack Pine.....	250 lbs.

DEMONSTRATION PLOTS

New plots established:

	Trees planted	
Angus.....	19,500	
Ardbeg.....	21,000	
Bobcaygeon.....	12,500	
Bowmanville School.....	6,375	
Coldwater.....	3,000	
Durham Highway.....	5,000	
East York.....	9,100	
Grand Valley.....	7,620	
Guelph Highway.....	5,000	
Lindsay (Motor Camp).....	10,950	
Midland.....	3,500	
Middleton.....	17,500	
Orillia Highway (8 plots).....	4,500	
Picton.....	4,500	
Preston.....	12,550	
Streetsville.....	13,000	
Thistleton.....	52,900	
Trenton.....	23,000	
Trowbridge.....	1,575	
Vespra.....	16,560	
Warkworth.....	7,000	
Woodstock.....	9,000	
	<hr/>	265,630

Additions to plots previously established:

Albemarle.....	12,000	
Beeton.....	5,200	
Colborne.....	3,500	
Darlington.....	1,000	
Guelph College.....	800	
Hanover.....	35,500	
Mono.....	16,000	
Mulmur.....	10,000	
Uxbridge.....	5,000	
	<hr/>	89,000
Grand Total.....		<hr/> 354,630

PRIVATE PLANTING

In the spring of 1928, 4,800 people secured trees from the Forestry Branch totalling in all, 7,777,600.

SEED COLLECTING

The following seed was collected during the year:

SPECIES:	Quantity in Bushels
White Pine.....	242 4/8
Red Pine.....	363 6/8
White Spruce.....	6,564 5/8
Scotch Pine.....	117 6/8
Jack Pine.....	1,858 7/8
Red Oak.....	87 1/8
White Cedar.....	81 1/8
Sugar Maple.....	47 7/8
Butternut.....	42 7/8
Walnut.....	1,600
Basswood.....	47 3/8
White Ash.....	133 1/8
Norway Spruce.....	529 1/8
Hemlock.....	61 6/8
Black Cherry.....	51
Yellow Birch.....	2/8
Hickory.....	5 5/8
Tamarac.....	1 5/8
Balsam.....	16 5/8
Red Cedar.....	5 6/8
Douglas Fir.....	1 5/8
Grey Oak.....	2 2/8
White Oak.....	2 7/8
Mountain Ash.....	13 5/8
Soft Maple.....	113
Elm.....	21
	7,203 1/8

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private Planting (reforestation and windbreaks).....	7,102,000	477,600	198,000	7,777,600
Demonstration Plots.....	317,585	22,045	15,000	354,630
Northumberland Forest.....	95,000			95,000
Vivian Forest.....	176,000		10,000	186,000
Hendrie Forest.....	142,100			142,100
Uxbridge Forest.....	194,000			194,000
Larose Forest.....	147,000			147,000
Durham Forest.....	150,900			150,900
Victoria Forest.....	193,400			193,400
Orr Lake Forest.....	193,000			193,000
Private Forests.....	116,000			116,000
Sand Dam Plantations.....	179,000			179,000
Nairn Plantations.....	165,000			165,000
Abinger Plantations.....	180,000			180,000
Kirkwood Plantations.....	225,000			225,000
Rock Lake Plantations.....	240,000			240,000
Lost Channel Plantations.....	125,000			125,000
Little Blackstone Plantations.....	10,000			10,000
St. Williams.....	302,700	61,000		363,700
Midhurst.....	33,920			33,920
Sand Banks.....		4,760		4,760
Angus.....	433,000	69,000		502,000
Totals.....	10,720,605	634,405	223,000	11,578,010

SUMMARY OF NURSERY STOCK FOR PLANTING, 1929

NURSERY	Conifers	Hardwoods	Totals
St. Williams.....	4,949,000	1,551,000	6,500,000
Orono.....	3,467,680	689,050	4,156,730
Midhurst.....	2,956,526	54,744	3,011,270
Sand Banks.....	92,000	125,000	217,000
Kemptville.....	100,000	15,000	115,000
Totals.....	11,565,206	2,434,794	14,000,000

V.—FOREST SURVEYS

Three projects constituted the forest survey programme for 1928.

First—The completion of the Rainy River survey commenced in 1927.

Secondly—The preparation of a forest type map and an estimate of the standing timber on fifty-eight six-mile townships situated mostly in the western part of the Timagami Forest Reserve and known as the Timagami West Forest Survey.

Thirdly—Forest Investigation (a) The Loch Lomond Watershed Survey, vicinity of Fort William (b) in addition to the above and in conjunction with the Timagami West Forest Survey, investigations were carried on as in the Pic River Survey of 1926 and the Rainy River Survey of 1927 on the growth of spruce and jack pine.

RAINY RIVER SURVEY

Included in the Rainy River Forest Survey is a tract of country situated in parts of three districts—Rainy River, Kenora and Thunder Bay, and confined by the height of land forming the drainage basin of Rainy river. This tract has an area of 6,147 square miles exclusive of Quetico Park, all licensed areas and all areas within surveyed townships.

Owing to the large amount of territory to be examined it was considered too great a proposition for one year's effort. In 1927, 3,679 square miles of this tract was examined and reported on, and in 1928, a survey was made on the remaining area. With the completion of this survey it is intended that a report be made describing the whole tract.

The survey of 1928 was confined to Crown lands having an area of 2,497 square miles and is divided into two main blocks, the western and the eastern.

The western block having an area of 1,225 square miles is confined on the west and north by a height of land, dividing the drainage of Rainy lake from that of the English river; on the east by the Sixth Meridian run by Patton, 1921, and on the south by Redgut bay, a bay of Rainy lake.

The eastern block with an area of 1,243 square miles extends east from the Rainy River-Thunder Bay boundary line to the height of land dividing the drainage of Rainy lake from that flowing east to Lake Superior, and south to the international boundary line.

The object of the survey was to:

1. Classify the area with regard to existing forest types and age class conditions.
2. Prepare a supplemented and improved map of the physiographic features.

3. Make an estimate of the available pulpwood and timber resources.
4. Make general studies in immature stands to obtain some idea of their development and potential value.

For this purpose a personnel of fifteen men organized into two parties were placed in the field with a Forester in charge. The work of the field parties was done in co-operation with that of aerial sketching and as maps were prepared by direct sketching from the air showing improved waterways and isolating different forest types, they were turned over to the field parties. With the aid of these improved maps the ground work was more efficiently planned.

The method of running eleven-foot strips at right angles to the topography and at half mile intervals was used over the greater part of the area. In stands where white and red pine occurred and in others where the forest conditions warranted it, the intensity of the survey was increased by reducing the interval between strips and increasing the width of strip.

The field work began on the first of June and continued until the twenty-second of September. A party of three remained in the field until the fifteenth of October to complete the work on scattered areas left by the field parties.

Physiography and Drainage

The Western Block.—This whole area drains directly to Rainy lake at four main points, Northwest bay, Manitou sound, Northeast bay and Redgut bay. The country is dotted with numerous large lakes joined by short rivers which are usually shallow and fast flowing. The many lakes not only suggest that the country is well drained but also emphasizes the rugged irregular topography of frequent high rocky ridges and deep valleys that characterize this area.

The Eastern Block.—The Canadian National Railway might be used as a line dividing the areas drained by the Seine and Namakan rivers, these being in general the two drainage systems of the Eastern Block. The area has a comparatively even topography. This fact and other conditions such as long stretches of winding river, frequent occurrences of low swamp land, that are noted throughout the area, would indicate a country poorly drained.

As detailed results of this year's survey are not as yet available, it is intended here to treat the forest conditions in a general way. In viewing the western and eastern extremes of a large drainage basin, abrupt changes in physiography and drainage conditions reflect similar changes in the forest.

In the Western Block there is still evidence that at one time the rugged ridges and deep valleys common in this part supported large stands of white and red pine. In the past these species have been harvested in quantity and are still being removed but repeated fires in recent times have reduced the available supply and have laid waste a considerable section of this block which now comes under the headings of second growth, young growth and burn unclassified. In the immature stands ranging up to sixty years of age, jack pine is the dominating species. Spruce, balsam, poplar and white birch are always present in varying quantities. Cedar of rather poor quality occurs in scattered localities.

Although the forest conditions in the Eastern Block show clearly the effect of fires, the great difference in comparison to conditions in the Western Block is the result of poorer drainage. Further evidence of this is seen in the increased area occupied by swamp land and pure spruce stands, and in general of mature stands in which spruce is the dominating species. The remainder of the forest cover is classified as second and young growth and burn unclassified.

Timagami West Forest Survey

As mentioned previously the whole survey involved the examination of fifty-eight townships but of these thirty-six were reported on as to forest types and age classes and an estimate made of the standing timber by townships and watersheds. The total area comprises slightly over 798,000 acres made up of the following townships—Aylmer, Amyot, Asquith, Browning, Brunswick, Burrows, Cabot, Churchill, Connaught, Cotton, Doyle, Emerald, Fawcett, Fraleck, Garibaldi, Gouin, Hassard, Hazen, Hodgetts, Howey (west half), Kelvin, Kemp, Leask, Londonderry, MacMurchy, Mattagami, Miramichi, Mond, Natal, Ogilvie, Parkin, Sheard, Stetham (north half), Stull, Togo, Unwin and Valin.

Field work commenced May 28th and up to August 1st, fifteen men or two parties were employed. For the balance of the season or until September 22nd there were twenty-three men or three parties. The party working on the Loch Lomond watershed finished their work the latter part of July and were transferred to the Timagami West District thus forming the third party.

The method of the survey was in general similar to that employed in other years. It differs, however, in the intensity of the ground work. As aerial sketch maps were only prepared for parts of the area the maps were constructed from the field strip data. Splendid results can be obtained in this way especially since the township lines afforded control and check lines. Furthermore, having more strips per township considerably increases the accuracy of the estimate when applied to smaller timber types. Strips were consistently run at one half mile intervals and varied from eleven to thirty-three feet in width. Eleven feet was used in pulpwood and second growth stands and thirty-three feet for the lumber species. In many cases the two widths were combined on the same strip.

For the field operations and subsequent office work the cost was 1.6 cents per acre.

Forest Description.

Physiography.—The whole tract lies in a height of land country. Proportionately thirty-three per cent. or 261,000 acres are tributary to the Wanapitei River, twenty-two per cent. or 177,000 acres tributary to the Montreal river and the balance forty-five per cent. or 360,000 acres to the Mattagami river.

Forest Age Classes.—The outstanding feature of this surveyed tract is the high percentage of the area occupied by mature or commercial stands, namely, sixty-two per cent. In no other forest survey made to date and over an area this large has the percentage been as high.

The balance of the tract is made up of second growth eleven per cent., young growth seven per cent., recent burn, i.e., unclassified areas burned over within the past ten years eleven per cent., and waste and water nine per cent.

Timber Estimate.

It is not intended here to state the actual estimate. However, certain features of the estimate do help to describe the country. White and red pine are estimated in feet board measure, jack pine in F.B.M. or cords or ties, and spruce, balsam, poplar and birch in cords.

The estimate of jack pine almost equals that of spruce,

There is five times as much birch as poplar. This feature is indicative of the maturity of the stands, since birch is capable of maintaining itself and poplar is not.

The distribution of the balsam estimate is of interest. This section of the Province has suffered extensively from the ravages of the spruce bud-worm. The epidemic first received the attention of the Dominion Entomological Branch in 1920 when an aerial survey was made to determine the extent of the outbreak. The infested areas appear to be extending in a north and westerly direction. In the Wanapitei and Montreal river drainage basins occupying fifty-five per cent. of the area is twenty-eight per cent. of the balsam estimate, while the Mattagami river drainage area carried seventy-two per cent. of the balsam on forty-five per cent. of the total area.

Forest Investigation.

(a) *Loch Lomond Watershed Forest Survey.*—Loch Lomond is situated in the mountainous country which stretches southwest from the city of Fort William and extends into the state of Minnesota. The lake is about five miles from the city and three miles west of Lake Superior. In elevation the lake lies 336 feet above Lake Superior and about 300 feet above the general level of the city of Fort William. The area surveyed comprises the lands owned by the city of Fort William in the Township of Blake, District of Thunder Bay for the protection of the Loch Lomond Watershed.

The city of Fort William obtains its water supply from Loch Lomond which has been referred to by competent authorities as the purest on the continent so that any steps taken to safeguard its purity are well advised. With this in view the city has acquired title to the land within the watershed and recently established the boundary by a survey permanently marking the limits of the lands owned by the city.

During the past season a forest survey was made of the watershed and lands adjoining owned by the city with a view of establishing and maintaining a forest cover which will best preserve the purity and maintain an equalized seasonal supply from the watershed. During the course of the survey the possibility of obtaining revenue from the lands by the cutting of timber for commercial purposes which would not prove detrimental to the water supply was continually kept in mind.

With this general object in view a crew of five men under the direction of a forester commenced the survey on about June the first and completed the field work by August the first, after which two weeks were spent examining some lands lying adjacent to the watershed area. During the course of the survey all points were located in reference to established points on the boundary survey. Control lines were run at two-mile intervals and strips at quarter-mile intervals between the control lines. On control lines elevations were taken with an Abney hand level and contour lines sketched, a 20-foot contour interval was used. On the strips, elevations were taken with a Paulin altimeter which was corrected for variation in normal atmospheric pressure with a stationary instrument in camp. On all control lines and strips a forest type map was kept and tallies of all tree growth were taken by plots at 400-foot intervals along the strips. On completion of the work a topographic map was made showing contours (20-foot contour interval), and also a forest type map dividing the area into blocks which require different treatment to bring about the desired conditions. Accompanying the maps is a report treating with the protection of the area from fire and other destructive

agencies and a description of each forest type as it is at present with recommendations where necessary for its improvement. It is recommended to combine the area into a working plan unit to cover some fifty years which if carried out should approach something like ideal conditions at the end of that time with gradual improvement as the plan progresses.

The role which forests play in watershed protection, the prevention of erosion on steep slopes, the equalization of seasonal flow in the prevention of floods, and the maintaining of the purity of the water is one which is well recognized and about which much has been written. The Loch Lomond forest survey is the first in Ontario to be carried on with the primary object of watershed protection in view. The report of this survey and the visible results which may be expected from the progressive improvement of the forests will have considerable bearing on future developments along this line.

(b) *Growth of Spruce and Jack Pine.*—Continuing a study of the growth and yield of spruce and jack pine data was collected in connection with the Timagami West Forest Survey during the past summer. Several plots were measured for growth of spruce. Work is now under way in the compilation of the data for spruce and the construction of general yield tables.

VI—FOREST INVESTIGATIONS

Forest Pathology.

During the season forest pathological work was continued with particular reference to the snow fungus on white spruce. It is expected that a complete report will be published at a later date on this investigation.

An extensive survey was also made in the Parry Sound and Muskoka Districts to determine the extent of spread of the white pine blister rust. Evidences of the rust were found throughout the entire area and in the vicinity of North Bay.

Forest Entomology.

Co-operating with the Federal Entomological Branch, two experiments were carried out during the season in connection with the control of dusting from aircraft of (1) the Hemlock Looper (*Ellopiia fiscellaria*) in the Muskoka District and (2) the Spruce Budworm (*Cacoecia fumiferana*) in the Sudbury District. Encouraging results were obtained and it is expected that further work will be carried on next season.

REPORT
OF THE
Minister of Lands and Forests
OF THE
PROVINCE OF ONTARIO

For the Year Ending 31st October

1929

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

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1930

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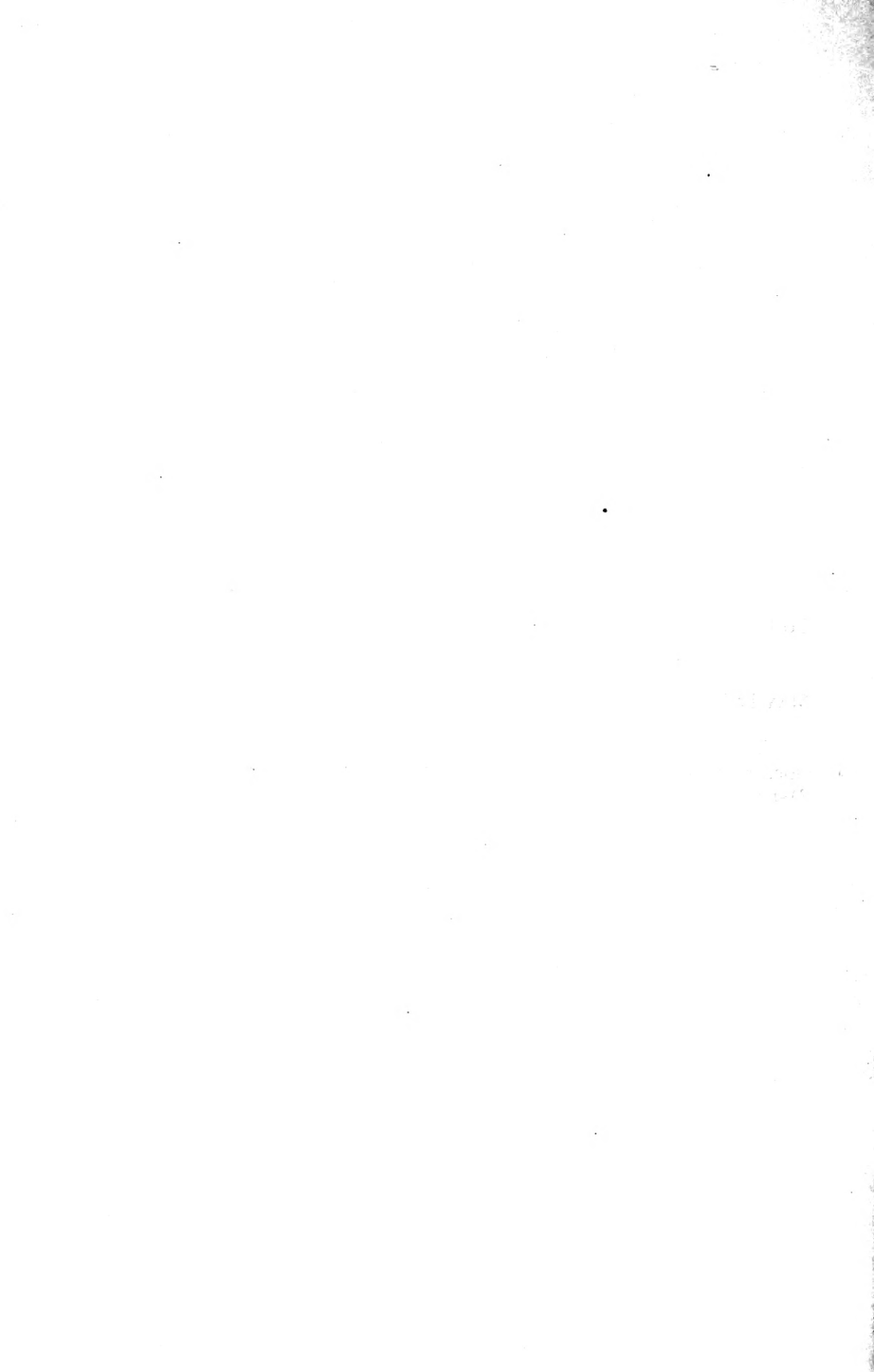


TO HIS HONOUR WILLIAM D. ROSS, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the Operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1929.

WILLIAM FINLAYSON,
Minister.



HONOURABLE WILLIAM FINLAYSON,
Minister of Lands and Forests.

We have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1929.

W. C. CAIN,
*Deputy Minister,
Lands and Forests.*

E. J. ZAVITZ,
*Deputy Minister,
Forestry.*

L. V. RORKE,
Surveyor-General.

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

For the Year ending 31st October, 1929

GENERAL ADMINISTRATION

In last year's report reference was made to the one hundredth anniversary of the appointment in the season of 1827-28 of the first Commissioner of Crown Lands for the purpose of administering the affairs of all the Crown lands of Upper Canada, and their co-related interests.

To mark this historic event and afford the officers and all the employees of the inside service of the Department an opportunity of learning something of the progress and development of this Department of Natural Resources, a special non-political centenary dinner was held in the large committee room of the Parliament Buildings on the evening of May 2nd, 1929.

Elsewhere in this report is reproduced the programme of the evening. The occasion was honoured by the presence of His Honour, the Lieutenant-Governor, and all the former Commissioners or Ministers of the Department still living, except Sir John Gibson, since deceased, who, though unavoidably absent, owing to illness, sent his keen regrets, recalled fond memories of his associations with the Department and expressed his kindest and sincerest hopes for the continued success of his old love.

Hon. E. J. Davis, Sir W. H. Hearst, Hon. Geo. H. Ferguson, the present Prime Minister; Hon. Beniah Bowman, Hon. James Lyons, and the present Minister, Hon. Wm. Finlayson, having in the order named each presided over the destinies of the Department at important periods of its development, formed the "old Chiefs" circle at the head table, where the Hon. Speaker of the House, W. Black, sat with Mr. C. E. Burton, representing the Pioneers of Upper Canada, and Mr. J. J. Murphy, representing the oldest living superannuated official of the Department, in which he served for over fifty years.

A brief history of the origin and development of the Department in which, more than any other Department of the Public Service, criticism, romance and adventure each in itself has played its part, was given by the chairman. The former executive heads in order were introduced and each felicitously indulged in retrospect and prophecy, dwelling upon the tremendous growth and recognized importance of the Lands and Forests, and the need of a continuity and stability in administrative service.

Practically all the inside employees, to the number of one hundred and forty, attended the gathering and acquired new ideas and a more extended knowledge of the diversified nature of their work.

LEGISLATIVE ENACTMENTS

During the Session the Crown Timber Act was amended to provide for the suspension of the manufacturing condition as to poplar. This class of material is so prolific in growth and so widespread as respects our forest areas that unless

it is cut in comparatively early years its quality deteriorates and, as there are but limited markets in Canada for its use, provision is made for its export. In this way wastage is avoided and the young growth encouraged. Wherever the circumstances justify and export privileges are granted, cordage fee of a minimum of 50 cents, in addition to the regular price bid in public competition, is imposed.

A further amendment to the Crown Timber Act protects the Crown in its priority of claim in respect of lien on timber for dues and Crown charges.

The ever-pressing importance of the lumber and pulpwood industry and the admitted necessity of providing advanced Legislation were recognized in the Provincial Forests Act passed this year. Under this Act new areas were specifically designated as Provincial Forest Reserves while the older areas hitherto known as Forest Reserves were confirmed. The Act provided for the appointment by Order-in-Council of a special officer who shall have charge, control and management of the established Provincial Forests for the purpose of preserving them according to the best forestry practice and to gradually bring them under a sustained yield basis.

Mr. Frank Sharpe, F.E., who has been connected with the Department for a number of years in a technical capacity, was under date of 30th April, 1929, duly appointed officer in charge of such Provincial Forests.

The international interest manifested in the newsprint industry, which has so many ramifications, including the annual consumption and wholesale cutting, rivets attention on all practical proposals to perpetuate if possible, the source of supply.

With a view therefore to bringing the Department and the various operating companies into closer touch and to effecting a mutual *modus operandi* in the operation of the forests The Pulpwood Conservation Act was passed on the 24th March, 1929, and is now in operation.

Particulars in full detail are required to be furnished by each individual or company affected and hundreds of licensees, concessionaires and large holders have been circularized. Numbers of returns have been received and the data catalogued by the Department preparatory to placing the information before the Forestry Branch for its attention. All those interested are sympathetically co-operating with the Department, it is believed, in an attempt to sustain the annual yield and provide for a perpetuation of the industry by assuring rotation of crops. Adequate results can be best measured after the Act has been in operation for a period of years, but the response given by the substantial investors in the forest assets is proof of a concerted desire to assist in making decided progress under the Act, declared by accepted authorities to be the most advanced form of pulpwood conservation legislation yet enacted.

LAND TRANSACTIONS

The ever recurring question of how best to promote land settlement in pioneer stages and in areas demanding the toilsome effort of removing virgin timber and subsequently tilling the cleared portions is one that admits of a variety of suggestions and involves a problem that is world wide in the attempt to find a solution. When in the older parts of the Province large areas of cleared and arable land, awaiting only the application of individual effort, lie unoccupied and unimproved and no appreciable response has been made to the nation wide urge to get back to the land, it is obviously difficult to secure for and keep upon the land in the newer parts the right type of settler. Although

each district of Northern Ontario has its own attractive features from an agricultural point of view any measures adopted with a view to the settlement of a particular section to the exclusion of another would be instantly seized upon as sectional legislation and in consequence land regulations must in the main be of a uniform nature with sufficient elasticity to meet local requirements.

The basic principle has been laid down and is being followed that unless an area is primarily adapted to farming and carries with it the prospects of continuous production it is not now opened for settlement. Years ago, when a mistaken idea was prevalent that the timber resources were inexhaustible, but little attempt was made towards segregating areas, the result being that extensive sections were thrown open for promiscuous settlement with dire results in many instances both to the farming and lumbering interests. Many of the present day problems of the Department are directly traceable to such injudicious treatment.

In Old Ontario much of the land opened for settlement was allocated under the Free Grant Act within territory generally speaking covered by Timber Licenses, and more or less unsuited for real settlement. Certain lots within a given area would be taken up and after the timber was harvested without any co-related move to cultivate and produce they were abandoned. Other lots, in pockets of alluvial soil, yielding to the intensive and persistent efforts of the well intentioned pioneer, became in the fullness of time productive farms and in part redeemed an otherwise pitiable situation. But at best such settlement was isolated and lacked the community benefits of a compact one.

In a timbered area where land is of an agricultural character the cutting of the timber and the harvesting of it is inseparably tied up to the land settlement and cultivation.

To avoid the folly of the past a rigid enforcement of the regulations is being followed with a sane and reasonable encouragement to the bona-fide settler. The gradual cutting of his timber in conjunction with an effort to clear and improve the land is now being checked up under a system of permits and clearances. This operates to the advantage of the man who intends to stay and to the disadvantage of the timber farmer or bird of passage, whose prime purpose is to exploit the timber.

Appendices 12 and 13 of this report show detailed statements of all transactions covering both the Free Grant and Purchased Lands. While 538 persons availed themselves of the opportunity of acquiring Free Grant Lands no less than 504 forfeited their rights due to failure to meet settlement obligations, and of these thirty per cent. was in Southern Ontario, where 36 fewer located and secured Free Grants than the number cancelled. In the same area, however, 91 received Patents on completion of settlement duties.

The settled policy of the Government to discourage settlement on worn out land, or within areas more likely to be productive of timber growth, accounts largely for the gradual though effectual reduction in location in Southern Ontario. In the Northern part where Free Grant lots are procurable 426 were located against 356 cancelled, while 145 proved up and received patents.

In the District of Cochrane, in the Northern Clay Belt, where there are wide stretches of pulpwood extending along the Transcontinental Railway in townships that contain excellent farm land the vigilance of the Department's officials resulted in the spurious settlers, the wood exploiters, being closely checked and their claims cancelled. The insistence of the officials in carrying out directions has fortunately operated against this type of so-called settler, and yet it so frequently occurs that he initiates an agitation amongst and gets

the sympathy of a certain element of the section who press for a relaxation of the Regulations and effect a real knowledge of the situation when but an apparent one exists. In all districts where substantial pioneer efforts are being made the officials of the Department extend the most courteous treatment and through the regular visitations of the Supervisor of Settlement misunderstandings have been removed and, according to this officer's report, fewer complaints have been heard during the past year.

The settlers of the north who for three years suffered, owing to the extremely wet weather which adversely affected the harvesting of their crops, were mostly blessed during the past year with good crops and favourable weather for harvesting them. The Homestead Inspectors who are in direct touch with the settlers are visited periodically by the Supervisor, who assists in the adjustment of disputes on the ground and sympathetically co-operates with the settler in offering him advice and giving him encouragement in his work.

The experiment of moving a certain number of settlers from Old Ontario to the Southern Clay Belt in Timiskaming District, has been to date successful. Those that treked north are doing well and report says they are pleased with their new conditions and express the hope that others shall in due time, when thoroughly satisfied with the success attendant upon the undertaking, follow the lead now given.

INDIAN RIGHTS CEDED

The negotiations between the Province and the Dominion covered in last year's report with regard to concluding a Treaty with the Indians inhabiting that far flung portion of Ontario lying north and west of the Albany River, resulted in the appointment of Commissioners Walter C. Cain, Deputy Minister of the Department of Lands and Forests, nominated by Ontario, and H. N. Awrey, representing the Department of Indian Affairs.

To meet the Indians and consummate a Treaty an itinerary covering the summers of 1929 and 1930 was adopted, and in pursuance of same the Commissioners proceeded by plane to Trout Lake some 800 miles north of Toronto and enrolled over six hundred Indians at this point and an additional fifty at Lansdowne House, a rendezvous about sixty miles due north of Fort Hope.

Next summer the work will be completed, the programme providing for the taking of surrenders at three other points, including one in the neighbourhood of Wendigo Lake and the other two on the Hudson Bay at the mouths of the Severn and Winisk Rivers. Approximately one thousand additional Indians are expected to sign treaty.

The termination of these surrenders will mean the acquirement by cession from the Indian bands of that region, the only remaining territory in Canada up to then unceded. A detailed report of the work of the Commissioners during the summer of 1929 will be found in the annual publication of the Department of Indian Affairs for this year.

OLD SALES

Numbers of farm lots sold long ago, many prior to Confederation, remain unpatented, though occupied, due to neglect of the original purchasers or their successors in title to pay arrears due the Crown. Though periodic demands have been made and reasonable efforts taken to collect the amounts owing up until lately little response to appeals resulted. A determined move on the part of the Department during the past year, involving a follow-up system,

and negotiations with township municipal officials, has caused substantial numbers to meet the requirements and secure patents. Where satisfactory evidence is submitted showing occupation, improvements and no adverse claim, and the case has been long standing, consideration for a fair reduction of the amounts owing, as provided in the Act, will be given.

CLERGY SALES

On former sales under the heading the sum of \$3,200.60 was collected as against \$455.95 for the previous fiscal year.

COMMON SCHOOL LANDS

Collections from this source accounted for \$3,650.88, nearly four times that received last year.

UNIVERSITY SALES

Some 314.25 acres were sold and on these and previous sales the sum of \$543.75 was received.

GRAMMAR SCHOOL LANDS

Arrears on these sales to the extent of \$945.17 were collected.

CROWN LANDS

For settlement, tourist, townsite and other purposes the total area sold and leased comprised 89,529.54 acres, for which \$137,245.47 was received. In addition the sum of \$233,171.29 was collected in former sales and leases. For details covering the last five headings see Appendix 3.

PROVINCIAL LAND TAX ACT

Revenue derived from this source amounted to \$127,580.59, a sum somewhat less than for the fiscal year ending Oct. 31, 1928. The revenue during the year 1928 included certain arrears carried forward from the first year of operation. Last year's report indicated limited opposition to this tax, which was not unanticipated, but it came largely from small holders and owners of farm and town lots, many of whom did not realize that bona-fide settlers were exempt from taxation, and that satisfying the Department in this regard was all that was required. Because of doubts entertained by those the Act intended to exempt and complaints that in the operation of the Act payments were made through error the question of removing cause for complaints by amending the Act is worthy of consideration.

The tax is applicable only to property in unorganized districts and special provision is made to apply to owners who may be situate in school sections and assessable for school purposes. The general principle of taxing property, otherwise free of such, in unorganized territory for the purposes of assisting in partly defraying expenditures for benefits received, such as highways and other developments, does not seem unjust and this Act aims to meet such a situation. Since the Act came into force in 1927 the sum of \$361,221.10 has been received, while the total cost of organizing and of administering the special branch has been nine per cent. of the revenue.

MILITARY GRANTS

These grants were confined to veterans of 1866 and those of the South African war, the total number receiving certificates entitling each recipient to 160 acres free being 13,998. Of these approximately 1,000 are still outstanding and as the time in which to locate land has long since passed, the only transactions are those where the certificates are accepted a script and applied on land to the face value of eighty dollars each, or surrendered to the Crown for a cash consideration of fifty dollars. Only one such certificate was surrendered throughout the fiscal year just closed and the clerical work in connection with this service has been limited to checking up old locations and making searches in respect of ownership.

A general résumé of the operations in this field of land administration was given for reference purposes in the Minister's preface to last year's detailed report.

GREAT WAR VETERANS

Though sympathetic encouragement was directed to the returned soldiers of the Great War to the extent of permitting each to take free for settlement purposes 160 acres in any section regularly opened for farming, comparatively few took advantage of the opportunity and generally speaking the success attained has not been very outstanding, as is indicated by the figures for the year, there being but 38 locations while 59 individual holdings were cancelled.

PATENTS

Over 200 more instruments were issued than during the year 1928. These comprise in number 2,156 and include those covering grants of lands for agricultural, mining, park, summer resort, sand and gravel, water power and other purposes. The work in this office is of a dual character covering the engrossing of mining documents as well as those particularly relating to lands and forests. For details see Appendix No. 14.

COMMUNICATIONS

Exclusive of the Minister's office, the Provincial Land Tax Branch, and the Forestry Branch, over 55,000 letters or communications were received and nearly 48,000 sent out of which sixty per-cent. reached the general public, the remainder the outside service. (See Appendix 15).

PROVINCIAL PARKS

Increasing interest is being manifested in the beauties and attractions of our great national playgrounds. Ontario is especially and profusely endowed by nature in this respect.

Algonquin Park in the Ottawa and Muskoka River watersheds offers an inviting field for lovers of solitude, students of nature, scientific investigators, forest scholars and seekers after health and summer or winter sports.

The Department of Lands and Forests that administers the parks of the Province has its headquarters for Algonquin Park on Cache Lake, on the Canadian National Railways, formerly the Canada Atlantic. The buildings consist of the Superintendent's house and office, Rangers' boarding house, work shops, boathouse and other necessary structures including a concrete

animal house to accommodate live wild animals. The staff consists of the Superintendent, two Chief Rangers, 27 Park Rangers, office assistant and house-keeper, a total force of 32.

Located at strategic points throughout the park are shelter houses for the accommodation of the Rangers on patrol duty and for the convenience of tourists in emergencies.

The development during recent times of summer camps for adults and youth in no section of Canada is so pronounced as in Algonquin Park. At present there are twelve large camps, each having accommodation for 100 to 500 individuals. Separate camps for boys and girls have been judiciously organized and highly developed on moral, educational, athletic and sanitary principles, the patrons representing important though widely separated sections of the United States as well as Canada. It is interesting and encouraging to observe that new camps are under consideration which will mean an additional contribution towards the upkeep of the park and an increase in the number of summer visitors.

The tourist travel during the past year was largely in excess of any previous one and the record number of anglers visiting the park emphasizes the fishing possibilities as one of its greatest assets and finest magnets. The hotels and summer resorts were filled to capacity and the receipts from anglers' licenses the highest on record. As the angling by summer tourists is more or less concentrated in the waters nearby headquarters there is a decided need for replenishing these and to accomplish this in due course it may be advisable to start a hatchery. The fishing is exceptionally good in the lakes and streams a few miles from the railways and in the interior of the park.

Under the patrol system every section of the park area comprising 2,749 square miles, is covered at intervals and during the year 11 convictions were recorded for violation of the park laws. A rigid enforcement of the regulations is producing the desired result and a wholesome respect is being shown the laws.

Notwithstanding the very dry season, the park was almost free of fires. The constant vigilance of the staff in maintaining a check on the action of campers and fishing parties acts as a deterrent to carelessness.

Guides to the number of 89 were employed in conducting parties on trips, each guide being required to procure a license and to furnish information regarding their activities, report fires immediately, the condition of trails, canoe routes and portages, all of which operates in maintaining an effective system.

GAME AND PREDATORY ANIMALS

Reports from the Superintendent indicate that notwithstanding the wolf menace, at times it is felt unjustifiably charged against the park, there has been a decided increase in the number of game animals within the park. Although all the members of the ranging staff were solicitous in regard to killing wolves they succeeded in securing only 32 during the fiscal year just ended.

Rondeau Park nestling snugly in the southwest part of the Province, midst arboreal surroundings, in Kent County, comprises a peninsula, extending into Lake Erie, of 5,000 acres, with a beautiful sand beach sweep of several miles on the lake and an enchanting shore line on the "Eau," with a summer population of 1,000 who are comfortably and conveniently housed in quaint cottages built by individual owners under a leasehold arrangement on a twenty-one year tenure, the park presents a modern recreational rendezvous.

The increased demand for lots has necessitated an additional subdivision and plans are being prepared with this end in view. A public pavilion and a restaurant, the privileges of which are covered by concession, serve the public, while special picnic parties find fine accommodation in the various accessories furnished by the government. A virginal mixed forest, consisting of a great variety of timber types, characteristic of southern Ontario, invites the traveller seeking the shadows of the oaks and longing for the whispering of the stately pines. To commune with nature in its greatest display of tree growth, and yet be within ready range of the joyous throngs in their merrymaking, is the lot of the visitors to this park. Wild life is represented by red deer, the Canada goose, variegated pheasants and a host of winged songsters. To visit this gracious treasure house of verdant beauty and quiet retreats means a lingering desire and a determination to frequently revisit it.

QUETICO PARK

Quetico Park, in the Rainy River District on the international border, comprising over one million acres is a real centre for wild life. Game is very plentiful and the protection furnished by the government through the staff of rangers affords a great radiating centre for fur-bearing animals. The tourist traffic through the park the past year was the heaviest on record. The proximity of the American Republic lends easy access to the waters of the park where excellent fishing is enjoyed.

The park staff consists of a superintendent, chief ranger, fourteen rangers and a housekeeper. In addition to headquarters there are thirty-six stop-over cabins for use of the staff patrol. Marked portages enable the tourist to more readily make progress in his meanderings through the recesses of the park which nature has so richly endowed.

The ease with which aerial travellers can now cross over the boundary and swoop down on attractive lakes and be free to break park regulations without much fear of being apprehended by foot or water patrols justifies a reconsideration of the regulations and penalties for their violation. Drastic steps may be taken towards seizing and confiscating even aircraft machines when found breaking the regulations. Travel permits on a fee basis, in addition to fishing licenses, will hereafter be required.

The rangers killed fifteen wolves, eight brush and seven timber ones during the year.

As the great fishing and recreational features of this park are becoming more known a keener appreciation of its value is being shown by our own people who are urged to visit the area rather than look outside of our own province for that which is incomparably less attractive.

SURVEYS: WATER POWERS AND ENGINEERING

The survey of Crown lands, carried on during the year, consisted of the running of base and meridian lines, township outlines, lake and river traverses, summer resort and miscellaneous surveys.

The preliminary survey to locate the Ontario-Manitoba boundary line, from the twelfth base line of Dominion Surveys to the most eastern point of Island Lake, was performed under instructions from the commissioners, the Surveyor-General of the Province and the Surveyor-General of Dominion Lands, by Ontario Land Surveyor J. W. Pierce.

Co-operation with the Dominion Government's aerial photographic work was carried on by making control surveys on the ground for the purpose of definitely fixing points on the aerial maps.

The total expenditure under survey work for the past year was \$122,058.55, being an increase of \$10,209.12 over the former year's expenditure.

During the past year the development of water powers consisted of a development by the International Nickel Company, Limited, of Canada at "Big Eddy" Dam, on the Spanish River, to the extent of 28,200 horsepower. 11,000 horsepower was installed at High Falls on the Michipicoten River by the Algoma District Power Company.

The Hydro-Electric Power Commission of Ontario have completed development of 2,200 horsepower at Trethewey Falls on the South Muskoka River; 1,000 horsepower at Elliott Chute on the South River and 5,000 horsepower at Lower Ear Falls on the English River. The Commission are also carrying on construction for the development of 54,000 horsepower at Camp Alexander on the Nipigon River.

The construction of the Lac Seul Conservation Dam, as per contract with Messrs. Morrow & Beatty of Peterborough, was duly completed on the 1st May, 1929, and the dam put into operation.

The revenue from water power rentals was \$204,857.14, being an increase of \$50,406.29 during the past year.

Several plans and specifications of dams to be constructed or repaired on different streams throughout the province have been filed for approval, as required under the Lakes and Rivers Improvement Act.

TIMBER ADMINISTRATION

Throughout the year the department, desirous of continuing the accepted policy of providing for old and existing rather than for new and prospective industries, limited the sales of large areas to those where representatives of going concerns applied.

The question of the disappearance of the forests by more than a gradual process is no longer a debatable one. The general public, through a continuous educational campaign carried on by the press and government, freely admit the need of providing and taking advantage of every means to conserve the forest growth and at the same time seek to stabilize the great industry that has through several generations grown to such tremendous proportions.

Legislation, to which reference has already been made under heading of "Legislative Enactments," is a most powerful instrument towards giving the "punch" to enforcement. Sympathetic co-operation between the government and timber operators has been so effective during the last few years that the old barriers of individual prejudice and attempts to bleed the forests which kept the state and the operator apart, are almost entirely broken down. The old practical idea has given way in part to the technical and the latter in turn to the former, each recognizing that the practical and theoretical can be made to harmonize to the economic advantage of both. The impossibility of creating an international or even a Dominion-wide stabilizing or standardizing force to maintain a proper balance of trade in the lumber and pulp business creates an uncertain situation in the manufacturing field. Prices and production with their attendant problems are factors that demand an astuteness and acumen in all industries of the present day depending upon forest products. Southern and western imports of certain types of lumber and building supplies, resulting from cheaper labour, compete with and often undersell Ontario products while an over-production and

lack of business frankness, and, to a limited extent, European importations, in connection with the pulp and paper enterprise, are reflected in decreased output and unstable employment. It is hoped that in due time the situation, gradually improving, will be completely adjusted and the community centres that have developed about and relied upon a full-time plant operation will become more buoyant.

It is interesting to observe that all agencies directly or indirectly associated with the forest products industry are animated with a desire to work harmoniously towards a common end of perpetuating, so far as it is humanly possible, the natural forest wealth. Much indeed is written nowadays concerning an approaching world shortage of raw material. Ontario, while singularly favoured above most countries, in respect of its timber supplies, must by reason of this very fact ever look forward, and in its administration of the timber resources consider its great tracts of wooded land as a real capital investment that must yield a fair annual return not only for the present generation, but for generations yet unborn, and with the acquiescence of the general public and the practical co-operation of the interested dealers a solid foundation is being laid upon which a proper superstructure can be effectively built.

AREAS SOLD

Fifty-two areas ranging in size from one-quarter square mile to 975 square miles, were sold under advertised public competition. Thunder Bay District was credited with twelve, Timiskaming with ten, Cochrane with nine, Kenora with seven, Rainy River with six, Sudbury with five, Algoma with two, and Nipissing with one. Of these, nineteen were exclusive logging propositions, largely red and white pine and jackpine with a percentage of spruce, all being acquired for the manufacture of lumber. Thirteen were mixed timber operations comprising logging for saw milling, cutting pulpwood and making ties. Pulpwood areas accounted for fourteen sales, and fuelwood, tie-making and clean-up logging for the balance. In seventy-five per cent. of the sales the Crown received bids above the upset price and in no case was an area sold at less than the price fixed in the advertised conditions. The prices bid and successful tenderers may be seen by a reference to Appendix No. 11. A perusal of this tabulated statement will disclose that with the exception of certain small areas, covering one square mile or thereabouts, where small jobbers find it convenient to invest and do a logging business on a scale proportionate to their means, the limits were acquired by active operators who are operating mills and employing labour throughout the summer and winter seasons.

The largest area disposed of comprised 975 square miles in the Sudbury District, the successful tenderer being the Howard Smith Paper Mills, Ltd., who operate a very large mill at Cornwall. This company have been depending partly on raw material imported into the province and that secured from the settlers or private owners. The indeterminate nature of this arrangement placed the company in a position where security of continuing an Ontario concern was uncertain. Consequently the company for some years had been seeking a home supply that greater stability would be assured. Their rights on the limit have been restricted to spruce, balsam and poplar pulpwood, the log timber being free for disposition on the part of the Crown.

LOGGING

The area under license, exclusive of that covered by pulp concessions proper, was 19,608 square miles and the number of licenses issued was 953. The actual

quantity cut of red and white pine, while less by over five hundred thousand pieces, was practically the same as the year 1928, there being 207,742,496 feet B.M. against 210,532,068 for the former year, the average log content being five feet higher during the past year. Jackpine taken out in logs for mill operations totalled 72,891,128 feet B.M., nearly one million feet in advance of the previous year. Operations in respect of other logs such as spruce, hemlock, hardwood, etc., exceeded the year previous by over 550,000 pieces and by 6,700,000 feet B.M. An increase in railway ties manufactured in the bush was marked to the extent of nearly 200,000, the quantities reaching 1,916,686. There were over 10,000 more cedar posts taken out.

Considering the various factors that tend to operate against the constant buoyancy of the great logging and lumbering industry, including amongst others the vagaries of the weather, the many wood substitutes, keen outside competition, the flexibility of the building trade and the fluctuating markets, it is most satisfactory to note that the "lumberjacks'" optimism tides over evil times and always hopes for, if not prophesies, good times. A period when business is good is genuinely reflected in bush undertakings and if the present tone displayed at the beginning of another season is a fair criterion of next winter's work, then the prediction is justified that a successful season looms ahead for the logging manufacturer and his bush employees. For tabulated statement of cut see Appendix No. 8.

PULPWOOD OPERATIONS

Predictions in last year's report that the general situation obtaining in connection with the newsprint industry would be reflected in a decreased cut of pulpwood, have been borne out by the returns. During 1928 Crown lands accounted for 684,582 cords, while 1929 accounted for only 461,992 cords, or a decrease of 222,590 cords. The decrease in the cut on settlers' and patented lands was even more noticeable, there being cut during the year but 659,868 cords therefrom, less than the previous year by 451,356 cords.

Only 428,451 cords were exported as against 612,000 cords for 1928, or about sixty-four per cent. of the total exportable quantities.

Seventy-four per cent. of the exportable material came from patented or privately-owned lands over which the Crown has no control.

Through the Supervisor of Operations and the various staffs under the different Crown timber agents careful inspections are being periodically made and rigid though reasonable enforcement of the cutting regulation is pursued. The sympathetic attitude of the operators towards the government in its efforts to see cutting done judiciously and economically is to be commended.

There is every reason to hope that when the Pulpwood Conservation Act, to which reference has already been made, is operating fully along the plans laid down and fire preventive measures are tightened up, an improved situation will result and a further important step taken towards a rotation of crop and a perpetuation of forest growth.

FOREST FIRE PROTECTION

With a view to segregating certain areas, within which travel permits are necessary, regulations were passed by which certain old areas, mostly patented land, hitherto comprised within fire districts, were withdrawn from travel permit operations and other and less occupied sections were included. Conditions were provided to govern the making of fires out of doors for cooking or obtaining warmth.

The fire-fighting force during the past year was subjected to the severest test of its existence. Abnormal fire hazards occurred in every district of the province. The number of fires was 1,550, or nearly three times those of 1928, and yet the burned area in territory under protection was limited to 625,643 acres. Of this area over ninety per cent. was in the north-west part of the province, lying west of Lake Nipigon.

A redeeming feature of the situation was the fact that the timber land burned over was less than twenty per cent. of the total area burned. Certain fires occurred in the districts that were beyond the reach of the patrol and fighting staff, a circumstance which justifies the need of additional air craft and other necessities to meet new conditions arising in outlying parts due to mining and exploration activities. Campers, including prospectors, berry pickers and tourists accounted for no less than 26.7 per cent. of the fires, lightning for 16.1 per cent.; railways for 12 per cent.; smokers 10.3 per cent.; settlers, 7.2 per cent., and logging operations, road-building and miscellaneous causes (including unknown—18 per cent.) accounted for the balance. [See Part II of this report for details.

FOREST SURVEYS

Aerial forest type mapping was carried on largely in the Nipigon area, although late in the season some eight townships in the provisional County of Haliburton, in old Ontario, were covered. In the former section 12,000 square miles were undertaken as a preliminary inventory of timber resources.

Aerial photograph survey was conducted in five separate operations covering some 2,000 miles, part of the work being based on vertical photos and part on obliques.

Eighteen radio stations were operated during the year at various points. See complete reference in Part II.

REFORESTATION

Nursery operations on an extensive scale were continued at the different stations, a comprehensive report on which may be had by referring to 1 Part II of this report.

REVENUE

In over 100 years since the appointment of the first Commissioner of Crown Lands in 1827-28, when the timber revenue was a few hundred dollars, the gross revenue of the department was the largest in 1929. The sum of \$5,059,878.20 was collected and of this \$4,326,344.99 is directly due to timber administration, the balance to the sale and lease of lands, water powers, rentals, land tax and incidental items. Of the total received \$3,729,554.12 was ordinary revenue and \$1,330,324.08 capital. This represents an increase of ordinary revenue over the previous year by \$172,091.43 and of capital by \$146,557.46.

The timber revenue includes ground rent and fire protection charges which account for \$462,867.91.

Rentals on Crown leases, water powers, etc., netted \$243,645.74.

For details respecting source and figures of revenue see Appendices 3 to 6 inclusive.

It is not anticipated that the revenue for the coming year will be nearly so much. While in certain sections the timber cut may equal last year's the material is lower priced and this will be reflected in a reduced revenue.

DISBURSEMENTS

Expenditures for the year totalled \$3,405,615.46, of which \$2,179,850.23 was ordinary and \$1,225,765.23 capital. The largest item of expenditure is for fire-ranging, the cost of same being \$1,677,671.00, over \$450,000 in advance of the previous year. The exceptionally dry season with its many fires created a situation that taxed to the utmost the fire-fighting staff and caused the increase in expenditure over the year 1928. Forest ranging accounted for an expenditure of \$456,842.02, a slight increase over last year, while reforestation cost \$385,409.77. The sum of \$122,058.55 was spent on surveys, while \$159,567.93 went towards the construction of the Lac Seul Dam of which sixty per cent. is repaid by the Dominion Government. For the other items included in disbursements, see Appendix No. 7.

1827-28

Centenary Celebration

1927-28



Department of Lands and Forests

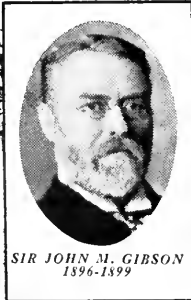
This is a reproduction of the menu card issued on May 2nd, 1929, the historic occasion of the one hundredth anniversary of the appointment of the first Commissioner of Crown Lands for Upper Canada.

"The Past and Present here unite

"If you devote your time to study you will avoid all the irksomeness of this life, nor will you long for the approach of night, being tired of the day; nor will you be a burden to yourself, nor your society unsupportable to others."

"Twin Brothers of Progress—Vision and Faith".

Aborigines



SIR JOHN M. GIBSON
1896-1899



HON. PETER ROBISON
1827-1828

"True dignity is never gained by place, and never lost when honours are withdrawn."



HON. E. J. DAVIS
1899-1904

All honour to those men of vision, romance and adventure who have during the past 100 years guided the destinies of the Department.

THURSDAY EVENING, MAY 2nd, 1929

Menu

Soup

Roast Young Chicken

Potatoes

Carrots and Peas

Orange Sherbet

Charlotte Russe

Fruit

Coffee

Cheese

Celery

Salted Almonds

Olives

"A docile disposition will with application surmount every difficulty".



Hon. BENIAH BOWMAN
1919-1923



Pioneering

beneath Time's flowing Tide"

"It is the secret sympathy
The silver link, the silken tie,
Which heart to heart and mind to mind,
In body and in soul can bind."



HON. WM FINLAYSON
1827-1923

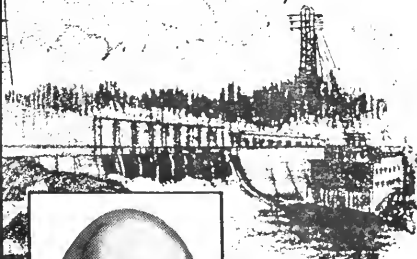


SIR WM. HEARST
1911-1914

"Sincerity is like travelling in a
plain beaten road, which commonly
brings a man sooner to his journey's
end than by-ways, in which men often
lose themselves"



Hydro Power



Toasts

"THE KING"
God bless him

"HIS HONOUR, THE
LIEUTENANT-GOVERNOR OF ONTARIO"
Honourable Wm. Ross, LL.D.

"THE PIONEERS OF UPPER CANADA"
C. L. Burton, York Pioneer Society

"THE FIRST COMMISSIONER OF
CROWN LANDS"
(Hon. Peter Robinson, 1827-1836)

"OUR SURVIVING FORMER CHIEFS"
Sir John M. Gibson - 1896-1899
Hon. E. J. Davis - 1899-1904
Sir William Hearst, - 1911-1914
Hon. G. H. Ferguson - 1914-1919
Hon. Beniah Bowman, 1919-1923
Hon. James Lyons - 1923-1926

"PRESENT MINISTER OF LANDS
AND FORESTS"
Hon. William Finlayson

Auld Lang Syne God Save the King
Chairman—W. C. CAIN



HON. G. H. FERGUSON
1914-1919 1926

"That State is best
ordered where the
wicked have no com-
mand and the good
have".



HON. JAMES LYONS
1923-1926

Paper Making

"Deliberate with
caution, but act with
decision, and yield
with graciousness, or
oppose with firm-
ness".



Reforestation

Commissioners and Ministers During the Period 1827-28 to 1927-28

HONOURABLE	PETER ROBINSON	17th July, 1827 - 14th July, 1836
"	R. B. SULLIVAN	14th July, 1836 - 30th June, 1841
"	JOHN DAVIDSON	23rd July, 1841 - 12th Oct., 1842
"	A. N. MORIN	13th Oct., 1842 - 11th Dec., 1843
"	D. B. PAPINEAU	3rd Sept., 1844 - 7th Dec., 1847
SIR JOHN A.	MACDONALD	8th Dec., 1847 - 10th Mar., 1848
HONOURABLE	J. H. PRICE	11th Mar., 1848 - 27th Oct., 1851
"	JOHN ROLPH	28th Oct., 1851 - 17th Aug., 1853
"	LOUIS V. SICOTTE	17th Aug., 1853 - 26th Aug., 1853
"	A. N. MORIN	31st Aug., 1853 - 26th Jan., 1855
"	JOS. CAUCHON	27th Jan., 1855 - 30th April, 1857
SIR E. P. TACHE	. . . . .	16th June, 1857 - 24th Nov., 1857
HONOURABLE	LOUIS V. SICOTTE	25th Nov., 1857 - 1st Aug., 1858
SIR A. A. DORION	. . . . .	2nd Aug., 1858 - 6th Aug., 1858
HONOURABLE	P. M. VANKOUGHNET	7th Aug., 1858 - 18th Mar., 1862
"	GEORGE SHERWOOD	27th Mar., 1862 - 23rd May, 1862
"	WM. McDOUGALL	24th May, 1862 - 29th Mar., 1864
SIR ALEX. CAMPBELL	. . . . .	30th Mar., 1864 - 30th June, 1867
HONOURABLE	STEPHEN RICHARDS	1st July, 1867 - 25th July, 1871
SIR MATTHEW C. CAMERON . . . . .	. . . . .	25th July, 1871 - 21st Dec., 1871
"	RICHARD W. SCOTT	21st Dec., 1871 - 30th Nov., 1873
HONOURABLE	TIMOTHY B. PARDEE	4th Dec., 1873 - 19th Jan., 1889
"	ARTHUR S. HARDY	19th Jan., 1889 - 21st July, 1896
SIR JOHN M. GIBSON	. . . . .	21st July, 1896 - 21st Oct., 1899
HONOURABLE	E. J. DAVIS	21st Oct., 1899 - 22nd Nov., 1904
"	A. G. McKAY	22nd Nov., 1904 - 8th Feb., 1905
"	J. J. FOY	8th Feb., 1905 - 13th May, 1905
"	F. COCHRANE	13th May, 1905 - 11th Oct., 1911
SIR WILLIAM HEARST	. . . . .	12th Oct., 1911 - 22nd Dec., 1914
HONOURABLE	G. H. FERGUSON	22nd Dec., 1914 - 13th Nov., 1919
"	B. BOWMAN	14th Nov., 1919 - 11th July, 1923
"	JAS. LYONS	16th July, 1923 - 28th Feb., 1926
"	G. H. FERGUSON	28th Feb., 1926 - 18th Oct., 1926
"	WM. FINLAYSON	18th Oct., 1926 -

9 yrs
5 yrs
1 1/2
1 1/2
3 yrs
2 1/2 yr.
1
9 mo
1 1/2 yr
2 1/2
5 mo
9 m
4 da

THE GREAT SEAL OF
UPPER CANADA. 1792



APPENDICES

PART I

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for year ending October 31st, 1929.

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks
Main Office.	Finlayson, Hon. Wm.	Minister.	1926, Oct. 18	\$8,000 00	
	Cain, W. C.	Deputy Minister.	1903, Mar. 1	6,000 00	
	Ferguson, A.	Assistant to Deputy Minister.	1915, Dec. 15	3,150 00	
	Thompson, J. B.	Minister's Secretary and Dept. Secretary.	1925, Feb. 2	2,700 00	
	Bliss, M. E.	Secretarial Stenographer.	1909, Aug. 16	1,600 00	
	Halliday, E. G.	Clerk, Group 1.	1907, Feb. 21	1,600 00	
	Harrison, E.	Senior Clerk Stenographer.	1920, May 14	1,500 00	
	Molesworth, V. M.	"	1928, April 10	1,300 00	
	Budd, F.	Office Boy.	1927, Nov. 4	600 00	
	Kelly, J. P.	Vault Caretaker.	1927, April 19	1,300 00	
Solicitor's Branch.	Titus, F. E.	Solicitor.	1920, Mar. 2	3,500 00	
	McLeod, L.	Clerk Stenographer, Group 1.	1925, June 9	1,125 00	
Lands Branch.	Draper, S.	Chief Clerk.	1900, May 1	3,300 00	
	Ledger, W. R.	Principal Clerk.	1894, Feb. 15	2,400 00	
	Burns, C. E.	"	1897, July 29	2,400 00	
	Drinkwater, J. E.	Senior Clerk.	1915, Oct. 19	2,100 00	
	Sutherland, W. S.	"	1900, Mar. 18	2,000 00	
	Roe, A. E.	"	1906, Oct. 16	2,000 00	
	Lucas, F. A.	"	1906, Dec. 18	2,000 00	
	Platt, S. A.	"	1905, June 12	2,000 00	
	Robillard, A. E.	"	1894, May 4	2,000 00	
	Hutcheon, J.	Clerk, Group 1.	1923, Nov. 22	1,500 00	
	Benson, B. M.	"	1909, May 25	1,600 00	
	Carey, A. R.	"	1925, July 7	1,050 00	
	O'Neil, E. F.	"	1902, July 7	1,600 00	
	Ross, S.	Senior Clerk Stenographer.	1917, July 9	1,500 00	
	Hills, E.	Clerk, Group 1.	1912, July 2	1,600 00	
Griffith, F.	Clerk Stenographer, Group 1.	1921, Jan. 22	1,200 00		
Pepler, A. V.	"	1922, Sept. 24	1,200 00		
Sutherland, M. I.	"	1921, Jan. 22	1,200 00		
Burke, M. G.	"	1928, Jan. 9	1,050 00		
Feehly, R. M.	"	1928, April 2	1,050 00		
Stephens, A. M.	"	1927, Oct. 4	975 00		

Died July 11th, 1929.

Woods and Forests Branch.....	Houser, J.....	Chief Clerk.....	1905, July 17	3,150 00
	Gillard, H. D.....	Principal Clerk.....	1897, Dec. 6	2,400 00
	O'Neil, A. H.....	".....	1906, July 19	2,100 00
	Meeking, S. D.....	Senior Clerk.....	1910, Feb. 8	2,000 00
	Telfer, E. H.....	".....	1915, Sept. 27	2,000 00
	Potter, G.....	Clerk, Group 1.....	1923, June 1	1,600 00
	Squire, E. H.....	" " 1.....	1916, Jan. 4	1,600 00
	Quigley, E. F.....	" " 1.....	1921, May 4	1,300 00
	McCord, W. A.....	" " 1.....	1926, May 26	1,400 00
	Armer, E. C.....	Senior Clerk Stenographer.....	1909, Aug. 6	1,500 00
Accounts Branch.....	Bryce, J. J.....	" ".....	1922, July 24	1,300 00
	Ferguson, J.....	" ".....	1919, Aug. 4	1,300 00
	Stewart, F. E.....	Clerk Stenographer, Group 1.....	1927, July 25	1,125 00
	Lount, H. M.....	Accountant, Group 2.....	1903, Oct. 1	3,000 00
	Clarke, C. J.....	Principal Clerk.....	1905, Aug. 9	2,400 00
	Burritt, W. A.....	Senior Clerk.....	1907, Sept. 24	2,000 00
	Gordon, R.....	Clerk, Group 1.....	1912, July 30	1,600 00
	Warren, J. F.....	" " 1.....	1922, June 5	1,600 00
	Donald, L. G.....	" " 1.....	1924, June 2	1,400 00
	Bryson, J.....	" " 1.....	1927, Jan. 4	1,400 00
Files Branch.....	Rowland, C.....	" " 1.....	1908, July 9	1,600 00
	Whyte, M. A.....	" " 1.....	1921, June 1	1,300 00
	Cox, M. E.....	Clerk Typist, Group 1.....	1924, Oct. 27	1,200 00
	Fox, E. M.....	Cheque Writer, Group 2.....	1927, Jan. 11	1,125 00
	Armitage, M.....	Clerk Typist, Group 2.....	1927, Oct. 18	825 00
	Burdin, S. K.....	Senior Clerk.....	1916, April 6	2,500 00
	Samuels, F.....	" ".....	1903, Dec. 5	1,900 00
	Lee, J. T.....	" ".....	1917, June 25	1,800 00
	St. John, W. C.....	Clerk, Group 1.....	1906, July 9	1,500 00
	Mathewson, N. B.....	" " 1.....	1915, May 7	1,600 00
Provincial Land Tax Office.....	Mulholland, S.....	" " 1.....	1918, May 6	1,400 00
	Black, R. N.....	" " 1.....	1915, Dec. 13	1,400 00
	Harris, G.....	" " 1.....	1925, Jan. 14	1,400 00
	Smith, C. J.....	" " 1.....	1928, April 14	1,300 00
	Brophy, H.....	Senior Clerk Messenger.....	1898, Oct. 1	1,300 00
	Ryan, L. M.....	Land Tax Collector.....	1925, July 1	2,400 00
	Hinton, G. J.....	Clerk, Group 1.....	1925, May 4	1,300 00
	Lyons, H. M.....	Clerk Stenographer, Group 2.....	1926, May 31	975 00
	Deacon, C. H.....	Clerk, Group 2.....	1927, Sept. 29	975 00
	Riches, E. P.....	Clerk Stenographer, Group 2.....	1925, Aug. 10	975 00
Superannuated as from Aug. 1st, 1929	Madill, S.....	" ".....	1927, July 14	900 00
	Stephens, F. E.....	" ".....	1926, May 27	900 00
Resigned July 31st, 1929.				
				Superannuated May 16th, 1929.

Appendix No. 1—Continued
Return of Officers and Clerks of the Department of Lands and Forests, for year ending October 31st, 1929.

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks	
Surveys Branch	Rorke, L. V.	Surveyor General	1909, May 1	5,000 00		
	Butterfield, J. E. C.	Assistant Inspector of Surveys	1927, Jan. 17	2,700 00		
	Heath, W. H.	Geographer	1923, Nov. 28	2,550 00		
	Barnard, W. A. C.	Senior Map Draughtsman	1928, Jan. 1	2,200 00		
	Burwash, N. A.	Surveyor and Sen. Draughtsman	1917, April 26	2,300 00		
	Work, I.	Principal Clerk	1909, May 18	2,400 00		
	Jarvis, E. M.	Senior Clerk	1897, April 25	2,000 00		
	Treby, H.	Map Draughtsman	1897, May 8	2,000 00		
	Blanchet, F. E.	"	1906, May 15	2,000 00		
	Leaman, A.	"	1907, Sept. 12	2,000 00		
	Barr, F. L.	Draughtsman	1923, Oct. 31	1,700 00		
	Vance, V.	Clerk, Group 2	1924, Sept. 10	975 00		
	Dennis, S. O.	Clerk Stenographer, Group 1	1910, April 5	1,200 00		
	Stork, G. E. M.	" " " 1	1927, July 28	1,050 00		
	Forestry Branch	Zavitz, E. J.	Deputy Minister of Forestry	1905, May 1	5,200 00	
		Mills, C. R.	Assistant Provincial Forester	1921, Mar. 28	4,000 00	
		Richardson, A. H.	Forester	1921, June 15	3,150 00	
Johnston, R. N.		"	1915, Aug. 15	3,150 00		
Sharpe, J. F.		Forester, in charge of Prov. Forests	1922, May 15	3,150 00		
Westland, C. E.		Assistant Forester, Group 1	1923, May 16	2,200 00		
Bayly, G.		" " " 1	1924, Mar. 1	2,200 00		
Rogers, J. M.		Draughtsman	1924, Nov. 1	1,800 00		
Bishop, N. L.		Senior Clerk	1911, Aug. 1	2,000 00		
Harris, G. W.		"	1906, Sept. 1	2,000 00		
Cooper, E. W.		Clerk, Group 1	1921, Jan. 6	1,600 00		
Rowland, M. C.		Senior Clerk Stenographer	1912, May 1	1,500 00		
Bald, J.		" " " "	1913, June 12	1,500 00		
McKyes, A. S.		" " " "	1921, May 9	1,300 00		
Cuthbertson, F. A.		Clerk Stenographer, Group 2	1926, Nov. 9	1,050 00		

Appendix No. 2

List of Agents for the year ending October 31st, 1929

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
Alexander, James A.	Fort Frances	Part Rainy River District	1921, May 26	.....	For salary see Crown Timber Agent.
Arthurs, E.	Espanola Mills	" District of Sudbury	1915, June 1	500 00	
Blank, F.	Wilno	" of Renfrew County and South Part Nipissing District	1921, April 1	500 00	
Both, C.	Denbigh	" of Frontenac, Lennox and Addington	1905, Oct. 20	300 00	
Bresnahan, John	Hearst	" District of Cochrane	1924, April 28	1,125 00	
Cameron, Wm.	Stratton Station	" " Rainy River	1911, May 8	500 00	
Campbell, I. M.	Parry Sound	" " Parry Sound	1914, Nov. 15	600 00	
Clark, John	Englehart	" " Temiskaming	1929, Mar. 14	800 00	
Dean, Thos.	Sault Ste. Marie	" " Algoma	1920, Nov. 18	300 00	Also Homestead Inspector: Died May 24th, 1929.
Dempsey, S. J.	Cochrane	" " Cochrane	1911, Feb. 1	1,100 00	
Ellis, H. J.	Powassan	" " Parry Sound	1909, May 20	500 00	
Fink, J. A.	Mattawa	" " Nipissing	1925, Mar. 18	500 00	
Fleming, A. W.	Minden	" Haliburton	1928, May 14	350 00	
Freeborn, J. S.	Magnetawan	" District of Parry Sound	1905, Nov. 10	500 00	
Freeland, A. W.	Emsdale	" " Parry Sound	1927, Nov. 1	500 00	
Fuller, David	Bancroft	" Hastings County	1926, Mar. 20	500 00	
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct. 14	.....	For salary see Homestead Inspectors.
Gibson, J. E.	Dryden	Part District of Kenora	1914, Dec. 5	1,300 00	
Grigg, Albert	Bruce Mines	" " Algoma	1925, Sept. 1	1,000 00	Also Homestead Inspector.
Hales, W.	Apsley	" County of Peterborough	1911, July 17	250 00	
Hough, John A.	Matheson	" District of Cochrane	1926, April 20	1,300 00	
MacPhie, W. F.	North Bay	" " Nipissing and Parry Sound	1929, Oct. 1	1,050 00	
McCrea, J. R.	New Liskeard	" " Temiskaming	1924, Nov. 15	1,300 00	
MacLennan, J. K.	Sudbury	" " Sudbury	1905, July 3	700 00	
MacChildon, J. P.	Sturgeon Falls	" " Nipissing and Part Sudbury	1923, April 27	1 60	per day
Millichamp, Thos.	Markstay	" " Nipissing and Sudbury	1928, Nov. 1	600 00	
Parsons, W. J.	North Bay	" " Nipissing and Parry Sound	1908, April 8	1,300 00	Died Sept. 11th, 1929.

Appendix No. 2—Continued
List of Agents for the year ending October 31st, 1929

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
Smith, J. D. C.	Kenora	Part District of Kenora	1921, May 9	.....	For salary see Crown Timber Agents and Mining Recorders.
Sheppard, H. E.	Kapuskasung	" " Cochrane	1909, Feb. 13	.....	For salary see Homestead Inspectors.
Teasdale, R. A.	Massey	" " Sudbury	1917, July 1	600 00	
Trinor, W. J.	Hilton Beach	St. Joseph Island	1925, Sept. 12	300 00	
Watt, F.	Pembroke	Part Kenfrew	1923, Sept. 11	300 00	
Wilson, A. N.	Kinmount	County of Peterborough and Haliburton	1915, May 6	175 00	
Wilson, S. H.	Port Arthur	District of Thunder Bay	1921, Nov. 26	1,300 00	
<i>Homestead Inspectors</i>					
Barnes, E. H.	Sault Ste. Marie	Part Algoma District	1929, June 20	1,050 00	
Barr, J. C.	Fort Frances	District of Rainy River	1906, Dec. 1	1,800 00	
Bastien, J. A.	Chelmsford	West Part of Sudbury District	1913, May 12	1,400 00	
Cragg, W. V.	New Liskeard	South Part of Temiskaming District	1913, April 1	1,900 00	
Dean, Thos.	Sault Ste. Marie	Part Algoma District	1908, Aug. 3	900 00	Also Crown Lands Agent. Died May 24th, 1929.
Gerhart, Wm. G.	Bracebridge	Muskoka District	1924, Oct. 14	1,200 00	Also Crown Lands Agent.
Grigg, Albert	Bruce Mines	Part District of Algoma	1925, Sept. 1	.....	For salary see Crown Lands Agents.
Hough, Wm.	Englehart	Centre Part of Temiskaming District	1926, Jan. 18	1,400 00	
Hughes, T.	Murillo	Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F.	Callander	District of Parry Sound	1920, June 10	1,800 00	
Owens, H. B.	CACHE Bay	East part Sudbury and West part Nipissing Districts	1918, July 1	1,300 00	
Sheppard, H. E.	Kapuskasung	Part District of Cochrane	1909, Feb. 13	1,900 00	Also Crown Lands Agent.
Smith, D.	Cochrane	" Cochrane District	1912, April 24	1,900 00	
Van Horn, L. E.	Monteith	" "	1920, Jan. 27	1,900 00	
Wigle, R. G.	Dryden	Kenora District	1914, June 1	1,800 00	

		<i>Timber Agents</i>			Also Crown Lands Agent and Mining Recorder.
Alexander, Jas. A.	Fort Frances.	Fort Frances District.	1921, May 26	2,500 00	
Fletcher, N. B.	Parry Sound.	Part Parry Sound and Muskoka Districts.	1923, Dec. 1	1,800 00	
Huckson, A. H.	Sault Ste. Marie.	" District of Algoma.	1914, April 1	2,500 00	
Larose, S. C.	Ottawa.	" Ottawa District.	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard.	" Temiskaming District.	1907, Jan. 1	2,500 00	
McDougall, J. T.	North Bay.	Nipissing and part Sudbury Districts.	1908, July 1	2,500 00	
Milway, Jos. H.	Port Arthur.	Part Thunder Bay District.	1910, Oct. 1	2,500 00	
Smith, J. D. C.	Kenora.	Kenora District.	1921, May 9	2,500 00	Also Acting Crown Lands Agent and Mining Re- corder.
Stevenson, A.	Peterborough.	Bellefleur District.	1905, Oct. 4	1,900 00	
Whelan, P. J.	Renfrew.	Renfrew Agency.	1908, Feb. 4	2,500 00	
Hartt, J. I.	Orillia.	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration.	1923, Sept. 5	4,400 00	
Hawkins, S. J.	Toronto.	Relieving Crown Timber Agent.	1905, Aug. 16	2,400 00	

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases and Amount of Collections for the year ending October 31st, 1929

Service	Acres Sold and Leased	Amount of Sales, and Leases	Collections on Sales, Leases, Land Taxes, etc.
<i>Lands Sold:</i>		\$ c.	\$ c.
Agricultural and Townsites.....	66,921.87	68,888 55	98,800 51
Clergy Lands.....			3,200 60
Common School Lands.....			3,650 88
University Lands.....	314.25	157 13	543 75
Grammar School Lands.....			945 17
<i>Lands Leased:</i>			
Crown.....	22,196.64	67,245 79	259,076 49
Temagami.....	96.78	954 00	4,069 67
Sand and Gravel.....			129 69
Provincial Land Tax.....			127,580 59
	89,529.54	137,245 47	497,997 35

Appendix No. 4

Statement of Revenue of the Department of Lands and Forests for the year ending
October 31st, 1929

Service	\$	c.	\$	c.	\$	c.
LANDS COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	84,939	14				
Townsites.....	13,861	37				
			98,800	51		
Clergy Lands.....	3,200	60				
Common School Lands.....	3,650	88				
University Grants.....	543	75				
Grammar School Lands.....	945	17				
			8,340	40		
					107,140	91
<i>Rent:</i>						
Crown Leases.....			243,645	74		
Algonquin Provincial Park.....			3,455	02		
Rondeau Provincial Park.....			9,462	15		
Bruce Beach.....			2,222	56		
Jordon Harbour.....			291	02		
Temagami Leases.....			4,069	67		
Sand and Gravel.....			129	69		
Provincial Land Tax.....			127,580	59		
					390,856	44
<i>Woods and Forests:</i>						
Bonus.....			1,993,566	05		
Timber Dues.....			1,861,308	73		
Ground Rent.....			109,609	84		
Fire Protection.....			353,258	07		
Transfer Fees.....			8,007	50		
Mill License Fees.....			594	80		
					4,326,344	99
<i>Parks:</i>						
Algonquin Provincial Park.....			8,963	78		
Rondeau Provincial Park.....			2,663	94		
Quetico Provincial Park.....			6,326	04		
					17,953	76
Casual Fees.....					2,687	95
REFUNDS						
Agents' Salaries.....			795	40		
Cullers' Act.....			268	00		
Contingencies.....			117	66		
Forest Ranging.....			101,414	02		
Forestry Act.....			3,032	35		
Fire Ranging.....			18,611	35		
Lac Seul Storage Dam.....			75,459	92		
Legal Fees and Expenses.....			35	00		
Insect Control.....			6	75		
Reforestation.....			15,013	70		
Unforeseen and Unprovided.....			140	00		
					214,894	15
					5,059,878	20

Appendix No. 5

Statement of Revenue Refunds of the Department of Lands and Forests
for the year ending October 31st, 1929

Service	\$	c.
Algonquin Park—Rent.....	76	25
Algonquin Park.....	217	00
Bruce Beach—Rent.....	17	48
Casual Fees.....	15	50
Crown Lands Sales.....	1,300	25
Crown Rent.....	470	00
Forest Ranging—Scalers' Wages.....	27	00
Ground Rent.....	117	80
Jordan Harbour.....	19	00
Mill License Fees.....	5	00
Provincial Land Taxes.....	486	09
Rondeau Provincial Park—Rent.....	175	00
Temagami Leases—Rent.....	10	00
Timber Dues.....	6,922	20
	\$9,858	57

Appendix No. 6

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1929, which are considered as Special Funds

Service	\$	c.	\$	c.
<i>Clergy Lands:</i>				
Principal.....	1,487	38		
Interest.....	1,713	22		
			3,200	60
<i>Grammar School Lands:</i>				
Principal.....	515	75		
Interest.....	429	42		
			945	17
<i>Common School Lands:</i>				
Principal.....	1,891	14		
Interest.....	1,759	74		
			3,650	88
<i>University Lands:</i>				
Principal.....	349	78		
Interest.....	193	97		
			543	75
			\$8,340	40

Appendix No. 7

Statement of Disbursements of the Department of Lands and Forests for the year ending October 31st, 1929

Service	\$	c.
MAIN OFFICES AND BRANCHES:		
Salaries—Lands.....	151,432	23
Salaries—Forestry.....	35,800	00
AGENTS' SALARIES AND DISBURSEMENTS.....	101,469	07
ALGONQUIN PROVINCIAL PARK.....	39,628	82
ALLOWANCE TO SCHOOL SECTION, SOUTH WALSHINGHAM.....	150	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF VESPRE.....	250	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CLARKE.....	150	00
ALLOWANCE TO SCHOOL SECTION, TOWNSHIP OF CHARLOTTEVILLE.....	150	00
BOARD OF SURVEYORS.....	200	00
CONTINGENCIES.....	65,905	59
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....	74,322	23
CULLERS' ACT.....	292	45
DISPLAY AT TORONTO EXHIBITION.....	690	98
DISPLAYS AT EXHIBITIONS AND FALL FAIRS.....	914	44
EXTRA SERVICES.....	100	00
EXPENDITURES UNDER THE FORESTRY ACT.....	44,269	42
FIRE RANGING.....	1,677,671	39
FOREST RANGING.....	456,842	02
FOREST RESERVES.....	7,258	54
FOREST RESEARCH.....	8,068	38
FOREST INSECT CONTROL WORK.....	5,574	11
GRANT—CANADIAN FORESTRY ASSOCIATION.....	1,000	00
INSURANCE.....	7,023	53
LEGAL FEES AND EXPENSES.....	709	78
LAC SEUL STORAGE DAM.....	159,567	93
MOVING EXPENSES OF OFFICIALS.....	35	00
OTTAWA AGENCY.....	2,662	66
QUETICO PROVINCIAL PARK.....	19,988	46
RONDEAU PROVINCIAL PARK.....	18,804	13
REFORESTATION.....	385,469	77
SURVEYS.....	122,058	55
VETERANS' COMMUTATION.....	50	00
STATUTORY:		
Minister's Salary.....	8,000	00
Salaries not otherwise provided for.....	1,028	12
Refunds.....	1,527	48
SPECIAL WARRANTS:		
Long Point Provincial Road.....	6,400	38
Compensation to R. F. Baggett for improvements on Lot 14, Con. 4, Phelps	150	00
	3,405,615	46

*Appendix*Statement of Timber and Amounts accrued from Timber Dues, Ground
QUANTITY AND

PROVINCE OF ONTARIO	Area covered by timber licenses	Saw Logs					
		Red and White Pine		Jack Pine		Other	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet
		19,608	4,532,771	203,098,820	4,770,295	72,891,128	2,419,105	71,869,318

STATEMENT OF

PROVINCE OF ONTARIO	Posts	Telegraph Poles	Pulpwood	Railway Ties	Lagging		Stulls	Car Stakes
	Pieces	Pieces	Cords	Pieces	Pieces	Cords	Pieces	Pieces
	37,049	37,435	461,992	1,916,686	6,954	10	123	5,362

Total amount received from all Forest sources, \$4,333,389.99. See Appendix No. 9.

No. 8

Rent, Fire Protection and Bonus, etc., during the year ending 31st October, 1929

DESCRIPTION OF TIMBER

Boom and Dimension Timber						Piling		Cordwood		Tan- bark	Lath- wood	Box- wood
Red and White Pine		Jack Pine		Other		Lineal Feet	Board Measure	Hard	Soft			
Pieces	Feet	Pieces	Feet	Pieces	Feet	Feet	Feet	Cords	Cords	Cords	Cords	Cords
30,644	4,643,676	26,903	2,272,461	22,250	2,159,746	141,607	40,271	8,987	60,969	946	416	5,681

TIMBER—Concluded.

Amounts Accrued

Timber Dues	Bonus	Trespass	Interest on Dues and Bonus	Ground Rent	Transfer Fees	Fire Tax	Mill License Fees	Annual Bonus	Total Accruals
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1,640,057 69	2,039,249 54	26,562 46	42,463 63	112,465 00	8,007 50	363,126 37	599 80	7,220 00	4,239,751 99

Appendix No. 9

Statement of Timber Revenue, Year 1928-29

Timber Dues.....		\$1,868,230 93
Bonus.....		1,993,566 05
Fire Protection.....		353,258 07
Ground Rent.....		109,727 64
Transfer Fees.....		8,007 50
Mill License Fees.....		599 80
		<u>\$4,333,389 99</u>
Timber Dues.....	\$1,608,641 96	
Interest on Timber Dues.....	42,058 97	
Timber Sale Deposits.....	217,530 00	
		<u>\$1,868,230 93</u>
Bonus.....		1,993,566 05
Fire Protection.....		353,258 07
Ground Rent.....	108,825 74	
Interest on Ground Rent.....	901 90	
		<u>109,727 64</u>
Transfer Fees.....		8,007 50
Mill License Fees.....		599 80
		<u>\$4,333,389 99</u>
Less Refund Account, Timber Dues.....	\$6,922 20	
“ “ “ Ground Rent.....	117 80	
“ “ “ Mill Fees.....	5 00	
		<u>7,045 00</u>
		<u>\$4,326,344 99</u>

Appendix No. 10

ACREAGE UNDER LICENSE

The area covered by timber licenses where the holder pays regulation ground rent and fire charges, at the end of the fiscal year 1929, was 19,608 square miles.

The number of Crown Timber Licenses issued for the license season of 1928-29 was 953.

Appendix No. 11

Timber areas disposed of from November 1st, 1928 to October 31st, 1929

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid			Proposition	File
						Kind of Timber	Bid	Upset			Dues
1928 Oct. 16	1928 Nov. 5	Bond Township (Part), Part Lots 5 and 6, Con. 1, District of Cochrane.	1/2	1	Hawk Lake Lumber Co., Cochrane, Ont.	Spruce Pulpwood..... Balsam Pulpwood.....	\$0 60 40	\$1 40 70	Pulpwood	35051
Oct. 19	Nov. 5	Berth A.T.W. 8A, District of Kenora.	3 1/2	1	G. E. Farlinger, Sioux Lookout	Jackpine.....	\$0 50	2 50	Logging	1423A
Oct. 5	Nov. 5	Berth M-27, District of Kenora.	16	2	Indian Lake Lumber Co., Winnipeg, Man.	Jackpine..... Spruce.....	50 1 00	2 50 2 00	Logging	39599
Oct. 6	Nov. 6	N. 2/3 Stedman Township and a block 6 miles square immediately north thereof, District of Thunder Bay.	60	5	Hacquoil Bros., Fort William	Jackpine..... Spruce..... Jackpine Ties.....	3 50 3 00 10 1/2	2 50 2 00 10	Mixed operation	77184
Oct. 10	Nov. 8	W. 1/2 Tolstoj Twp., N.W. 1/4 Terry Township, District of Timiskaming.	27	1	Ontario Paper Co. Ltd., Thorold, Ont.	Jackpine..... Spruce Pulpwood..... Balsam Pulpwood.....	4 00 60 75	2 50 140 70	Pulpwood	80518
Oct. 10	Nov. 8	E. 1/2 Timmins Township, District of Timiskaming.....	18	1	Hawk Lake Lumber Co., Cochrane, Ont.	Jackpine..... Spruce Pulpwood..... Balsam Pulpwood.....	4 00 60 75	2 50 1 40 70	Pulpwood	55113
Oct. 10	Nov. 8	Blocks 5, 6, 7, N. and S. of C.P. Ry., Gull River Sect., District of Kenora.	49	6	Messrs. Greer Bros. Port Arthur	Jackpine.....	6 90	2 50	Logging	37584

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1928 to October 31st, 1929

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid			Proposition	File	
						Kind of Timber	Bid	Upset			Dues
Oct. 8	Nov. 8	Area N. of G.T.P., Block 5, District of Thunder Bay.	56	8	Chas. W. Cox, Port Arthur, Ont.	Jackpine.....	\$6 00	\$4 00	\$2 50	Mixed	63116
						Spruce.....	4 50	4 00	2 00		
						Spruce Pulpwood.....	25	60	1 40		
						Balsam Pulpwood.....	20	50	70		
						Jackpine Ties.....	10	10	10		
Oct. 12	Nov. 13	N. 1/2 Adams Township, District of Timiskaming.	18	3	S. McChesney & Son, Ltd., Timmins, Ont.	White Pine.....	1 50	8 00	2 50	Mixed	28106
						Jackpine.....	1 50	6 00	2 50		
						Large Spruce.....	3 50	6 50	2 00		
						Spruce Pulpwood.....	50	60	1 40		
						Balsam Pulpwood.....	50	40	70		
						Yellow Birch.....	05 25	25	50		
						White Birch.....	05 25	25	50		
						Cedar Poles—					
						30 feet and less.....	05	10	25		
						31 to 40 feet.....	10	20	50		
						41 to 50 feet.....	10	30	75		
						51 feet and over.....	10	35	1 00		
Oct. 24	Nov. 16	Part Haggart Township, Block 1, District of Cochrane.....	1 1/2	3	Beaverwood Fibre Co., North Bay	Spruce Pulpwood.....	55	85	1 40	Pulpwood	21145
						Balsam Pulpwood.....	55	1 55	70		
						Poplar Pulpwood.....	15	10	40		
Oct. 24	Nov. 16	Part Haggart Township, Block 2, District of Cochrane.	3 3/4	2	Beaverwood Fibre Co., North Bay	Spruce Pulpwood.....	30	85	1 40	Pulpwood	21145
						Poplar Pulpwood.....	15	10	40		
Oct. 24	Nov. 16	Part Kendry Township, Block 3, District of Cochrane.	1	1	R. D. McKay, Cochrane	Spruce Pulpwood.....	\$0 05	1 10	1 40	Pulpwood	21145
						Balsam Pulpwood.....	05	1 80	70		

Oct. 19	Nov. 19	Area North of McGregor Township, east of Onion Lake, District of Thunder Bay.	65	7	E. E. Johnson, Port Arthur	Jackpine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Ties.....	1 50 2 00 75 1 55 4 25 04	6 50 6 00 60 40 10 10	2 50 2 00 1 40 70 40 10	Mixed	16064
Nov. 1	Nov. 26	Blyth Township, District of Nipissing.	36	1	Joseph Baechler, Wasing, Ont.	Hardwood..... Hemlock.....	2 50 2 00	2 50 1 50	2 50 1 50	Logging	68807
Nov. 6	Nov. 28	Part Temple Township, District of Kenora.	¼	2	A. J. Gardiner, Eagle River	Spruce Pulpwood..... Jackpine Pulpwood..... Poplar Pulpwood..... Jackpine Ties.....	20 60 05	10 10 05	1 40 40 40 20	Mixed	11226
Nov. 3	Dec. 1	Berth J.A-21, District of Rainy River.	12	2	Shevlin-Clarke Co., Ltd., Minneapolis, Minn.	Red and White Pine..... Jackpine.....	63 63	6 50 3 00	2 50 2 50	Milling	64440
Nov. 7	Dec. 3	Part Fowler Township, District of Thunder Bay.	1	3	Bruce Morrison, Port Arthur.	Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Jackpine Ties.....	..... 56 56 07	5 50 60 1 30 10	2 00 1 40 70 10	Mixed	8616A
Nov. 3	Dec. 3	Area North of G.T.P., Block 4, District of Thunder Bay.	18	5	Abitibi Power & Paper Co., Ltd., Toronto.	Spruce Pulpwood.....	65	70	1 40	Pulpwood	59107
Nov. 13	Dec. 4	Berth J.A-22, District of Rainy River.	4½	2	J. A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jackpine..... Jackpine Pulpwood.....	3 50 3 50 35	4 50 3 50 10	2 50 2 50 40	Logging	6138
Nov. 21	Dec. 14	Part Kendry Township, District of Cochrane.	11½	4	Wm. Kitts, Cochrane.	Spruce Pulpwood..... Poplar Pulpwood.....	45 01	1 15 10	1 40 40	Pulpwood	21145
Dec. 7	Dec. 21	Part Lundy Township, District of Timiskaming.	¾	1	John Aitchison, New Liskeard	White Pine..... Jackpine..... Spruce.....	3 00 3 00 3 00	3 50 2 50 3 00	2 50 2 00 2 00	Logging	16080

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1928 to October 31st, 1929

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1928 Dec. 15	1928 Dec. 28	Part Miscampbell Township, District of Rainy River.	¼	1	Jean Bugold, Fort Frances	Tamarac Fuelwood.....	.....	45	25	Fuelwood	60347
1929 Dec. 15	1929 Jan. 4	Part Comnee Township, Dis- trict of Thunder Bay.....	¼	1	Nestor Pary, Mokomon	Spruce Pulpwood.....	.....	75	1 40	Mixed	33966
						Balsam Pulpwood.....	.....	1 45	70		
						Ties.....	.....	12	10		
1929 Jan. 2	1929 Jan. 10	Zealand Township Part, Dis- trict of Kenora.	½	1	Dryden Paper Co., Ltd., Dryden, Ont.	Jackpine Pulpwood.....	.....	10	40	Clean up	23841
1928 Dec. 28	1928 Jan. 21	N.E. ¼ Adrian Township, District of Thunder Bay.	9	5	Ernest Parker, Port Arthur	Jackpine.....	50	7 00	2 50	Mixed	80856
						Spruce Pulpwood.....	85	75	1 40		
						Balsam Pulpwood.....	1 30	1 00	70		
						Poplar Pulpwood.....	2 50	10	40		
						Jackpine Ties.....	.....	13	10		
1929 Jan. 2	1929 Jan. 23	Area N. of Mud Lake, vicini- ty of Kabigon Sta., District of Thunder Bay.	4	6	J. E. Silverson, Fort William	White Pine.....	.....	9 00	2 50	Logging	80701
						Jackpine.....	.....	8 00	2 50		
						Spruce.....	.....	6 50	2 00		
						Jackpine Ties.....	03	13	10		

Jan. 8	Jan. 28	Part Hartman Township, District of Kenora.	1/4	1	Swan Swanson, Dinorwic	Jackpine Pulpwood.....	.....	10 05	40 10	Mixed	28203
Jan. 11	Feb. 1	Part Eby Township, District of Timiskaming.	1/4	1	Hill-Clark-Frances, Ltd. New Liskeard	White Pine..... Jackpine..... Spruce..... Cedar.....	..... ..... ..... .....	7 50 4 50 5 50 3 50	2 50 2 50 2 00 1 50	Logging	14756
Feb. 7	Feb. 18	Auld Township Part, District of Timiskaming.	1/4	1	Thos. Martindale, Cane P.O.	Spruce Pulpwood.....	.....	10 40	1 40	Pulpwood	20416
Feb. 9	Feb. 19	Marter Township Part, District of Timiskaming.	1/4	1	J. A. Amm, New Liskeard	Spruce Pulpwood.....	.....	60 25	1 40	Pulpwood	60136
Feb. 11	Feb. 21	Auld Township Part, District of Timiskaming.	1/4	3	Joseph Kirkey, Cane P.O.	Green Jackpine..... Fire Killed Jackpine..... Cedar..... Spruce Pulpwood.....	..... ..... ..... .....	4 50 50 50 1 50 50 50	2 50 2 50 1 50 1 40	Logging	20416
Feb. 11	Feb. 21	Auld Township Part, District of Timiskaming.	1/4	1	Joseph Kirkey, Cane P.O.	Red and White Pine..... Green Jackpine..... Spruce Pulpwood.....	..... ..... .....	7 00 4 00 35 10	2 50 2 50 1 40	Logging	20416
Feb. 18	Mar. 11	Parcels 2, 3, 4, 5, Vicinity of Gull Lake, District of Kenora.	16	2	Masabha Development Co., Ltd., Port Arthur	Parcels 2, 3, 4. Red and White Pine..... Jackpine..... Spruce..... Parcel 5. Jackpine..... Spruce.....	..... ..... ..... ..... ..... .....	25 10 25 25 8 00 25 8 50 25 9 00 25 9 50	2 50 2 50 2 00 2 50 2 00	Mixed	37584

Appendix No. 11—Continued
Timber areas disposed of from November 1st, 1928 to October 31st, 1929

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1929 Mar. 18	1929 Apr. 15	Area north of Quetico Station, District of Thunder Bay.	8¾	4	George Johnson, Port Arthur	Red and White Pine..... Jackpine.....	2 50 2 50	12 00 9 25	2 50 2 50	Logging	200A
May 29	June 24	Kenogaming Township, Dis- trict of Sudbury.	69½	1	Acme Timber Co., Ltd., Sudbury, Ont.	Red and White Pine..... Jackpine..... Spruce.....	6 00 4 00 5 00	6 00 4 00 5 00	2 50 2 50 2 00	Logging	62911
June 12	July 12	Calder Township Part, Dis- trict of Cochrane.	6	1	D. A. Chenier, Cochrane, Ont.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood.....	35 1 05 10	1 40 70 40	1 40 70 40	Pulpwood	28664
July 25	Aug. 15	Marven Township North Part District of Cochrane.	21	1	Hawk Lake Lum- ber Co., Ltd., Cochrane, Ont.	Spruce } Balsam } Spruce Pulpwood..... Balsam Pulpwood..... Poplar.....	4 50 1 00 80 10	2 00 1 40 70 40	2 00 1 40 70 40	Mixed	53229
Aug. 7	Aug. 26	Blount Township Part, Dis- trict of Cochrane.	¼	3	Wm. E. King, Blount, Ont.	Green Pulpwood..... Dry Fuelwood.....	12 70	1 00 10	1 40 25	Pulpwood	42060
May 1	Aug. 26	Pulpwood area, District of Sudbury.	975	1	Howard Smith Paper Mills, Ltd., Montreal, Que.	Spruce Pulpwood..... Balsam Pulpwood..... Poplar or Whitewood } Pulpwood } ..	10 10 10	65 1 35 20	1 40 70 40	Pulpwood	69592

Aug. 6	Sept. 3	Parts Townships McCart and Newmarket, District of Cochrane.	1/2	2	L. Silver, Timmins	Spruce Pulpwood.....	15	1 00	1 40	Pulpwood	74538
Aug. 8	Sept. 4	An area N. and W. of Berth's W-1 and 2, District of Thunder Bay.	9 1/2	3	John J. Kelly, Port Arthur	Spruce Pulpwood..... Jackpine Ties.....	50 07	35 05	1 40 10	Mixed	13778
Aug. 15	Sept. 5	Fraleigh Township Part, District of Thunder Bay.	1/2	2	John Oja Nolalu	Spruce..... Spruce Pulpwood..... Balsam Pulpwood.....	1 00 25 60	6 00 60 70	2 00 1 40 70	Pulpwood	26210
Aug. 8	Sept. 12	Berth J.A.-23, District of Rainy River.	10 1/4	1	J.A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jackpine..... Spruce..... Jackpine Pulpwood.....	25 25 25	7 00 3 50 5 00	2 50 2 50 2 00	Logging	39847
Aug. 8	Sept. 12	Parcels 2, 3, Berth J.A.-24, District of Rainy River.	7 1/4	1	J.A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jackpine..... Spruce..... Spruce Pulpwood..... Jackpine.....	25 25 25	7 00 3 50 4 50 20 10	2 50 2 50 2 00 1 40 40	Logging	797
Aug. 8	Sept. 12	Parcel 7, Berth J.A.-17, District of Rainy River.	9 1/2	1	J.A. Mathieu, Ltd., Rainy Lake	Red and White Pine..... Jackpine..... Jackpine Pulpwood.....	25	5 00 2 00 10	2 50 2 50 40	Logging	59722
Aug. 16	Sept. 19	Hook Township Part, District of Algoma.	20	1	Messrs. Lanthier & Hall, Hearst	Green J Pine Ties..... Dry or Burned Jackpine Ties.....		08	10 10	Ties	76931.

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1928 to October 31st, 1929

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1929 Aug. 9	Sept. 20	Bartlett Township, District of Timiskaming.	36	2	Hawk Lake Lumber Co., Cochrane	Red and White Pine. Jackpine. Spruce.	8 50 5 00 5 50	2 50 2 50 2 00	Logging	48802	
Aug. 9	Sept. 20	English Township, District of Sudbury.	36	2	Hawk Lake Lumber Co., Cochrane	White Pine. Jackpine. Spruce.	8 00 4 50 4 50	2 50 2 50 2 00	Logging	48802	
Aug. 9	Sept. 20	Nurse Township, District of Sudbury.	36	2	Hawk Lake Lumber Co., Cochrane	Red and White Pine. Jackpine. Spruce.	7 50 4 00 4 00	2 50 2 50 2 00	Logging	48802	
Aug. 12	Sept. 30	Parts Township 196, District of Algoma.	14	1	Carpenter Hixon Co., Ltd.	Red and White Pine. Spruce.	08 08	2 50 2 00	Logging	63937	
Aug. 12	Sept. 30	N.E. ¼ Township 9 B, N.W. ¼ Township 10A, E. ½ Township 10B, S.W. ¼, Township 20, District of Sudbury.	45	1	McNaught Lumber Co., Chapleau	White Pine. Jackpine. Spruce. Spruce Pulpwood.	15 10 15 60	2 50 2 50 2 00 1 40	Mixed	63681	
Sept. 14	Oct. 5	Part Sterling Township, District of Thunder Bay.	¼	2	Thos Brunner, Hurdett	Spruce Pulpwood. Jackpine.	35 05	1 40 15	Mixed	34146	

Sept. 6	Oct. 7	North Part Berth S-16, District of Kenora.	7½	1	Indian Lake Lumber Co., Winnipeg	Red Pine..... Jackpine..... Spruce..... Spruce Pulp..... Jackpine Pulp.....	50 3 00 3 50 20 10	7 00 4 50 4 50 40 10	2 50 2 50 2 00 1 40 40	Mixed	80677
Sept. 19	Oct. 11	Part N. Burleigh Township, County of Peterboro.	¼	2	Peterboro Lumber Co., Peterboro	Pine..... Hemlock.....	8 10 3 10	5 50 2 50	2 50 1 50	Logging	28733

Appendix No. 12

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, 1929

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
Chapman	Parry Sound	J. S. Freeborn,	1	10	1	10			1	210
Croft	"	Magnetawan	2	200			4	350	1	91
Gurd	"	"					2	167		
Lount	"	"	1	100			1	100	2	300
Machar	"	"	1	100					3	562
Mills	"	"			1	30				
Pringle	"	"	1	100						
Ryerson	"	"	1	200					1	200
Spence	"	"	1	100			1	100		
Strong	"	"	2	200			2	200	1	100
Armour	"	A. W. Freeland,	1	100			1	100	2	191
Bethune	"	Emsdale					2	280	2	255
Joly	"	"					3	324	1	100
McMurrich	"	"							1	200
Hardy	"	H. J. Ellis,							1	90
Himsworth	"	Powassan	4	401			3	301	2	400
Laurier	"	"			2	113 $\frac{1}{2}$ ₅	2	200	3	501 $\frac{1}{2}$
Nipissing	"	"	1	114	2	24	7	619	1	106
Patterson	"	"	1	100	1	3				
Bonfield	Nipissing	W. F. MacPhie,	1	100			3	310		
Boulter	"	North Bay	4	400			2	203		
Chisholm	"	"	3	300			6	844	1	206
Ferris	"	"	1	96.93			2	196.93	3	368.93
Anson	Haliburton	A. W. Fleming,							1	100
Glamorgan	"	Minden	3	292			3	292	1	189
Lutterworth	"	"							2	134
Snowdon	"	"	1	100			1	100		
Stanhope	"	"					3	302		
Anstruther	Peterboro'	Wm. Hales,							1	200
Burleigh N.D.	"	Apsley							1	201
Chandos	"	"	1	100						
Methuen	"	"					1	100	1	170
Cavendish	Haliburton	A. N. Wilson,	1	108			1	108		
Galway	"	Kinmount							1	20
Brunel	Muskoka	W. G. Gerhart,	1	99			2	180		
Franklin	"	Bracebridge					3	299		
Muskoka	"	"					1	10		
Oakley	"	"	1	98			1	98		
Ridout	"	"	1	100	1	6 4/5				
Wood	"	"					2	296		
Burpee	Parry Sound	Miss I. M. Campbell,					3	302		
Carling	"	Parry Sound			1	99				
Christie	"	"					6	720		
Conger	"	"			1	21.73			1	199.98
Ferguson	"	"	2	172			1	196		
Foley	"	"					1	100		
Hagerman	"	"	1	113			1	113	1	39
Henvey	"	"	1	200			2	195		
Humphrey	"	"							2	236
McConkey	"	"					1	97	1	100
McDougall	"	"					3	253	1	100
McKellar	"	"							1	100
McKenzie	"	"					2	204		
Monteith	"	"					15	1,937	1	160
Wilson	"	"			1	37			3	407

Appendix No. 12—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
Monmouth...	Haliburton...	A. N. Wilson, Kinmount					1	93		
Bangor.....	Hastings...	David Fuller, Bancroft	2	227			1	96		
Carlow.....	"	"							1	100
Cashel.....	"	"					2	174		
Herschel....	"	"	4	545			2	146	1	150
Limerick....	"	"	2	178			3	215	1	178
Mayo.....	"	"	2	164½			1	100	4	607½
Monteagle...	†	"	2	198			2	98		
Wicklow....	"	"							2	439½
Algona South.	Renfrew....	Frank Blank, Wilno	1	100						
Brougham...	"	"							2	274
Brudenell...	"	"	4	314½			2	143	3	257
Grattan.....	"	"					1	100		
Hagarty.....	"	"			1	100				
Jones.....	"	"	2	180			3	246		
Lyell.....	"	"	1	105	1	5	2	291		
Lyndoch....	"	"	1	100	2	10	1	100	3	259
Radcliffe....	"	"	4	478	2	22	6	596	5	703
Raglan.....	"	"	5	507	1	10	2	197	5	844½
Richards....	"	"	5	496			4	396		
Sebastopol...	"	"	1	100			1	100		
Sherwood....	"	"	1	198	1	8			3	300
Algona North.	"	Finlay Watt, Pembroke							1	100
Alice.....	"	"							1	100
Buchanan....	"	"							1	107
Fraser.....	"	"			1	7	2	232		
Head.....	"	"	1	132						
Maria.....	"	"							3	302
Petewawa....	"	"	2	201			2	210	2	121
Rolph.....	"	"	2	93					2	200
Wilberforce.	"	"	1	82			4	429		
Wylie Pt....	"	"					1	100		
Cameron Pt..	Nipissing...	J. A. Fink, Mattawa	1	127	1	190			1	99
Lauder.....	"	"			1	7				
Papineau....	"	"	3	300			3	300	1	100
Prince.....	Algoma....	E. H. Barnes, Sault Ste. Marie							1	160
Aberdeen....	"	Albert Grigg, Bruce Mines			1	160½	3	347½		
Galbraith....	"	"			1	10				
Lefroy.....	"	"								
Hilton.....	"	W. J. Trainor, Hilton Beach	1	118			1	118	1	72
Jocelyn....	"	"	1	100			1	100		
Baldwin....	Sudbury....	Ed. Arthurs, Espanola	2	327½	1	7½	3	320¾	1	140
Merritt.....	"	"	1	128			3	435	1	80
Blake.....	Thunder Bay	S. H. Wilson, Port Arthur	19	1,356	2	160	3	397	1	160
Conmee....	"	"	12	1,428	1	91	4	376	3	330¼
Crooks.....	"	"	2	263½			2	263½		
Dawson Road.	"	"	5	687	1	36	3	344	3	276.37
Dorion.....	"	"	8	1,289	1	40	1	160	3	385
Gillies.....	"	"	1	52			2	209½		
Gorham.....	"	"	21	2,834¾	1	88	5	666	3	381¾
Lybster....	"	"							2	160
Marks.....	"	"	10	1,419⅛			9	1,350	1	149½
McGregor....	"	"	6	796			10	1,354		
McIntyre....	"	"							1	159½
Oliver.....	"	"	2	319½			2	319½		
O'Connor....	"	"			1	2			1	168
Pardee.....	"	"	12	1,528½			2	282	4	640

Appendix No. 12—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
Pearson	Thunder Bay	S. H. Wilson	6	953	5	161	2	240 $\frac{1}{2}$		
Scoble	"	"	5	692			3	457		
Stirling	"	"	12	1,715.65			12	1,778	8	1,250 $\frac{3}{4}$
Strange	"	"	2	268 $\frac{1}{2}$			1	158 $\frac{1}{2}$		
Ware	"	"	14	2,085	1	2	5	720 $\frac{1}{2}$		
Blue	Rainy River	Wm. Cameron, Stratton	2	320			2	320	2	318
Curran	"	"					1	162		
Dewart	"	"	9	1,120 $\frac{3}{4}$	1	36 $\frac{3}{4}$	7	1,042 $\frac{1}{2}$	1	77 $\frac{1}{2}$
Mather	"	"	1	161			1	161		
Morley	"	"	1	164	1	4	2	123	2	244
Morson	"	"	6	549	1	2 $\frac{3}{4}$	9	1,102 $\frac{1}{4}$	1	187
McCrosson	"	"	4	319 $\frac{1}{2}$	2	90 $\frac{3}{4}$	4	400	3	469 $\frac{3}{4}$
Nelles	"	"	6	565	2	82	8	1,050		
Potts	"	"	4	559			4	560 $\frac{1}{2}$	1	159 $\frac{1}{2}$
Pratt	"	"	5	649			3	418 $\frac{1}{2}$	1	181
Richardson	"	"	4	598 $\frac{1}{2}$			1	159 $\frac{1}{2}$	1	160
Spohn	"	"	33	3,504 $\frac{1}{4}$	1	77 $\frac{1}{2}$	24	2,947 $\frac{1}{2}$	1	158
Sifton	"	"	7	662 $\frac{3}{4}$	2	58	11	1,248 $\frac{3}{4}$	1	175 $\frac{1}{2}$
Sutherland	"	"	2	240 $\frac{1}{4}$	1	80	6	721 $\frac{1}{4}$	3	394 $\frac{3}{4}$
Tait	"	"	1	80			4	486		
Tovell	"	"	2	338	2	1 $\frac{1}{2}$	7	879 $\frac{3}{4}$	2	198 $\frac{3}{8}$
Burriss	"	J. A. Alexander, Fort Frances			1	15 $\frac{1}{2}$				330 $\frac{1}{4}$
Carpenter	"	"					2	322	2	164
Crozier	"	"	1	81			10	1,408 $\frac{1}{2}$		
Dance	"	"	4	635	1	38 $\frac{1}{2}$				
Devlin	"	"	1	164						
Fleming	"	"	1	154						
Kingsford	"	"	2	369 $\frac{1}{2}$	3	4	7	1,162		
Lash	"	"					1	160	1	160
Roddick	"	"					1	80		
Woodyatt	"	"	1	36			1	36		
Aubrey	Kenora	J. E. Gibson, Dryden	6	561 $\frac{3}{4}$	2	13	7	60 $\frac{1}{2}$	4	600.83
Britton	"	"	6	879 $\frac{1}{2}$	1	1	7	1,120 $\frac{1}{2}$	2	320
Eton	"	"	2	319	3	102 $\frac{3}{4}$	3	479	8	1,908
Langton	"	"	4	491			2	146		
Melgund	"	"	8	1,044 $\frac{3}{4}$	4	61	11	1,704 $\frac{1}{2}$		
Mutrie	"	"	4	430	4	34 $\frac{1}{2}$	4	621	6	926 $\frac{1}{2}$
Rowell	"	"	4	639			4	558	4	617.24
Redvers	"	"	2	281 $\frac{1}{2}$						
Rugby	"	"	1	160			2	240 $\frac{1}{2}$		
Sanford	"	"	4	478 $\frac{1}{2}$	2	139 $\frac{1}{2}$	2	354	1	79 $\frac{1}{2}$
Southworth	"	"	11	1,728 $\frac{1}{2}$	5	86 $\frac{1}{4}$	10	1,565	2	360
Temple	"	"	5	814			7	933 $\frac{1}{2}$		
Van Horne	"	"			1	22 $\frac{3}{8}$			3	417
Wabigoon	"	"	9	1,293 $\frac{3}{4}$	2	5 $\frac{1}{2}$	13	1,767 $\frac{3}{4}$		
Wainwright	"	"	1	80	1	160	3	479 $\frac{1}{2}$		
Zealand	"	"	9	991 $\frac{1}{2}$	3	102 $\frac{3}{8}$	9	1,195.63	3	347
Melick	"	J. D. C. Smith, Kenora	9	1,300	1	126 $\frac{3}{8}$	11	1,579	2	226 $\frac{1}{4}$
Pellatt	"	"	5	500 $\frac{1}{2}$	1	112	4	337	5	804 $\frac{1}{2}$
Blezard	Sudbury	J. K. MacLennan, Sudbury					5	653	2	320 $\frac{1}{2}$
Broder	"	"	1	149	1	11	2	228 $\frac{1}{2}$	6	758 $\frac{1}{2}$
Capreol	"	"	1	159			2	204	2	159 $\frac{1}{4}$
Chapleau	"	"			1	155			1	107
Dill	"	"			1	160	6	925	3	480
Garson	"	"	1	160			12	1,704.7	1	160
Hanmer	"	"			1	85			1	165
Lumsden	"	"	3	320 $\frac{1}{2}$			2	240 $\frac{1}{4}$	2	240 $\frac{1}{4}$
Morgan	"	"							1	163 $\frac{1}{2}$

Appendix No. 12—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
Appleby.....	Sudbury....	T. A. Millichamp,	7	1,044	..	.....	2	322	1	125
Casimir.....	"	Markstay.....	3	446	..	.....	3	446	..	..
Hagar.....	"	"	12	1,758	2	110	11	1,637.87	6	1,021
Jennings.....	"	"	1	160½	..	.....	..	..	..	..
Kirkpatrick...	"	"	1	160	1	192.83	1	160	3	494
Ratter.....	"	"	2	373	..	.....	5	585	..	..
Caldwell.....	"	J. P. Marchildon,	..	..	1	1	2	320	1	160
Cosby.....	"	Sturgeon Falls.	1	162	1	2	1	162	..	..
Grant.....	"	"	4	635	..	.....	2	320	1	159½
Macpherson..	"	"	..	..	..	.....	..	..	1	131½
Martland.....	"	"	1	161	2	3	..	..	..	..
Springer.....	"	"	2	248.2	1	2	2	248.2	..	..
Abinger.....	Lennox and Addington	Chas. Both, Denbigh.....	1	96	..	.....	..	..	..	..
Miller.....	Frontenac..	"	..	..	1	84	..	..	1	84
Shawanaga...	Parry Sound	Unattached....	..	..	..	.....	1	147	..	..
Sabine.....	Nipissing...	"	1	100	..	.....	2	290	1	88.19
Total.....			456	56,577.22	99	3,725.86	505	61,506.46	220	30,185.49

Number of lots assigned, 140.

Number of acres assigned, 17,492½.

Appendix No. 13

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, 1929.

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Blount	Cochrane	S. J. Dempsey,	13	955.70	24	1,975		
Brower	"	Cochrane	4	378	5	611	3	460
Calder	"	"	21	1,615	83	7,525	2	296
Clute	"	"	2	145 $\frac{1}{2}$	18	2,198	5	743
Colquhoun	"	"	4	324	21	1,647		
Fox	"	"	6	556 $\frac{3}{4}$	12	1,442	4	614
Fournier	"	"	3	322 $\frac{1}{4}$	10	1,005		
Fauquier	"	"	3	225	5	517	4	652
Glackmeyer	"	"	1	75	6	748	4	609
Kennedy	"	"	1	75	7	975	1	149
Leitch	"	"	13	1,050	54	4,459		
Lamarche	"	"	4	322 $\frac{1}{2}$	9	1,106	2	304
Machin	"	"	6	483	9	899		
Newmarket	"	"	2	163	9	1,038		
Pyne	"	"	8	641 $\frac{1}{2}$	19	743		
Shackleton	"	"	3	241 $\frac{1}{2}$	8	1,052		
Haggart	"	"	29	4,082 $\frac{1}{2}$				
Kendry	"	"	4	374.21			7	838
Barker	"	John Bresnahan,	7	600	8	600		
Casgrain	"	Hearst	11	818 $\frac{1}{2}$	2	190	9	1,332
Devitt	"	"	29	2,289	36	2,694	2	294
Eilber	"	"	22	1,712	10	750		
Hanlan	"	"	22	1,654	9	944	6	923
Kendall	"	"	13	971	11	1,048	5	742
Lowther	"	"	22	1,714	14	1,321	5	577
McGowan	"	"	10	748				
O'Brien	"	H. E. Sheppard,	22	2,033	10	955	8	2,008
Nansen	"	Kapuskasing	3	222			1	151
McCrea	"	"	48	3,868 $\frac{1}{2}$	46	3,741		
Owens	"	"	8	778	11	1,037	5	535
Iddington	"	"	34	3,176	47	4,504	2	200
Williamson	"	"	6	568	10	956	5	473
Blain	Timiskaming	John Clark,	3	236 $\frac{1}{2}$	3	216		
Catharine	"	Englehart			3	399		
Chamberlain	"	"	3	240 $\frac{1}{4}$			5	676
Dack	"	"			1	80	1	121
Eby	"	"	7	639 $\frac{1}{2}$	1	80	5	200
Evanturel	"	"			1	158	2	319
Ingram	"	"	1	80 $\frac{1}{4}$	1	80	2	309
Marter	"	"	4	320 $\frac{1}{2}$	4	480	5	615
Marquis	"	"	1	73 $\frac{1}{2}$	8	866		
Otto	"	"	29	2,358	4	308	1	146
Pacaud	"	"	4	316	4	478	7	1,111
Pense	"	"	4	320	1	79		
Robillard	"	"	1	81 $\frac{1}{2}$	4	482	3	424
Savard	"	"			1	160	2	319
Sharpe	"	"			1	158		
Benoit	"	J. A. Hough,	6	460 $\frac{1}{2}$	7	701	7	992
Beatty	Cochrane	Matheson			1	156	5	424
Bond	"	"			7	1,042		
Bowman	"	"	1	76				
Calvert	"	"			2	318	2	321
Carr	"	"					4	568
Clergue	"	"			2	321		
Currie	"	"	4	314 $\frac{1}{4}$	32	4,167	3	415

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Dundonald	Cochrane	J. A. Hough,	1	78 ³ / ₄	1	165	4	513
Evelyn	"	Matheson			1	160	1	148
German	"	"	2	153	5	481		
Hislop	"	"			1	160	2	234
Matheson	"	"	5	397 ¹ / ₂	7	862	3	251
Mountjoy	"	"	3	229 ¹ / ₂	3	387	3	451
McCart	"	"	3	190	10	1,183		
Playfair	"	"					2	318
Stock	"	"			9	1,297	2	238
Taylor	"	"			5	615	4	535
Walker	"	"			13	1,957	6	961
Auld	Timiskaming	J. R. McCrea,			4	596		
Beauchamp	"	New Liskeard	1	79 ¹ / ₂	3	467	3	483
Bucke	"	"					2	200
Brethour	"	"	1	79			2	301
Cane	"	"	1	40	4	400	1	160
Dymond	"	"	1	1 ¹ / ₁₀			1	319
Firstbrook	"	"			7	1,055	1	134
Harley	"	"	1	80				
Henwood	"	"	1	79 ¹ / ₂	1	162	3	477
Hilliard	"	"	2	159 ¹ / ₂	3	477	2	241
Hudson	"	"			2	305	1	160
Lundy	"	"					1	80
Tudhope	"	"			1	71	2	169
Lorrain	"	N. J. McAulay,			1	98		
		Haileybury						
Hugel	Nipissing	T. A. Millichamp			1	80	1	160
Henry	"	Markstay	1	186	1	160		
Loughrin	"	"	12	1,936 ¹ / ₂	4	637	3	323
Loudon	"	"			1	164		
Phelps	"	W. F. MacPhie,	5	631	7	1,121	5	640
Widdifield	"	North Bay	1	160	5	800	5	608
Hallam	Sudbury	R. A. Teasdale,			1	160		
Harrow	"	Massey					1	159
May	"	"					1	327
Salter	"	"	1	161	2	269	2	213
Bigwood	"	J. K. MacLennan	2	268			7	871
Delamere	"	Sudbury	3	391 ¹ / ₂				
Dowling	"	"			2	344	3	233
Bright	Algoma	Albert Grigg,			1	315		
Bright, Add.	"	Bruce Mines	1	60	1	220		
Day	"	"					1	134
Deroche	"	"	1	137 ¹ / ₂			1	137
Gladstone	"	"			2	167	1	143
Gould	"	"	1	164				
Kirkwood	"	"	1	75	6	716	1	75
Tarbutt	"	"			1	159		
Thompson	"	"	2	319	3	480		
Wells	"	"			7	1,272		
Vankoughnet	"	E. H. Barnes,					1	165
Parkinson	"	Sault Ste. Marie					1	162
Devon	Thunder Bay	S. H. Wilson,						
		Port Arthur	25	3,628	1	160		
Forbes	"	"	13	2,015 ¹ / ₂	27	4,327		
Fowler	"	"	2	311 ¹ / ₂	7	1,163		
Goldie	"	"	4	609	4	627		
Jacques	"	"	18	2,603 ¹ / ₄	5	707		
Lyon	"	"			1	79	2	314
McTavish	"	"	4	616	2	310		

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of acres cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Nakina	Thunder Bay	S. H. Wilson,	1	15.7				
Nipigon	"	Port Arthur	2	315	1	160		
Sibley	"	"	14	1,998	2	312		
Upsala	"	"	9	1,366½	4	574	4	579
Drayton	Kenora	J. D. C. Smith,	2	29.82			1	108
Mason	Sudbury	Kenora			1	60		
Scollard	Nipissing	J. P. Marchildon,					1	162
Nairn	Sudbury	Sturgeon Falls						
		Ed. Arthurs.						
		Espanola	1	157½			1	145
Arran	Bruce	Unattached					1	100
Admaston	Renfrew	"	1	100	1	100	1	100
Amaranth	Dufferin	"			1	100		
Alfred	Prescott	"			1	100		
Badgerow	Nipissing	"	3	398			1	157
Bagot	Renfrew	"			6	735		
Barton	Wentworth	"	2	59.79				
Bedford	Renfrew	"			3	375	1	30
Bruce	Bruce	"					1	50
Barrie	Frontenac	"					1	80
Brant	Bruce	"					2	201
Bentinck	Grey	"					1	50
Burgess (North)	Lanark	"					1	57
Cleland	Sudbury	"	1	155½			1	149
Clark	Durham	"					1	8
Darling	Lanark	"			3	281		
Dalhousie	Lanark	"					2	200
Dummer	Peterborough	"					1	50
Denison	Sudbury	"					1	86
Drury	"	"	1	164	2	321	5	812
Dryden	"	"			1	161	1	40
Elzevir	Hastings	"			2	247		
Egremont	Grey	"					2	150
Edwardsburg	Grenville	"					1	100
Falconer	Nipissing	"	4	550½				
Field	"	"		92¾			3	325
Fairbank	Sudbury	"					1	119
Foster	"	"					1	159
Fenelon	Victoria	"			1	200		
Gainsboro	Lincoln	"	1	33.50			1	34
Glenelg	Grey	"			1	99	3	205
Hallowell	Prince Edward	"	1	58½			1	59
Hinchinbrooke	Frontenac	"	1	100				
Hungerford	Hastings	"			1	173		
Harvey	Peterborough	"					4	565
Houghton	Norfolk	"					2	100
Kaladar	Lennox and Addington	"	2	327½	3	229	2	173
Kincardine	Bruce	"					2	102
Kennebec	Frontenac	"					4	548
Lake	Hastings	"	2	206½	1	100	3	507
Lavant	Lanark	"	1	100			1	100
Lorne	Sudbury	"	1	160			1	160
Louise	"	"	2	242			3	410
Laxton	Victoria	"					1	100
Lansdowne	Leeds	"	1	30.16			1	100
London	Middlesex	"					1	62

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Matchedash.....	Simcoe.....	Unattached.....	2	176.30	.....	.....	2	192
Marne.....	Algoma.....	".....	1	146.20	.....	.....	.....	.....
Madoc.....	Hastings.....	".....	.....	.....	1	100	.....	.....
Marlborough.....	Carleton.....	".....	.....	.....	4	398	.....	.....
Maclennan.....	Sudbury.....	".....	1	216	.....	.....	1	100
Murray.....	Northumberland..	".....	.....	.....	.....	.....	2	136
McKim.....	Sudbury.....	".....	1	160	1	128	1	63
Orillia, North.....	Simcoe.....	".....	.....	.....	2	400	.....	.....
Oso.....	Frontenac.....	".....	.....	.....	1	217	4	511
Olden.....	".....	".....	.....	.....	.....	.....	1	80
Proton.....	Grey.....	".....	.....	.....	.....	.....	2	198
Ross.....	Renfrew.....	".....	1	116.21	.....	.....	.....	239
Roxborough.....	Stormont.....	".....	7	407.02	.....	.....	1	200
Ramsay.....	Lanark.....	".....	.....	.....	.....	.....	1	108
Seymour.....	Northumberland..	".....	2	25 $\frac{3}{8}$	1	69	.....	.....
Snider.....	Sudbury.....	".....	2	291.75	.....	.....	1	35
Sheffield.....	Lennox and Addington.....	".....	.....	.....	4	285	1	200
Sommerville.....	Victoria.....	".....	.....	.....	1	100	3	403
Sydenham.....	Grey.....	".....	.....	.....	.....	.....	1	100
Sherbrooke North	Lanark.....	".....	.....	.....	.....	.....	1	98
Sandwich East...	Essex.....	".....	1	66.11	.....	.....	.....	.....
Sandwich West...	".....	".....	1	9.43	.....	.....	.....	.....
Smythe.....	Timiskaming.....	".....	.....	.....	1	161	.....	.....
Tiny.....	Simcoe.....	".....	.....	.....	.....	.....	1	69
Tharah.....	Ontario.....	".....	.....	.....	.....	.....	1	8
Umbach.....	Kenora.....	".....	.....	.....	1	130	.....	.....
Victoria.....	Algoma.....	".....	.....	.....	.....	.....	1	154
Vespra.....	Simcoe.....	".....	.....	.....	1	200	.....	.....
Wolford.....	Grenville.....	".....	.....	.....	.....	.....	1	100
Waters.....	Sudbury.....	".....	1	160	.....	.....	3	470
Westmeath.....	Renfrew.....	".....	.....	.....	.....	.....	1	32
Total.....			645	62973.68	834	91,163	318	41,035

Number of lots assigned, 317.

Number of acres assigned, 40,370.

Appendix No. 13—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Cochrane.....	9	18
Cochrane.....	Matheson.....	7	16
Cochrane.....	Kapuskasung.....	5	2
Cochrane.....	Hearst.....	1	7
Algoma.....	Bruce Mines.....	2	2
Algoma.....	Sault Ste. Marie.....	..	2
Temiskaming.....	Englehart.....	4	3
Temiskaming.....	New Liskeard.....	1	..
Nipissing.....	Markstay.....	..	1
Nipissing.....	North Bay.....	4	1
Thunder Bay.....	Port Arthur.....	4	7
Sudbury.....	Sudbury.....	..	..
Kenora.....	Kenora.....	1	..
		38	59

Statement showing the number of purchases, acres sold and patents issued in cities, towns and town plots during the year ending October, 31st, 1929.

Towns, etc.	District or County	Agent	No. of acres sold	No. of purchasers	No. of patents issued	No. of acres patented
Alexandra.....	Cochrane.....	Unattached.....	.50	2	2	.50
Armstrong.....	Thunder Bay.....	".....	.20	1	..	..
Bartleman.....	Temiskaming.....	C. A. Duval.....	.07	1	2	.20
Capreol.....	Sudbury.....	Unattached.....	.13	1	2	.25
Dryden.....	Kenora.....	J. E. Gibson.....	..	..	1	.75
Ford City.....	Essex.....	Unattached.....	.10	1	1	.10
Gogama.....	Sudbury.....	".....	.11	2	2	.33
Gowganda.....	Temiskaming.....	".....	.19	1	2	.44
Hearst.....	Cochrane.....	J. Bresnahan.....	..	..	1	.23
Hilton.....	Algoma.....	W. J. Trainor.....	..	..	1	1.50
Hornepayne.....	".....	Unattached.....	.22	1	..	..
Hamilton.....	Wentworth.....	".....	..	..	2	5.25
Killarney.....	".....	".....	.10	1	1	10
Kapuskasung.....	Cochrane.....	H. E. Sheppard.....	.60	2	4	.69
Kirkland Lake.....	Temiskaming.....	Unattached.....	1.17	2	21	2.40
Keswick.....	York Co.....	".....	1.43	..	2	1.43
Macdiarmid.....	Thunder Bay.....	".....	..	..	1	.19
Missinabi.....	Algoma.....	John Bresnahan.....	.17	2	3	.77
Macfarlane.....	Kenora.....	Unattached.....	..	..	1	.93
Matheson.....	Cochrane.....	J. A. Hough.....	..	..	1	.24
Nakina.....	Thunder Bay.....	Unattached.....	.17	2	5	.87
Opasatika.....	Cochrane.....	".....	.50	..	1	.50
Sioux Lookout.....	Kenora.....	".....	1.10	5	15	4.04
Swastika.....	Temiskaming.....	".....	.48	2	4	.69
Savant.....	Thunder Bay.....	".....	1.92	8	1	.48
Winnipeg River Crossing.....	Kenora.....	".....	.34	1	3	1.26
Waldohf.....	".....	J. E. Gibson.....	.50	2	..	..
			10.00	37	79	34.04

Appendix No. 13—Continued

ISLANDS SOLD

Statement showing Islands sold as Summer Resorts

Part or Parcel	Township	District or County	Agent	No. of acres sold
Parcel 36, Pine Island		Algoma	E. H. Barnes	2.90
Island 517-A	Harrison	Parry Sound	Miss I. M. Campbell	.55
Parcel of Island 417-A, Georgian Bay	"	"	"	.90
Island K.G., Georgian Bay	"	"	"	.50
Island B-605	Cowper	"	"	1.10
Cameron Island	"	"	"	5
Pt. Island B-297	Conger	"	"	.70
Island D-351	"	"	"	4.40
Island in Otter Lake	Foley	"	"	2
Island opposite Northwest Lot 26, Con. 10	Hardy	"	H. J. Ellis	2
Island D, Clear Lake	Perry	"	A. W. Freeland	1
Pt. George Island, Lake Huron		Manitoulin	Unattached	9.70
Parcel 9 of Island T.P. 1503		"	"	1.80
Island T.P. 2451, White Fish Bay		"	"	2.44
Pt. George Island		"	"	3.20
Parcel 3 of Island T.P. 2831		"	"	5.40
Parcel 4 of Island T.P. 2831		"	"	3.50
Pt. of Island T.P. 1902, McGregor Bay		"	"	6.00
Island T.P. 2584		"	"	.71
Island T.P. 2781, White Fish Bay		"	"	1.32
Island T.P. 2566		"	"	4.28
Garden Island, Trout Lake	Palmerston	Frontenac	Chas. Both	1.50
Birch Island, Paudash Lake	Cardiff	Haliburton	A. N. Wilson	1.02
Island opposite Lot 19, Con. 2	Cavendish	Peterboro'	"	.80
Island in Gananoque River opposite Lot 7, Con. 9	Lansdowne	Leeds	"	1.06
Island I, Weslemekoon Lake	Ashby	Frontenac	Unattached	5.60
Weightman Island	St. Joseph Channel		"	1
Island 30, Mud Lake	S. Crosby	Leeds	"	.55
Tea Island, Gananoque Lake	Leeds	"	"	.62
Island G.R. 51, Wahnapiatae Lake	Maclennan	Sudbury	"	.60
Island 41, Wahnapiatae Lake	"	"	"	2.60
Island C, Clearwater Lake		"	"	1.50
Part of Island on Bear Lake		"	"	2.00
Island T.P. 3793, Tyson Lake		"	"	2.00
Island T.P. 3236		"	"	.70
Island 269	Bertram	"	"	1.20
Island G.R. 49	Rathbun	"	"	.70
Butterfield Island	Elmsley	Lanark	"	3.50
Pt. Island 131	Matchedash	Simcoe	"	.50
Island H.H. 127		Kenora	"	4.78
Island H.H. 197		"	"	4.44
Island G. 2010, Sabaskong Bay		"	"	4.90
Pt. Island G. 2019		"	"	4.50
Pt. Corkscrew Island		"	"	2.63
Island G. 2025, Sabaskong Bay		"	"	6

Appendix No. 13—Continued

ISLANDS SOLD—Continued

Statement showing Islands sold as Summer Resorts

Part or Parcel	Township	District or County	Agent	No. of acres sold
Island G. 2022, Lake of the Woods.....		Kenora.....	Unattached.....	.25
Island L.K. 349.....		“.....	“.....	5.35
Island G. 2004, Sabaskong Bay.....		“.....	“.....	3.20
Island T.D. 10, Winnipeg River.....		“.....	“.....	.60
Island W.D. 323, Andrew Bay.....		“.....	“.....	6.23
Island G. 2011, Sabaskong Bay.....		“.....	“.....	.70
Island W.D. 114, Bigstone Bay.....		“.....	“.....	2.20
Island G. 2038, Sabaskong Bay.....		“.....	“.....	5.80
Island G. 1883, Lake of the Woods.....		Rainy River.....	“.....	6.00
Lot B, Block 5, Island A.....		“.....	“.....	4.00
Island P, Clearwater Lake.....		“.....	“.....	1.00
Island G. 2023.....		“.....	“.....	3.10
Island G. 2016.....		“.....	“.....	.08
Island G. 2950.....		“.....	“.....	1.50
Island G. 2017, Lake of the Woods.....		“.....	“.....	9.20
Island V, West Bay.....	Loudon.....	Nipissing.....	T. A. Millichamp.....	4.00
Island S.S. 74, Walkers Lake.....		Thunder Bay.....	Unattached.....	.74
				168.05

Appendix No. 13—Continued

ISLANDS PATENTED

Statement showing Islands patented as Summer Resorts

Part or Parcel	Township	District or County	Agent	No. of acres Pat'd
Southwest Pt. Island 47, South Bay, Lake Nipissing.....		Parry Sound.....	H. J. Ellis.....	5
Island 45, Lake Nipissing.....		“.....	“.....	.45
Parcel 4 of Island 47-A, Georgian Bay.....	Harrison.....	“.....	Miss I. M. Campbell.....	.90
Island B-724.....	Cowper.....	“.....	“.....	.80
Pt. Island 370, Loon Bay of Georgian Bay.....	Carling.....	“.....	“.....	5
Island C-22.....	“.....	“.....	“.....	1.97
Island D, Cariboo Lake.....	McConkey.....	“.....	“.....	3.80
Island S, Lake Joseph.....	Humphrey.....	“.....	“.....	.40
Island G.R. 49 Wahnapiatae.....	Allen.....	Sudbury.....	Unattached.....	.70
Island H, French River.....	Mason.....	“.....	“.....	4
Island Lake N.W. ¼ Lot 11.....	Aweres.....	Algoma.....	E. H. Barnes.....	1
Island Lake S.E. ¼ Lot 11.....	“.....	“.....	“.....	.15
Island F, Paudash Lake.....	Cardiff.....	Haliburton.....	A. N. Wilson.....	5
Birch Island.....	“.....	“.....	“.....	1.02
Island in Gananoque River.....	Lansdowne.....	Leeds Co.....	Unattached.....	1.06
				31.25

Appendix No. 13—Continued

MAINLAND SOLD

Under Summer Resort Regulations

Part or Parcel	Township	District or County	Agent	No. of acres
Location P.P. 628, Two Island Lake.....	Jacques & Fowler	Thunder Bay...	S. H. Wilson.....	3.5
Location P.P. 629, Two Island Lake.....	"	"	"	3.6
Location P.P. 630, Two Island Lake.....	"	"	"	4.6
Location P.P. 631, Two Island Lake.....	"	"	"	4.6
Location P.P. 635, Two Island Lake.....	"	"	"	3.6
Location P.P. 636, Two Island Lake.....	"	"	"	4.10
Location P.P. 637, Two Island Lake.....	"	"	"	4.7
Location P.P. 639, Two Island Lake.....	"	"	"	3.5
Location P.P. 640, Two Island Lake.....	"	"	"	4
Location P.P. 642, Two Island Lake.....	"	"	"	5.5
Location P.P. 643, Two Island Lake.....	"	"	"	3.4
Location P.P. 644, Two Island Lake.....	"	"	"	4.8
Location P.P. 645, Two Island Lake.....	"	"	"	5.8
Location P.P. 646, Two Island Lake.....	"	"	"	5
Location P.P. 648, Two Island Lake.....	"	"	"	6.1
Location P.P. 649, Two Island Lake.....	"	"	"	4.7
Location P.P. 650, Two Island Lake.....	"	"	"	3
Location P.P. 669, Two Island Lake.....	"	"	"	4.1
Location 30-A, Trout Lake.....	Ware	"	"	.07
Location 40, Trout Lake.....	"	"	"	1.97
Location 42, Trout Lake.....	"	"	"	1.17
Location 44, Trout Lake.....	"	"	"	1
Location 45, Trout Lake.....	"	"	"	1.19
Location 12, Trout Lake.....	Gorham	"	"	.96
Location 14, Trout Lake.....	"	"	"	.78
Location 15, Trout Lake.....	"	"	"	.76
Location 28, Trout Lake.....	"	"	"	1.53
Location 30, Trout Lake.....	"	"	"	.30
Location 56, Trout Lake.....	"	"	"	2.36
Location P.P. 168, Lower Shebandowan Lake.....		"	"	1.86
Location S.F. 67, Shebandowan Lake.....		"	"	4.90
Location P.P. 177, Lower Shebandowan Lake.....		"	"	1.57
Location P.P. 182, Lower Shebandowan Lake.....		"	"	1.77
Location P.P. 184, Lower Shebandowan Lake.....		"	"	1.84
Location P.P. 339, Lower Shebandowan Lake.....		"	"	1.80
Location P.P. 482, Lower Shebandowan Lake.....		"	"	1.59

Appendix No. 13—Continued

MAINLAND SOLD

Under Summer Resort Regulations

Part or Parcel	Township	District or County	Agent	No. of acres
Location P.P. 483, Lower Shebandowan Lake.....		Thunder Bay.....	S. H. Wilson.....	1.62
Location J.K. 196, Jackfish Bay.....		".....	Unattached.....	.29
Location S.F. 73.....		".....	".....	5.00
Location S.F. 65.....		".....	".....	1.65
Land at Marvella Station.....		".....	".....	1.40
Lake Wahnapiatae.....	MacLennan.....	Sudbury.....	".....	2.80
Lake Wahnapiatae.....	".....	".....	".....	3
Part Lot 13, Con. 2.....	Mason.....	".....	J. P. Marchildon.....	5
Location 10, Clearwater Lake.....		Rainy River.....	J. A. Alexander.....	1.26
Location 34, Clearwater Lake.....		".....	".....	3
Location 69, Clearwater Lake.....		".....	".....	1.45
Location 112, Clearwater Lake.....		".....	".....	1.05
Location 113, Clearwater Lake.....		".....	".....	1.08
Location 133, Clearwater Lake.....		".....	".....	1.29
Location 134, Clearwater Lake.....		".....	".....	1
Location 135, Clearwater Lake.....		".....	".....	.53
Location 137, Clearwater Lake.....		".....	".....	.60
Pt. Location G. 2949.....		".....	Unattached.....	5
Location R.R. 15.....		".....	".....	.87
Pt. Location L.K. 353, Granite Lake.....		Kenora.....	".....	4.50
Location L.K. 348, Clear Water Bay.....		".....	".....	.60
Location L.K. 352.....		".....	".....	6.60
Location L.K., 350, Rocky Lake.....		".....	".....	3.15
Location L.K. 355, Rocky Lake.....		".....	".....	4.95
Location G. 881.....		".....	".....	5
Pt. Location K. 12.....		".....	".....	4
Location T.D. 70, Sand Lake.....		".....	".....	8
Location L.K. 356.....		".....	".....	1.08
Location A-10.....		".....	".....	3.65
Location J.K. 197.....		".....	".....	5.00
Pt. of Location J.C. 40, Ptarmigan Bay.....		".....	".....	5.40
Pt. Location J.C. 40, Ptarmigan Bay.....		".....	".....	5.40
Pt. Location M.H. 50, Portage Bay.....		".....	".....	4.95
Location L.K. 338, Clear Water Bay.....		".....	".....	3.90
Location L.K. 284, Long Pine Lake.....		".....	".....	3.30
Location L.K. 309, Granite Lake.....		".....	".....	4.55
Location L.K. 308, Granite Lake.....		".....	".....	4.54
Parcel at Little Vermillion Lake.....		".....	".....	5.00
Parcel at Little Vermillion Lake.....		".....	".....	5.00
Location L.K. 364, Island Lake.....		".....	".....	5.00
Location L.K. 365, Island Lake.....		".....	".....	5.00
Location D. 11, Clear Water Bay.....		".....	".....	5.00

Appendix 13—Continued

MAINLAND SOLD

Under Summer Resort Regulations

Part or Parcel	Township	District or County	Agent	No. of acres
Pt. Location L.K. 276.....		Kenora.....	Unattached.....	97
Location L.K. 362.....		“.....	“.....	1.80
Location A-9.....		“.....	“.....	3.78
Pt. Southwest $\frac{1}{4}$ Section 11..	Aweres.....	Algoma.....	E. H. Barnes.....	.60
Part of South half Lot 12, Con. 4.....	Grassett.....	“.....	Unattached.....	5.00
Part Lot 7, Con. 5.....	Croft.....	Parry Sound....	J. S. Freeborn.....	5
Part Lot 11, Con. 18.....	Nipissing.....	“.....	H. J. Ellis.....	2
Part of Lot 9, Con. A.....	Olig.....	Nipissing.....	Unattached.....	14.00
Land on Boyce Lake.....		“.....	“.....	18
Part Lot 10, Con. 2.....	Maisonville....	Cochrane.....	J. A. Hough.....	6.50
Part Lot 11, Subdivision, Lot 12, Con. 1.....	Cardwell.....	Muskoka.....	W. G. Gerhart.....	1.04
Part Lots 6 and 7, Con. 9.....	Anglesea.....	Lennox and Add- ington.....	Unattached.....	22.45
Part Lot 3, Con. 7.....	Wicklow.....	Hastings.....	David Fuller.....	5
Part Lot 11, Con. 5.....	Limerick.....	“.....	“.....	.50
Part Lot 25, Con. 9.....	Methuen.....	Peterboro'.....	Wm. Hales.....	5
Part Lot 31, Con. 5.....	Dummer.....	“.....	Unattached.....	1.00
Parcel at Osnaburg Post.....		Lake St. Joseph.	“.....	25.00
				<hr/> 365.12

Appendix No. 14

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st November, 1928, to 31st October, 1929.

Public Lands (Patents).....	520
Free Grant Lands (Patents).....	236
Mining Lands (Patents).....	704
Mining Leases.....	140
Crown Leases.....	12
Licenses of Occupation.....	283
Temagami Island Leases.....	5
Sand and Gravel Licenses.....	49
Pine Patents.....	17
Water Power Leases.....	7
Algonquin Park Leases.....	7
Rondeau Park Leases.....	70
Bruce Beach Leases.....	104
Dredging Leases.....	2
Total.....	2,156

Appendix No. 15

RECORDS BRANCH 1928-1929

Communications received:	
From Crown Land Agents.....	7,493
From Crown Timber Agents.....	5,135
From Mining Recorders.....	4,782
From Homestead Inspectors.....	2,870
From Superintendent Algonquin Park.....	567
From Superintendent Quetico Park.....	168
From Superintendent Rondeau Park.....	633
Orders-in-Council.....	195
Telegrams.....	364
All other sources.....	29,677
Total incoming (Minister's office and Land Tax Branch not included).....	51,889
Communications sent out:	
To Crown Land and Timber Agents, Inspectors and Park Superintendents.....	20,399
To General Public.....	21,700
Circular letters re timber sales and mill licenses.....	5,500
Maps and blue prints by Surveys Branch.....	7,000
Summer Home booklets, free maps and statistics.....	4,500
Total outgoing (Minister's office and Land Tax Branch not included).....	59,099
Files:	
New files issued—General.....	4,500
New files issued—Accounts Chargeable.....	1,047
New files issued—Accounts free.....	336

Appendix No. 16

REPORT OF SURVEYOR-GENERAL

The following surveys were carried out under instructions from this Department during the past year:—

PROVINCIAL BOUNDARIES

Ontario-Manitoba Boundary from 12th Base Line to Eastern end of Island Lake, by Ontario Land Surveyor J. W. Pierce, Ottawa.

BASE AND MERIDIAN LINES

Seventh Base Line east, continued through District of Cochrane by Ontario Land Surveyors Beatty & Beatty, Pembroke.

Base and Meridian Lines in the district of Kenora, Patricia portion by Ontario Land Surveyors, Phillips & Benner, Port Arthur.

Meridian Line in the district of Kenora, by Ontario Land Surveyors, Speight & vanNostrand, Toronto.

Meridian Line in the district of Kenora, Patricia portion, by Ontario Land Surveyor C. R. Kenny, Sault Ste. Marie.

RE-SURVEYS

Resurvey of township boundaries in the district of Sudbury, by Ontario Land Surveyor, J. R. Gill, Sudbury.

Resurvey of Township boundaries in the districts of Sudbury and Temiskaming, by Ontario Land Surveyor, E. L. Moore, North Bay.

Resurvey of township boundaries in the Districts of Temiskaming and Cochrane, by Ontario Land Surveyor H. W. Sutcliffe, New Liskeard.

Resurvey of Concession and Side Lines in the townships of McCool, Beatty and Munro, district of Cochrane, by Ontario Land Surveyor E. W. Neelands, New Liskeard.

LAKE AND RIVER TRAVERSES

• Traverse survey of waters north of Lake St. Joseph, district of Kenora, Patricia portion, by Ontario Land Surveyor, C. R. Kenny, Sault Ste. Marie.

Traverse survey of Albany River, in the district of Cochrane, by Ontario Land Surveyor, J. S. Dobie, Thessalon.

ROAD SURVEYS

Survey of constructed roads in the township of Nipissing, by Ontario Land Surveyor, E. Stewart, Collingwood.

Survey of constructed roads in the district of Sudbury, by Ontario Land Surveyor, E. L. Cavana, Orillia.

Survey of constructed roads in the district of Algoma, by Ontario Land Surveyor, C. E. Bush, Toronto.

- Survey of constructed roads in the district of Manitoulin, by Ontario Land Surveyor, T. J. Patten, Little Current.
- Survey of constructed roads in the district of Kenora, by Ontario Land Surveyor, R. S. Kirkup, Fort William.
- Survey of constructed roads in the township of Pellatt, district of Kenora, by Ontario Land Surveyor, A. McMeekin, Kenora.
- Survey of constructed roads in the district of Temiskaming, by Ontario Land Surveyor, A. Matheson, Swastika.
- Survey of constructed roads in the district of Rainy River, by Ontario Land Surveyor, D. J. Gillon, Fort Frances.

SUMMER RESORT SURVEYS

- Townplot on Nemogos, in the district of Sudbury, by Ontario Land Surveyor, C. E. Fitton, Toronto.
- Summer Resorts on One Sided Lake, district of Rainy River, by Ontario Land Surveyor, D. J. Gillon, Fort Frances.
- Summer Resorts on Island Lake in the township of McMahan, by Ontario Land Surveyor, T. J. Patten, Little Current.

MISCELLANEOUS SURVEYS

- Survey of certain Mining Claims in Township 28, Range 24, district of Algoma, by Ontario Land Surveyor, R. S. Code, Toronto.
- Resurvey of part of the townplot of Inverhuron, in the County of Bruce, by Ontario Land Surveyor, E. D. Bolton, Listowel.
- Control survey for aerial mapping, in the district of Sudbury, by Ontario Land Surveyor, W. F. B. Rubidge, Port Credit.
- Reference Points on Crow River in the district of Kenora, Patricia portion, by Ontario Land Surveyor, H. W. Sutcliffe, New Liskeard.

SUBDIVISIONS UNDER TOWNSITES ACT.

- Subdivision of Lot No. 4, Island A. 1, Sesekinika Lake, in the township of Grenfell.

MUNICIPAL SURVEYS

Municipal surveys performed under instructions and authority of the Lieutenant-Governor-in-Council, were completed and confirmed as follows:—

1. Part of Main Street in the City of Hamilton.
2. Boundaries of Lots 4 and 5, Concession 3, south of Dundas Street, township of Toronto.
3. Original road allowance from Lot 149 northerly, in the township of Thorold.
4. Original road allowance between Lots 20 and 21, in the 7th Concession, in the township of Hope.

Maps

The following maps have been published during the year:—

- 24 A. Kenora and Rainy River. (Revised reprint).
 20 D. Quetico Provincial Park. (New).

23 A. Thunder Bay District. (Reprint).

21 A. Southern Ontario. (Revised reprint).

Key map of Islands in Georgian Bay. (New). Township Plans of Cowper, McKenzie, Harrison, Freeman, and Humphry. (Reprints).

Part of the District of Temiskaming, at the head of Lake Temiskaming. (Revised reprint).

Pulpwood Timber Limit. District of Sudbury. (New).

Extracts from the reports of the several surveyors employed during the year, will be found in Appendices 21 to 32.

L. V. RORKE,

Surveyor-General.

Deputy Minister.

Appendix No. 17

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1929

No	Surveyor	No.	Date of Instructions	Description of Survey
1	Herbert Johnston....	765	Dec. 7, 1928	Side road allowance between lots 9 and 10 from S. of con. 7 to N. limit of con. 14 in western section. Road allowance between cons. 6 and 7 in western section. Road allowance between cons. 7 and 8 in eastern section. Road allowance between eastern and western sections of township across cons. 1 to 6, from S. limit of western section, all in township of Wellesley.
2	T. Campbell Smith...	766	Dec. 17, 1928	Side road allowance between lots 20 and 21, 7th con., Township of Hope.
3	T. H. Wiggins.....	767	Dec. 18, 1928	Concession road allowance between 10th and 11th con., lots 12 to 28 inclusive, township of Cumberland.
4	Herbert Johnston....	768	Dec. 19, 1928	Boundaries of County road in township of Woolwich—part of County Road No. 9, known as Waterloo-Elmira Highway, from southerly to northerly boundary of township of Woolwich.
5	Herbert Johnston....	769	Dec. 19, 1928	County Road No. 9 from N. boundary of town of Waterloo to N. boundary of township of Waterloo, known as Waterloo-Elmira Road, through lots 12, 7, 8, 9, in the German Company Tract, of township of Waterloo.
6	W. F. B. Rubidge...	770	Apr. 10, 1929	Boundaries of road allowances in and adjoining township Chinguacousy; road allowance on east boundary of township throughout its entire length. Road allowance along south boundary of township from centre road to east boundary, across cons. 1 to 6; road allowance between lots 5 and 6 across cons. 2 to 6, east of centre road. Allowance between lots 17 and 18, across cons. 1 to 6, east of centre road. Allowance between lots 27 and 28, cons. 1 to 6, east of centre road.
7	Maxim T. Gray.....	771	Apr. 22, 1929	Boundaries of certain streets in the village of Fort Erie as shown on registered plans. Also part of township lot 3, con. 1, Township of Bertie.
8	Speight & vanNstrand.....	772	May 7, 1929	Kipling Avenue between Lake Shore Road and Queen Street in municipalities of New Toronto and township of Etobicoke—between lots 5 and 6, con. 1 of S. part of township and road allowance on the W. across lots 6 to 9.
9	W. F. B. Rubidge...	773	July 2, 1929	Boundaries of original road allowance between lots 30 and 31 in con. 2, south of Dundas Street, township of Toronto.
10	Campbell T. Smith..	774	July 31, 1929	Boundaries of Cavan Street and that part of Mill Street between Walton Street and Ontario Street in the Town of Port Hope.
11	MacKay & MacKay	775	Aug. 6, 1929	Original road allowance between lots 14 and 15 across broken front and cons. 1, 2, and 3 in the township of Saltfleet.

Appendix No. 18

Statement of Municipal Surveys confirmed during the twelve months ending October 31st, 1928

No.	Surveyor	No.	Date of Instructions	Description of Survey	Date of Confirmation
1	Jas. J. MacKay	710	Dec. 5, 1916	Limits of part of original allowance for road between 2nd and 3rd cons. of township Barton (now called Main Street) lying in city of Hamilton between original allowance for road between lots 18 and 19 on the east, and division line between townships Barton and Ancaster on the west.	Nov. 30, 1928
2	Speight & van Nostrand....	748	Dec. 23, 1925	Front and rear angles and the southerly and easterly boundaries of lots 4 and 5 in con. 3 S. of Dundas Street, Township of Toronto....	April, 18, 1929
3	F.L. Rutherford	763	Sept. 24, 1928	Original road allowance from south boundary of lot 149 at the southeast angle in township of Thorold northerly to the northern boundary of the township.....	May 16, 1929
4	Camp. T. Smith	766	Dec. 17, 1928	Side road allowance between lots 20 and 21 in the 7th concession of township of Hope.....	April 10, 1929

Appendix No. 19

Statement of Crown Surveys in progress during the twelve months ending October 31st, 1929

No	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	Mar. 21, 1929	E. D. Bolton.....	Westerly part town plot of Inverhuron in County of Bruce.....	\$1,250 00
2	Mar. 23, 1929	Beatty & Beatty.....	Base line in District of Cochrane.....	9,900 00
3	April 9, 1929	Phillips & Benner....	Base and meridian line in Patricia portion, District of Kenora.....	7,840 00
4	April 9, 1929	Speight & vanNos- trand.....	Survey meridian line, District Kenora.....	7,599 00
5	April 9, 1929	C. R. Kenny.....	Meridian line and traverse certain waters north of Lake St. Joseph, District of Kenora (Patricia portion).....	5,200 00
6	April 9, 1929	J. R. Gill.....	Retracement of township boundaries, district Sudbury.....	3,300 00
7	April 9, 1929	E. L. Moore.....	Retracement of certain township boundaries in district of Sudbury and Temiskaming.....	5,600 00
8	April 9, 1929	H. W. Sutcliffe.....	Retracement of certain township boundaries district Temiskaming and Cochrane.....	1,500 00
9	May 15, 1929	E. W. Neelands.....	Retrace certain lines in District of Cochrane.....	1,000 00
10	April 30, 1929	C. E. Fitton.....	Small location lots at Nemegos district of, Sudbury.....	200 00
11	May 2, 1929	D. J. Gillon.....	Summer resorts One Sided Lake, district of Rainy River.....	970 00
12	May 1, 1929	J. S. Dobie.....	Traverse Albany River, district Cochrane..	7,500 00
13	May 4, 1929	C. E. Fitton.....	Summer resorts Temagami Islands, district Nipissing.....	1,198 00
14	May 13, 1929	J. W. Pierce.....	Survey Ontario and Manitoba boundary..	3,000 00
15	May 15, 1929	Elihu Stewart.....	Roads in district Nipissing and Sudbury...	3,700 00
16	May 10, 1929	E. L. Cavana.....	Survey roads in district Sudbury.....	2,000 00
17	May 1, 1929	R. S. Kirkup.....	Roads in district Kenora.....	2,900 00
18	May 15, 1929	C. E. Bush.....	Roads in district Algoma.....	4,390 00
19	May 1, 1929	D. J. Gillon.....	Roads in district Rainy River.....	2,450 00
20	May 22, 1929	T. J. Patten.....	Roads in district Sudbury and Manitoulin..	700 00
21	May 28, 1929	A. McMeekin.....	Roads in district Kenora.....	900 00
22	May 31, 1929	A. Matheson.....	Roads in district Temiskaming.....	3,500 00
23	Aug. 5, 1929	T. J. Patten.....	Summer resorts at Island, Aberdeen and Patten Lakes in township McMahon....	800 00
				\$77,396 00

Appendix No. 20

Statement of Crown Surveys completed and closed during twelve months ending October 31, 1929

No	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
1	May 29, 1928	E. L. Moore	Township boundaries in district Nipissing . .	\$4,643 80
2	May 21, 1928	W. F. B. Rubidge	Certain miscellaneous surveys in district Parry Sound and Nipissing control for aerial mapping	2,722 80
3	June 16, 1928	Phillips & Benner	Summer resort locations in Two Island Lake Township of Jacques, district of Thunder Bay	1,351 48
4	May 21, 1928	E. L. Cavana	Traverse survey, districts Parry Sound and Nipissing Control aerial mapping	6,957 99
5	June 16, 1927	T. B. Speight	Certain side lines and concession lines in Township Ameliasburg	306 37
6	April 11, 1927	E. L. Cavana	Traverse shore line Sturgeon Lake, district Thunder Bay	568 40
7	May 15, 1928	C. E. Fitton	Summer resort lots on shores and islands in Gull Lake, Township Lutterworth	1,290 16
8	April 16, 1928	Beatty & Beatty	Survey of base line, district Thunder Bay .	2,587 19
9	.....	E. W. Neelands	Survey of part lot 10, con. 1, Maisonville, district Temiskaming	85 95
10	May 21, 1928	Jas. T. Coltham	Certain miscellaneous surveys in the district of Parry Sound, control for aerial mapping	2,499 15
11	Aug. 15, 1928	C. E. Fitton	Summer resort lots in Cardwell township, district of Muskoka	657 64
12	Dec. 13, 1928	Phillips & Benner	Road through part broken lot 1, con. 8, Township of Ware, district of Thunder Bay	52 25
13	April 25, 1928	Speight & van- Nostrand	Certain base and meridian lines, district Kenora	1,986 12
14	Jan. 15, 1929	J. C. Butterfield	Surveys in Storrington and Lake townships, County of Frontenac	229 67
15	July 15, 1928	A. Matheson	Survey summer resort locations in Temagami Lake, District of Nipissing	1,272 20
16	May 10, 1928	D. J. Gillon	Summer resort locations Clearwater Lake district Rainy River	1,669 75
17	May 18, 1928	C. H. Wilkins	Establish monuments between Rat House Bay and Favourable Lake, district Kenora (Patricia portion)	743 09
18	May 15, 1928	C. R. Kenny	Traverse certain rivers in Michipicoten area, district of Algoma	913 64
19	June 15, 1928	Arch. Gillies	Traverse Kamiskotia River, district of Cochrane	525 25
20	April 16, 1928	James S. Dobie	Traverse from Lake St. Joseph down the Albany River, district of Thunder Bay . .	1,680 00
21	May 1, 1928	J. R. Gill	Township outlines, district Manitoulin and Sudbury	2,072 15
22	May 10, 1928	T. J. Patten	Traverse of lakes and rivers near McGregor Bay, district Sudbury and Manitoulin	650 40
23	May 10, 1928	E. W. Neelands	Township outlines, district Nipissing	2,345 00
24	July 2, 1929	W. F. B. Rubidge	Control survey in district Nipissing and Sudbury for aerial mapping	2,024 18
25	July 18, 1929	R. S. Code	Mining claims in Township 28, range 24, district of Algoma	1,674 51
26	Mar. 14, 1929	H. W. Sutcliffe	Fixing traverse reference points on Crow River, district Kenora (Patricia portion) .	100 00
				\$41,619 14

Appendix No. 21

Extract from report and field notes of part of Seventh Base Line, Districts of Thunder Bay and Cochrane, by Beatty and Beatty, O.L.S., 1928.

SOIL

There was no land suitable for agricultural purposes along this line. The greater portion of the soil was sandy with boulders and gravel ridges with outcrops of granite. A patch of sandy clay soil in the swamps with gravel ridges was crossed near the Esnagami River. East of Squaw Lake the soil is again sandy clay in the swamps, with low granite ridges. This portion of the country is undulating and flat. The western portion of the line is rough, broken country with many hills but from Marshal Lake east it is rolling with very few prominent ridges. From information gathered from the District Forester, there is not much information to the country east as there are very few Lakes, only large rivers, showing that the country is flat and low.

TIMBER

Several small patches of good timber suitable for pulpwood were passed through and these are shown green on the accompanying Timber Plan. The better patches being miles 137 and 145 in the vicinity of Summit Lake, the 154th mile south of Marshal Lake, miles 156 to 162 east of Marshal Lake, miles 184 and 185, miles 187 to 190 along the Esnagami River in the District of Thunder Bay, also from mile 3 to Squaw Lake and mile 8 to 16 in the District of Cochrane. The timber in these patches is mostly black spruce, averaging from 3 to 10 inches, with jack-pine, poplar, birch and white spruce on the ridges, 6 to 18 inches in diameter, near mile 120, we left the old brule on the western portion of our line the previous season, and crossed a section of country covered with a thick growth of spruce, jack-pine, poplar and birch, 3 to 8 inches in diameter, intercepted with a patch of heavier timber. This continued to mile 146, where we crossed a section apparently burnt over about two or three years ago. This had been a good strip of timber, consisting of spruce, jack-pine, poplar and birch, from 6 to 18 inches. The timber is mostly still standing and the dry cutting greatly retarded our progress. This continued to mile 167. Had this section not been burnt, it would have been one of the best sections of bush we have seen. There are patches of green timber through it and other patches where about 50% of trees are dead. From mile 167 east to mile 3 in the District of Cochrane, we crossed through thick spruce, jack-pine, birch and poplar, 3 to 8 inches in diameter, with patches of good timber as mentioned above. From mile 8 east to the end of the line it is mostly swamp with black spruce from 3 to 10 inches with patches of stunted cedars 3 to 12 inches in diameter.

There were no fires in the district this year, but during the month of July, we were bothered with smoke from fires to the north-west of us.

MINERALS

There were no indications of minerals in this district. All the outcrops of rock were granite and very few quartz veins through it.

STREAMS AND LAKES

There were very few large lakes crossed by our line, the largest ones were Summit Lake, Marshal Lake, O'Sullivan Lake, Storm Lake and Squaw Lake. The Little Jackfish River, Lily River, Kawashkagama River and Esnagami River,

were crossed. We did not see any falls on these rivers, capable of development. The Little Jackfish River, averages about 100 feet wide and has an average current of about $1\frac{1}{2}$ miles per hour. There are several short swift places outside of the rapids. The other rivers have very little current, except at the rapids and are shallow. Marshal Lake would have been an excellent Lake for tourists, but since the recent fire has not much attraction. One American, Col. Deeds, has a very extensive camp on an island in this lake. It is one of the most up-to-date camps conceivable. O'Sullivan Lake has been traversed and a full report made on it, before as has also Squaw Lake.

CANOE ROUTES

Five canoe routes were crossed, leading to the Canadian National Railways, besides route used going in, up Little Jackfish River. From Summit Lake, the route to Ombabika station has only short portages and can be made in about 5 hours. A route north leads to the Ogoki and Albany Rivers. From Summit Lake east there is a route along the Lily River and Lake, through Marshal Lake to Meta, Abamasagi Lakes on to O'Sullivan Lake. The Kawashkagama River crossed our line in the 165th mile. This river flows north to Abamasagi Lake and route goes south to Paska station on the Canadian National Railways. Our packers with a light canoe left Paska station and arrived at O'Sullivan Lake in a day. They made three short portages on the way.

From O'Sullivan Lake the Little Current River flows north. From the south east end of this lake there is a route to Nakina station via Esnagami Lake and Collins Lake to Cordingley Lake. The Esnagami River crossing our line at mile 189 flows from Esnagami Lake, it is shallow with mucky bottom between rapids. From Squaw Lake there is a route through John Bill Lake to Cammack Lake to Cordingley Lake, from the south end of which an automobile road, about $2\frac{1}{2}$ miles has been built to Nakina station, a divisional point, on the Canadian National Railway. This route goes north along Squaw River to the Little Current River. The portages between our line and Cordingley Lake east there is a route to Wababimiga Lake and River where trail is blazed to end of our line.

There was no route near our line between the Little Jackfish River and Summit Lake, so we carried a small canoe along the line and then sent packers back to take our canoes down the river to the railroad and brought them by train to Ombabika station and up the Ombabika River through Cross Lake to Summit Lake. We moved our supplies and camp by Lily River and Lake to Marshal and Muskrat Lakes. We sent canoes around by Abamasagi Lake and up Kawashkagama River to the line again. We fly-camped through on the line with our line crew. We again fly-camped through and sent canoe supplies around to north of O'Sullivan Lake. From the east end of O'Sullivan Lake we fly-camped through on the line to the Esnagami River, where our canoes and supplies again met us. From here we again fly-camped through to Storm Lake where our canoes and supplies met us coming by way of Squaw Lake. From Squaw Lake, east we moved camp along the line until we got close to Wababimiga River. We preferred to back track to Squaw Lake to sending our canoes around to meet us, and it leaves everything better for when the line is produced. From Squaw Lake we followed route to Nakina, arriving there on August 25th, where we disbanded our party and stored our canoes.

GAME.

There is very little game in the country of any kind. We did not see any signs of beaver or any other of the smaller animals. We saw only a few indi-

cations of moose and caribou. We met some Indians on O'Sullivan Lake and tourists on Squaw Lake.

Pike and pickerel are plentiful in all the lakes. There is excellent lake trout fishing in O'Sullivan, Esnagami and Squaw Lakes. There is good speckled trout fishing in Kawashkagama, Little Current, Esnagami and Squaw Rivers. We caught trout in Esnagami River up to 2½ pounds. These rivers are all frequented by tourists. The best accommodations for tourists are had at Ombabika and Nakina, where there are good stores and plenty of guides procurable.

The season was exceptionally wet. We had very cold weather the early part of June and very hot weather in August. The water in the lakes and rivers was exceptionally high all season. We had several frosts during June and until well into July encountered frost, when digging the pits in the swamps.

The wet cloudy weather prevented us from getting very many observations but we observed wherever possible.

Appendix No. 22

Extract from the survey of the Seventh Base Line, in the District of Cochrane, by Messrs. Beatty & Beatty, Ontario Land Surveyors, 1929.

SOIL

Practically throughout the whole of the line run this year, the soil is clay or clay loam. This is covered with moss varying in thickness from 6 inches to 2 feet in depth, except in the muskegs, where we were unable to determine the depth of the moss. The country is nearly level but continually sloping to the east to the Kenogami River, generally at the rate of about 10 feet per mile, although there are several miles that are almost level. The country was very deceptive, as it always appeared to be level. From the Kenogami River east the country is gradually rising. We encountered occasional frost, in the muskegs, right up to the 20th of August and the frost was only about three inches below the surface in the bush until about the 10th of July. There was ice in the swamps, in heavy spruce, all summer.

At the English River Post, at the junction of the Ridge and Kenogami Rivers, potatoes and vegetables are grown by the post-keepers.

TIMBER

The country crossed this year up to the Kenogami River has not been subjected to fires for a very long time and there are several sections of good pulpwood through it. Miles 17 and 18 are second growth, spruce and jack-pine to 8 inches diameter. From Mile 18 to mile 29 there is some very good spruce 3-10 inches with patches of spruce 2-6 inches. Between mile 29 and 32 there is about $\frac{3}{4}$ of a mile of good spruce the balance being very old brule with small spruce to 6 inches. Between mile 32 and 42 about 40% is good spruce 3-12 inches and the balance is spruce and tamarac muskegs. From mile 42 to Round Lake, along Niven's Meridian to the jog and east for 10 miles, in all about 26 miles, it is muskeg with spruce and tamarac to 3 inches with occasional patches of spruce to 5 inches. This section has not been burnt over and some trees 3

inches in diameter are over 100 years old. From mile 10 east of Niven's Meridian to mile 32, it is alternate swamps of spruce 3-12 inches and muskegs of spruce and tamarac to 6 inches. The 33rd mile is spruce and cedar swamps to 12 inches diameter. The 34th and 35th mile are in a tamarac swamp with green tamarac to 10 inches. This is the best stretch of green tamarac we have seen for years. Scattered young spruce to 3 inches growing up through the tamarac. Mile 35 to the Big Ash River is swamp with spruce and cedar to 12 inches and along the west side of the river, white spruce, poplar and Birch to 16 inches. Between the Big Ash and Kenogami Rivers, along the line and to the north there is a piece of poplar, spruce and balm of gilead, 6 to 16 inches that escaped the fire. East of the English River mile 39 is all brule; the fire having run through about ten years ago. Mile 40 is spruce swamp with cedar to 10 inches; miles 41, 42 and 43 are burnt muskeg, with the swamps of spruce to the north and south. From the 43rd mile to the Pitushkabi River, the line across a muskeg with spruce and tamarac to 3 inches and large open patches through it. The same fire that has burnt along the Kenogami River ran east from the Pitushkabi River, along the rest of the line. There is some good spruce to the north of the line along the 50th mile and also on both sides of the line along the 53rd and 54th miles. Mile 55 to mile 59 is again burnt muskeg. Miles 60 and 61 are in muskeg with scattered spruce to 3 inches. Miles 62 and 63 are again burnt muskeg. There is a fringe of good timber along the Ridge River, mostly white spruce 6 to 20 inches with poplar and birch 6 to 16 inches.

There were no fires in the immediate district this season. There were fires to the north on the Drowning River and we were bothered with smoke from fires to the southwest.

MINERALS

There were no indications of minerals in this district.

STREAMS AND LAKES

As mentioned before we only crossed Round Lake this season. It is about two miles in diameter and was about $3\frac{1}{2}$ feet deep with muskeg bottom and weeds. The shores of the lake are moss, heaved up by the action of the ice. From the levels obtained, evidently this lake is on a hill. The lake drains south. The muskeg to the west, north and northeast are lower than the level of the lake. The Wababimiga, Drowning, Legarde, Big Ash, English and Pitushkabi Rivers, were crossed. These are all small rivers and are very shallow, especially in the summer, with the exception of the English River, which has been traversed by O.L.S. Code and a full report made on it.

CANOE ROUTES

As mentioned before we went in by the Wababimiga River. The next route crossed was on the Drowning River, leading to Twin Lakes, about 5 miles east of Nakina Station on the Canadian National Railways. The next route crossed was the Kenogami River, which is the main transport route to James Bay, leaving the Canadian National Railways at Pagwa River Station, following the Pagwa River to the Kenogami and down this to the Albany. There are no portages all along this route, but in the latter part of July and August, the water in the Pagwa River is very low.

We took in supplies with us on the start to take us across to Round Lake. We had to double up across the lakes and along the rivers with one of our freight

canoes but by using a Johnston engine, this did not inconvenience us much. From the Drowning River east, we moved along the line and carried a small canoe which proved to be a handicap because we did not use it. We sent some packers back to the Wababimiga River and thence to Nakina, where they took the train to Ogahalla Station, along with our next lot of supplies. These, they took down the Kenogami River and after making 8 portages, running numerous rapids, they reached where the Muskego River joins it, about 15 miles below O.L.S. Niven's Meridian. By lightening their loads they poled up the Muskego River about 20 miles to the winter trail that goes northeast to Round Lake. They portaged our supplies across here about $3\frac{1}{2}$ miles and met us at Round Lake on July 5th. We crossed Round Lake and fly-camped along Niven's Meridian to the corner of the jog. We cut a trail for the main camp and supplies to be moved northeast to our base line. This trail hit about $3\frac{1}{2}$ miles east of the corner. We, then continued to move east along the line, travelling without our small canoe, as we had learned from the Indians that there were no lakes. To save packing some of the heaviest stuff, we sent our canoes back from Round Lake down the Muskego and Kenogami Rivers to the Big Ash River, which we were told flowed nearly east along our line. When our packers arrived at the Big Ash River, they found the river nearly dry and had to abandon their canoes and carried some of the supplies in to us, walking up the bed of the river. We then sent two freight canoes up the Kenogami and Pagwa Rivers to the Canadian National Railways for supplies at Pagwa River Station. Owing to the lowness of the water, we had to dispose of our flour and canned goods at the track and get these from the Hudson's Bay Company at English River Post. Our big freight canoes only had about 700 pounds each but even then, the packers had to unload and double up on their loads to get through. Owing to exceptionally heavy rains on the 13th and 14th of August from the Kenogami River, we were able to send our canoes and light loads up the Ridge and Pitushkabi Rivers to meet our line again. From the Pitushkabi, we fly-camped east along the line to the Ridge River. We, then back-tracked to our canoes at the Pitushkabi. Although we had been having considerable rain, the Pitushkabi River was very low and we were only able to use our canoes for taking our outfit and had to walk the river or shores to the Ridge River. We went down the Ridge River to the Kenogami at English River Post. We then proceeded up the Kenogami and Pagwa Rivers to the Canadian National Railways. We found the water very low and had to walk the shores about half the way out. We arrived at Pagwa River Station on September the 7th, and disbanded our party and stored our canoes.

GAME

There is very little game in the country with the exception of caribou, which are very plentiful in the muskegs, west and north of Round Lake. This is an ideal country for them and being so far from travelled routes they are not molested. As many as six were seen together. Our packers saw several moose along the Muskego and Kenogami Rivers, above the Pagwa River. We only saw one fresh beaver dam all summer.

Speckled trout abound in all the rivers. We did not catch any in the Wababimiga or Drowning Rivers, owing to the water being so high while we were there, but there are several tourist parties taken in each season by guides from Nakina. The Indians net sturgeon in the Kenogami and Pagwa Rivers. We caught some small grass pike in the Round Lake.

We left Nakina about four days after the ice was out of the lakes and as might be expected, we had some cold weather and hailstorms, the first two weeks. The season was comparatively dry, although we had slight showers and cloudy weather, followed by westerly winds, which dried things up. We had a very heavy rain on the 13th and 14th of August and during the latter part of August several heavy thunder storms with very heavy lightning. The cloudy weather prevented our getting observations. We had the usual summer frosts. We had great difficulty at times in getting suitable camps. We had to corduroy in some cases around the campfire and between the tents and the floors of the tents had invariably to be covered with small trees and brush piled on them. On two occasions we had to move camp over 5 miles before we could even get a camp ground of any kind. What we termed low ridges this year would other years have been called swamps. We think the shortage of water in the rivers this year was largely due to the lack of snow last winter.

The Indian Reserve, on the Kenogami River, was found to be about 1 mile south of our line and is shown on the General Plan and Timber Plan.

The only trading posts passed were those at the junction of the Kenogami and Ridge Rivers, which have been in operation for some years. The Hudson's Bay Company and Revillion Freres have stores. There is an Anglican Church Mission and the presiding rector or missionary, teaches school for the Indian children. There are several permanent houses belonging to the Indians and several families in tents, the population in the summer being about 150.

Appendix No. 23

Extract from report and field notes of the resurvey of Township Boundaries in and adjoining the District of Nipissing, by E. L. Moore, O.L.S., 1928.

This survey consisted of retracing that part of the boundary line between the townships of Boulter, Lauder and Pentland lying south of the Canadian National Railway; the boundary line between Boulter and Wilkes; Chisholm, Himsworth, Laurier and Ballantyne; Joly and Paxton; Butt and Proudfoot; McCraney and Bethune and part of the line between Finlayson and Sinclair, in all a distance of approximately fifty-seven miles.

The original surveys of these townships were made between the years 1876 and 1882 by various surveyors and, apparently, the compass was the instrument employed, in nearly all cases, for running the lines. The country through which this line passes is very rough, hence the measurements and bearings as shown in the records of the original surveys are not very reliable but the fact that these surveys can be re-established after fifty years or more goes to show that these pioneer surveyors put a great amount of honest endeavour in their work.

Having employed a party of the most suitable men I could locate, I proceeded on the 25th June to Kiosk on the Canadian National Railway, that being the most convenient station to the north end of the survey and also being on a water route leading into my work. After testing my measuring instruments and breaking in the men to their respective duties, I finally got the survey proper under way, though I experienced some difficulty locating a starting point as the country in this vicinity had been severely burnt.

Lumbering operations have been carried on more or less throughout this country, hence there are several roads, if they can be called such, as in most

cases they were very bad. However, by taking advantage of these, I was able to do most of my moving by teams or trucks and thus eliminate man packing and reduce the cost of the work.

The method of survey was, briefly, a careful traverse of the original line which I was able to retrace in its entirety, there being scarcely a quarter of a mile any place on the line where I could not find unquestionable evidence of the original survey, though in many places it was difficult, as there are large burnt areas and areas in which the timber had been taken out leaving little trace of the original survey. At every point where I found satisfactory evidence of an original corner, I planted a new post of the most durable wood obtainable; these, in nearly all cases were mounded well with stones. The details of the posting are fully set out in my field notes. All posts were set on the true line between the townships, that is, in the centre of the allowance for road, except in a few cases as is shown in the field notes, where the post was planted on the limit of the road allowance. The marking on the posts was done by carving deeply in the wood with a sharp knife or scribe. Wooden posts planted to mark the intersection of a lot line with the boundary line were marked with the respective lot numbers in "Arabic" as well as the full name of the township. And posts planted to mark the intersection of a concession line with the boundary line were marked with the full name of the township and the respective numbers of the concessions in "Roman," together with the letter "R" indicating that the post marked the centre of the allowance for road between the concessions. At each post, where possible, two bearing trees were marked in the usual manner with the letters "B.T." The distance and astronomic bearing from the post to centre of the blaze on such trees were noted and recorded in the field notes. Standard Iron Posts and Rock Posts were planted where indicated and the usual pits and mounds constructed. As it required considerable experience to identify and re-establish the old land marks, I personally did this part of the work.

Chaining was carried on by means of a five-chain tape and a clinometer was used for reading the angles of slope from which the proper corrections were made. Check measurements were made over the whole line with a two hundred foot tape and wherever these measurements did not agree within the allowable error, they were repeated. This, however, did not occur often. The distance across all waters that could not be chained in the usual manner was ascertained by double triangulation, care being taken to use triangles such as would give the greatest degree of accuracy. In a few cases offsetting was used in preference to triangulation.

Astronomical observations were taken where and when possible and all bearings shown in my returns refer to the 79th Meridian. The weather conditions, nearly all season, were very bad for taking observations and as I was often obliged to camp some distance from the actual work, I did not get as many observations as I usually do, however, the bearings between observations, in all cases, checked quite closely.

Several magnetic observations were also taken, the records of which I am forwarding along with my other returns.

Levels and check levels were carried along the entire line. I was fortunate in getting the services of a very reliable man for this part of the work, in the person of Capt. K. M. Evans. I was unable to get a definite bench mark, from which to commence levelling and so was obliged to carry on, using an assumed datum. Later, however, the Topographical Survey of Canada ran a line of levels and ascertained the true elevation of my starting point. Allowing this correction, the levels closed at the south end of the survey on another bench

mark established by the Topographical Survey, very closely. I also had a good closing where the line crosses the Canadian National Railway in the Township of Bethune. The Geodetic Survey of Canada has established bench marks along this branch of the railway. Owing to the ruggedness of the country, levelling was an arduous task. It was a common thing to have the plus and minus readings amount to seven or eight hundred feet in a mile. More actual work was required to level an average mile of this country than would be required to run eight or nine miles in a level country. Bench marks were established on trees about every mile along the line as well as noting the elevations of all iron posts, rock posts and wooden posts.

The aerial photographs with which I was supplied were of much assistance in ascertaining the best routes along which to move.

Care was taken to open out the line extra wide near the shores of lakes and at such other prominent points as might show on an aerial photograph. Part of the line was run prior to taking the photographs with which I was supplied and it can be identified on these photographs quite clearly, to exactly as far as it was run on the date on which they were taken, and I feel satisfied that it will show clearly on any aerial pictures taken for some time to come. For the benefit of the Topographical Survey, I have marked the position of the line at such points as I could definitely locate it on the pictures.

The trees along the line were blazed in the usual manner, that is to say, on the side facing the line and on the two adjacent sides.

There is no area of any size in the vicinity of the line that could be classed as fit for agricultural purposes. The country is particularly hilly, with hills ranging to a height of five hundred feet. Many of these are rocky and in no place is the rock far below the surface.

Much of the timber, which consists chiefly of yellow birch, maple and hemlock with a scattering of balsam, spruce, cedar, iron-wood and beech, has been taken out, particularly north of the townships of Butt and Proudfoot. In these townships as well as in parts of Bethune and McCraney there is a good stand of hardwood of very good quality. The red and white pine was taken out many years ago, but the odd one here and there that was missed, still stands.

The most important lakes met with were Kioshkoqui, Manitou and Tea Lake. These are noted for trout fishing and their scenic attraction. Many tourists visit these lakes each summer. The other lakes along the line are comparatively small and of little importance. The water in many of these has been raised for lumbering purposes. The streams also are small and of little use as canoe routes as they are nearly all shallow and full of rocks. The East River is a good sized stream. This as well as the Maganatawan River has been dammed and there is much drowned land along their shores.

Throughout the whole area traversed very little evidence of game was seen. This at one time, was a noted country for its red deer but they are very scarce now, in fact there was more signs of moose than deer and in some places they seem to be fairly numerous. Beaver are almost extinct. Nearly all the waters show signs of where these industrious animals once lived. The smaller game is also scarce. The chief fish in the country is trout; both the lake and brook varieties are said to be plentiful, though I did not have much opportunity to prove this statement.

There are no water powers in the vicinity of this line.

The rock formation is granite, and no economic minerals were discovered.

Appendix No. 24

Extract from report and field notes of the survey of Township Outlines in the District of Nipissing, by E. W. Neelands, O.L.S., 1928.

GEOLOGICAL FORMATION

The formation for the most part consists of gneiss or granite gneiss in ridges with strike 5° E to 25° E, abrupt on the west side and sloping east. On the second base line both east and west of the first meridian conglomerate boulders indicated the presence of that formation at no great distance though none in place was seen. Between Diamond and Blue Lakes a large outcrop of white quartz with black mica was noted beside the logging road while high hills one mile south of the S. E. corner of McAuslan township are of the same formation. The Gneiss is very micaceous and contains evidence of considerable iron between Diver and Clear Lake.

WATER POWER AND CANOE ROUTES

Although the Ottertail has a fall of approximately 1,000 feet between the railway and Lake Temiskaming the storage facilities and discharge are not sufficient to make any development at the present time attractive.

Information re approximate locations of lakes was obtained from lumbermen or fire rangers. Improvements on this river make it fairly easy for canoes at present, but they are rapidly breaking up. Improvements below McKenzie Lake near the Railway makes an unbroken canoe route to the end of Snowshoe Lake.

The canoe route from Temagami to MacDonald Lake is broken only by five small portages and now used to a considerable extent by tourists.

TIMBER

The only mature pine of importance remaining is in the townships of Eldridge and Hartle and shown as closely as possible from personal observation and from information obtained from lumber foremen or timber cruisers.

In the Eastern townships several stands of middle aged jackpine were noted as shown on timber plan while the timbered section along the old Sarnia and Cleveland logging road has rapidly grown up with mixed timber and comparatively little undergrowth.

The remaining area, that has not been timbered recently is being naturally re-forested.

No marks of recent fires were noted.

SOIL

No agricultural land of importance was noted during the entire survey.

Appendix No. 25

Extract from report and field notes of the traverse of Kamiskotia River, Districts of Sudbury, Temiskaming and Cochrane, by A. Gillies, O.L.S., 1928.

We began the Traverse Survey of Kenogaming Lake on the morning of July 22nd. My party consisted of seven men, and we had three seventeen foot canoes and one outboard motor. The motor was only used in going to and from work and in moving camp. The black flies and mosquitoes were at their height and the season was very wet, in fact it rained part of nearly every day

we were on the survey. The lake surveys were accomplished without any difficulty, but there were long stretches of the river which were difficult to survey on account of rapids, log jams, swift water and no portages. We waded the river for miles in these parts, letting our canoes down with ropes, cutting out log jams, etc.

The Water Power sites along these Rivers are not very important on account of the narrow drainage area and small average flow of water. Between Kenogaming and Akweskwa Lakes there is a series of rapids and chutes over half a mile in length and having a total head of forty-five feet. This might be utilized by building a dam and flume and making Kenogaming Lake a storage basin. Between Beaucage and Opishinguquaya Lakes there is a very good site for a Power Plant having a head of thirty-eight feet and favourable location for Dam, Power House and Flume. Between Stations 194 and 204 there is a total head of twenty-eight feet but this does not appear to be a very economical site for a Power Plant. Between Stations 214 and 217 is the most favourable location and is already staked as a Power Reserve. None of the other series of rapids appear to be of any considerable value as Power sites.

We took observations on Polaris practically every evening that it was possible to see the stars, but from August 15th to 23rd, it was impossible to obtain an observation. Taking the East boundary of the Township of Robb as Astronomic North, my bearings by account were only out one minute at this point.

I tied in all surveyed lines during the progress of the survey, except on the North boundary of the Township of Robb, where we were not able to pick up and follow the lines, as this part had been burned clean and grown up with second growth.

Appendix No. 26

Extract from report and field notes of the survey of the Township Outlines of Struthers, Kilpatrick and Travers, with Traverse of Lakes and Streams, District of Sudbury and Manitoulin, by J. R. Gill, O.L.S., 1928.

Party left Sudbury on July 19th for Burwash Station on the Canadian National Railway. From this point party proceeded by canoe down the Wanapitei River for a distance of about eight miles and thence across a portage of about two miles to Gainy Lake.

At this point traverse work was started as from this lake routes lead to Panache Lake, Collins' Inlet and the Township of Rutherford. Important lakes and streams with connecting portages on these routes were traversed. As well as this work some of the boundaries of the Townships of Struthers, Kilpatrick and Travers were run.

Throughout this area lumbering has been carried on for about fifty years; the original pine and spruce has been removed. In recent years a great deal the second growth pine, etc., has been cut and hardwood is being cut at the present time. Practically all of the township of Travers has been burned over and consequently, there is very little timber remaining.

The rock formation in the Eastern part of this area is all Granite and Gneiss. In the Western part the rock is Quartzite. No indication of valuable mineral was noted, although considerable local attraction to the compass needle was noted, especially along Gainy and Hunter Lakes.

Practically all the streams have been improved for lumbering purposes but many of the old dams etc., are now in a poor condition. There are numerous falls on these streams but the flow is hardly sufficient to make them valuable for water power development. The Quartzite area mentioned is very rough with numerous high hills. The Ontario Forestry Branch have a tower on one hill known as Silver Mountain from which a wide area can be viewed.

A considerable number of tourists visit this region by way of Collins Inlet and from Lake Panache. There is good fishing in most of the lakes and a great number of deer were seen during the period the party was on traverse work.

Appendix No. 27

Extract from Traverse of Lakes and Rivers west of the Township of Carlyle in the District of Manitoulin, by T. J. Patten, O.L.S., 1928.

With the exception of the narrow river sections, and the few small tracts marked "flooded" or "flooded marsh", there is very little of the shore traversed which is not suitable for summer resort purposes; though in a considerable portion the timber is yet rather too small to make the shores attractive.

The country generally is rocky and broken, with occasional small patches of arable land, mostly clay, between the ridges. There are scarcely any large tracts of arable land, except a narrow strip along the rivers in places.

Several ridges of quartzite, 300 to 500 feet high, were observed.

In the valley containing Leech and Harwood Lakes, and smaller lakes to the east, the country rock is very favourable for the prospecting of mineral.

A matter of very great importance is the repair, or re-building, of the dam where Kirk Creek flows out of Long Lake. The dam was built many years ago by the lumbermen. If it were to go out it would greatly mar the attractions of Long Lake in making the shores very unsightly. And it would appear that if the water should revert to its original level there would be three lakes instead of the very attractive one at present, and would probably affect the lake badly as a canoe route.

It is on a main route from McGregor Bay and Baie Fine to Lake Panache.

Appendix No. 28

Extract from a stadia Traverse of parts of Michipicoten River, Magpie River, Whitefish River, Shikwamka River, District of Algoma, by C. R. Kenny, O.L.S., 1929.

MAGPIE RIVER

This river has its source in Esnagama Lake and crosses the Main Line of the Canadian Pacific Railway at a point about six miles west of Franz Ontario. It flows in a south westerly direction and reaches the Michipicoten River in a total "river distance" of about 75 miles with a total descent of 526 feet. The water shed comprises an area of about 820 square miles to a point near its mouth called "Magpie Falls and Canyon."

The description of the river commences at the centre line of the Canadian Pacific Railway bridge, 8 chains westerly from mile 90. Elevations are based on bridge rail level as 1156, and top of spillway section of Esnagama Lake dam as

1126. This dam is 3.99 chains below railway bridge. The dam sill of lower two sluice gates is at Elevation 1117. From this point to Jean Falls, four miles down stream, the current is moderate and lake-like, with easy curves. Below Jean Falls the river for a distance of about 5 miles due south as the crow flies is very crooked with a fair depth of fast water, traversing through banks of sand and gravel. From here the river turns sharply west and has several lake-like expansions of fairly quiet water for about four miles to the head of a rapid where there is a fall of 21 feet in a distance of 30 chains. From the foot of these rapids, a distance of 30 chains, is the head of another rapid 20 chains in length with a fall of 10 feet. There apparently is no site suitable for a dam at these two rapids. Below these two rapids the river turns and runs nearly south to the south westerly angle of Tp. 28, R. 27. and in this distance there is a drop of about 26 feet. From this point the river runs east, south and west and crosses the west limit of Tp. 29, R. 26 near the 2 mile post and flows generally south to the head of Cedar Falls, which has a drop of 19 feet. The flow in this section of the river is moderate with usually high banks of gravel and sand. From the foot of Cedar Falls, the river flows in a general south westerly direction and crosses the north limit of Tp. 29, R. 25 near the 31 mile post, and continues 2 miles to the Algoma Central and Hudson's Bay Railway bridge, of the Magpie Mine Branch. In this stretch the river is unusually wide in places with easy curves and current. From this point the river runs south westerly and south easterly for a distance of about 5 miles with very little fall to the north limit of Tp. 29, R. 24. About a half a mile below this is the commencement of a series of rapids, continuing down with a total fall of 90 feet in a distance of one and a half miles previous to the construction of Steep Hill Falls dam. A dam of the Ambursen type has been constructed at this point with crest at Ele. 958. The development consists of steel penstock line with surge tank and connections to two turbines developing about 1300 horse power each. It is possible to get increased power at Steep Hill Falls by raising the crest of the dam. Below the power house the river forms a pool at the outlet of which is the metering section of the Dept. of the Interior. From below Steep Hill Falls the river flows south and west for about four miles to the west limit of Tp. 29, R. 24 and westerly for a mile and a half and southerly for a mile and a half to the south limit of Tp. 30, R. 24. Thence southerly for about a mile and a half to the Magpie River bridge of the Michipicoten Division, Algoma Central and Hudson Bay Railway. Water level here is Ele. 847. In this section of the river the banks are sand and gravel and are high, with occasional rock outcrops. From the foot of Steep Hill Falls to the railway bridge crossing the fall is 113 feet, well distributed throughout the length. There does not appear to be a good dam site in this part of the river. Below the bridge the river is winding between cut banks of sand and gravel of about 20 feet high, for a distance of about four and a half miles to the head of Magpie Falls and Canyon (Ele. 803). At this point there occurs a fall of about 67 feet in four chains, and below this the banks of the river are narrow and high and termed canyon for a distance of 15 chains with a further drop in this distance of about 6 feet. Ten chains below the canyon is the foot of a rapid (Ele. 730). Thirty chains below this point and including a fall of 3 feet is the head of a rapid 20 chains in length with a fall of 5 feet. About 50 chains down stream from this point is the head of "3rd Falls" (Ele. 720) with a drop of 49 feet. Ten chains below 3rd Falls is "2nd Falls" with a height of 38 feet. Ten chains below this again is "1st Falls" or Mission Falls with a drop of 29 feet; the foot of this falls is about Lake Superior water level. Twenty chains below foot of 1st Falls the river joins the Michipicoten River at a mile above its mouth.

Along the river banks and in its immediate vicinity, merchantable timber, such as spruce, balsam, jack pine, birch and cedar is in scattered areas and on the whole the stands are only fair. The greater part of the river section consists of second and young growth trees. The country about the several railway crossings mentioned in above report has been fire swept and left almost barren, and since grown up with small birch and poplar.

SHIKWAMKWA RIVER

The description of this river commences in Tp. 24, R. 25 from about two miles up stream from Dalton Mills. A mile above the mills the river is crossed by a railway spur connecting the Main Line of the Canadian Pacific Railway, above which point the river is swift and narrow, traversing through high banks of sand and gravel. Below the railway spur crossing is Shikwamkwa Lake which is about 7 miles in length. This lake is navigable for large launches which are being extensively used in connection with logging operations. The water of the lake is clear and the banks are generally high with here and there high hills of sandy soil with rock outcrops.

A short distance below the foot of Shikwamkwa Lake is Nicholson's dam which when closed backs the water up a maximum height of 10 feet (Ele. 1104). Below the lake the river runs south westerly for a distance of seven miles to a point called Jane Falls, the current in this stretch of river is fast with a descent of 55 feet and traversing through banks of gravel and sand of from 4 to 20 feet high. At Jane Falls there is a drop of 15 feet. Below Jane Falls the river runs generally south west for about 8 miles to the head of Dona Falls which is about 10 chains east of the east limit of Tp. 27, R. 23. There is about 26 feet fall in this section and the banks of the river are from 5 to 15 feet in height above this water stage, with occasional rock outcrops.

Dona Falls consists of a series of falls and rapids over a distance of half a mile, with a total drop of 21 feet. Fifteen chains below this again is a canyon with a fall of 13 feet. Below the canyon for a distance of about five and a half miles the current is swift with several rapids, and having a total fall of about 20 feet to the junction with the Whitefish River, the combined streams forming the Michipicoten River. The survey continues two miles down stream to the crossing of the Main Line of the Algoma Central and Hudson Bay Railway, 12.52 chains north from mile 152. In this last stretch of river the current is swift and in many places rapid. The banks are usually high, from 5 to 20 feet made up of gravel and sand.

In respect to timber along this river I observe that a considerable portion of the country has been lumbered for pulp wood and railway ties, and portions of the cut over land have been burned, some of this area showing a thrifty growth of young timber; but there still remains large areas of merchantable timber consisting of spruce, balsam, birch, jack pine, and cedar.

WHITEFISH RIVER AND LAKE

This river commences at the foot of Manitowik Lake and flows in a general south westerly direction for a distance of about 13 miles, with a total fall of 56 feet (Ele. 978 to Ele. 922).

The Whitefish and Shikwamkwa Rivers join one another, forming the Michipicoten River. This connection takes place at a point about two miles up the Michipicoten River from the crossing of the Main Line of the Algoma Central and Hudson Bay Railway.

From the mouth up stream for a distance of a mile is Cat Falls with a drop of 33 feet. From the head of Cat Falls up stream, a distance of about 4 miles is the foot of Whitefish Lake. At this point the river is narrow having a width of about 2 chains. Here a dam has been constructed for use on controlling water level in connection with driving timber. The river from the mouth to the dam has an average width of about 6 chains. The bed of the stream is principally gravel, and in a few places the water is shallow. The banks are of sand and of good height, from 5 to 20 feet. The timber consists chiefly of second growth spruce, balsam, birch, poplar and cedar.

Whitefish Lake has a length of about 5 miles and an average width of 50 chains. The water is clear and of good depth and suitable for navigating boats and launches. The banks of the lake are usually high and close to the lake shore the country appears rough and hilly with rock exposures. The soil is stoney and sandy, timbered with chiefly second growth spruce, balsam, birch, poplar and cedar.

From the head of Whitefish Lake the river continues for a distance of about 3 miles to the foot of Manitowik Lake. The current in this section of the river is of moderate flow and traverses through banks of sand from 5 to 25 feet in height, timbered with chiefly second growth spruce, balsam, birch, poplar, jack pine and cedar.

MICHIPICOTEN RIVER

The Michipicoten River commences at the confluence of the Whitefish and Shikwamkwa Rivers, and flows in a general south-westerly direction for a "river distance" of 25 miles, and empties into Lake Superior, and has a total fall of about 320 feet.

The water shed of the river to a point called High Falls, 13 miles distant up stream from its mouth, comprises an area of about 1,900 square miles.

From where the river commences, it runs in a south-westerly direction for a distance of about 2 miles, where it reaches the crossing of the Main Line of the Algoma Central and Hudson Bay Railway. From thence it flows in a westerly course for a distance of 12 miles to High Falls. Throughout this distance the current is swift, and in a few places rapid, the largest of these occurring about one and a half miles above High Falls, and having a fall of about 6 feet in a distance of three-quarters of a mile. The river banks are of sand and gravel, having a height of from 4 to 30 feet. The timber consists of birch, balsam, spruce, poplar and cedar of merchantable value, interspersed with areas of burned country carrying young growth trees.

The most important water power site on this river is at High Falls. Some years ago a development was constructed with head of 125 feet, and one unit of about 5,000 H. P. This development has been superseded by one at present under construction designed to develop 10,000 H. P. with one unit, and with provision for another unit of similar capacity. A transmission line is in the course of construction with double wood poles and wood cross arm. This transmission line leads to the City of Sault St. Marie, a distance of 120 miles.

The flow of this river is capable of being regulated to a large extent (possibly 30,000 H. P.) on a account of the number of large lakes, including Wabatonogushi, Jackfish, Manitowik, Whitefish, Windermere, Kwakwuskwanda, Shakashi, Kinniwabi, Anjigami, and Dog. It is doubtful if much storage can be obtained in Dog Lake on account of the grade of the Canadian Pacific Railway.

Below High Falls there is a drop of 110 feet to Lake Superior, 80 feet of which occurs in a distance of about two and a half miles from the foot of the

falls. In the first mile the drop is about 75 feet, and in the vicinity of Station 924 (see plan) there appears to be a suitable site for a further development of water power. From this point to the mouth of the river the flow is swift, and traverses through high sandy and gravel banks of from 5 to 35 feet. The timber along the shores is scarce and consists of chiefly second and young growth.

Appendix No. 29

Extract from report and field notes of Survey of Base and Meridian Lines in the District of Kenora, by Speight & vanNostrand, O.L.S., 1928.

GENERAL FEATURES

The lines included in the instructions all lie close to the height of land between waters flowing to the Winnipeg River through the Lake of the Woods, and those flowing through Lac Seul. The result is that no considerable water power was noted, the streams all being small. The largest stream was the Gull River, which was crossed a number of times on the west and north boundaries of township number 20. There is a falls in the Gull River amounting to about twenty-five feet, a mile and a half east of the north-west corner of that township. Above the fall the river is navigable by canoe up to and through a short creek into Kay Lake, without a portage. Although we had no occasion to follow further up the stream, we understand that above Kay Lake, the river does not form a satisfactory canoe route. The initial supplies were, of course, taken in with the party to Manitou Lake. Stormy Lake can best be reached from the Canadian Pacific Railway through Long or Kawashegamuk Lake, and from thence there is a regular canoe route via Bending Lake, south to Rainy Lake, and another east to Ignace. The canoe route shown on the maps, leading south from Raleigh Station on the Canadian Pacific Railway, though feasible for light canoes, is little used, and not very satisfactory. A canoe route was followed through a series of small lakes from Kay Lake to Gull Lake and from thence to Loon Lake and Scotch River. Between Manitou Lake and the timber berth west of township number 22, the ground is very broken, and the line crossed a continuous succession of hills and lakes. The eastern part of our work, however, lies in somewhat flatter country, and we crossed a number of sand plains and muskgs of a mile or so in length.

TIMBER AND MINERALS

West of Stormy Lake, in Mile 27, we passed through a small belt of white pine. As the other pine in the vicinity of the lake has been cut, we presume that there were difficulties which prevented the ready removal of the timber. This was the only white pine seen. No red pine was noticed.

The forest from Nivens 6th meridian to Stormy Lake is, for the most part, about forty years old, and the timber is, generally speaking, not yet of a merchantable size. There are, however, small areas which have escaped the fire and contain saleable spruce, cedar, etc., Between mileage 18 and mileage 21, the new growth is almost entirely birch, and its appearance is quite exceptional in that regard.

From Stormy Lake eastward to the end of the base line at mile 48, the country has been fire swept, and the second growth is now about eighteen years old. What is apparently the same burn, was intersected by our meridian at

mile 4, and found to extend east to Gull Lake. The ground is now covered with windfall and a dense new growth of small jackpine, and it is most difficult to travel over the area. Between Gull Lake and Scotch Lake the timber is green. There is a mixed stand of spruce, jackpine, balsam and birch, containing good quality jackpine and pulpwood. This area is now being cut by the C. H. Greer Company of Port Arthur.

Little timber of value exists along the lines run east and west from the north-west angle of township No. 20. Along these lines are extensive sand plains covered with scrub jackpine.

The area adjoining Manitou Lake was staked for gold in the rush of 1897, and later much of it surveyed into mining locations. In the vicinity of mile 19 at Stormy Lake and around mile 44, the formation would also seem particularly to warrant prospecting; in fact, the rock throughout most of the area is much broken up by intrusions promising results to the prospector.

FISH AND GAME

Manitou Lake is being fished by Mr. C. Merrill of Wabigoon, lake trout being the principal catch. Stormy Lake is also fished commercially, though operations were not being carried on during the past season. The smaller lakes we found to be well stocked with lake trout, pike and pickerel.

Moose and deer are fairly plentiful, while bear are at present in more than average numbers.

Beaver had been numerous at one time, but are now scarce.

Few partridge were seen, though the breeding season seems to have been more favourable than the previous two seasons, and the hens had larger flocks of young.

Appendix No. 30

Extract from Report of Messrs. Speight & vanNostrand, O.L.S., resurvey part of the Fourth Meridian Line in the District of Kenora, April 9th, 1929.

GENERAL FEATURES

From our point of commencement to about mileage 96 the waters crossing the line flow to Lac Seul. North of this point, the line lies in the watershed of the Cat River. Flowing into Lac Seul are the waters of the Sturgeon, Vermilion and Root Rivers. Of these the Root River was the only one travelled for any distance by the party. This river has been for many years part of one of the main canoe routes leading to the mouth of the Albany, and the portages are consequently in excellent condition. The river itself has ample water for travel by canoe between Lac Seul and the point where the canoe route branches up the small creek leading to Root Portage. Even during the extreme low water experienced during the latter part of August, at the time when the party returned from the end of the line, there was no trouble with shallow water. We also travelled the Root River between the point where our line crossed it for the second time in the 92nd mile and the junction with the main canoe route from the Albany, and found four portages in this part. This section of the river is extremely crooked, and is shallow in spots.

The water of the creek flowing from Root Portage to Root River was very low when it was used by us, and considerable difficulty was experienced in travelling it, particularly for the first two miles or more upstream from the junction with the Root River.

The Cat River formed an excellent route between Lake St. Joseph and the unnamed lake crossed by us at mileage 121. The waterways and rapids are all shown clearly on the Lake St. Joseph sheet (provisional edition) of the Topographical Survey of Canada. There is only one minor criticism of this plan which we offer. The portage shown in the centre of the south-west quarter of square 60-274 of this sheet was on two separate occasions thought by members of our party to be indicated as to the north of the island, instead of to the south.

We could find no sign that the canoe route which apparently crosses our line at about mileage 129, is now used.

Tully Lake is drained by a creek flowing into the Vermilion River. We took some supplies up this creek but it is not travelled by the Indians. Access to the lake seems to be through a creek flowing north-west from near the north margin of the lake.

With the exception of a few miles to the south of the Root River, the area crossed by the line is rocky and broken. Immediately south of the Root River, however, there is a section of low land consisting of good clay soil.

The Hudson Bay Company maintains a post at Slate Rock Falls, on the Cat River, which, however, is occupied during the winter season only. The Hudson Bay Company post at Lynx Portage, on the Root River, shown on the Sioux Lookout sheet of the Topographical Survey of Canada, has been abandoned and is not now in use.

TIMBER

By far the greater part of the season's work was across country which had been burned over at various times within the past twenty-five or thirty years. Between mile 45 and mile 49 there is however, some excellent pulp wood and tie timber. There is another area between mile 53 and mile 56 which also contains pulp and tie timber, and from the Fourth Base Line northwards for ten miles, the timber is mature, and there is a good stand of spruce and jackpine. Outside of these three areas, there are only isolated patches which have escaped the fires. On our timber plan we have shown areas on which timber is less than thirty years old, by brown hatching, areas on which the timber is between thirty and sixty years old by a single green hatching, and areas on which the timber has reached merchantable size by double green hatching.

No commercial quantities of red or white pine were seen.

GEOLOGICAL FORMATION AND MINERALS

Immediately south of the Transcontinental Railway the line crosses an area exposing porphyry and schist. As is to be expected with an area immediately adjoining a railway, this seems to have received considerable attention from prospectors, but so far, we believe, with negative results.

In travelling the stream crossed by our line at about mile 100 we noticed along the banks some exposures of slate, though nothing but granite was seen on the line. Again, in the 113th mile, we noted slate rock and granite schist. With these exceptions the whole line crossed country in which we saw exposures of granitic rock only. No definite evidence of economic minerals was noted by us during the course of the season's work.

PHOTOGRAPHS

Before going into the field we were supplied through your Department, with a number of photographs taken of areas crossed by our line. We have indicated on these prints such points as we were able to recognize, and are forwarding them to you with our returns.

FISH AND GAME

In general, the fish caught by the members of the party during the summer, were pike and pickerel. In Tully Lake, however, some fine lake trout were obtained.

This lake is also said to contain whitefish.

Deer were fairly plentiful, and some signs of moose were seen.

Beaver had been numerous at one time, but now seemed to be practically extinct in this section.

Partridge were rather scarce but it was the general opinion that more were seen than had been noted during either of the previous two summers.

Appendix No. 31

Extract from Report and Field Notes of the survey of Base and Meridian Lines in the Patricia portion of the District of Kenora, surveyed by Phillips & Benner, Ontario Land Surveyors, 1929.

In the vicinity of Shuniah Lake evidence of mining claims having been staked as shown on map supplied by the Department were seen, but we did not see any survey lines nor could we learn that any claims had been surveyed; also in the Pickle Lake area evidences of staking were seen, but no surveyed claims were crossed.

Notes of rock formation where visible are shown in the field notes, but information of this subject will have been thoroughly covered by geological parties sent out by the Department of Mines.

On Pickle Lake the Ontario Forestry Branch has a base on an island in the lake and on the East end the N. A. M. E. Co. have a warehouse. There is also a restaurant and store on the east end of the lake which we believe is Pickle Lake headquarters for the Western Canada Airways.

The country in general is low and flat with large areas of muskeg and swamp with small islands and ridges of either rock, sand or gravel, almost on the same level as the surrounding country; these muskegs and swamp appear to remain frozen the greater part of the year. The largest areas of high land appear to be generally around the lakes.

The rivers and lakes are generally shallow with a bottom like liquid muskeg through which it is sometimes almost impossible to force a canoe. Rocks and large boulders are also of frequent occurrence in the beds of these lakes and streams making navigation with canoes difficult and dangerous. Owing to the character of the country there are almost no falls in the rivers of any importance, the drop generally taking place in series of rapids. The only fall of any extent seen was on the river flowing into the Gitchie about eight (8) miles due west from the six mile post on the meridian. At this point a drop of about eighteen feet occurs in a series of falls in a distance of about sixteen (16) chains.

The timber met with was mostly spruce and this varies from the stunted variety in the muskegs to trees up to twelve (12) inches in diameter and over on the drier ground. Owing to the irregular nature of the areas of merchantable timber it is impossible to form an accurate estimate of the percentage of the spruce areas containing merchantable timber, but we would say at a rough estimate about fifteen per cent. or twenty per cent. The jack pine is nearly all too small to be of commercial value as tie timber. The largest areas of jack pine of merchantable size being on the base line between the lake crossed in the sixty-eighth (68th) mile and the lake in the seventieth (70th) mile and on the Meridian Line north of the twenty-first (21st) mile, also on the Base Line east of Kapkichegimaga Lake there is a certain amount of jack pine of merchantable size. Balsam, birch and poplar occur but only in isolated places.

Burnt areas occur as follows:—On the Meridian between the 9th and 10th mile, burnt some years ago; also between 19th and 20th mile, local fire probably two or three years ago, and on the last mile of the meridian, some time since 1919 the timber has been burnt as far as can be seen in all directions except south. On the Base Line between the eighth (8th) mile post O.L.S. Dobie's meridian and Kapkichegimaga Lake the high ground appears to have been burnt several times, probably the last time about twenty years ago. The remainder of the line passes through green timber. Off the line an area has been burnt this year around the lake west of the eleventh mile post on the Meridian.

Water routes used with connecting portages are indicated on the map with the exception of one passing through Wright Lake to Kawinogans Lake. An attempt was made to use the southerly branch of the river which enters the lake due south of Mileage 52½ (fifty-two and a half) but this route was found impossible. It was also found that the lake in which the fifty-six (56) mile point came has its outlets as shown and not as shown on the map by the Topographical survey of Canada.

Game of any kind appears to be very scarce, only two or three moose and two bears being seen during the whole course of the survey. Fish, including pike and pickerel, are fairly plentiful in most of the lakes.

Appendix No. 32

Extract from a Traverse of the Albany River and Opichuan River from Lake St. Joseph to the Ogoki River, by James S. Dobie, O.L.S., 1929.

The survey commenced where the south shore of the Albany River is intersected by the meridian line run by James Benner, O.L.S. in 1923, a short distance east of Lake St. Joseph. The Albany River was surveyed as far as the mouth of the Opichuan River. The survey was then carried up the Opichuan River, through Kagianagami Lake and Mahamo Lake, and up the Ogoki River to connect with the survey of the Ogoki River made by myself in 1926. The survey was also carried up into Eabamet Lake which was traversed with the exception of the shore of the Fort Hope Indian Reserve which had been traversed when this Indian Reserve was surveyed in 1910. The corners of the Fort Hope Indian Reserve were located and connected with the survey. The Albany River between Lake St. Joseph and Fort Hope flows through several large lake expansions and outline traverses of both sides of these lakes were made.

The method of conducting the survey was by transit and stadia as described in previous years. Every effort was made to reduce the errors in reading dis-

tances to as near an absolute minimum as possible, and the use of a transit with a telescope powerful enough to permit of observations being taken on polaris at any hour of the day made it possible to almost eliminate azimuth errors. Frequent observations for azimuth were taken and the details of these observations were recorded on the forms supplied by your Department for this purpose.

On account of the manner in which mapping from aerial photographs has been developed during the past few years, and as this method of mapping will be applied to the Albany River and to the territory adjacent to the survey, it was not considered advisable to go into great detail in locating the shore line. The traverse of numerous islands and of many deep bays was dispensed with as the details of these features can be plotted later from the aerial photographs. The plans of the survey which have already been forwarded to your Department give a sufficiently accurate representation of the main physical features for present requirements.

The whole survey was carried out so as to form part of the ground control necessary for plotting aerial photographs for a considerable distance on either side of the traverse, and particular attention was paid to accurately locating small islands, sharp points and other physical features which it was thought could be easily identified on the photographs.

Posts were planted at intervals along the shore and marked consecutively as in previous years. Stone mounds were built around these posts, and bearing trees were marked and recorded in the field notes wherever suitable trees were near enough at hand. A large number of posts however have no bearing trees as very often the most suitable place for a post was on a rocky point comparatively bare of timber. On points such as this there is practically no danger of the posts being destroyed by fire. In a very few cases where it was not possible to secure stones for mounds, and where the ground is too low and wet to permit of suitable pits being dug, a large sound green cedar or tamarac tree was squared and marked instead of a post. This was only done in a very few cases and then only when it was considered that the marked tree had a better chance of remaining as a monument than a post unmarked by a stone mound.

Twelve metal posts were planted at intervals and marked with the same number as the wooden post planted alongside them. Most of these metal posts are located near waterfalls on the river where they can be used as bench-marks. The elevation of every metal post was obtained and marked on the plan.

The Albany River is one of the largest rivers in Ontario, and the portion surveyed consists of a series of river stretches connecting a number of lake expansions. Between Lake St. Joseph and Fort Hope on Eabamet Lake there are thirteen rapids and falls at which portages are necessary. In many places the river flows with a rapid current, and there are numerous rapids at which there are no portages cut out, and where care is required in navigating particularly with small or loaded canoes.

Levels were taken on the river as the survey progressed, and the elevations thus obtained are shown on the plan wherever there is a fall of any magnitude. These elevations are approximately correct only, as actual levels were only taken where there is a considerable drop in the river. Along many stretches of the river the change in elevation was estimated. It is felt, however, that the elevations obtained in this way are sufficiently accurate for present purposes as the difference in elevation is accurately shown at all points where water power developments will occur in the future.

There are several points where water powers of considerable magnitude can be developed. At Smooth Stony Portage a little over eighteen miles below

Lake St. Joseph, there is a fall of 34 feet. Detailed investigation may show that it may be possible to dam the river here so as to raise the water to the level of Lake St. Joseph or possibly higher, which would increase the head to 54 feet or more. About four miles below Smooth Stony Portage there is a series of falls and rapids called Kagami, at which three portages are made. The river here falls 65 feet in a little over a mile and an important power could be developed.

In connection with possible power developments at both Smooth Stony Portage and Kagami, it should be pointed out that the Albany River divides at a small lake about five miles above Smooth Stony Portage. The survey follows the northern channel but the south channel is a large stream and there is a very heavy rapid where it rejoins the Albany River just below Kagami. As to what effect this southern channel may have on possible power developments at these points can only be determined by a detailed survey. No investigation was made of this channel excepting to mark the points where it left and rejoined the main river.

About twenty-two miles below Kagami there commences a series of rapids which extends for about six miles, but the heavier rapids are all towards the upper end. There are two portages in this section, and there is one long portage which is made going up stream which cuts off the two portages just mentioned, and also a number of rapids which are rather difficult to get up. The power possibilities in this series of rapids are uncertain but it is quite probable that a detailed power survey would show that at some site in the stretch of river cut off by the long portage referred to above, a considerable portion of the fall in these rapids could be concentrated and an important power developed.

For about 21 miles below this series of rapids the Albany River flows with a sluggish current except in a few places where there are short, flat rapids of no special significance. In this stretch the Mischkow and the Shabushkwia Rivers enter from the south, and the Etowamami River comes in from the north. A little over two miles below the mouth of the Shabushkwia River, the Albany River takes a drop of 22 feet at Greenbush portage. Two and a half miles down stream there is an abrupt drop of 23 feet and the river narrows to about a chain wide. High hills appear on both sides of the river a short distance back from the water. This is followed about two miles further down stream by another drop of about nine feet which brings the river almost to the level of Miminiska Lake, which is about eight miles further down stream. The river between these falls is very fast and there are several short rapids with a drop of about a foot each. The total fall from above Greenbush portage to Miminiska Lake is about 66 feet, and the amount of power to be developed here is very large.

Between Miminiska and Petawanga Lakes there is a short rapid, then an abrupt fall of about 10 feet followed by a rough rapid about half a mile long with a drop of 18 feet. The total fall from Miminiska to Petawanga Lake is 32 feet and a considerable power could be developed here. It is possible that the lower one of the three falls above Miminiska Lake could be combined with the falls between Miminiska Lake and Petawanga Lake. The falls between these lakes is passed by a short portage on the east bank of the river, and the long rapids below the falls is run with light or partially loaded canoes. There is, however, a good portage about 35 chains long from Miminiska Lake to a point on the river below the rapids by which all these rapids and falls may be avoided.

Immediately below Petawanga Lake there is a rapids with a fall of 20 feet. The river here is divided by an island and the portage crosses the island from the northerly channel to the southerly one. Six miles lower down there is

another rapids with a drop of 18 feet and here again the river is divided by an island. A portage which passes the worst part of the rapids is on the south side of the island. The power possibilities at these rapids are important provided the cost of constructing the necessary dams, etc., is not too great.

There are no further rapids on the Albany River until Frenchman's rapids is reached. This is a rough rapid with a drop of about eight feet, and is situated about 18 miles down stream from where the outlet of Eabamet Lake enters the Albany River.

The Opichuan is a comparatively small stream draining a number of lakes of which Kagianagami Lake is the largest. There are a number of rapids on this stream at some of which small powers could be developed. The total fall from Kagianagami Lake to the Albany River is 157 feet.

The Albany River flows through a rolling country which generally speaking appears low and flat, as seen from the river. However, as one goes back into the woods the ground generally becomes higher, and when one gets on an eminence from which a view can be obtained, rolling hills appear in the distance. The shores are generally low and stony with occasional rock outcrops, and here and there stretches of sand and gravel. For some distance before reaching Miminiska Lake, rolling hills could be seen rising to a height of 200 to 300 feet above the river.

There is considerable timber of the varieties peculiar to this country, spruce, jack-pine, white birch, poplar and balsam being fairly plentiful and of good quality. A few scrubby ash and elm trees were seen on the low ground where the Albany River enters Miminiska Lake. Cedar is fairly plentiful close to the shore of some of the lakes, but the quality of the timber is poor. There are very large areas which have been burnt over at different times in the past and the greater part of the timber observed from the river during the season is second growth of varying ages, depending upon when the fire destroyed the original timber. Notes were made in the field notes on practically every traverse course as to the kind and quality of timber seen along the shore, as well as any other information which it was thought might be of interest, and these notes have been placed on the plan which forms part of the returns of the survey.

The agricultural possibilities of the country seen during the survey are practically nil, very few tracts of arable land being seen which would be large enough to make more than an ordinary garden.

The rock exposures along the upper portion of the Albany River are almost invariably granite and gneiss, with the exception of a small area of dark-green schist at the outlet of Lake St. Joseph. There are some prominent granite hills close to the river below Elbow Lake. About 20 miles above Miminiska Lake there are some small exposures of dark-green rock with a schistose structure. The rock exposures here are not plentiful but all along the river in this locality the magnetic local attraction is very pronounced. Hills rising to a height of 200 to 300 feet above the river could be seen about a mile back, and it was thought that there would probably be some rock exposures on these hills. Some prospectors, who were met on the river, however, stated that these hills are almost entirely composed of sand and gravel. The series of falls below Greenbush Portage are all over these schistose rocks, but below the last of these falls the river banks are very low and marshy, and in many cases stakes had to be driven into the ground to make a steady support for the transit. Along the shores of Miminiska Lake there are some exposures of these schistose rocks, and at one place on the north side of the eastern part of this lake an exposure of lean-banded magnetic iron ore was seen accompanied by strong local magnetic attraction. It is probable that this band of schistose rocks extends through to Fort Hope,

and there would appear to be some good prospecting ground in this locality, although the heavy overburden which appears to be spread over the whole country will make prospecting difficult.

Below Petawanga Lake granite and gneiss appear again, and these rocks predominated throughout the rest of the survey excepting near Frenchman's Rapids where another area of schistose rock occurs.

North of the trading posts of the Hudson's Bay Company, and Revillon Freres at Fort Hope on Eabamet Lake, there has been considerable mining activity during the past year and a number of mining claims have been staked. Mining operations of considerable magnitude have been carried on within the past few months. The corner post of one of these mining claims was connected with the survey, as also were the corners of the tracts of land owned and occupied by the Hudson's Bay Company and Revillon Freres at Fort Hope.

A very little game was seen during the season. An occasional deer and moose was observed but these animals do not appear to be plentiful. Pike, pickerel, whitefish and sturgeon are fairly plentiful in the Albany River and the various lake expansions. At most of the rapids speckled trout of good size were caught. In the rapids on the Opichuan River large speckled trout are very plentiful and large lake trout are said to be plentiful in Kagianagami Lake.

The magnetic variation in the granite areas varies from about one degree east near where the survey started, to two degrees, fifty minutes west on the Opichuan River. The amount of local attraction is nowhere very steady, and in the schist areas around Miminiska and Petawanga Lakes the local attraction is most pronounced over large areas. The two small booklets supplied by the Topographical Survey at Ottawa for recording local magnetic bearings were filled up with magnetic records and are returned with the other returns for the survey.

REPORT
OF THE
MINISTER OF LANDS AND FORESTS
ONTARIO
1929

Part II—Forestry Branch

Appendix No. 33

I.—FOREST FIRE PROTECTION

(1) *Legislation*

During the year Orders-in-Council were passed affecting the boundaries of the Fire Districts, "Travel Permit" areas and the conditions under which fire might be used out of doors in some districts for cooking or obtaining warmth.

These Orders-in-Council were as follows:—

"Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor dated the 30th day of April, A.D. 1929.

Upon the recommendation of the Honourable the Minister of Lands and Forests, the Committee of Council advise that pursuant to the provisions of section 2, subsection 3, chapter 291, R.S.O. 1927, the following areas be declared to be no longer within the Fire District, these areas having largely been alienated from the Crown.

District of Parry Sound

The townships of Chapman, Strong, Ryerson, Armour, McMurrich and Perry.

District of Muskoka

The townships of Stisted, Chaffey, Watt, Stephenson, Brunel, Monck, Macaulay, Muskoka, Draper, Morrison and Ryde.

County of Simcoe

The township of North Orillia and Matchedash township lots 1 to 9 in concessions 1 to 7.

County of Ontario

The township of Rama.

County of Peterborough

Harvey township, concession 9—lots 7 to 15 inclusive; concession 10—lots 5 to 15 inclusive; concession 11—lots 1 to 15 inclusive; concessions 12, 13, 14, 15, 16, 17 and 18—all lots or parts of lots south of Bald and Pigeon Lakes.

County of Hastings

The township of Elzevir.

County of Lennox and Addington

The township of Kaladar.

County of Frontenac

The townships of Kennebec, Olden and Oso.

County of Lanark

The townships of Sherbrooke South and Sherbrooke North."

“Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 14th day of August, A.D. 1929.

Upon the recommendation of the Honourable the Minister of Lands and Forests, the Committee of Council advise that pursuant to the provisions of section 21, chapter 291, R.S.O. 1927, the following areas be declared “Travel Permit” areas, the same being in the public interest.

(1) The township of Hammell and all that part of the townships of Stewart, Osborne, LaSalle and Gooderham lying west of the Timiskaming and Northern Ontario Railway.

(2) The townships of 137, 138, 139, 151, 157, 163, 169, 176, 182, N $\frac{1}{2}$ Gould, 188, Otter, Morin and McMahan.

(3) All that area lying within the following boundaries excepting only the north half of the township of Chapleau, the south half of the township of Panet and the south-west quarter of the township of Cochrane.

Commencing at the south-east angle of the township of Sheppard, thence westerly along the southerly boundaries of the townships of Sheppard, McConnell, Telfer, Fraleck and Creelman to the south-east angle of the township of Roberts; thence southerly along the easterly boundaries of the townships of Kitchener and Bowell to the north-west angle of the township of Hanmer; thence westerly along the southerly boundaries of the townships of Bowell, Foy, Harty and Hess to the south-east angle of the township of Moncrieff; thence southerly along the easterly boundaries of the townships of Hart, Ermatinger, Totten and Hyman to a point where the easterly boundary of Hyman intersects the Spanish River; thence westerly following the turnings and windings of the Spanish River to a point where it is intersected by the southerly boundary of the township of Dunlop; thence westerly along the southerly boundaries of the townships of Dunlop and 118 to the south-east angle of township 123; thence northerly along the westerly boundaries of townships 118, 119 and 120 to the south-east angle of township E in Mississagi Provincial Forest; thence easterly along the southerly boundary of township A to the southwest angle of township 114; thence northerly along the easterly boundaries of townships A, B, C and D to the north-east angle of township D; thence westerly along the southerly boundaries of townships 4, Alton, Jasper, Durban, Ethel and Comox to the south-east angle of township Y; thence northerly along the easterly boundaries of townships Y, Z, 7Z, 8Z and 9Z to the south-west angle of township 16; thence westerly along the southerly boundary of township 17 to the north-east angle of township 9A; thence northerly along the easterly boundary of township 10A to the north-west angle of township 17; thence westerly along the southerly boundaries of townships 19 and 20 to the east shore of Wakami Lake; thence northerly and westerly along the shore of Wakami Lake to the easterly boundary of township 11B; thence northerly along the easterly boundary of township 11B to the north-west angle of township 20; thence westerly along the southerly boundaries of townships 23, 24 and 25 to the south-east angle of township 12E; thence northerly along the easterly boundary of township 12E to the south-east angle of township 28; thence westerly along the southerly boundaries of townships 28 and 29 to the south-east angle of township 13G; thence northerly along the easterly boundary of township 13G to a point on the easterly boundary of township 13G which would be on a projection east of the northerly boundary of township 13H; thence westerly to the north-east angle of township 13H; thence continuing westerly along the northerly boundaries to township 13H and townships 22, 23 and 24 in range 20 to the north-east angle of township 25, range 20; thence northerly along the westerly boundary of township 24, range 21, to the

north-east angle of township 25, range 21; thence westerly along the southerly boundary of township 25, range 22, to the north-east angle of township 26, range 21; thence northerly along the westerly boundary of township 25, range 22, to the north-east angle of township 26, range 22; thence westerly along the southerly boundary of township 25, range 23, to the south-east angle of township 26, range 23; thence northerly along the westerly boundaries of township 25, range 23, and township 25 range 24, to the north-east angle of township 26, range 24; thence easterly along the northerly boundary of township 25, range 24, to the north-west angle of township 24, range 24; thence northerly along the westerly boundary of township 43 to the north-east angle of township 25, range 25; thence easterly along the northerly boundary of township 43 to the south-east angle of township 45; thence northerly along the westerly boundary of township 44 to the north-east angle of township 45; thence easterly along the northerly boundary of township 44 to the south-east angle of the township of Stover; thence southerly along the easterly boundary of township 44 to the south-west angle of the township of Lang; thence easterly along the northerly boundaries of the townships 41 and Addison to the south-west angle of the township of Clifton; thence southerly along the easterly boundary of the township of Addison to the south-west angle of the township of Chaplin; thence easterly along the northerly boundaries of the townships of Ramsden and Mageau to the south-east angle of the township of Manning; thence northerly along the western boundaries of the townships of Floranna, Lipsett and Lloyd to the north-east angle of the township of Calais; thence easterly along the northerly boundary of the township of Lloyd to the south-east angle of the township of Lerwick; thence northerly along the westerly boundaries of the townships of Kirkwall, Stefansson and Mons to the south-east angle of the township of Ericson; thence easterly along the northerly boundary of the township of Mons to the south-east angle of the township of Radisson; thence northerly along the westerly boundary of the township of Maude to the south-east angle of the township of Usnac; thence easterly along the northerly boundary of the township of Maude to the south-east angle of the township of Oscar; thence southerly along the easterly boundary of the township of Maude to the south-west angle of the township of Allenby; thence easterly along the northerly boundary of the township of Buchan to the south-east angle of the township of Allenby; thence southerly along the easterly boundary of the township of Buchan to the south-west angle of the township of Lisgar; thence easterly along the northerly boundaries of the townships of Wadsworth, Belford, Montcalm and Fortune to the south-east angle of the township of Aitken; thence southerly along the easterly boundaries of the townships of Fortune, Enid, Frey and Sewell to the south-west angle of the township of Hillary; thence easterly along the northerly boundary of the township of Pharand to the south-east angle of the township of Hillary; thence southerly along the easterly boundary of the township of Pharand to the south-west angle of the township of Childerhose; thence easterly along the northerly boundaries of the townships of McBride, Hassard, Beemer, English and Zavitz to the south-west angle of the township of Cleaver; thence southerly along the easterly boundaries of the townships of Zavitz, Hutt, Halliday, Mond, Natal, MacMurchy, Fawcett, Ogilvie and Browning to the north-west angle of the township of Stull; thence easterly along the northerly boundaries of the townships of Stull, McLeod and Ellis to the north-west angle of the township of Parker; thence southerly along the easterly boundaries of the townships of Ellis and Selkirk to the south-west angle of the township of Dundee; thence easterly along the northerly boundaries of the townships of Turner and Seagram to the north-west angle

of the township of Delhi; thence southerly along the easterly boundaries of the townships of Seagram, Clary and Sheppard to the south-east angle of the township of Sheppard which is the point of commencement."

"Copy of an Order-in-Council approved by the Honourable the Lieutenant-Governor, dated the 21st day of August, A.D. 1929.

Upon the recommendation of the Honourable the Minister of Lands and Forests, the Committee of Council advise that pursuant to the provisions of Section 7, subsection 2, chapter 291, R.S.O. 1927, during the close season (April 1st to September 30th) any person wishing to use fire out of doors for cooking or obtaining warmth or for any purpose whatever in the following described areas be required to first secure a written permit from a fire ranger:—

(1) The townships of Jaffray, Haycock, Melick, Pettypiece, Redditt and Pellatt.

(2) Within one mile on either side of the highway between Kenora and Granite Lake.

(3) Within a radius of three miles from Ingolf Station on the Canadian Pacific Railway.

(4) Commencing at the south-easterly angle of the township of Haycock, thence northerly along the easterly limit of the township of Haycock to the Canadian Pacific Railway, thence easterly to the south-westerly corner of the township of Langton, thence along the southerly shore of Eagle Lake and all its windings to Niven Bay on the Sixty Meridian, thence westerly to the forty-fourth mile post of Niven's Base Line, thence southerly twenty-three miles to Strawberry Lake, thence westerly along the Kenora-Rainy River boundary to Nester's Falls, thence along the shore of Sabaskong Bay to Turtle Portage, thence along the windings of the eastern shore of Whitefish Bay to Andrew Bay, Bigstone Bay to the north-easterly limit of Mining Location 224-P, thence to the southerly limit of the township of Haycock and easterly to the point of commencement.

The committee further advise that every person violating the provisions of this regulation shall be guilty of an offence and for each such offence shall be liable to a penalty of not less than Twenty-five Dollars (\$25.00) and not more than Three Hundred Dollars (\$300.00) and in addition to imprisonment for a period not exceeding ninety days, as provided by the Forest Fires Prevention Act, chapter 291, R.S.O. 1927."

(2) *Organization and Personnel*

Early in the year the District Forester at North Bay resigned, his resignation taking effect February 28th. The Forest Assistant there was then appointed District Forester and the vacancy filled with a new assistant.

In March the Forest Assistant at Pembroke was transferred to Kenora as Assistant. This man resigned in October and has not yet been replaced.

On the first of June a second Forest Assistant was appointed in the Georgian Bay Inspectorate.

In the Oba Inspectorate two Fire Inspectors were appointed, one with headquarters at Oba and the other with headquarters at Kapuskasing. The District Forester in charge was granted leave of absence as from the end of September and the Forest Assistant was appointed District Forester.

The changes in district boundaries consisted of—the transfer of the Rainy River Chief Ranger District from the Western to the Kenora Inspectorate, March 5th; the transfer to the Nipigon Chief Ranger District of that portion of the Thunder Bay Chief Ranger District east of Nipigon, March 5th; the transfer of the Smoky Falls Chief Ranger District from the Cochrane to the Oba Inspectorate, March 2nd.

The total field supervisory staff for the eleven inspectorates was as shown in the following table and consisted of nine District Foresters, one Assistant District Forester, nine Forest Assistants, one Forest Supervisor, six Fire Inspectors, one Assistant Fire Inspector, thirty-seven Chief Fire Rangers and one hundred and twenty-two Deputy Chief Fire Rangers. The Fire Inspectors at Gogama and Biscotasing and the Assistant Fire Inspector at Longlac also acted as Chief Fire Rangers.

There was direct supervision of one Chief or Deputy Chief Ranger to an average of every seven rangers.

ORGANIZATION AND PERSONNEL

Inspectorate	Area (acres)	Headquarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Hudson...	26,000,000	Sioux Lookout	1—District Forester 1—Fire Inspector 3—Chief Rangers 12—Deputy Chief Rangers	Red Lake Sioux Lookout Armstrong	Goose Island Sioux Lookout Armstrong
Kenora...	14,080,000	Kenora...	1—District Forester 2—Forest Assistants 3—Chief Rangers 9—Deputy Chief Rangers	Kenora Minaki Rainy River	Kenora Minaki Fort Frances
Western..	11,459,000	Port Arthur	1—Forest Supervisor 2—Chief Rangers 9—Deputy Chief Rangers	Thunder Bay Nipigon	Port Arthur Macdiarmid
Oba.....	25,520,000	Kapus-kasing	1—District Forester 1—Forest Assistant 2—Fire Inspectors 1—Assistant Fire Inspector and Chief Ranger 6—Chief Rangers 17—Deputy Chief Rangers	Nakina Longlac Oba Franz Hearst Kapus-kasing Smoky Falls	Nakina Longlac Oba Franz Hearst Kapus-kasing Smoky Falls
Cochrane.	12,302,000	Cochrane.	1—Fire Inspector 4—Chief Rangers 15—Deputy Chief Rangers	Cochrane Abitibi Timmins Matheson	Cochrane Stimson Timmins Matheson
North Bay	5,105,000	North Bay	1—District Forester 1—Forest Assistant 3—Chief Rangers 11—Deputy Chief Rangers	Timagami North Timagami East North Bay	Elk Lake Timagami North Bay
Sudbury..	12,644,000	Sudbury..	1—District Forester 1—Asst. District Forester 1—Forest Assistant 2—Fire Inspectors and Chief Rangers 6—Chief Rangers 22—Deputy Chief Rangers	Foley West Foley East Mississagi West Mississagi East Webbwood Timagami West Sudbury North Sudbury South	Elsas Gogama Chapleau Biscotasing Espanola Mattagami Post Skead Sudbury

ORGANIZATION AND PERSONNEL—*Continued*

Inspectorate	Area (acres)	Head-quarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Soo.....	7,394,000	Sault Ste. Marie	1—District Forester 1—Forest Assistant 3—Chief Rangers 11—Deputy Chief Rangers	A.C.R. Blind River Mississagi South.	Sand Lake Blind River Ranger Lake
Georgian Bay	3,711,000	Parry Sound	1—District Forester 2—Forest Assistants 3—Chief Rangers 6—Deputy Chief Rangers	Georgian Bay W. Georgian Bay E. Georgian Bay S..	Parry Sound Powassan Coboconk
Algonquin	3,522,000	Pembroke	1—District Forester 2—Chief Rangers 6—Deputy Chief Rangers	Algonquin North Algonquin South	Pembroke Brule Lake
Trent....	3,163,000	Tweed...	1—District Forester 1—Forest Assistant 2—Chief Rangers 4—Deputy Chief Rangers	Trent Madawaska	Bancroft Dacre

Total area, 124,900,000.

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 170; May, 692; June, 1,052; July, 1,097; August, 1,072; September, 889; October, 260. The largest number of men on duty at any one time, including Chief and Deputy Chief Rangers, was 1,110.

NUMBER OF MEN ON DUTY INCLUDING CHIEF AND DEPUTY CHIEF RANGERS

	1929	1928	1927	1926	1925	1924	1923
April 1st.....	77	49	44	19	24	22	4
April 15th.....	139	98	159	42	62	60	9
May 1st.....	454	293	361	168	360	215	205
May 15th.....	683	628	675	549	648	525	699
June 1st.....	981	992	958	896	822	756	1,104
June 15th.....	1,066	1,026	1,040	966	842	810	1,166
July 1st.....	1,090	1,071	1,046	982	847	812	1,198
July 15th.....	1,085	1,080	1,062	992	848	813	1,257
August 1st.....	1,072	1,068	1,051	987	845	806	1,220
August 15th.....	1,081	1,055	1,019	983	841	792	1,223
September 1st.....	1,083	988	926	918	835	745	1,115
September 15th.....	987	778	865	798	806	626	968
October 1st.....	407	242	240	257	245	148	291
October 15th.....	245	131	120	129	82	47	111
October 31st.....	154	93	57	44	.....	.....	.....

(3) *Expenditures*

The total expenditure for the year was \$1,734,013.87, less \$60,000.00 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Fire Protection at \$1,674,013.87. The amount of fire tax collected for the year was \$353,258.07.

CLASSIFICATION OF EXPENDITURES

Item	1929	1928	1927	1926	1925	1924	1923
Pay roll.....	\$925,173 08	\$786,600 74	\$780,527 29	\$664,260 69	615,811 09	\$480,481 98	\$535,810 35
Equipment.....	168,367 55	137,070 76	109,496 05	108,387 12	134,692 18	144,540 75	133,056 47
Travel (inspection).....	53,097 39	58,259 25	39,494 42	29,065 24	33,649 18	32,797 35	31,436 73
Improvement work.....	82,180 13	76,496 09	63,333 45	19,097 63	225,723 85	61,427 30	54,876 42
Extra fire fighting.....	183,210 35	21,028 90	43,509 13	34,728 85	67,023 32	16,450 78	143,508 13
Express, postage, etc.....	21,619 43	16,866 97	20,951 71	30,105 86	39,472 70	33,818 69	28,083 20
Air operations.....	.....	.....	.....	.....	.....	.....	86,404 71
Maintenance.....	159,764 39	112,716 04	89,888 11	95,931 36	98,520 56	28,877 18	7,419 24
Miscellany.....	2,669 46	4,192 22	13,273 84	17,327 48	11,964 07	8,921 53	15,328 44
Gasoline and oil.....	129,738 04	51,797 50	72,295 61	67,720 04	26,924 17	40,527 77	7,485 69
Rent.....	8,194 05	6,748 25	7,226 40	5,920 17	7,528 62	7,206 91	5,251 41
Brush-burning.....	.....	.....	.....	.....	.....	.....	229 00
Advertising.....	.....	.....	.....	.....	.....	.....	14,066 45
Totals.....	*\$1,734,013 87	*\$1,271,776 72	*\$1,239,996 01	*\$1,072,544 44	*\$1,261,309 24	\$855,050 24	\$1,062,956 24

*Of this total \$80,000.00 was transferred in 1925, 1926 and 1927, and \$60,000.00 in 1928 and 1929, to a charge against Forest Ranging to cover air operations in connection with that work.

(4) *Fires*

Unlike that of the five preceding years the hazard during the summer of 1929 was the worst in our experience. With the exception of the Clay Belt, where conditions were perhaps subnormal, every district in the Province was faced with abnormal conditions.

The most westerly part of the Province experienced extreme conditions with the severity lessening eastwards. The western part of the Kenora District had a total precipitation of 13.58 inches between the first of January and the end of October as compared with 27.51 inches for the same period the year previous. From May until the end of the first week in October the danger of fire in this district was the greatest ever known and because of the drought, high temperatures and strong winds fire-fighting was a continuous and heart-breaking task. Fires which ordinarily could be extinguished in a short time burned underground for days and weeks, necessitating constant patrol and at times breaking away in the high winds.

The large number of fires in the district, and the necessity of keeping men and equipment on some of these for weeks in order to prevent them breaking away again soon used up the available supply of key men and equipment in that territory. It was necessary therefore to make transfers from the less hazardous districts in the east, but even this did not prove sufficient as the supply from the east was limited by the gradually increasing hazard there.

From the middle of August to the tenth of September conditions over the greater part of the Province were bad and the entire organization was taxed to the utmost. Every available piece of fire fighting equipment was in use and every key man on the staff was on duty almost twenty-four hours a day.

The season of 1929 supersedes that of 1923 as a bad fire year in every respect but the area burned. The coming season however may probably be even worse as in many districts the ground is dried out to a considerable depth and there is little water in the lakes or rivers and the swamps are mostly dry.

While the past season was bad it was not without its good features. It proved beyond a doubt that fires can be controlled under most adverse conditions. The effect of this upon the morale of the organization will be immeasurable. It also brought to light the vulnerable spots in the present system and will have a far-reaching effect in the strengthening of these.

While the number of fires is the second largest on record, 1,550, the area burned over in the territory under protection was kept down to 625,643 acres. This compares most favourably with other years of lower hazard particularly in view of the fact that the area under protection has been increased during the last four years by the addition of some twenty-five million acres north of the transcontinental line of the Canadian National Railways. This additional territory includes the Red Lake, Pickle Lake, Bee Lake and other mining areas and accounts for approximately fifty per cent. of the total area burned.

In the vast territory between the Berens River and Trout Lake large fires are known to have occurred but they were beyond the reach of our present organization and no attempt was made to control them.

Of the total area burned 580,989 acres or ninety-three per cent. was west of Lake Nipigon. This is a territory of vast distances, scattered population and little means of communication and transportation. Fires are therefore much more difficult to control than in the eastern and more settled areas where they can make little headway before being seen.

In contrast with this, the Trent Inspectorate, while very much smaller in area, had a total of 202 fires during the season and all but two of these were either out or under control within twenty-four hours from the time they were reported. This was made possible by the system of roads, towers and telephone lines in the district and the number of settlers available as fire fighters. The total area burned in this inspectorate was 5,345 acres.

Of the 1,550 fires reported 19.2 per cent. occurred in the month of July and burned 17.6 per cent. of the total area. In August, which was the worst month of the season, 30.5 per cent. of the total number of fires accounted for 48.6 per cent. of the total area. September accounted for 13.4 per cent. of the fires and 29.4 per cent. of the area. In October, 128 fires were reported or 8.2 per cent. but the area burned by these was less than one per cent. of the total area.

In the causes of fires, campers, which includes prospectors, berry pickers and tourists, are again high with 26.7 per cent. Lightning jumps up to 16.1 per cent. the highest percentage of fires due to this cause that we have had. This was due to the large number of dry electric storms during the season. One storm is known to have started sixteen fires in one Chief Ranger District alone.

Of the total area burned over the fires caused by campers accounted for 16.8 per cent. and those caused by lightning for 31.4 per cent. Fires due to railways while forming 12.0 per cent. of the total number were responsible for only one-tenth of one per cent. of the total area.

Of the total number of fires 65.6 per cent. were confined to areas of five acres or less and 87.4 per cent. to areas of 100 acres or less with 4.1 per cent. reaching areas of more than 1,000 acres.

Timberland burned over totalled 114,938 acres of which 104,264 acres were in the Hudson and Kenora Inspectorates.

The high acreage of land classed as barren is accounted for by the areas of old burn in the two western inspectorates over which fires again ran.

CLASSIFICATION OF AREA BURNED OVER
BY MONTH

Inspectorate	April		May		June		July		August		September		October		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	.....	.....	144	0.1	10,015	3.6	28,097	10.1	119,759	42.9	120,933	43.3	16	.....	278,964	.....
Kenora.....	85	.....	373	0.1	5,654	2.1	51,898	18.9	170,878	62.3	45,506	16.6	36	.....	274,430	.....
Western.....	3	.....	650	2.3	3,585	13.0	15,935	57.8	7,251	26.3	171	0.6	.....	.....	27,595	.....
Oba.....	.....	.....	3	.....	247	2.0	10,405	82.6	1,935	15.4	.....	.....	1	.....	12,591	.....
Cochrane.....	.....	.....	4	0.1	219	7.6	2,662	92.0	8	0.3	.....	.....	.....	.....	2,893	.....
North Bay.....	.....	.....	121	18.8	22	3.4	10	1.5	53	8.2	221	34.3	218	33.8	645	.....
Sudbury.....	507	12.3	2,073	50.5	511	12.4	84	2.1	226	5.5	593	14.5	111	2.7	4,105	.....
Soo.....	398	37.9	43	4.1	4	0.4	5	0.5	548	52.2	1	0.1	51	4.8	1,050	.....
Georgian Bay.....	.....	.....	38	2.0	14	0.7	51	2.7	280	14.7	1,325	69.7	193	10.2	1,901	.....
Algonquin.....	.....	.....	698	4.3	85	0.5	543	3.4	973	6.0	13,305	82.6	520	3.2	16,124	.....
Trent.....	299	5.6	385	7.2	216	4.1	44	0.8	1,986	37.1	2,115	39.6	300	5.6	5,345	.....
Totals.....	1,292	0.2	4,532	0.7	20,572	3.3	109,734	17.6	303,897	48.6	184,170	29.4	1,446	0.2	625,643	.....

CLASSIFICATION OF AREA BURNED OVER
BY ORIGIN

Inspectorate	• Settlers		Campers		Railways		Lightning		Logging Operations		Smokers		Road Construction		Miscellaneous		Unknown		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	7	.....	75,280	27.0	24	.....	146,776	52.6	.....	.....	.....	6,815	2.4	2	.....	46,500	16.7	3,560	1.3	278,964
Kenora.....	319	0.1	22,073	8.1	71	.....	27,639	10.1	358	0.1	.....	157	0.1	397	0.1	60,615	22.1	162,801	59.3	274,430
Western.....	706	2.6	3,173	11.5	36	0.1	14,735	53.4	.....	.....	.....	1	.....	.....	.....	.....	.....	8,944	32.4	27,595
Oba.....	207	1.6	2,615	20.8	.....	.....	6,158	48.9	37	0.3	.....	3	.....	.....	.....	.....	.....	3,558	28.3	12,591
Cochrane.....	104	3.6	7	0.2	.....	.....	.....	.....	25	0.9	.....	.....	.....	44	.....	.....	.....	2,711	93.7	2,893
North Bay.....	188	29.1	130	20.3	6	1.0	.....	3	8	1.2	.....	238	36.8	4	1.5	.....	.....	61	9.4	645
Sudbury.....	153	3.7	568	13.8	178	4.4	84	2.1	2,258	54.9	.....	835	20.3	10	0.3	.....	.....	8	1.2	4,105
So.....	91	8.7	269	25.6	47	4.4	4	0.4	409	39.0	.....	112	10.6	1	0.1	.....	.....	16	0.4	1,050
Georgian Bay.....	137	7.2	374	19.7	132	7.0	542	28.5	1	.....	.....	279	14.7	1	.....	.....	.....	2	0.2	1,901
Algonquin.....	1	.....	535	3.3	273	1.7	599	3.7	4,516	28.0	.....	19	0.1	.....	.....	.....	.....	.....	.....	16,124
Trent.....	474	8.9	150	2.8	14	0.2	176	3.3	90	1.7	.....	103	1.9	29	0.6	.....	.....	2,093	13.0	5,345
Totals.....	2,387	0.4	105,174	16.8	781	0.1	196,716	31.4	7,702	1.2	.....	8,562	1.4	487	0.1	109,422	17.5	194,412	31.1	625,643

CLASSIFICATION OF FOREST AREAS BURNED OVER

Inspectorate	Number of fires	Timber land, mainly coniferous, i.e., softwood	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)
Hudson.....	179	81,099	.....	30,450	.....	30,300	.....	137,099	16	278,964
Kenora.....	285	23,165	..... 27	67,593	1,581	131,107	2,230	48,575	152	274,430
Western.....	117	3,677	111	3,085	1,320	8,780	752	8,375	1,495	27,595
Oba.....	56	5,823	.....	155	.....	4,378	50	1,958	227	12,591
Cochrane.....	27	46	..... 9	2,261	..... 23	45	4	505	.....	2,893
North Bay.....	98	30	5	81	104	9	42	257	117	645
Sudbury.....	246	53	6	1,799	10	674	391	140	1,032	4,105
Soo.....	80	4	4	205	29	.....	106	285	417	1,050
Georgian Bay.....	113	22	40	147	84	..... 91	478	586	453	1,901
Algonquin.....	147	91	655	3,171	2,006	414	1,802	6,948	1,037	16,124
Trent.....	202	16	55	368	104	1,666	2,230	574	332	5,345
Totals.....	1,550	114,026	912	109,315	5,261	177,464	8,085	205,302	5,278	625,643
1928 totals.....	536	37,220	21	6,530	634	29,758	1,101	24,024	1,095	100,383
1927 ".....	924	831	119	4,202	974	4,294	2,041	18,061	5,220	35,742
1926 ".....	1,110	10,266	2,468	12,866	9,378	17,583	11,303	19,262	5,248	88,374
1925 ".....	1,149	4,634	5,555	13,555	21,588	22,391	34,164	68,414	19,242	189,543
1924 ".....	851	24,067	6,592	11,089	12,057	31,760	15,908	42,353	2,190	146,017
1923 ".....	1,343	567,171	17,398	199,766	112,418	593,415	181,597	424,349	15,034	2,120,148

CLASSIFICATION OF LAND BURNED OVER

INSPECTORATE	Fires burning on one class of land only						Fires burning on both Crown and private land						Totals					
	Crown land			Private land			Originating on Crown land			Originating on private land								
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.			No. of fires	Area in acres		
Hudson.....	173	278,948	100.0	3	.13	.....	.....	.....	.....	.....	.....	.....	.....	.....	179	278,964
Kenora.....	204	269,262	98.1	69	1,586	0.6	.....	.....	.....	.....	.....	.....	.....	.....	285	274,430
Western.....	65	20,553	74.5	50	6,492	23.5	2	253	0.1	101	.....	10	2,085	0.8	1,143	.....	
Oba.....	27	12,267	97.4	29	324	2.6	.....	.....	.....	.....	.....	2	175	0.6	375	.....	
Cochrane.....	12	2,555	88.3	15	338	11.7	56	12,591	
North Bay..	44	193	29.9	54	452	70.1	27	2,893	
Sudbury.....	86	3,090	75.3	154	673	16.4	2	240	5.8	75	4	22	98	645	
Soo.....	29	342	32.6	48	508	48.4	3	120	11.4	80	246	4,105
Georgian Bay	31	646	34.0	72	1,006	52.9	3	190	10.0	59	80	1,050
Algonquin...	91	12,411	77.0	45	2,183	13.6	5	1,454	9.0	70	0.4	10	4	113	1,901	
Trent.....	80	2,681	50.2	117	707	13.2	2	1,170	21.9	608	11.4	6	86	1.6	93	147	16,124
Totals....	842	602,948	96.4	656	14,282	2.3	11	3,117	0.5	854	0.1	41	2,685	0.4	1,757	1,550	625,643

MEANS OF FIRE DETECTION

Inspectorate	CHIEF RANGER DISTRICT	TOTAL FIRES	AIR SERVICE		TOWERS		RANGERS		PUBLIC	
			Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hudson	Red Lake	120	99	82.5	No	17	14.2	4	3.3	
	Sioux Lookout	34	11	32.4		6	17.6	17	50.0	
	Armstrong	25	14	56.0		1	4.0	10	40.0	
Kenora	Kenora	179	124	69.3	Towers in use	24	13.4	31	17.3	
	Minaki	137	54	39.4		23	16.8	60	43.8	
	Rainy River	38	14	36.8		2	5.3	22	57.9	
		110	62	56.4		3	2.7	32	29.1	
Western	Thunder Bay	285	130	45.6	3	1.1	38	13.3	114	40.0
	Nipigon	89	21	23.6	4	4.5	17	19.1	47	52.8
		28	13	46.4	7	25.0	5	17.9	3	10.7
Oba	Nakina	117	34	29.1	11	9.4	22	18.8	50	42.7
	Longlac	12	11	91.7	..	....	..	....	1	8.3
	Oba	3	2	100.0	..	....	..	....	..	....
	Franz	4	1	33.3	..	....	1	33.3	1	33.3
	Hearst	21	2	9.5	1	25.0	1	25.0	2	50.0
	Kapuskaing	14	1	7.1	5	23.8	5	23.8	9	42.9
	Smoky Falls	0	..	....	..	....	8	57.1	5	33.8
		56	17	30.4	6	10.7	15	26.8	18	32.1
		10	..	....	..	....	2	20.0	8	80.0
		6	..	....	..	....	6	100.0	..	..
Cochrane	Abitibi	4	..	....	..	....	1	25.0	3	75.0
	Timmins	7	..	....	..	....	4	57.1	3	42.9
	Matheson	27	..	....	..	....	13	48.1	14	51.9

North Bay.....	4	..	....	1	25.0	2	50.0	1	25.0
Timagami North.....	26	..	....	7	27.0	7	27.0	12	46.0
Timagami East.....	68	2	1.5	14	20.6	30	44.1	22	33.8
North Bay.....	98	2	2.0	22	22.5	39	39.8	35	35.7
Sudbury.....	3	..	....	1	33.3	1	33.3	1	33.3
Foleyet West.....	15	..	....	5	33.3	2	13.3	8	53.4
Foleyet East.....	2	1	50.0	..	..	..	..	1	50.0
Timagami West.....	18	2	11.1	7	38.9	2	11.1	7	38.9
Sudbury North.....	151	45	30.0	10	6.7	27	18.0	69	45.3
Sudbury South.....	35	10	28.6	6	17.2	8	28.8	11	31.4
Webbwood.....	5	..	....	..	....	3	60.0	2	40.0
Mississagi East.....	17	6	35.3	..	....	3	17.6	8	47.1
Mississagi West.....	246	64	26.0	29	11.8	46	18.7	107	43.5
Soo.....	22	6	27.3	1	4.5	4	18.2	11	50.0
A.C.R.....	55	2	3.6	4	7.3	27	49.1	22	40.0
Blind River.....	3	..	....	1	33.3	1	33.3	1	33.3
Mississagi South.....	80	8	10.0	6	7.5	32	40.0	34	42.5
Georgian Bay.....	73	..	....	27	36.9	10	13.7	36	49.4
Georgian Bay West.....	38	..	....	9	23.7	10	26.3	19	50.0
Georgian Bay East.....	2	..	....	..	....	2	100.0	..	....
Georgian Bay South.....	113	8	10.0	36	31.8	22	19.5	55	48.7
Algonquin.....	77	..	No	27	35.1	20	26.0	30	38.9
Algonquin North.....	70	..	Aircraft	19	27.1	23	32.9	28	40.0
Algonquin South.....	147	..	in Use	46	31.3	43	29.2	58	39.5
Trent.....	116	..	..	70	60.4	15	12.9	31	26.7
Madawaska.....	86	..	..	51	59.3	8	9.3	27	31.4
Trent.....	202	..	..	121	59.9	23	11.4	58	28.7
Totals.....	1,550	374	24.4	280	18.1	317	20.5	574	37.0

(5) *Permits*

The number of burning permits issued during the season totalled 14,038 for an area of 51,752 acres. While the acreage covered by the permits is smaller than in 1928 the area of slash actually burned is probably larger as in many cases it was impossible to burn in the previous season because of the wet weather.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1929	1928	1927	1926	1925	1924	1923
Red Lake.....	63	129	24	31}	99	70	28
Sioux Lookout.....	78	40	103	26}			
Armstrong.....	13	5	28				
Kenora.....	769	611}	497	179	3	128	362
Minaki.....	55	44}					
Rainy River.....	40	29	61	31	19	16	216
Thunder Bay.....	293	333	433	264	235	100	139
Nipigon.....	3	4	10				
Nakina.....	7	42	37	51	95	36	18
Hearst.....	1,074	1,501	1,264	1,804	1,656	1,011	1,000
Longlac.....	3	5		2			50
Oba.....	15	24	34	29	11	16	
Franz.....	9	6	14	5	10		
Kapuskasing.....	1,903	2,274	1,245	1,022}	1,187	668	531
Smoky Falls.....	16		84	76}			
Cochrane.....	2,078	2,637	2,871	2,506	2,486	1,815	1,480
Abitibi.....	20		5	65	157	2	2
Matheson.....	1,664	1,236	1,482	1,603	1,515	1,275	1,122
Timmins.....	1,241	1,034	1,173	1,407	1,212	580	406
New Liskeard.....				836	637	408	361
A.C.R.....	95	51	72	97	82	18	10
Blind River.....	191	134	298	164	126	100	36
Mississagi South.....		2	3				
Foley West.....	43	43	59	58	3	34	11
Foley East.....	199	185	163	175	169	102	1
Mississagi West.....	55	22	77	67	20	15	1
Mississagi East.....	6	12	26	18	12	9	
Webbwood.....	222	169	322	183	162	119	25
Sudbury North.....	12	15	18	16	36	173}	36
Sudbury South.....	854	540	766	580	411	149}	
Temagami West.....	27	12	11	14	19		
Temagami North.....	988	951	765	294	253	200	
Temagami East.....	277	139	223	395	174	86	11
North Bay.....	914	724	829	971	691	360	61
Georgian Bay West.....	105	111	87	83	100		
Georgian Bay East.....	165	155	162	207	159		
Algonquin North.....	50	29	45	14	33	29	
Algonquin South.....	106	105	73	103	84	58	
Trent.....	150	77	57	31}	106	24	
Madawaska.....	235	181	172	59}			
Totals.....	14,038	13,611	13,593	13,466	11,962	7,602	5,907

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage Covered by Permits						
	1929	1928	1927	1926	1925	1924	1923
Red Lake.....	29	109	56	15	416	215	95
Sioux Lookout.....	570	85	189	63			
Armstrong.....	4	18				1	
Kenora.....	2,170	1,671	3,123	442	2	325	35,006
Minaki.....	18	5					
Rainy River.....	403	378	1,162	2,144	174	57	1,374
Thunder Bay.....	1,137	7,777	2,428	993	1,029	463	1,081
Nipigon.....	15	2	110				
Nakina.....	3	18	19	35	28	25	53
Hearst.....	4,898	7,119	3,358	3,435	3,721	2,311	2,335
Longlac.....							64
Oba.....	7	7	7	28	1	60	
Franz.....					1		
Kapuskasing.....	7,443	13,807	5,085	4,106	4,222	2,351	2,126
Smoky Falls.....	22		72	205			
Cochrane.....	6,414	16,901	5,577	5,623	4,462	4,010	4,348
Abitibi.....	19		4	213	426		1
Matheson.....	7,554	5,031	3,251	4,884	5,211	4,573	5,027
Timmins.....	6,801	2,222	1,812	2,354	2,064	1,421	918
New Liskeard.....				2,039	2,154	1,345	1,160
A.C.R.....	184	1,121	269	408	1,257	100	36
Blind River.....	380	130	1,199	1,041	1,119	619	294
Mississagi South.....		1	27				
Foleyet West.....	23	29	1,370	1,008	25	2,959	52
Foleyet East.....	65	87	2,280	1,613	3,152	3,402	5
Mississagi West.....	331	310	2,373	2,208	2,555	81	408
Mississagi East.....	9	26	2,984	2,843	4,741	2	
Webbwood.....	648	449	7,565	4,125	2,768	2,009	81
Sudbury North.....	13	14	556	137	293	425	187
Sudbury South.....	2,184	941	5,105	2,089	1,957	6,900	
Temagami West.....	34	3	7	27	6		
Temagami North.....	1,228	1,272	1,412	319	1,197	303	
Temagami East.....	579	217	514	458	819	172	41
North Bay.....	1,697	1,366	1,348	1,830	1,384	518	92
Georgian Bay West.....	307	157	297	201	742		
Georgian Bay East.....	730	380	456	558	418		
Algonquin North.....	3,362	33	15	148	377	719	
Algonquin South.....	1,753	141	139	199	121	599	
Trent.....	295	268	550	111	326	60	
Madawaska.....	423	810	1,043	86			
Totals.....	51,752	62,905	55,762	45,988	47,168	36,025	54,784

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1929	1928	1927	1926	1925	1924	1923
April.....	640	116	663	100	451	127	
May.....	2,579	3,372	2,857	3,580	2,185	849	2,131
June.....	5,043	4,494	4,641	3,341	2,273	3,614	711
July.....	2,937	2,581	2,082	2,643	2,172	1,388	1,314
August.....	1,520	2,139	1,671	2,065	2,484	1,093	1,077
September.....	1,220	899	1,656	1,672	2,367	528	566
October.....	99	10	23	65	30	3	108
Totals.....	14,038	13,611	13,593	13,466	11,962	7,602	5,907

MONTH	Acreage Covered by Permits					
	1929	1928	1927	1926	1925	1924
April.....	2,662	701	7,138	3,686	7,981	4,956
May.....	9,882	21,435	15,265	13,484	12,397	2,812
June.....	24,581	23,453	13,896	12,020	5,851	10,188
July.....	8,627	9,589	5,662	7,521	7,685	3,546
August.....	2,693	5,796	8,408	4,434	6,667	5,021
September.....	2,302	1,812	4,742	4,800	6,546	9,450
October.....	1,005	119	651	43	41	52
Totals.....	51,752	62,905	55,762	45,988	47,168	36,025

(6) *Equipment*

Fire fighting equipment of all kinds was put during the season to the most severe test. Especially was this true of the forest fire-fighting pumps and hose. These failed in only one respect—the limited supply.

Probably never before, certainly not in Ontario, have the pumps been called upon to stand up under such severe conditions. There were breakages, of course, many of them, but these were due largely to the inexperience of many of the operators who had to be picked up at random to man the many fires.

At one time ninety-six pumps were in operation in the Hudson and Kenora Inspectorates and more would have been in use had they been available. Seven pumps were used on one fire in the Kenora District, one of which ran continuously for 200 hours and two others for 175 hours each.

Other mechanical equipment in use also did yeoman service but the season demonstrated conclusively that there is little advantage in spending thousands of dollars each year on pumps, motor cars, and boats unless the staff is made up of men who can intelligently operate this equipment.

A portable wireless set was given a thorough trial on one of the larger fires in the Red Lake District. This set provided during the course of the fire continuous communication between the suppression crew and headquarters, a distance of thirty miles. Such communication in a country where nearly all transportation is by air is at times invaluable and it is expected that more of these sets will be put into use.

Aircraft were subject to continuous use throughout the season, particularly for the transportation of men and supplies. As was to be expected under such severe conditions the old H.S. 2 L. machines faltered. Two of these were condemned during the season and three more after the close of the season. The Moth machines, however, stood up wonderfully well under the strain.

MAJOR EQUIPMENT PURCHASED AND IN USE

INSPECTORATE	Fire Fighting Units		Fire Fighting Hose (feet)		Portable Hand Pumps		Tents		Blankets (pairs)		Canoes		Small Motor Boats		Launches		Auto Trucks		Railway Motor Cars		Velocipedes		Out-board Motors		Binoculars		
	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	Purchased 1929	Total in use	
Hudson	16	69	33,000	137,300	24	111	13	89	175	553	7	63	3	8	3	3	3	1	1	2	2	3	6	5	20	1	20
Kenora	30	51	86,525	107,500	112	148	28	62	161	386	5	44	8	10	4	3	1	1	1	1	2	2	2	7	1	14	1
Western	6	21	11,900	29,200	52	66	18	40	168	271	7	20	1	1	3	1	3	1	3	2	2	2	7	1	1	1	1
Oba	2	37	2,000	78,900	...	207	1	137	12	752	...	63	9	14	2	...	...	...	...	...	...	...	...	...	...	...	...
Cochrane	3	31	14,000	64,200	25	173	9	64	75	452	3	57	1	1	5	2	1	1	4	2	13	1	28	8	13	2	15
Soo	19	19	2,500	36,600	10	85	7	75	...	415	5	36	...	...	1	1	5	2	11	1	5	1	28	2	3	5	5
Sudbury	3	66	4,000	168,100	...	212	25	199	75	1,162	1	162	...	...	2	9	3	8	...	...	...	...	...	...	...	...	...
North Bay	4	27	11,000	59,500	13	65	11	90	...	594	...	79	2	3	1	8	6	15	...	...	...	...	...	...	...	...	...
Georgian Bay	2	18	4,000	34,300	...	96	2	44	37	308	2	47	1	2	7	2	7	...	...	...	...	...	...	...	...	...	...
Algonquin	3	13	9,400	24,600	6	80	1	63	75	462	3	53	3	6	3	3	2	3	...	...	...	...	...	...	...	...	...
Trent	...	6	...	17,100	...	65	5	20	21	196	2	17	5	5	...	...	6	7	...	...	...	...	...	...	...	...	...
Totals	70	358	178,325	757,300	242	1,308	120	883	339	5,551	35	641	33	61	3	45	24	69	4	4	38	4	117	35	87	31	107

(7) *Locomotive Inspection*

As in previous years two men devoted their whole time to the inspection of fire protective appliances on locomotives operating within the Fire Districts.

A total of 1,964 locomotive inspections were made covering 871 locomotives operating on railway lines under the jurisdiction of the Board of Railway Commissioners for Canada, the two inspectors having appointments as officers of the Board. In addition, 110 inspections were made of Temiskaming and Northern Ontario Railway locomotives and forty-six inspections of logging locomotives, 2,120 inspections in all.

LOCOMOTIVE INSPECTION

Railway	Number Inspected						Total No. Locomotives	Total Number Inspections							Inspections Showing Defects	Percentage Defective						
	Times							1929	1928	1927	1926	1925	1924	1923		1929	1928	1927	1926	1925	1924	1923
	1	2	3	4	5 and over																	
C.P.R.	171	83	51	43	42	390	890	918	805	739	799	851	860	16	0.5	1.2	0.8	0.5	1.9	2.3		
C.N.R.	188	120	55	42	46	451	995	925	915	962	988	1,001	856	16	1.6	1.5	1.8	0.5	1.5	2.7		
A.C. & H.B.R.	3	6	3	5	4	21	64	65	19	20	45	45	29									
A.E.R.	2	2	2			6	12	17	15	18	21	15	15						4.8	6.6		
N.C.R.	3					3	3			3	3	8							33.3			
T. & N.O.	11	24	14	1	1	51	110															
Logging Railways	24	5	4			33	46															
Totals	402	240	129	91	93	955	2,120	1,925	1,754	1,742	1,856	1,920	1,760	30	1.4	1.0	1.0	1.3	0.6	1.6	2.5	

Average cost per inspection: 1929, \$1.84; 1928, \$1.74; 1927, \$1.78; 1926, \$1.91; 1925, \$1.78; 1924, \$1.80; 1923, \$1.88.

(8) *Improvements*

In spite of the bad fire year it was possible to complete during the season a considerable amount of building, particularly in the eastern portion of the Province.

The major improvements consisted of the erection of 582 miles of permanent telephone lines, twenty-three steel lookout towers, seven wooden lookout towers and seven boat and storehouses.

The largest building erected was the combined boat and storehouse at Kenora. This building is of corrugated metal with wire glass windows throughout and consists of a boathouse thirty-six feet by fifty-five feet and a storehouse twenty-two feet by fifty feet. The boathouse provides accommodation for a fifty-foot boat.

Further wireless stations were established in the Hudson Inspectorate and two in the Cochrane Inspectorate. Stations are now located at: Sioux Lookout, two stations, Gold Pines, Goose Island, Red Lake, Swains Lake, Woman Lake, Kapakik Lake, Pickle Lake, Savant Lake, Fort Hope, Caribou Lake, Armstrong, Little Abitibi Lake, Stimson, Maple Mountain, Elk Lake and Timagami.

It was intended to instal a station at Wingiskus Lake north-west of Minaki but the severe fire season prevented this.

PERMANENT IMPROVEMENTS

Completed to October 31st, 1929

Cabins.....	272
Storehouses.....	55
Boathouses.....	31
Combined Storehouses and Boathouses, etc.....	9
Bunkhouses.....	40
Offices.....	13
Garages.....	50
Other Buildings.....	78
Hose Towers.....	42
Wooden Lookout Towers.....	131
Steel Lookout Towers.....	91
Permanent Telephone Lines (miles).....	2,532
Temporary Telephone Lines (miles).....	79

(9) *Air Operations*

Aircraft were during the season called upon to do a greater amount of transportation than ever before. In many sections of the Province the great distances make any other means of transportation out of the question when speed is necessary as in the case of fire protection. So many fires were burning at the same time and requiring the use of aircraft that machines of commercial companies had to be called in to assist our own organization.

During the season machines were located as follows:

Goose Island.....	2 H.S.2 L's.
	1 Moth
Sioux Lookout.....	2 H.S.2 L's
	1 Moth
Kenora.....	2 H.S.2 L's.
	1 Moth
Fort Frances.....	1 H.S.2 L.
	1 Moth (part season)

Shebandowan Lake.....	1 H.S.2 L.
Orient Bay.....	1 H.S.2 L.
Longlac.....	1 H.S. 2 L.
	1 Moth.
Oba Lake.....	1 H.S.2 L.
	1 Moth
Remi Lake.....	1 Moth
Sault Ste. Marie.....	1 Moth
Biscotasing.....	1 Moth
Sudbury.....	2 Moths

At the beginning of the season three H.S.2 L machines were located at Goose Island, but in June one of these caught fire and was burned.

On July 15th the H.S.2 L. at Fort Frances was damaged beyond repair and a machine at Kenora was sent to replace it. It in turn was also damaged beyond repair on October 2nd.

(10) *Hazard Disposal*

Some work was done in cleaning up fire hazards around the towns of Sioux Lookout, Redditt, Biscotasing, Foleyet, and Gowganda. The work done at Redditt was largely instrumental in saving that town from destruction by a large fire which burned to the very edge of the fire guard which had been made.

A bad hazard caused by windthrown timber was cleaned up on a strip 200 feet wide along the south side of the Cadian National Railways between Jones and Favel.

Another bad hazard was disposed of along the Kenora-Redditt Road which had resulted from a fire in 1923.

In the Oba and Cochrane Inspectorates the special work was continued in disposing of slash and debris through the settlements and in encouraging settlers to burn their clearing and pulpwood slash as rapidly as possible.

Considerable work was also done in connection with the hazards created by the construction of roads and power lines in all other sections of the Fire Districts.

This line of work in addition to the direct benefit in lessening the danger from fires has a great moral effect upon the entire public in the districts concerned.

(11) *Travel Permits*

The travel permit system again proved its worth in the districts in which permit areas were set aside. These areas now comprise the greater part of the Soo, Sudbury and North Bay Inspectorates.

A total of 20,738 travel permits were issued during the season. Of these 18,268 permits were issued for the Ferguson Highway between North Bay and Latchford and in each case was for a car regardless of the number of people in the car. This is an increase of 4,651 permits over 1928 for this highway alone.

The balance of 2,470 permits issued for Mississagi and Timagami Provincial Forests and other areas under the permit system covered 5,443 persons.

(12) Meteorological Studies

The Dominion Meteorological Service again provided daily special weather forecasts which were of great assistance. This service also provided further weather recording instruments for use at different headquarters and continued to assist in the work of relating weather factors and fire hazards.

II. REPORT OF THE DIRECTOR OF AIR SERVICE

Introduction

The 1929 operating period of the Provincial Air Service was a most eventful season, not altogether unexpected.

The annual forecasts and the predictions of meteorological experts gave sufficient evidence that an abnormal season was anticipated. As previous seasons inclined to the rainy rather than dry weather it was safe to assume that 1929 would offer a diversion in the way of dry weather.

During the period under review the service, operating 12 H.S.2 L. flying boats, 12 moth seaplanes, 1 Vedette amphibian and 1 D.H. 61, flew 11,602.00 hours without injury to any passenger or personnel. Consideration may fittingly be given to the accomplishments of the past operating year which speaks well for the diligence, resource and determination displayed by the personnel of the Air Service in general.

The hours flown during the 1929 operating period seem considerably out of proportion to the highest number of hours obtained in preceding years. The same number of machines were utilized as last year and although they were used to the utmost advantage in every possible way the number of machines in the Service was inadequate to meet the flight requisitions of the Forestry Branch.

That the Service would be lacking in suitable and sufficient equipment was anticipated and was acted upon to the extent of recommending that new equipment be purchased to replace or act as an adjunct to the transport or suppression aircraft now operating. Each year the Service is called upon to undertake additional work, extend its field of operation, transport greater loads, open new bases and set an example as aircraft operators.

The day of the flying boat as an economical means of air transportation in this Service is past. Those in use in this Service have rendered exceptional service for the last five years but each year their value and condition have depreciated to such an extent that the reconditioning of these aircraft may now be considered as not an economical operation.

The severe fire hazard period, which extended practically over the entire operating season, saw the Service equipment being used to the limit by the Forestry Branch. In many districts machines were flying from early morning until late at night, day after day, servicing the fire crews, patrolling areas, conveying fire equipment from old to new fires as they broke out and in many instances collecting civilians from remote areas to assist as fire fighters.

An average of thirty fires were raging in the western districts at one period and the dense smoke put up by these fires made flying exceedingly hazardous. During this period of dry weather pilots flew at an altitude of no higher than 300 feet, day after day, for periods ranging from three to eight hours, to furnish the fire-fighting crews with food and equipment. The hazard was so severe that risks were taken, such as landing in small lakes near fires, flying cross-country at low altitudes over dry areas, which would not have been taken under ordinary conditions. The Air Service in all its dealings has endeavoured to carry out the

principles of the constitution of Ontario, its aims and ambitions and its duty to the public.

Though the flying personnel of the Service achieved their part it was insufficient to cope with the daily increase of fires and subsequent demand for more machines or flying. The complement of machines in some districts was inadequate to deal with the abundance of work accumulating, and to relieve the congestion, commercial flying was purchased by the Forestry Branch.

The pirating of Provincial Air Service personnel by commercial operators in the Dominion of Canada continues. The result of these persistent appeals from commercial operators coupled with the monetary gain by the personnel creates a number of vacancies in our Air Service each year. To meet this exigency the Service has adopted a policy of training a limited number of pilots and engineers so as to ensure that at the commencement of the operating season there will be a full complement of crews with pilots and engineers in reserve.

The Department made purchase of four aircraft during the operating period of 1929; one Vickers' Vedette Amphibian with hull modifications to permit of photographic operation, either oblique or vertical, a type that has been required in connection with our photographic and timber inventory programmes for the past three years. I am very happy to report that this year with this better performing aircraft a more efficient photographic programme was carried out, more square miles photographed in a lesser time and at a lesser cost. Three moth aircraft were purchased and added to the detection fleet.

The D.H. 61 was reconditioned during the overhaul period to permit of an extensive dusting programme. At the conclusion of the dusting programme and while this machine was enroute cross-country, from Muskoka to Sault Ste. Marie, the Bristol Jupiter engine installed in the D.H. 61 failed. This was the second major engine failure in this aircraft during the 1929 operating period. The first failure occurred when the machine was on aircraft and engine test early in the spring. The manufacturer replaced the first engine without cost. When the second failure occurred after very careful investigation of operation conditions and upon dismantling of engine, it was decided that a new or different engine was required. During the summer months a Pratt & Whitney Hornet air-cooled engine of 525 H.P. replaced the former Jupiter engine. Thus far an improved performance has been recorded.

During the reconditioning period, 1928-29, the Service replaced the Cirrus Mk II air-cooled engine of 80 h.p. with the Gipsy air-cooled engine of 100 h.p. This additional horsepower gave the moth a much better performance, permitting this light aircraft on pontoons to get in and out of small bodies of water, an essential requirement in connection with the detection and suppression flying programme. During the operating season moth aircraft with this installation flew 5481.25 hours with no major engine failure or a forced landing which could be attributed to engine trouble.

One accident of major category was encountered during the operating season of 1929, that of the complete loss of one H.S.2 L. flying boat at Goose Island, Lac Seul, Western operating district. Aircraft G-CAOF had just been refuelled and was standing by awaiting pilot and crew to carry out a flight requisition in connection with a suppression flight. In refuelling, the main tanks had overflowed and the surplus gasoline ran down the side of the hull on to the water. A match tossed thoughtlessly into the water was responsible for the fire igniting the gasoline on the surface and the flames on the water soon enveloped the hull, an entirely wooden structure. No part of the aircraft or equipment thereof could be salvaged.

Three other accidents were encountered during the latter part of the summer activity. Two H.S.2. L. flying boats landing and taking off on the waters adjacent to Fort Frances operating base hit deadheads, rendering the aircraft unairworthy. The age of the aircraft and the location of accident was such that after very careful survey of all conditions it was decided to write off the aircraft, hulls and wings, and send engines, aircraft equipment and all useful parts to Sault Ste. Marie stores.

One moth aircraft operating in the Eastern district from Remi operating base, was submerged when landing gear collapsed landing at Little Abitibi Lake. Unfortunately the pilot and two ground rangers stationed in this remote area were unable to salvage or lift the aircraft from the water on account of the heavy weather conditions. When assistance was brought to Little Abitibi Lake and aircraft pulled from the water it was found after examination that wings and wooden fuselage could not be flown out for reconditioning. The engine, instruments, all aircraft parts and flotation gear were flown out to Remi operating base, and shipped to Sault Ste. Marie for reconditioning.

Worthy of mention at this time is the report on the excellent performance of H.S.2 L aircraft as underlisted. It is to be noted that these aircraft flew better than 500 hours each; this in six months' active flying operations:—

AOQ.....	662.05 hours
AON.....	642.50 hours
AOK.....	626.15 hours
AOP.....	532.40 hours

Organization—Flying Operations.

No drastic changes were made in the administration of flying operations for the period under review.

Two districts were operated as of the year 1928 with one additional base being added to the Western district, that of Caribou Lake, thus to cut down on the necessity of considerable cross-country flying re detection and suppression programmes of the remote areas in the District of Patricia.

The schedule of flying in connection with the operation of photography, forest inventory and special transportation, was taken care of by a headquarters' flight. Aircraft Vedette and D.H. 61, attached to this flight when required in connection with the programme of detection or suppression, were allocated to either the Eastern or Western districts to carry out any requisition flying of this nature.

The Disposition of Aircraft in the Western District was as follows:

Sioux Lookout.....	Moth	P.A.
	H.S.2 L.	O.G.
Goose Island.....	Moth	O.Y.
	H.S.2 Ls.	O.F., O.K., & O.Q.
Fort Frances.....	Moth	A.C.
	H.S.2 Ls.	O.P. & O.R.
Kenora.....	Moth	P.B.
	H.S.2 L.	P.F.
Orient Bay.....	H.S.2 L.	O.J.
Shebandowan.....	H.S.2. L.	P.E.
Caribou Lake.....	H.S.2. L.	O.N.

The Disposition of Aircraft in the Eastern District:

Sault Ste Marie.....	Moth	P.C.
Sudbury.....	Moths	O.W. & O.X.
Biscotasing.....	Moth	A.D.
Remi Lake.....	Moths	P.H. & O.Z.
Oba Lake.....	Moth	O.U.
	H.S.2. L.	O.A.
Longlac.....	Moth	A.A.
	H.S.2. L.	O.I.

Reconditioning.

The reconditioning period, the period from November 1928 to May 1st, 1929, was administered as of the previous season. All work in connection with the reconditioning or overhaul of aircraft and aircraft engines was carried out at the Provincial Air Service plant at Sault Ste. Marie, under the very strict supervision of the Plant Superintendent, who is directly responsible to the Director. During the flying period all engines requiring complete overhaul were shipped to Sault Ste. Marie, reconditioned there and returned to the operating base.

The twelve H.S.2. L aircraft which flew to Sault Ste. Marie at the conclusion of the 1928 flying programme required a very rigid inspection. These aircraft are now five years old and each season these particular craft are subject to very severe wear and tear operating in the District of Patricia where the shorelines are rocky and rugged. Considerable replacements were necessary to these boat hulls.

A new department at the plant at Sault Ste. Marie was organized to recondition and maintain pontoons, the water gear of the moth aircraft of the detection fleet. Certain modifications to these pontoons have been carried out which makes the pontoon a better float for our work.

During the reconditioning period portable sectional canoes were manufactured in the aircraft section of the plant at Sault Ste. Marie. These canoes were required in connection with suppression work. The canoes can be nested and carried by the transport aircraft of our Service.

Detection.

Fire detection is entirely controlled by the District Foresters. During the flying period, 1928-29, 3,070.30 hours flying were carried out strictly under the requisition of the District Foresters. This is nearly double the time required during the previous year. The detection unit of the Service, the moth aircraft, carried out the greater portion of this work.

Suppression.

Aircraft continue to be an important supplement to the regular Forestry Branch organization as a means of transportation, especially in the remote areas of the Province. 4,592.55 hours were devoted to suppression flying during this operating period.

Sketching.

The hours devoted to flying in connection with the sketching or classification of forest types were considerably less than in previous years, due to the fact that other duties, suppression and detection, had prior claim to the services of aircraft. During the 297.05 hours flown in the sketching programme 2,360 square

miles were sketched. This included 560 square miles of Haliburton County, and 1,800 square miles of the north-east corner of the Nipigon Reserve.

A considerable portion of the hours flown represent ferrying to and from the areas to be sketched, which could not be avoided under the circumstances brought about by the fire hazard period, especially in the Nipigon District where the machine reported back to its base, Orient Bay, daily, to perform any duties required by the ground forces.

Photography.

The Vickers' Vedette, which was purchased by the Branch primarily for the photographic duties, performed and carried out the flying in connection with the oblique and vertical photographic programme as was expected. Unfortunately this particular aircraft was repeatedly called upon to perform suppression duties which naturally has priority; thus the photographic programme laid down for the season was interfered with. Of the 207.45 flying hours required in connection with the topographical survey 182.50 hours were devoted to vertical photography, covering 900 square miles, and 24.55 hours to oblique photography, covering 1,000 square miles; making a total of 1,900 square miles.

These hours do not represent the hours spent in actual photography. A large percentage was taken up in ferrying to and from operating bases and gaining the required height.

Moth aircraft were employed in the photographic programme. Most of this work was, however, of a preliminary nature, such as plotting the area accurately on the maps and permitting the forester to become thoroughly acquainted in preparation for suitable weather conditions and the arrival of the photographic machine, the Vedette.

The Vedette accomplished three times as much work than the other aircraft heretofore flown in connection with the photographic programme. This machine is adapted to photography, both from the pilot's and operator's standpoint.

Photographic aircraft were employed as follows:—

Vedette.

1. S.E. corner Mississagi Forest Reserve. West to Helen Lake, south to Lake Superior. Total 560 square miles. Operated from Orient Bay base.
2. S.E. corner Mississagi Forest Reserve. Total 180 square miles. Operated from Bisco.

Moth.

1. S.E. corner Mississagi Forest Reserve. Total 60 square miles. Operated from Bisco.
2. Eastern section Timagami Reserve. Total 100 square miles. Operated from Sudbury.

H.S.2 L.

1. Exton North to Albany River.
2. Cavell North to Albany River. Operated from Longlac. A combined total of 1,000 square miles.

Ferrying.

During the operating season of 1929 a total of 523.10 hours were devoted in transporting machines to and from their various operating bases and to and from Sault Ste. Marie, the outgoing and returning aircraft of the season's flying activity.

Operation Administration and Inspection.

Further important use of the aircraft as an important supplement to the regular ground organization and apart from the use of the aircraft as a means of detection or transportation in connection with suppression, is the evidence that District Foresters and their officers are using aircraft of the Service as a means of transportation for inspection of their entire districts. During the season under review the Service flew 1,584.40 hours on flights requisitioned and classified as operation, administration and inspection.

Conclusion.

The Provincial Air Service is distinctly proud of its unique record. Since its inauguration it has relied entirely on its own resources, has operated under difficulties, trained some of Canada's best pilots, increased its flying hours year by year and made for itself a name on a parity with the leading commercial flying operating companies of the world.

It is my happy privilege to commend the entire personnel of the Provincial Air Service, whether ground or flying staff, for their untiring, splendid efforts, their devotion to duty, day and night, in carrying out the requirements whether active flying operations, maintenance or reconditioning. The Service was put to a very severe test and without their unceasing, untiring efforts it would have been impossible to have met the situation with the results achieved.

Operating Statistics.

The attached statistical summary further indicates the increasing activity in every phase of the Service's flying programme.

Dusting.

The Service was again called upon to act in conjunction with the Entomological Department of the Dominion Government with a view to exterminating the looper worm despoiling the hemlock trees in the residential and surrounding district of the Muskoka Lakes and Parry Sound.

The D.H. 61 was modified to permit of a larger and modern dusting apparatus being installed, and after a series of test flights made for the purpose of gauging the most suitable delivery speed of the apparatus, the machine was sent to Muskoka on June 11th.

Dusting operations were completed at Muskoka on July 11th, when machine proceeded to Parry Sound to dust a small area in the region of Amik Lake.

During the 21.25 hours devoted to dusting 38,700 pounds of calcium arsenic were used, which included 35,400 pounds used at Muskoka and 3,300 pounds at Amik Lake over a combined area of approximately 1,700 acres.

Due to the inconsistent weather many valuable hours were lost each day and consequently the programme took longer to complete than was anticipated. The intricate flying connected with tree dusting can only be accomplished satisfactorily and safely under ideal weather conditions. Also the effectiveness of the dust depends largely on the humidity of the air, calm wind and quantity of dew on the tree foliage, such as usually occurs in the early morning or late evening.

Tree dusting is still in the experimental stage, particularly as regards the development of suitable aircraft, and the quality and weight of the dust. The risk run by the flying personnel in flying inland 20 feet above the tree-tops with a single-engined plane is not usually appreciated. Flying at this height is essential at this stage, because if the dust is discharged at a greater height,

approximately forty per cent. of the quantity is lost, and the remainder is spread over a larger area with subsequent loss of the desired effect.

Until tree dusting has reached a high stage of development, it is considered unwise to continue in the hazardous occupation of flying over any area except small islands or shorelines.

Instruction.

The 1929 period saw considerable progress in the development of the Service Training School, both from the high standard of pupils and the organization of the school in general.

A survey of various reports regarding the innumerable aeroplane accidents in America reveals a greater proportion due to error of judgment or the human factor. While this speaks well for aeronautical design and mechanical advances made in aircraft construction, it puts the responsibility entirely on the shoulders of the man at the controls.

Instructors are better qualified to form a comprehensive judgment and to help weed out undesirables than the Director, who must judge from recommendations or through the prescribed evolutions, in approximately one hour's time. The selection of a pilot on the brief showing of his test is not a guarantee that he will be competent under all conditions. An instructor's experienced eye will quickly detect harmless idiosyncrasies or dangerous tendencies. In our school we look not so much for quick results as for permanent results.

Speed alone is not the prime requisite in our Service, or for that matter in commercial flying. Speed plus safety is the mark we have been shooting at.

The practical mechanical course in our shops at Sault Ste. Marie requires that our students have a thorough understanding of every part of plane and engine, its functions and the reason why it functions correctly or wrongly. Applicant pilots of our Service cannot have flying instruction until the Plant Superintendent passes them on their practical course.

In addition to this, when the school was organized arrangements were made for the pupils to have instruction on a similar basis to that of a military school, the pupils receiving ground instruction in navigation, meteorology, engines, aircraft and a thorough understanding of the Air Board Act and all regulations or orders of our Service.

Three De Haviland Gipsy Moths were transferred from the operating division to the school at Sioux Lookout where they remained until training was completed.

The policy adopted by this service of training its own pilots has been criticized from time to time by persons unfamiliar with the work, who allege that we train pilots to the exclusion of pilots already available and trained by flying clubs. Club methods of training are fairly well standardized to meet commercial requirements and many capable pupils are passed out who eventually become excellent commercial pilots.

The training, however, differs with respect to the requirements of this Service, and, consequently, pilots graduated from flying clubs are of little or no use to us because no matter how capable they were as club pupils they may know nothing of the work of this Service, and therefore, would have to fly one or two years under instruction before they could possibly be considered competent to assume complete charge of a suppression or detection aircraft. This Service has many capable engineers, junior and applicant pilots, with years of flying experience behind them, who are considered more competent in many respects than solo pupils of flying clubs, and therefore, it is only reasonable that our own

personnel should receive preference. No better example can be given than two pilots trained in the spring of 1928. These pilots have completed 1,291 hours and 949 hours, respectively, without mishap, during the last two operating seasons.

These two pilots were chosen after three years' experience in our Service because of their marked ability in almost every phase of the Service operations.

Though flying experience plays an important part in selecting pupils for flying training there are other very important factors to be considered, such as bush experience, seamanship, knowledge of the functions of the Forestry Branch, most of which cannot be learned other than by actual experience gained in this Service.

Fourteen pupils received Ab Initio training, of which five passed successfully and were appointed junior pilots. In addition to these, one pilot under this category, who is a member of the Forestry Branch, also qualified for his commercial license.

Two pilots received additional instruction on flying boats after gaining their commercial licenses on lighter machines.

Eight qualified pilots received instruction on machines, on which they had no previous experience.

Two pupils were turned down, after completing solos, as not being up to the standard required by the Service.

Six pupils who did not complete their training during 1929 will resume training at the commencement of the 1930 school.

658.45 hours were devoted to instruction. These hours show a considerable increase over the preceding year, brought about in view of the new regulations promulgated by the Department of National Defence, wherein the hours necessary for a commercial pilot's license increased from twenty to fifty hours.

The regulations laid down in the Air Board Act regarding qualifications for licensed engineers are so exacting that candidates can only obtain the required training by resorting to the very best facilities for instruction, which again can only be afforded by experience backed by up-to-date practical methods, good shop equipment, and actual flying operations. The high standard required has contributed in no small degree to the success of our flying operations in the past six years.

In the past three years this Service has graduated many competent Air Engineers.

Special Transportation.

A very limited amount of special transportation was carried out during the operating season of 1929. In June and July one Moth aircraft co-operated with the Department of National Defence in carrying out flights in connection with the arrangements, Treaty No. 9. Mr. Cain, Deputy Minister of Lands, the Provincial Commissioner, was flown from Remi Lake of the Provincial Air Service to the English River Post on the Albany River, Hudson Bay Posts of Ogoki, Fort Hope and Osnaburgh on the Albany River, Lansdowne Post on Attawapiskat Lake and the Hudson Bay Post on Bear Island of Trout Lake.

As in former years the Service co-operated with other departments, notably, the Department of Mines, Game and Fisheries, Provincial Police, Department of Health and the Red Cross Nursing Association.

Emergency flights were made in connection with urgent requests for the doctor at Sioux Lookout to visit remote settlements of Patricia in connection with urgent and first aid causes.

	1929	1928	1927	1926
<i>Flights.</i>				
Total number of flights.....	9,472	4,130	2,745	1,994
Average duration of flight.....	1.22 hrs.	1.47 hrs.	1.76 hrs.	1.46 hrs.
Average miles flown per flight.....	70.6	83	105	115
Average altitude.....	1,720 ft.	2,354 ft.	2,610 ft.	3,197 ft.
Average number of flights per day.....	33	17.9	13.8	10.6
Average number of flights per day per machine on days machines employed.....	3.9	2.55	2.10	2.11
Number of miles flown.....	669,423	342,343	287,305	230,991
<i>Load.</i>				
Total load-weight carried.....	7,586,368	4,258,984	3,888,091	3,249,372
Total operating load.....	6,171,649	3,495,552	3,170,178	2,589,959
Effective or useful load.....	1,414,719	763,432	717,913	659,413
<i>Passengers Carried.</i>				
Total number of passengers carried.....	2,672	2,606	2,268	1,636
Average number of passengers per flight.....	.27	.63	.82	.82
Average number of passengers per machine.....	103	172	119	102
Total number of passengers and personnel carried.....	7,279	8,938	7,195	5,624
Machine days, one machine for one day, machines employed.....	2,336	1,614	1,307	944
Fair weather machine days, machine available and idle.....	644	754	661	793
Machine days, machines available and weather unfit for flying.....	456	805	615	797
Total number of machine days supplied by the Service.....	3,436	3,173	2,583	2,534
Number of times one machine unserviceable one day.....	328	161	84	117
Total possible machine days in the season.....	3,764	3,334	2,667	2,651
Number of patrols requisitioned.....	1,960	1,540	1,261	821
Number of times machines unable to complete patrol on account of machine trouble.....	24	16	12	20
Service patrol efficiency.....	90.45	95.2	96.85	95.59
Machine patrol efficiency.....	98.7	98.95	99.05	97.55

EFFICIENCY PROVINCIAL AIR SERVICE OPERATIONS, 1929

MONTH	Requisitioned	Attempted	Completed	Completed same day but delayed	Not completed same day	Percentage completed uninterrupted	Percentage completed same day but delayed	Mechanical causes	Weather
January.....	7	7	7	..	..	100.00	..	..	..
February.....	15	15	15	..	..	100.00	..	..	..
March.....	20	20	18	..	2	90.00	..	1	1
April.....	11	11	11	..	..	100.00	..	..	..
May.....	116	116	108	3	5	93.10	2.58	4	4
June.....	396	395	355	17	23	89.87	4.30	13	28
July.....	454	453	407	21	25	89.84	4.63	16	31
August.....	500	500	450	23	27	90.00	4.60	20	30
September.....	335	335	314	5	16	93.75	1.49	5	16
October.....	102	102	96	3	3	94.11	2.94	3	3
November.....	4	4	4	..	..	100.00	..	..	..
.....

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS

	1925		1926		1927		1928		1929	
	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.
Fire Detection.....	1,440.40	52.5	1,957.44	55.4	2,170.53	44.7	1,736.10	28.4	3,070.30	26.4
Fire Suppression.....	155.45	5.7	640.17	18.1	948.00	19.5	1,717.55	28.1	4,592.55	39.5
Sketching.....	244.42	8.9	142.56	4.0	523.00	10.8	583.20	9.5	297.05	2.6
Photography.....	53.15	1.9	99.25	2.8	173.00	3.6	163.15	2.7	207.45	1.8
Special Transportation.....	197.40	7.2	194.50	5.5	127.10	2.6	185.10	3.0	246.05	2.1
Observer's Instruction.....	26.50	0.9	17.14	0.5	31.35	.07	.....	.....	4.50	.04
Forced Landings.....	36.04	1.3	29.25	0.8	17.50	.04	30.35	0.5	222.30	1.9
Ferrying.....	330.41	12.0	234.36	6.6	240.25	4.9	345.15	5.6	523.10	4.5
Operation, Administration, Inspection.....	62.05	2.2	62.10	1.8	426.35	8.8	1,016.20	16.6	1,584.40	13.7
Dusting Operations.....	.....	.....	.....	.....	.....	.....	20.10	0.3	21.25	.18
Test Flights.....	47.27	1.7	42.55	1.2	65.30	1.3	117.35	1.9	172.20	1.5
Flying Instruction and Demonstration.....	144.43	5.7	117.50	3.5	137.05	2.8	192.55	3.0	658.45	5.6
Totals.....	2,739.52	.....	3,539.22	.....	4,861.03	.....	6,108.40	.....	11,602.00	.....

III.—REPORT OF LIAISON OFFICER

During the season of 1929 the following lines of work were undertaken:—

- (1) Aerial Forest Type Mapping.
- (2) Aerial Photography.
- (3) Radio Communication.
- (4) Miscellaneous Investigations.

1. Aerial Forest Type Mapping.

Two projects of this class were carried on during the past season (a) North-east of the Nipigon Reserve; (b) in Haliburton County.

Of these the Nipigon, comprising an area of 12,000 square miles was undertaken as a preliminary inventory of timber resources in this section of the Province. The area in question which can be more nearly described as extending from the National Transcontinental Railway to the Albany, between the eastern boundary line of the Nipigon Forest Reserve and Lynx Station, comprises the southwesterly extension of the northern spruce, balsam forest type typical of the clay belt country. Of the allotted 8,000 miles for the present season some 2,000 were completed in 120 hours' flying.

Aerial Forest Typing in Haliburton County was not undertaken until late in the season. The area covered comprised eight townships. Timbered conditions on the whole appeared good, the stand being mainly southern hardwood type. Some evidences of moderate to severe culling for softwoods were noted, but owing to lack of experience in the Aerial Classification of stands of this nature, definite conclusions could not be given.

2. Photographic Survey.

With the purchase of a Vedette flying boat, the use of vertical photographs for Aerial Survey became more advisable. That vertical photos provide maximum detail has long been recognized and has in consequence prejudiced aerial photographic survey to their use. Opposed to this factor of quality, however, there has been the detriment of high cost.

In considering the effect of better aircraft and camera equipment on cost, it may be of interest to compare the area covered by one hundred exposures—the standard size of roll film used for this work averages the above number—with various combinations of new and old equipment. Using this unit, it has been found that vertical photos providing the maximum of survey information when taken with the Fairchild camera from the Vedette's working height—ten thousand feet—cover an almost even hundred square miles (94.5 is the exact calculated figure). Under the same working conditions the older Kodak camera will cover less than forty square miles. At five thousand feet—the working height of the older H.S.2L., these areas are roughly one-quarter as great, namely, 23.6 for the Fairchild and 9.8 for the Kodak. Since cost for surveys of this kind is generally related to area covered, the value of the newer equipment for this type of work may well be considered as relative to the same figure.

During the past season, Aerial Photographic Survey was used in five separate operations comprising the following areas:—

- (1) The Sibley Forest Reserve.
- (2) Addition to the Mississagi Reserve.
- (3) Addition to the Timagami Forest Reserve.
- (4) Strip along the Lake Superior shore line. from Nipigon to Rossport.
- (5) North-east of the Nipigon Forest Reserve.

Of these areas the first four were based on vertical photos, the fifth on obliques. The total area covered is approximately 2,000 sq. miles, the total flying time 218 hours.

In general the Aerial Survey programme showed considerable progress and although the loss of machines due to the severe hazard conditions, seriously crippled operations, favourable weather towards the end of the season made it possible to complete all but two of the season's allotted operations.

3. Radio Communication.

During the past season, a total of eighteen stations were operated. These may be divided into three groups corresponding to the Hudson, Cochrane and North Bay Districts.

In the Hudson, a total of thirteen stations (an addition of six) were operated, including two, one at Gold Pines and another at Sioux Lookout which were used very largely for commercial work. In the Cochrane District, two new stations were operated and in the North Bay three, being one more than in the previous season.

In point of use there is considerable difference between the Eastern and Western stations. In the Hudson Inspectorate, communication is largely used between District and Ranger Headquarters, this service being required because of the lack of land line communication of any kind throughout the area in question. For the same reason, the demand and necessity of supplying a commercial service has also arisen.

In the two small eastern units, however, the use of radio is more definitely restricted to a specialized type of communication, in particular to communication with lookout towers. There is at present very little call for a commercial service in either of the Eastern areas since land lines have already been generally constructed throughout this territory prior to the establishment of the Department's present organization.

In addition to the land stations described above, which are classified as "permanent" as distinguished from portable, the radio service has also designed and constructed two other types of radio apparatus which it is expected will be of value in the Branch's work. These are (a) a portable set; (b) an aerial set.

In describing the portable set, it should perhaps be noted that the permanent sets already dealt with, since their total weight of six hundred odd pounds can be broken down into units of about two hundred pounds or less, are themselves "portable." The sets at present under consideration, however, have been especially designed for light weight and intermittent service. Two types have been developed (1) a battery operated set (2) a gas-engine-generator set. Because of its relative simplicity, the battery set was completed first and was given an actual test on fire-fighting operations during the present season. The set was found to have ample power and maintained schedules without failure. The gas-engine-generator set was completed and while it has not been actually tried on a fire-fighting operation, has been given an equivalent test as regards distance and general working conditions. The set operated with entire satisfaction.

In considering these two types, it might be noted that the complete weight

of either is less than one hundred pounds, the battery set being somewhat lighter. In point of initial cost, the power driven set is at a disadvantage, while in point of upkeep, the battery set suffers. On the whole, it would appear that the power-driven outfit will be more generally desirable.

The aerial set which was designed and tested during the past season differs from all other Department equipment in the fact that it provides one way communication only. Considerable difficulty was encountered in obtaining material for this apparatus owing to its special nature and also to the general rapid development of the radio industry. During the present season, this delay was particularly unfortunate since it led to the arrival of this material coinciding with a period of very high fire hazard and consequent flying activity during which it was impossible to lay up a machine long enough to permit of an installation being made. The equipment did not therefore receive a working test until near the close of the season. The test was successful and it is now considered that a much less powerful apparatus would supply all requirements. Present indications are that it would be desirable to lighten the apparatus and supply two-way communication.

Miscellaneous Investigations.

(a) A method of providing data for the construction of contour maps from aerial survey photos was investigated in a portion of the Georgian Bay District during the month of September. Results have not as yet been completed, but the field work proved both rapid and simple. The method which comprises features of outstanding worth is based on the use of surveying aneroids. Position is fixed on photographic prints taken into the field, thus eliminating the necessity of chainage.

(b) Little progress was made in the matter of tower horizon maps. The Kodak Company have, however, undertaken to conduct a series of investigations as to the most suitable apparatus.

COMMERCIAL TRAFFIC

COMMERCIAL STATIONS, HUDSON DISTRICT

Nov. 1st, 1928, to Oct. 31st, 1929

Stations	Words Transmitted	Words Received	Total Words	Radio Tariff
Red Lake.....	35,647	32,285	67,932	2,367.20
Jackson-Manion.....	25,792	16,898	42,690	1,722.10
Gold Pines.....	28,449	33,479	61,928	1,747.90
Sioux Lookout.....	67,748	74,974	142,722	4,373.90
Totals.....	157,636	157,636	315,272	10,211.10

Total Commercial Traffic..... 315,272 words

COMPARISON OF TRAFFIC, 1927-1928-1929

IN WORDS

TOTAL TRAFFIC—1929—ALL STATIONS

	Commercial	Non-Commercial	Total
Hudson District Commercial Stations.....	315,272	45,772	361,044
Cochrane District Stations.....	.....	7,028	7,028
Temiskaming District Stations.....	.....	16,430	16,430
Hudson District Forestry Stations.....	9,546	151,935	161,481
Grand Total.....	.....	.....	545,983

1927
58,2391928
233,8551929
545,983

PER CENT. INCREASES

1928 on 1927
303%1929 on 1928
133%1929 on 1927
837%

IV.—REFORESTATION

ST. WILLIAMS

In order to simplify matters, nursery operations carried on at the two stations will be dealt with collectively, since Station No. 2, to date, is purely a transplant nursery, and all stock that is developed at that point is eventually transferred to Station No. 1 for final distribution. Special consideration will, later on in this report, be given Station No. 2 on matters concerning property additions and development.

During the fall of 1928 and the winter months of 1929, the permanent staff were mainly employed on silvicultural work, involving woodlot and plantation improvement cuttings. In addition to these activities, and when rough weather prevented outside work, all working tools were repaired, implements repainted, 1,158 shipping crates constructed, and all other work of a preparatory nature for the spring season was affected. Also in excess of 600,000 Carolina Poplar cuttings were prepared and heeled in ready for disposal. Nursery operations started rather earlier than usual—on March 18th. Lifting of nursery stock commenced immediately and by the end of the month a major portion of the trees were ready for distribution.

Approximately 6,376,000 trees were lifted for permanent distribution to other points.

(1) *Nursery Operations*(a) *Fertilizers.*

Since the recent acquisition of Station No. 2 at Turkey Point, an area approximating 100 acres has been converted into a transplant nursery. This increase in acreage suitable for nursery purposes relieves the necessity of heavy annual applications of fertilizers, since a longer rotation permits the alternate use of green manure crops.

Thirty acres of rye and vetch were ploughed under this year at Station No. 2, while 45 acres of Soy beans were turned down for their fertilizing value at Station No. 1.

RECORD OF FERTILIZERS APPLIED

Nov. 1st, 1928, to Oct. 31st, 1929

Lot	Animal (tons)	Rock Phos. (lbs.)	Nitrate (lbs.)	Bonemeal (lbs.)
Total.....	393½	3,600	950	600

(b) Seed.

Local tree seed collected this year exceeded all former gatherings.

Jack Pine cones collected from older private plantations within Norfolk County and neighbouring counties totalled 753 bushels. These cones were purchased directly from the plantation owners, who in many cases made enough money to more than pay off the annual farm taxes.

Only 34½ bushels of Scotch Pine cones were purchased, as most of the seed of this species is being procured in Europe from different, definite origins. A concerted effort is being put forth to find just what strains of Scotch Pine are best suited to our widely varying conditions.

An increasing demand for walnut planting stock has led to the planting of an additional quantity of nuts of this species. Twelve hundred and forty-eight bushels of Black Walnuts were purchased this year at sixty cents per bushel—nuts with husks on. Individual trees have yielded as high as twenty-five bushels of nuts and are a real source of revenue to their owners.

TREE SEED ON HAND—FALL, 1929

Species:	Amount in Pounds
Red Pine.....	13
White Pine.....	455
Scotch Pine.....	25
Jack Pine.....	567
White Spruce.....	447
Norway Spruce.....	50
White Cedar.....	15
Red Cedar.....	2
Austrian Pine.....	12
European Larch.....	6
Balsam.....	12¾
Hemlock.....	5
Sitka Spruce.....	10
	1,619¾ lbs.

(c) Seed Beds.

An early "freeze-up" on the 27th of November brought nursery operations to a standstill. Ordinarily it has been quite possible to continue fall seeding well into the month of December.

As a result of this abnormal condition, the schedule of fall seeding was not completed and several hundred beds will of necessity have to be sown in the spring of 1930.

Seed sown throughout the year is herewith tabulated under two headings:—

- (a) Coniferous seed sown.
- (b) Deciduous seed sown.

CONIFEROUS SEED SOWN DURING 1929

Spring		Fall	
Species	Beds Sown	Species	Beds Sown
Scotch Pine.....	3	White Pine.....	200
Scotch Pine.....	6	Red Pine.....	200
Red Pine.....	6	Scotch Pine.....	48
White Pine.....	6	Scotch Pine.....	48
		Scotch Pine.....	48
		Scotch Pine.....	46
		Jack Pine.....	190
		White Spruce.....	90
		White Spruce.....	95
		Norway Spruce.....	120
		White Cedar.....	40
		Red Cedar.....	9
		European Larch.....	39
		Hemlock.....	20
	21		1,193

HARDWOODS SOWN DURING 1929

Species	Amount Sown	
	Pounds	Bushels
Soft Maple.....	200	.....
Hickory Nuts.....	.....	8
Yellow Birch.....	1	.....
Black Locust.....	12	.....
Hard Maple.....	60	.....
Walnuts.....	.....	1,248
Red Oak.....	.....	10
Total.....	273 lbs.	1,266 bush.

(d) Transplanting

Concurrent with the distribution of permanent planting stock, transplanting of one and two-year old seedlings from seed-beds to nursery lines was carried on until the end of May.

A total of 9,074,000 seedlings were lifted and lined out.

Transplants shipped to other Stations

The number of transplants shipped to other stations is as follows:—

ORONO:

Jack Pine.....	150,000
Austrian Pine.....	10,000
Pitch Pine.....	10,000

MIDHURST:

Austrian Pine.....	25,000
Pitch Pine.....	25,000

Record of Nursery Stock Lifted—1929

CONIFERS		HARDWOODS	
Species	Number	Species	Number
White Pine.....	950,000	Walnut.....	9,000
Red Pine.....	900,000	White Ash.....	174,000
Scotch Pine.....	465,000	Hard Maple.....	32,000
Jack Pine.....	400,000	Soft Maple.....	308,000
White Spruce.....	1,020,000	Black Cherry.....	34,000
Norway Spruce.....	480,000	Black Locust.....	35,000
Japanese Larch.....	300,000	Birch.....	13,000
White Cedar.....	118,000	Elm.....	300,000
Hemlock.....	7,000	Red Oak.....	40,000
		Rooted Poplar.....	69,000
		Poplar Cuttings.....	675,000
		Willow Cuttings.....	47,000
	<hr/>		<hr/>
	4,640,000		1,736,000
Summary—			
Conifers.....		4,640,000	
Hardwoods.....		1,736,000	
		<hr/>	
Total.....		6,376,000	

(e) Nursery Stock available for Spring (1930) Shipping

CONIFERS		HARDWOODS	
Species	Total	Species	Total
White Pine.....	655,000	White Ash.....	134,000
Red Pine.....	1,094,000	Hard Maple.....	28,000
Scotch Pine.....	818,000	Soft Maple.....	190,000
Jack Pine.....	646,000	Walnut.....	35,000
White Spruce.....	950,000	Japanese Walnut.....	5,000
Norway Spruce.....	547,000	Oak.....	4,000
White Cedar.....	215,000	Black Cherry.....	31,000
Red Cedar.....	11,000	Basswood.....	8,000
European Larch.....		Rooted Poplar.....	54,000
Siberian Larch.....		Poplar Cuttings.....	400,000
Korean Larch.....	19,000	Willow.....	30,000
		Elm.....	126,000
	<hr/>		<hr/>
	4,955,000		1,045,000
Summary—			
Conifers.....		4,955,000	
Hardwoods.....		1,045,000	
		<hr/>	
Total.....		6,000,000	

(2) Improvements

Road extension at Station No. 2 was carried on during the summer months. Two and one-quarter miles of new road were graded and gravelled—three loads wide. There remains now but three-quarters of a mile of main road to construct to complete the road-building schedule as outlined in the original survey.

One mile of old road was resurfaced and maintenance of all main drives rigidly adhered to.

We are pleased to report that roads constructed in the years 1927 and 1928 are standing up well under an increasingly heavy usage. Particularly is this true of Turkey Point Hill, which, prior to cutting down and averaging the grade, was a menace to traffic.

Hydro-electric has been installed at Station No. 2. The barn, implement shed and foreman's residence is equipped with electric lighting and yard lamps have been placed at serviceable points.

Thirty acres of land suitable for nursery purposes were cleaned up, stumped and seeded to rye and vetch which will be ploughed under in the spring of 1930. The area in question has, moreover, been subdivided into six 5-acre compartments, and next spring it is the intention to establish permanent windbreaks delimiting each block.

Considerable building was done at Station No. 1. Three old barns which were on the property when it was first purchased, and which have been an eyesore in an otherwise beautiful setting, were torn down, and the material, as much as was serviceable, used over again in the construction of a new implement shed.

Other buildings erected during the year include a barn, 36 feet by 54 feet, and a standing stable, 22 feet by 44 feet in dimension. All of these buildings have hip roofs, providing thereby additional inside storage space.

(3) *Permanent Planting*

Extension in the programme of experimental plantations at Station No. 2 was carried out. All blanks, due principally to an abnormally dry summer, were replanted. Seven new two-acre plots were surveyed, cleaned of scrub oak and completed the planting of the White Spruce group. This group now comprises twenty-four plantations, each exactly two acres in size. White Spruce forms the base species for each plantation. Different spacing is used and mixed planting with other conifers and hardwoods individualize each of the twenty-four plots.

A detailed record of each plantation is maintained on all matters concerning origin and cost of planting material, cost of preparing the site, cost of spotting, planting and any subsequent fillings where losses may demand that such be made.

In preparation for next spring's planting of the Red Pine group, twenty-one two-acre plots were surveyed and furrowed, as in the case of the White Spruce group. Red Pine will be the base species used in each of these experimental plots.

A 100-acre plot known as the "Hunt" property was recently added to the Crown holdings at Station No. 2. This area had previously been reforested to Scotch Pine, and it was felt that results would be better assured if the area were converted into a mixed planting. In accordance, therefore, every other row of the existent young Scotch Pine was cut out and 32,500 four-year-old Red Pine established in the gaps thus created.

Reclamation planting on blow sand and other sides subject to erosion entailed the setting-out of 7,300 Rooted Poplar, 298,000 Carolina Poplar cuttings, 250 Rooted Willow, 500 White Ash, 5,300 Japanese Larch, 400 Red Oak, 100 Beach, 10,500 Black Locust, 400 Birch and 8,000 Jack Pine.

Two new plantations were established at Station No. 1, a total area of 22.4 acres being planted to 25,700 Red Pine.

On account of flooding it was necessary to plant 8,000 Rooted Carolina Poplar and 4,100 White Ash to replace Red and White Pine losses in depressions at various points on Plantation No. 38.

Returns from thinnings that have been made from time to time in older plantations reveal some very interesting figures.

History of Plantations.

Price affixations are governed by the actual money receipts derived from the sale of wood, and an equivalent of the current price paid for seed-bed stakes.

Material for seed-bed construction has in previous years been purchased from local merchants, and entailed a considerable expenditure of money. Con-

version of the product from thinnings may be used and involves an important factor in cutting down the annual expenditure. At the same time these possible uses of thinnings open up a local avenue for consumption, and permit the inception of yield at an exceptionally early period in the history of the various plantations.

PERMANENT PLANTING

Species:	Number
Poplar "Rooted".....	30,500
Poplar Cuttings.....	298,000
Willow "Rooted".....	250
Willow Cuttings.....	30,000
White Ash.....	5,950
Red Pine.....	60,760
White Pine.....	17,470
Scotch Pine.....	1,500
Jack Pine.....	8,000
Larch.....	6,150
Red Oak.....	1,750
Beech.....	100
Black Locust.....	10,500
Birch.....	21,130
Total.....	492,060

(4) *Protection*

Fire.

Four miles of fire lines were established at Station No. 1. These fire-roads were made twenty-four feet wide, while intermediate cross lines were ploughed to a width of sixteen feet.

All existing fire-roads at Station No. 1 were re-ploughed and cultivated.

Two small fires occurred on the property, but were immediately observed by the lookout and were brought under control in a very short time. The damage wrought was negligible.

Several fires of varying proportions were reported burning on farm woodlots. In each case the call for assistance was immediately responded to and the menace speedily overcome.

The fire hazard locally was never worse than during the recent summer, but we are pleased to report that very little loss to standing timber resulted. Not one report of plantation loss from fire was recorded.

Animals.

The policy in recent years of permitting no debris to accumulate in and about the nursery proper appears to be most effective in minimizing damage wrought by mice. By removing needles and leaf droppings each and every year, nesting places for rodents are lacking. In any event very little damage from mice was observed during 1929.

Rabbits are not so plentiful and very little damage from girdling is apparent.

Twice during the year a drive was made on the red squirrels. In this way their numbers are kept down and balanced with the available natural food. When squirrels are very numerous and an off year for nuts occurs, these rodents become a pest in that they girdle Scotch Pine for the inner bark, as well as ravage the terminal buds of certain conifers.

Insects.

White Pine weevil control was continued more intensively than ever. The weevil control section commenced their work on June 24th, a trifle earlier than in 1928, and finished on August 13th.

All White Pine plantations were thoroughly inspected and all infected tops removed. It was found necessary to work some plantations three times in a concerted effort that not one weeviled top be overlooked.

A new type of container was devised this year with a view of making it absolutely certain that no insects escaped after collection. This precaution was felt to be necessary as the older type of wooden boxes formerly used either opened up in dry weather, or swelled to bursting point during a rainy spell.

The new boxes are three feet by three feet by six feet in size and are constructed of galvanized metal, built on a rigid frame of cedar.

After the metal containers are filled with weeviled tops, galvanized screening is placed over the opening and carefully soldered fast. These boxes are placed at different points in the various plantations in order that the ever-present insect that parasitizes on the weevil may be more widely dispersed and be more effective in assisting to stamp out a pest which is one of the most damaging factors working against the development of White Pine plantations.

With reference to the tabulated record on weevil control which follows, it would appear that 1929 was an exceptionally bad year. I am inclined, however, to put the increase in the number of diseased tops collected, down to a more thorough and repeated operation. In any event, it is impossible to draw conclusions until 1930 weeviling has been effected in the same painstaking manner as that of this year.

Disease.

Chestnut blight "*Endothia parasitica*" is becoming very prevalent. Chestnut nursery stock is no longer being grown for disposal, as it would appear foolish to grow and distribute a species that is almost certain to be subsequently destroyed by this rampant disease.

One has but to listen to the crackling of dead chestnut stems to be convinced that the Sweet Chestnut of Southern Ontario is doomed.

Again, our White Pine holds the unenviable status of being susceptible to fungi as well as insect ravage. The White Pine Blister rust is too well known to warrant full description.

Eradication of members of the family *Ribes*, however, does present a most tangible procedure in terminating the development of this fungi before it reaches the stage damaging to White Pine.

The *Ribes* eradication section commenced work on July 20th and finished on September 21st, the working time being 1,617 hours.

(5) *Woodlot Improvement*

To a major extent woodlot improvement was carried on during the dormant months and entailed the removal of all inferior species as a preparatory operation to the reinstatement of such species as were adapted to existent site and soil conditions.

The principal species cut out were members of the Black Oak family. Growing, as it does, on very light sandy soil, Black Oak attains but a small height and diameter size when heart rot sets in. Such trees invariably break over in a short time and the remaining stubs coppice. This coppice in turn develops poorly and again becomes diseased. Such a condition has been going on for years and will continue "ad infinitum" without there being created a stand of any great commercial value.

As a remedial measure it is therefore considered essential to remove all Black Oak and convert the same into fuel-wood and some lumber. Brush for the protection of seed-beds is also procured, and although not noted on the yield side of our ledger, its value must not be overlooked.

An hourly cost record is strictly maintained in connection with all woodlot improvement, including felling charges, brush disposal, pruning of desirable trees, such as White Oak and White Pine, teaming and trucking, milling and conversion operations of polewood into stove and cordwood.

(6) *Publicity*

Reforestation exhibits at fall fairs were made at Port Dover, Springfield, St. Williams, Norwich, Tillsonburg and Simcoe.

These exhibits reach the people who are really interested in tree-planting. Requests for literature and information during and since the demonstrations indicate conclusively their value.

Eight addresses given before clubs and community gatherings appear to have been acceptable and open discussion which invariably follows each address clears up points of individual interest.

Seasonable hints and advice submitted to local newspapers serve as a guide to those either actively engaged in reforestation or contemplating the same. Through the medium of the publishers' exchange, these articles radiate to other widely dispersed points.

The various chambers of commerce in south-western Ontario are taking kindly to matters pertaining to tree planting and have incorporated a reforestation committee, whose office it is to assist and advise individual and municipal activities in setting out new plantations.

Questions of proper handling of farm woodlots and fire protection are also included as part of these committees' functions.

Organized picnics and other gatherings at the Norfolk Forest Station provide recreation and first-hand information to the public.

ORONO

Unusual weather conditions militated to a considerable degree against the best growth in nursery stock. Periods of exceedingly dry weather were followed by periods of immoderate precipitation. The unusually heavy rainfall of July, accompanied by high temperatures made damping-off a constant menace to coniferous seedlings.

(1) *Nursery Practice*

(a) *Fertilizers.*

Fertilizers used during the year were as follows:

ANIMAL		MINERAL			
Manure Tons	Dried Blood Lbs.	Acid Phosphate Lbs.	Nitrate of Soda Lbs.	Sulphate of Ammonia Lbs.	Muriate of Potash Lbs.
250	1,500	625	250	750	850

In addition an area of some ten acres which had been seeded down to sweet clover was ploughed and the growth turned under. Splendid results were obtained and a much more friable, easily handled soil resulted, aside from the fertilizing value of the dense leguminous crop turned under.

(b) *Seed.*

An additional supply of seed comprising a total of 190 bushels, which was received too late for planting, was stratified for spring sowing.

(c) *Seed Beds.*

During the year a total of 706 coniferous seed beds were sown and 532 bushels of hardwood seed planted, as follows:

CONIFEROUS SEED SOWN DURING 1929

SPRING		FALL	
Species	Beds Sown	Species	Beds Sown
Jack Pine.....	50	White Cedar.....	49
Red Pine.....	5	Red Cedar.....	5
Scotch Pine.....	50	Jack Pine.....	77
		Red Pine.....	148
		Scotch Pine.....	25
		White Pine.....	160
		Norway Spruce.....	60
		White Spruce.....	77
Totals.....	105 Beds		601 Beds

The use of sub-soil as a germination blanket has proven to be advantageous in varying degrees with the different species but the extra labour involved has led to its abandonment in most species. Experiments on a small scale, however, would indicate that its use is highly desirable in the case of Red Pine. Large scale experiments are being carried on with the 601 beds sown this fall with the idea of getting definite data for all of the coniferous species sown.

Large scale experiments were also undertaken with a view to ascertaining the effects of fertilizers applied at various depths below the seed. This latter, in view of the very striking results obtained at the Savenac Nursery, U.S. Forest Service.

SOWING OF HARDWOOD SEED

Species	Total amount Seed Sown in Bushels
White Ash.....	20
Basswood.....	3
Butternut.....	73
White Elm.....	4
Bitternut Hickory.....	1
White Hickory.....	8
Hard Maple.....	21
Silver Maple.....	49
Red Oak.....	30
Walnut.....	323

Total..... 532 bush.

(d) Transplanting.

In the spring a total of 3,438,000 coniferous seedlings were lifted from the seed beds and transplanted, as well as 62,000 coniferous seedlings, which were received from St. Williams. A total of 110,000 deciduous seedlings and 5,000 poplar cuttings were also set out in transplant lines.

CONIFERS TRANSPLANTED

White Pine.....	748,000
Red Pine.....	1,238,000
Scotch Pine (St. Williams-Swedish Seed).....	10,000
Scotch Pine.....	170,000
Jack Pine.....	20,000
Pitch Pine (St. Williams).....	16,000
Austrian Pine (St. Williams).....	16,000
White Spruce.....	590,000
Norway Spruce.....	302,000
White Cedar.....	306,000
Total.....	3,416,000

HARDWOODS TRANSPLANTED

White Ash.....	60,000
Silver Maple.....	50,000
Carolina Poplar Cuttings.....	5,000
Total.....	115,000

(e) For Distribution 1930.

CONIFERS

Species:		
White Cedar.....	500,000	
Larch.....		
Jack Pine.....	150,000	
Red Pine.....	500,000	
Scotch Pine.....	90,000	
White Pine.....	855,000	
Norway Spruce.....	450,000	
White Spruce.....	600,000	
		3,145,000

HARDWOODS

Species:		
White Ash.....	221,000	
Butternut.....	15,000	
White Elm.....	5,000	
Hard Maple.....	4,000	
Silver Maple.....	125,900	
Walnuts.....	33,000	
		403,900

CUTTINGS

Species:		
Carolina Poplar.....	25,000	
White Willow.....	25,000	
		50,000
Grand Total.....		3,598,900

*(2) Improvements**Irrigation.*

An additional pump base was built in the pump house, and an electric pump installed to supplement the gasoline engine driven pump already in use. A new four-inch intake pipe was installed and a connection was made with the

three-inch outlet from the other pump with a second three-inch check valve set in the line. The pump, which is of the single stage rotary type, powered with a 25 H.P. three-phase motor (Century), is proving very satisfactory.

Roads.

In the spring an agreement was entered into with the Canadian National Railways whereby we obtained a private crossing through the right-of-way to the gravel pit from which we obtain all of our gravel. The crossing which necessitated the construction of a square culvert with 18-inch inside dimensions by 16 feet long and a bridge 10 feet by 16 feet wide, shortens our haul from the pit from one mile each way to a few yards. This crossing right-of-way was obtained for the nominal rental of \$1.00 per year.

During the summer, $2\frac{1}{2}$ miles of township road were taken over from Clarke Township for maintenance purposes. This road, which abuts the nursery on the west side for its full length and, in part, divides the nursery into the north and south sections, was graded up and gravelled.

During the early autumn, County Road No. 47, which is a main road from Newcastle to Lindsay was paved from Newcastle to Orono. In the course of the construction work a grade was created which necessitated an entirely new approach from the nursery to the village street. A fill of eight feet was necessary at the approach to the paved road and from that to a two-foot fill at a distance of two hundred feet. The resultant approach to the village is a great improvement over the former curved approaches. The sides of the grade, which is in places two to twelve feet high, were protected by posts on which was erected a heavy, thirty-inch wooden highway guard.

(3) *Permanent Planting*

Areas on the hillsides in the southern section of the nursery were permanently planted to the following:

Area No. 1—4 acres:

White Pine.....	2,500
Red Pine.....	2,500
Trees planted alternate in the row.	

Area No. 2—2 acres:

White Spruce.....	1,250
European Larch.....	1,250
Trees planted alternate in the row.	

In addition to nursery plantations a determined effort was made to secure a soil cover on the blow sand area comprising some twenty acres of the Manvers Township Demonstration Plot at Bethany in Durham County. The fence line on the windward side of this plot cuts squarely across the centre of a blow sand area, comprising in all, some forty acres. As a result coniferous transplants are either blown out by the roots or completely buried before they get a chance to develop, while Carolina Poplar and Willow cuttings have the tender young buds and shoots beaten to pieces by the drifting sand before they can harden.

This year a number of rooted Carolina Poplars were planted along the fence line and wide bands of the same material were established at frequent intervals across the wind direction. The spaces between these bands were then planted with Red, Scotch and Jack pine, a three-foot by three-foot spacing being used

throughout. In all, 25,000 trees and rooted poplar were planted, in addition to 10,000 poplar cuttings, as follows:

Jack Pine.....	10,000
Scotch Pine.....	5,000
Red Pine.....	5,000
Carolina Poplar (cuttings).....	10,000
Carolina Poplar (rooted).....	5,000

(4) *Protection*

Animal.

Mice, squirrels and hares have proven very destructive during the past season. Mice and hares by girdling trees in the plantations and squirrels by digging up and carrying off walnuts and butternuts which had been dibbled-in. Shooting is apparently the only protection from squirrels and hares and cutting the grass in the young plantations which have not a closed crown cover, with scythes, is proving effective with mice.

Perhaps the worst nuisance with which we have to contend is crows. These pests seek out the areas where nuts are planted, especially butternuts, and as the cotyledons raise the soil in the spring as they begin to sprout, the crows dig down to the nut and devour the kernel. They even do the same with the white ash and hard maple when these first appear. Shooting is the only remedy.

Insects.

The white pine weevil was observed in our plantations for the first time this summer. A few jack pines were attacked both on the nursery and in the Clarke Township Demonstration Plot. The leaders of infested trees were cut and burned.

June bug larvae caused considerable damage to plantations on the Durham Forest. These grubs worked in the grass roots, killing both the grass and the small, planted trees with which they came in contact. In numerous places, areas of several square yards could be stripped bare of sod with the foot.

Diseases.

White Pine Blister Rust.—An area of white pine plantation, some fifteen years old, situated one-half mile west of the nursery, was found to be infected with White Pine Blister Rust. Three men, under supervision, cut out and destroyed the diseased trees.

The Squair Plantation in Darlington Township, some three miles west of the nursery, was opened up and all infected trees marked for removal this winter.

Scotch Pine Gall.—An infection of Scotch Pine Gall was discovered on the plantation of Professor C. B. Sissons by Mr. MacCallum, Forest Pathologist of the Federal Department of Agriculture. This plantation, which immediately adjoins the nursery at the south-east corner is fifteen years of age. All trees badly infected were cut out and destroyed, while, where the infection was very light, the branches containing galls were removed and the trees left for observation.

(5) *Woodlot Improvement*

An area of twenty-five acres on the 200 acre cut-over block in Manvers was carefully cleared of slash during the winter. The brush was piled and burned. Reproduction is very promising in this area and a number of clumps of young white pine from fifteen to twenty years old is showing excellent growth.

(6) *Publicity*

The Orono Community Memorial Park which immediately abuts the nursery on the east has been increasingly popular this year, and we have co-operated with them in giving a suitable approach to both the park and the nursery from the village.

Several addresses were given at various gatherings, notably the Agricultural Short Courses in Durham and Peterborough Counties, the Orono Horticultural Society and the Teachers' Convention of Durham County. In the latter case, the 150 members of the convention were personally conducted through the nursery and the various phases of the work were explained in detail, after a short preliminary explanation had been given to the assembly at their place of meeting.

Judging by requests for repeats these talks are reaching interested persons.

Exhibits at fall fairs were extended this year and an endeavour was made to place the exhibit at strategic points. With this in view, widely separated points were chosen and exhibits placed at Sunderland in Ontario County, Markham in York County, Orono in Durham County, Roseneath and Campbellford in Northumberland County and Norwood in Peterborough County. Excellent results were obtained in every case. At Norwood, in addition to the exhibit being placed, a talk was given to the children of the senior rooms of the public school by request of the principal, when they came to the exhibit in a body, on the evening before the fair.

MIDHURST

(1) *Nursery Operations*

(a) *Fertilizers:*

Owing to the fact that this nursery is still in the stage of development—considerable new land being opened up each year, a large quantity of manure is required to build the soil up, physically as well as from a chemical standpoint.

In the old nursery land, as soon as the trees are lifted for shipping or transplanting, the ground is worked well, and manure, if on hand, is applied before the land is sown to a green manure crop. This consists of peas, soy beans or clover.

This year we inoculated all our green manure crop seed with nitro culture. This culture produced marked success in the forming of nitrogen-producing nodules on the sweet clover and peas, but we had no success with the formation of nodules on our soy beans.

These green crops are ploughed down in August. Well-rotted manure at the rate of twenty tons per acre for seed bed land and a lighter application for transplant land is then applied. The soil is then lightly "top" worked to destroy all weed seeds that may germinate.

The climate seems to be too hard for the successful raising of basswood and hard maple trees at this station.

(d) *Transplanting.*

The following trees were lined out in the spring:

CONIFERS		HARDWOODS	
Species:	Number	Species	Number
Red Pine.....	2,467,134	Butternut.....	4,930
White Pine.....	860,939	Walnut.....	27,275
Jack Pine.....	22,887	White Elm.....	40,950
Austrian Pine.....	25,155	Rock Elm.....	550
Scotch Pine.....	110,500	Yellow Birch.....	375
White Spruce.....	440,482	White Birch.....	2,450
Norway Spruce.....	31,937	White Ash.....	26,225
White Cedar.....	776,359	Black Cherry.....	2,350
Hemlock.....	15,532	Basswood.....	175
		Red Oak.....	114,850
		Red Maple.....	9,250
		Silver Maple.....	40,200
Total.....	4,750,925		269,580
Grand Total.....			5,020,505

(f) Nursery stock in other stages of development:

CONIFERS		HARDWOODS
1 year old.....	4,832,339	200,000
2 years old.....	8,601,450	
Grand Total...	13,433,789	

(2) *Improvements*

The grounds around the superintendent's house were graded and the roads were laid out. Later in the season the area was sown with grass seed and hedges put in.

A new double garage was erected in connection with this house. It was finished in artificial brick to match the house.

Considerable fencing was required to finish the fencing of the land recently acquired.

Considerable new nursery land has been opened up. This required many hedges to be laid out and planted this year.

The C.P.R. erected a large dam to form a reservoir on the stream flowing through our property. This is immediately below our reservoir.

A neat cement block pumping station was erected close to the reservoir. This system was connected up with six-inch mains with their 10,700-gallon tank at the Midhurst station.

A by-pass connection was provided between our mains and those of the C.P.R. to be used in case of an emergency.

The C.P.R. erected a rustic bridge over their reservoir, and did much to beautify the surroundings.

Considerable road work was done on the property this year.

(3) *Permanent Planting*

This year we planted 195,000 trees on waste land belonging to the C.P.R. around the Midhurst railway station; 25,000 of these were jack and scotch pine which were planted in the old gravel pit. This planting was done in exchange for land transferred to the government.

Twenty-five thousand trees were planted on our own property. Besides this planting, forty-two acre plots were laid out and planted this year. The purpose of these experimental plots is to decide the proper spacing and mixtures to be used in our plantations.

The total output of the nursery this season was 3,407,731.

(4) *Protection*

There was considerable loss due to winter browning in the two-year-old stock. This can only be alleviated by adequate hedge protection from the severe winds. Temporary hedges of quick-growing species, such as scotch pine have been planted in all wind areas.

The poplar canker (*Hypoxylon pruniatum*) still holds sway here and nothing can be done to offset this fungus. The large-toothed poplars which are attacked by this fungus are removed when disease is located in them.

The weevil is not prevalent here. When isolated ones are found attacking the leaders of the pines, they are immediately destroyed.

Several plantations, principally of red pine, were attacked by the pine needle eating Sawfly (*Neodiprion lecontei*). All plantations at this station were closely inspected during the caterpillar period. The caterpillars were cut off and destroyed, or the trees were sprayed with a stomach poison.

In order to keep our nursery lands clean, all roads and fireguards were kept free of weeds.

As a protection against fire, all fireguards were kept constantly cultivated, particularly close to the C.P.R. tracks. New fireguards were opened up around the main highways.

(5) *Woodlot Improvement*

Little work of this nature was done in the winter months of this year, as the operations at the muck pit employed most of the time. When the roads were not in a serviceable condition, the men were put at work removing the diseased poplar trees from the canker-infected areas. Some improvement cuttings were undertaken in the spruce swamp areas.

(6) *Publicity*

During the summer season several conventions visited the nursery, and the various phases of the work carried out at the nursery were carefully outlined to these people.

A package containing trees was distributed to all visitors at the Kiwanis meeting at Bigwin Inn this fall. Everyone was enthusiastic and interested in the policy of reforestation as carried on by this province.

During the summer months many visitors looked over the plant, and every courtesy was given them while showing them the various things of interest. At all times the benefits to be derived from reforestation were stressed.

In the fall the various fall and school fairs in the county were attended. Application forms and forestry literature were distributed to those showing interest. This year a delineascope, showing a film of the various nursery operations, created added interest in reforestation work.

SAND BANKS

Trees planted at the Sand Banks were as follows:—

Soft Maple.....	75
Butternut.....	12
White Ash.....	137
Elm.....	93
White Cedar.....	320
Mountain Ash.....	28
Locust.....	33,000
Poplar (Rooted).....	4,000
Poplar (Cuttings).....	58,450
Willow (Cuttings).....	20,000
Total.....	116,115
Willow Lengths planted.....	3 cords.

TREES FOR DISTRIBUTION—1930

CONIFERS		HARDWOODS	
Red Pine.....	36,000	White Ash.....	625
White Pine.....	95,264	Elm.....	242
Scotch Pine.....	96,500	Larch.....	39
Norway Spruce.....	4,114	Butternut.....	75
White Cedar.....	11,945	Soft Maple.....	2,680
Red Cedar.....	1,900		
Total.....	245,723		3,661
			245,723
Grand Total.....			249,384

KEMPTVILLE

The few remaining trees in this nursery were shipped during the spring and the nursery discontinued.

COUNTY FORESTS

HENDRIE (Simcoe County)

White Pine.....	77,500
Jack Pine.....	1,000
Red Oak.....	2,000
Soft Maple.....	500
	81,000

VIVIAN (York County) ✓

Red Pine.....	42,000
White Pine.....	23,000
Scotch Pine.....	165,000
Jack Pine.....	5,000
White Spruce.....	10,000
Larch.....	20,000
White Ash.....	10,000
Soft Maple.....	10,000
Elm.....	10,000
Rooted Poplar.....	10,000
Poplar Cuttings.....	30,000
	335,000

NORTHUMBERLAND (Northumberland and Durham Counties) ✓

White Pine.....	25,000
White Spruce.....	25,000
	<hr/>
	50,000

UXBRIDGE (Ontario County)

Red Pine.....	100,000
White Pine.....	121,000
Scotch Pine.....	58,000
Balsam.....	2,000
Jack Pine.....	54,000
Larch.....	30,500
Black Cherry.....	53,500
	<hr/>
	419,000

DURHAM (Northumberland and Durham Counties)

Red Pine.....	125,000
White Pine.....	75,000
Scotch Pine.....	25,000
Larch.....	50,000
	<hr/>
	275,000

LAROSE (Prescott and Russell Counties)

Red Pine.....	65,000
White Pine.....	80,000
White Cedar.....	20,000
White Spruce.....	10,000
Norway Spruce.....	20,000
Larch.....	35,000
	<hr/>
	230,000

VICTORIA (Victoria County)

Red Pine.....	107,000
White Pine.....	130,000
Scotch Pine.....	10,000
White Spruce.....	102,000
White Ash.....	2,000
	<hr/>
	351,000

ORR LAKE (Simcoe County) ✓

Red Pine.....	188,174
White Pine.....	151,974
Larch.....	21,600
	<hr/>
	361,748

PRIVATE FOREST

OSLER

Red Pine.....	50,000
White Pine.....	50,000
Scotch Pine.....	25,000
White Spruce.....	25,000
	<hr/>
	150,000

NORTHERN PLANTATIONS

NAIRN (Sudbury) ✓

Red Pine.....	150,000
White Pine.....	60,000
	<hr/>
	210,000

KIRKWOOD (Algoma)

Red Pine.....	400,000
White Pine.....	270,000
Scotch Pine.....	100,000
Jack Pine.....	50,000
White Spruce.....	150,000
	<hr/>
	970,000

LITTLE BLACKSTONE (Parry Sound) ✓

Red Pine.....	500
White Pine.....	10,000
	<hr/>
	10,500

LAURIER (Parry Sound) ✓

Red Pine.....	113,600
Jack Pine.....	1,400
Scotch Pine.....	23,000
White Spruce.....	46,000
	<hr/>
	184,000

DIVER (Nipissing) ✓

Red Pine.....	160,000
White Pine.....	175,000
	<hr/>
	335,000

KIOSK (Nipissing) ✓

Red Pine.....	40,000
White Pine.....	143,000
Scotch Pine.....	20,000
White Spruce.....	14,000
Norway Spruce.....	20,000
	<hr/>
	237,000

BRIDGELAND (Algoma)

White Spruce.....	75,000
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DEMONSTRATION PLOTS

New plots established:

Angus (Boy Scouts).....	90,000
Blackwater.....	11,000
Gwillimbury, North.....	8,000
Hillsdale.....	3,800
London (Kiwanis Club).....	12,000
Long Branch.....	1,965
Oro.....	60,000
Perth.....	6,500
City of St. Thomas.....	21,650
Sandwich West.....	25,700
Unionville.....	2,500
Walkerton.....	1,100
Stouffville (York Co.).....	30,000
	<hr/>
	274,215

Additions to plots previously established:

Albemarle West.....	1,500
Albemarle East.....	5,000
Angus.....	45,000
Bowmanville (Boy's School).....	2,000
Cramahe.....	7,500
Coldwater.....	15,000
Lindsay.....	11,500
Middleton.....	1,000
Manvers.....	44,000
McEwan's Woods.....	1,600
Preston.....	7,500
Uxbridge.....	4,000
Windham.....	23,700
Warkworth.....	300
Woodbridge.....	2,800
Vespra.....	15,000
Chapelau Woodlot.....	2,000
	<hr/>
	189,400

PRIVATE PLANTING

In the spring of 1929, 4,750 people secured trees from the Ontario Forestry Branch, totalling in all, 6,549,642 trees.

SEED COLLECTING

The following seed was collected during the year.

CONIFERS

Species:	Quantity in Bushels	
Red Pine.....	13,033	1/2
White Pine.....	595	5/8
Scotch Pine.....	68	
Jack Pine.....	2,267	1/2
Austrian Pine.....	23	
White Spruce.....	230	1/8
Norway Spruce.....	884	3/8
Balsam.....	5	5/8
Hemlock.....	30	3/8
Tamarack.....	1	1/8
Red Cedar.....	5	3/8
White Cedar.....	139	4/8
	<hr/>	
		17,283 1/8

HARDWOODS

Red Oak.....	158	1/8
White Ash.....	79	5/8
Hard Maple.....	37	3/8
Soft Maple.....	60	
Elm.....	8	
Norway Maple.....	1	6/8
Yellow Birch.....	9	4/8
Basswood.....	2	2/8
Black Locust.....	11	1/8
Black Cherry.....	12	
Hickory.....	19	3/8
Bitternut Hickory.....	1	3/8
Walnuts.....	1,659	2/8
Butternuts.....	104	7/8
	<hr/>	
		2,162 5/8
Total.....		<hr/>
		19,445 3/4

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private Planting:				
Reforestation.....	4,331,744	893,507	430,429	.....
Windbreaks.....	893,962	.....	.....	6,549,642
Demonstration Plots.....	388,800	59,200	16,215	464,215
Hendrie.....	78,500	2,500	.....	81,000
Vivian.....	265,000	40,000	30,000	335,000
Northumberland.....	50,000	.....	.....	50,000
Uxbridge.....	365,500	53,500	.....	419,000
Durham.....	275,000	.....	.....	275,000
Larose.....	230,000	.....	.....	230,000
Victoria.....	349,000	2,000	.....	351,000
Orr Lake.....	361,748	.....	.....	361,748
Private Forests.....	150,000	.....	.....	150,000
Nairn.....	210,000	.....	.....	210,000
Kirkwood.....	970,000	.....	.....	970,000
Little Blackstone.....	10,500	.....	.....	10,500
Laurier.....	184,000	.....	.....	184,000
Diver.....	335,000	.....	.....	335,000
Kiosk.....	237,000	.....	.....	237,000
Bridgeland.....	75,000	.....	.....	75,000
St. Williams.....	114,860	49,200	328,000	492,060
Midhurst.....	302,000	.....	.....	302,000
Sand Barks.....	37,665	.....	78,450	116,115
Camp Borden.....	356,500	15,250	.....	371,750
North Bay.....	190,000	.....	.....	190,000
Totals.....	10,761,779	1,115,157	883,094	12,760,030

SUMMARY OF NURSERY STOCK FOR PLANTING, 1930.

NURSERY	Conifers	Hardwoods	Totals
St. Williams.....	4,955,000	1,045,000	6,000,000
Orono.....	3,145,000	453,900	3,598,900
Midhurst.....	1,989,790	269,580	2,259,370
Sand Barks.....	245,723	3,661	249,384
Totals.....	10,335,513	1,772,141	12,107,654

V.—FOREST SURVEYS

Under the Provincial Forests Act passed during 1929, eight areas within the forest area of the province are set aside as provincial forests. These include the five original forest reserves: Eastern, Timagami, Mississagi, Nipigon and Sibley, and three newly created forests, the Kawartha, Georgian Bay and Wanapitei.

Prior to the act forest surveys had already been conducted covering the Mississagi, Nipigon, Kawartha and parts of the Eastern and Timagami Provincial Forests. These earlier surveys consisted largely of a classification of the forest into types and age classes and a timber estimate.

During 1929 the work was continued by the examination of the forest conditions in the Wanapitei Provincial Forest and in the southeasterly portion

of the Timagami Provincial Forest but with the more definite objective of relating the forest conditions and timber estimates to a preliminary forest working plan for the areas.

In addition, the 1929 survey programme included a study of the ownership conditions in the Georgian Bay Provincial Forest.

Timagami Provincial Forest Survey

The area under examination in this survey comprises about 400,000 acres and includes the townships adjacent to Timagami lake, namely, Aston (eastern third) Banting, Belfast, Best, Briggs, Brigstocke, Chambers, Clement, Cole (eastern half) Law (western half) Le Roche (western half) Medina, Olive (western half) Scholes, Strathcona, Torrington, Vogt and Yates.

Three parties totalling twenty-five men and under the direction of a forester made up the field force. Work commenced May 28, and was discontinued September 20.

This section of the Timagami Provincial Forest may be roughly divided by two distinct forest age classes. The southern half is forested by mature stands with white and red pine dominating the mixtures. The northern half is an immature stand reproduced following fire some sixty years previous and contains a medley of associations in the mixtures of poplar, birch, white and red pine, jack pine, spruce and balsam.

Owing to the large volume of timber in the southern half more samples were necessary to provide an estimate. Strip lines were run at one-quarter mile intervals and the trees tallied on a width of thirty-three feet along the strip. In the immature stands strips were run one-half mile apart and complete composition and age plots 100 feet long and thirty-three feet wide were taken at five chain intervals.

In this survey a departure has been made from earlier surveys in the nomenclature of forest types. Previously symbols were used on the maps to designate the forest types. These proved unsatisfactory for descriptive purposes and has given way to type numbers, each number referring to a summary sheet containing the actual composition of the samples taken.

For the Timagami Provincial Forest Survey township plans are in the course of preparation on a scale of one inch equals one-half mile.

Wanapitei Provincial Forest Survey

The Wanapitei Provincial Forest is located some thirty miles north from the city of Sudbury, and includes the townships of Aylmer, Norman, Parkin and a portion of Rathbun. It covers approximately 70,000 acres and constitutes the area covered by the fourth survey party in the field during 1929.

The objective of this survey was a complete division of the tract into forest types on the basis of the present composition and further into actual age classes. Strip lines were run at one-quarter mile intervals and checked from control lines established every two miles.

The whole tract may be considered as immature, only some 1,000 acres being classified as mature. The present immature stands occupy areas reproduced following burns fifty-five years ago and since.

The compilation of data, from both this survey and that conducted in the Timagami Provincial Forest follows much the same method. Forest types are numbered on the plans and refer to summary sheets giving a complete analysis of the species of tree entering the composition together with actual ages.

Township plans and a written report are at present being prepared.

Georgian Bay Provincial Forest

Preliminary to future investigations concerning the forest conditions on the Georgian Bay Provincial forest it was deemed advisable to have complete information on the status of land ownership in the area and the condition of farming.

One man was attached to the Forestry Branch district office, Parry Sound, and was employed during June, July and August.

The area covered amounted to slightly over 433,000 acres and comprises the townships of Blair, Brown, Burpee, Burton, Harrison, Mowat, Shawanaga and Wallbridge.

The results of this survey shows 14,509 acres held as patented, leased and under license of occupation. There are 9,071 acres patented, 384 acres leased and 5,054 acres under license of occupation. In addition there are known to be thirty-nine squatters on the area for which no area figures can be given.

Attention was paid to the extent to which the land was being cultivated, and in the area of 14,509 acres, 685 acres are reported as cleared.

VI.—FOREST INSECT CONTROL

(1) *Hemlock Looper (Ellopija fiscellaria)*.

The operations commenced in 1928 in connection with the control of an infestation by this insect were continued. These operations were centered around Foote's Bay in the Muskoka District and around Parry Sound.

By the use of a seaplane calcium arsenate was dusted over the infested area while the insect was in the larvae or caterpillar stage. Tests made of the results indicated a mortality of from seventy-five to ninety per cent. During the dusting period the weather was not all that could be desired, several dustings having to be repeated because of rain, but it is believed that the outbreak has been sufficiently checked to enable parasites to practically exterminate the Looper.

The area actually dusted was 1,040 acres on which 16.5 tons of dust were distributed.

(2) *Spruce Budworm (cacoecia fumiferana)*

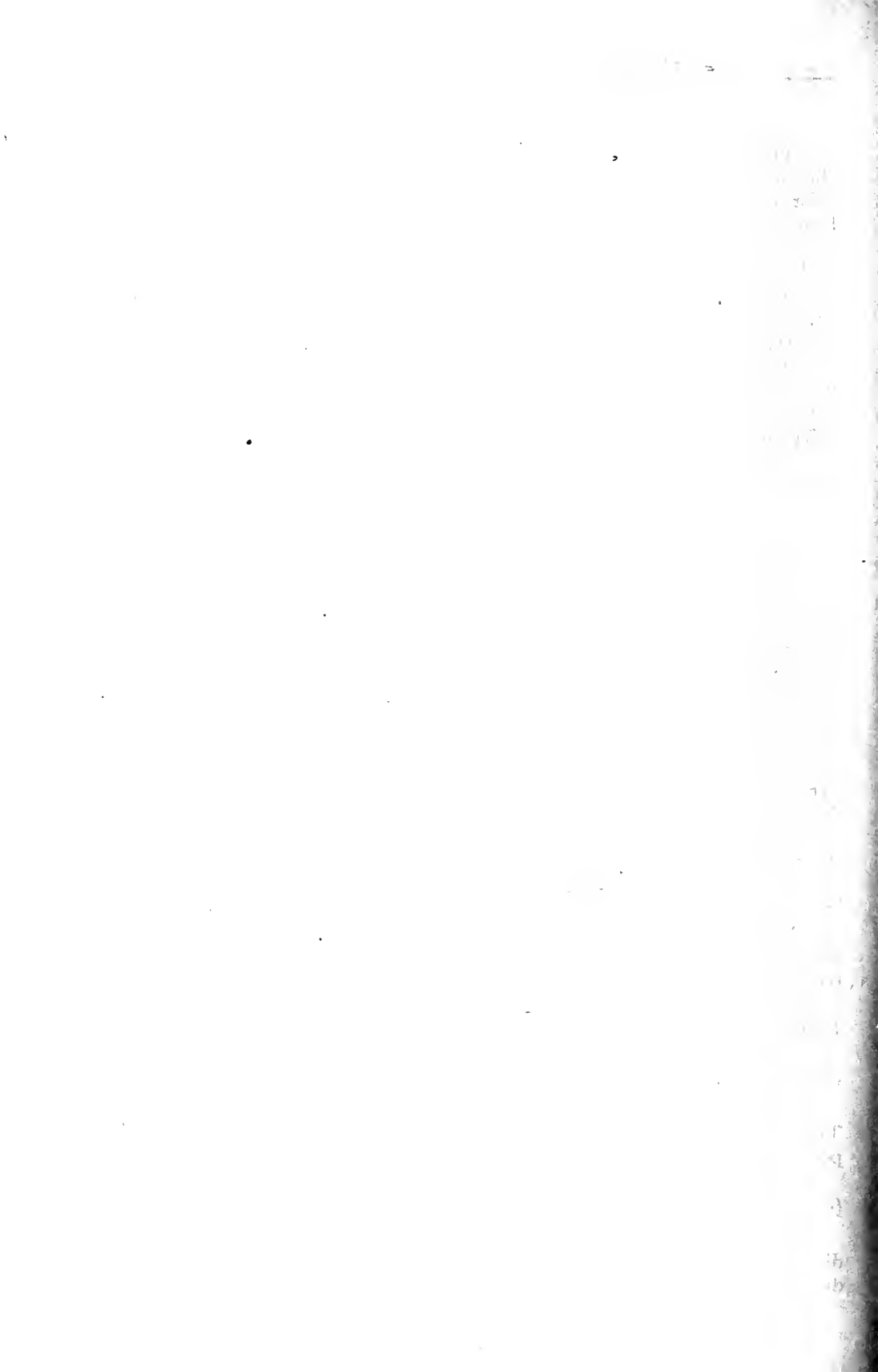
Experiments in connection with the control of the Spruce Budworm were again carried on in the area west of Sudbury. This work is on a co-operative basis with the Entomological Branch of the Federal Department of Agriculture which supplies the technical supervision and the Department of National Defence which supplies the plane for dusting purposes.

(3) *Larch Sawfly (Lygaeonematus erichsoni, Hart.)*

A considerable outbreak of this insect has been noted in some districts. The Dominion Entomological Branch is introducing parasites as rapidly as possible to the various affected areas.

(4) *Jack Pine Sawfly (genus neodiprion)*

What appears likely to be a serious attack on the jack pine along the Canadian Pacific Railway west of Sudbury was the subject of a preliminary study during the season. The exact species of the insect has not yet been determined.



REPORT
OF THE
Minister of Lands and Forests
OF THE
PROVINCE OF ONTARIO

For the Year Ending 31st October

1930

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



ONTARIO

TORONTO:
Printed and Published by Herbert H. Ball, Printer to the King's Most Excellent Majesty
1931

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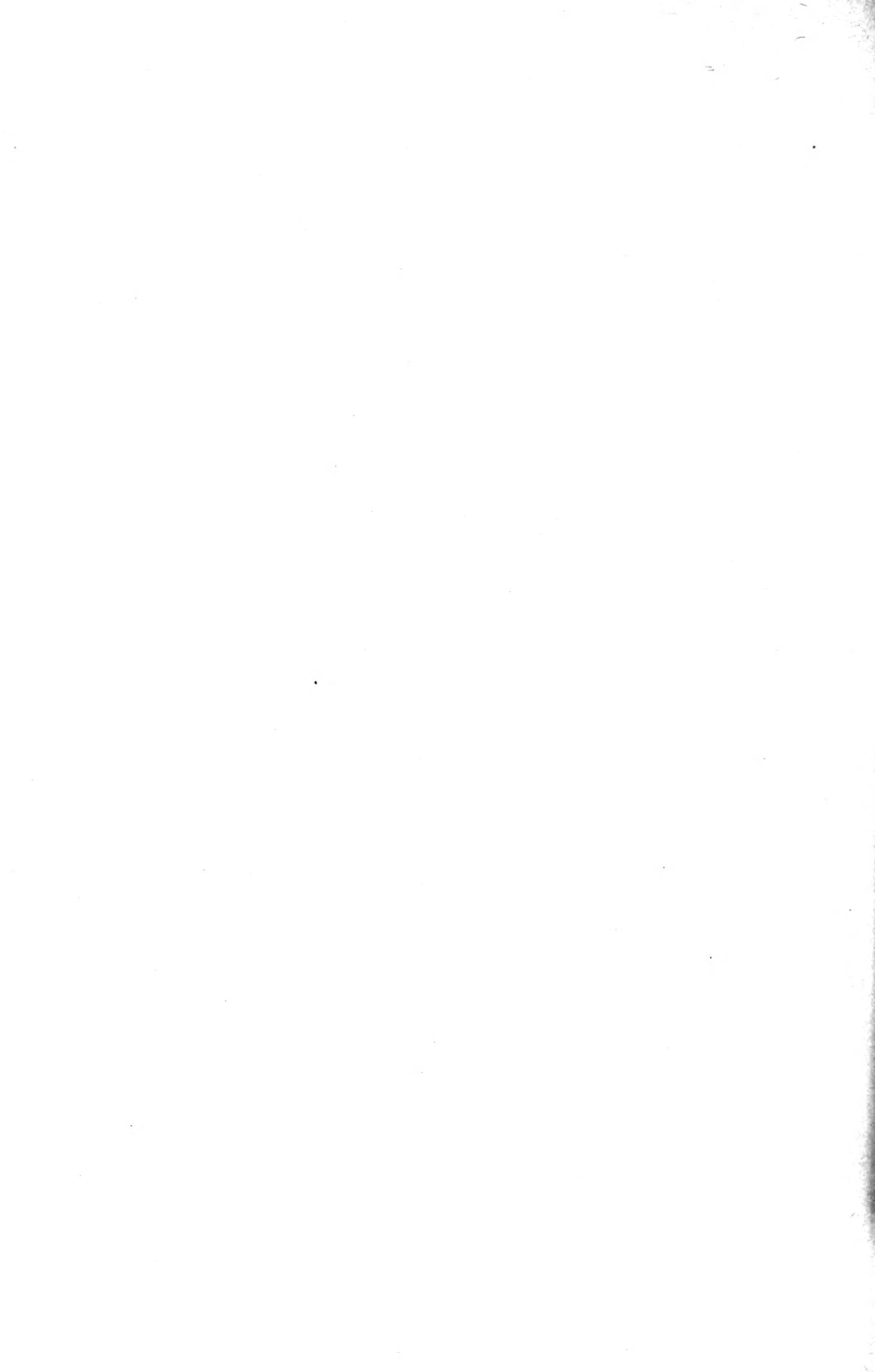
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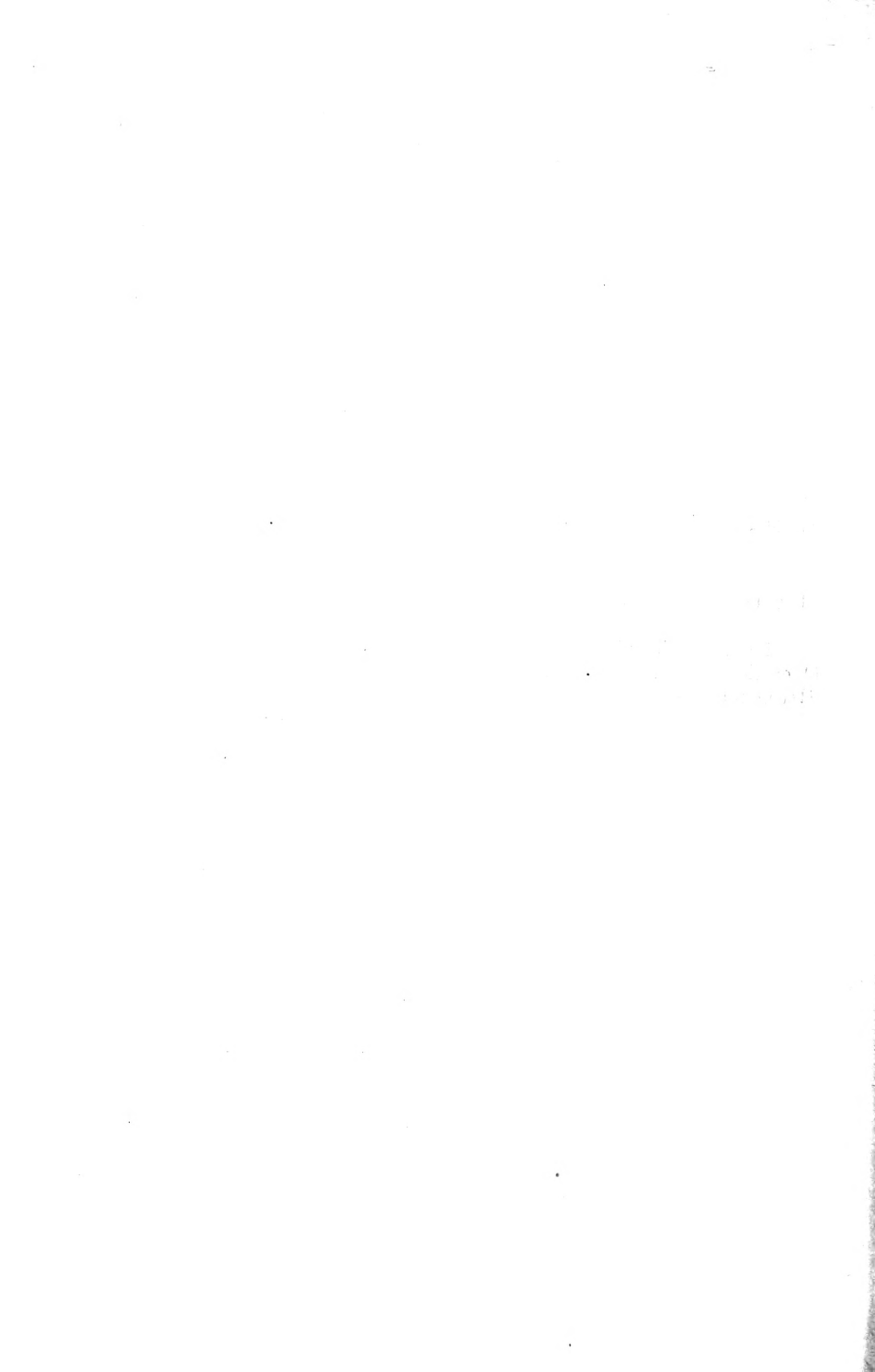


TO HIS HONOUR WILLIAM D. ROSS, ESQ.,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour, Report on the Operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1930.

WILLIAM FINLAYSON,
Minister.



HONOURABLE WILLIAM FINLAYSON,
Minister of Lands and Forests.

We have the honour to submit herewith a report on the operations of the Department of Lands and Forests for the fiscal year ending 31st October, 1930.

W. C. CAIN,
Deputy Minister, Lands and Forests.

E. J. ZAVITZ,
Deputy Minister, Forestry.

L. V. RORKE, *Surveyor-General.*

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

For the Year ending 31st October, 1930

A BRIEF RETROSPECT AND GENERAL ADMINISTRATION

A cursory examination of the records of this Department in respect of its activities during the last quarter of a century, or since the beginning of the early part of the year 1905 when a change of Government occurred, discloses most interesting and gratifying results that reflect continued progress.

At that time the northern boundaries of the Province extended only to the English River, Lake Joseph and the Great Albany River flowing into James Bay, while the entire natural resources were directly comprised within and listed under the control of the Crown Lands Department which nomenclature had obtained since the cession by the French following the Battle of the Plains of Abraham.

Now the northern boundaries, by the acquisition in 1912 of additional territory formerly part of the North West Territories, reach the Hudson Bay and embrace a new empire of 130,000 square miles and lengthen the distance from the most southerly point, Pelee, in Lake Erie, to the most northerly on the Hudson Bay by 375 miles so that it is now approximately 1,000 miles as the crow flies.

Thousands of miles of road have since been constructed, fertile agricultural land, mining land and water power has been developed, the wilderness, so called, of Northern Ontario has given place to fervid business enterprises, until to-day we have in that area mining fields known the world over, six cities, twenty-two towns and over one hundred and fifty communities under some form of municipal government with a population of three hundred and fifty thousand people.

Such is progress, and the mark of destiny reveals itself day by day indicating that Ontario is still in process of a general expansion and development notwithstanding the general depression which she in part shares in common with the rest of the world to-day.

The term "Crown Lands" covered indeed a multitude of potentialities and a diversity of administrative activities—land for agricultural and other endless purposes, mines and minerals, timber and all forest supplies, fur-bearing animals, game and fish, water power and its kindred interests, river driving, navigation within limitations, road and bridge building, colonization and immigration and aids to settlers. All these in their different aspects were governed by various Acts coming within the scope and under the jurisdiction of the responsible Minister, the Commissioner of Crown Lands.

Important changes, however, were soon made to harmonize with a new era. The growth of the mining industry and its prospective contribution to the future industrial prosperity of the country demanded a recognition hitherto not accorded it, and in 1905 the old Crown Lands Department was changed to the Department of Lands and Mines. While this change was an outstanding recognition of the fact that "land" produced the precious metals, it failed to

fully satisfy the complete title and functioning of the administrative system since it overlooked the forests. Consequently the following year 1906 by a further statutory amendment the title was changed to Department of Lands, Forests and Mines.

The tapping of the northern part of the Province by the Temiskaming and Northern Ontario Railway, the first sections of which were completed in 1903, and later on the building of the Canadian Northern, Transcontinental and Grand Trunk Pacific Railways opened up the treasures of the new sections traversed, and resulted in a rush of settlement and industrial activity. The world famous Cobalt area and the ever continuous impetus its discovery gave to prospecting in the great mineralized zones and to the establishment of substantial businesses so increased the work and enlarged the importance of the mineral wealth of Ontario that a separate and distinct Department of Mines was created in 1920, and the marked development since then has amply justified the legislation.

New avenues of trade and commerce invited the settler, a vital link in the real chain of community life, and demands for road building and general assistance were adequately provided for by the passing in 1912 of The Northern Development Act under which a special appropriation by the Legislature has been annually voted. The great expansion of Northern Ontario, however, involving increasing expenditures under this head, made it necessary to constitute an organization apart from Lands and Forests to exclusively operate in this field. Hence the Northern Development Department was constituted in 1925 and is presided over by the Minister of Lands and Forests.

The need of applying technical and the most modern method to the care of our forests and of providing professional investigations for the requirements of reforestation has been met by the appointment a few years ago of a Deputy Head for this particular branch, and under his supervision the work is satisfactorily proceeding.

Furthermore the pushing back of the frontier with the increased aggressive expansion in commerce and industry, the success of which is so largely dependent upon the forests for raw material, called for an adequate forest fire protection system to patrol the timber areas otherwise inaccessible. Thus in 1925 the Government established its own aerial fire patrol organization, now acknowledged the finest of its kind in the world. A fleet of twenty-five planes owned, operated and controlled by the Department of Lands and Forests has rendered excellent service and made an enviable record in the field of practical and efficient aeronautics. This air service has not been entirely restricted to detection and suppression in connection with forest fires, but has been utilized on divers occasions to enforce law and order, to go on errands of mercy and to fulfil other important roles in certain departments of the Provincial Government and at times to render service to the Federal Government.

Hand in hand with and even in advance of settlement and substantial progress in different fields must go the technical surveyor, the engineer, the professional line blazer. In the earliest history of the country when extensive surveys were essential as precursors of pioneer movements and intimate details of the topography and possibilities of the land and waterways were required, prior even to the appointment of the first Commissioner of Crown Lands, over one hundred years ago, the work was under the Surveyor-General whose title after some decades was absorbed, and an officer known as Director of Surveys was charged with the duties of supervising all surveys. As the Province has so rapidly advanced in its development of water power, an invaluable heritage, and the need of engineering skill is recognized, it was deemed expedient that

such work as water powers, engineering problems and technical inspections should be subject to the supervision and under the control of a special officer to be called, like unto the past, Surveyor-General with the status of a Deputy Minister. Consequently the Public Lands Act was amended in 1926 to provide for such an officer. The Department as now constituted is presided over by a Minister with two Deputy Ministers, the first the Deputy Minister of Lands and Forests, second the Deputy Minister of Forestry, and a Surveyor-General.

The three divisions or sections of the Department thus organized are subdivided into branches as follows:

UNDER DEPUTY MINISTER OF LANDS AND FORESTS

Lands which is the clearing house for all dispositions of land for location or sale under agricultural regulations and for a variety of other purposes, the issuing of Licenses, Leases and other instruments and the general registration of all areas alienated from the Crown, including such as are granted for mining purposes.

Woods and Forests. Here all sales of Timber Limits are recorded, timber licenses issued, ground rent and fire protection charges levied and collected, all affidavits and returns in connection with the cutting and measurement of timber scrutinized, and accounts for timber bonus and dues and scaling rendered and accounted for. This branch also is responsible for the holding of scalers' examinations and the issue of Certificates to those qualified, and has charge of Rangers and Scalers in cruising, estimating and measuring timber.

Accounts. Supervises and accounts for all moneys received and expended by the entire Department and also for such moneys as are so handled by the Department of Mines, this relationship not having been broken when the Department of Mines was created. All cheques for the payment of Fire-ranging throughout the summer months are issued direct by this branch, and the daily returns of receipts of moneys are made to the Treasury Department.

Files. Under the centralized system of filing introduced in 1916 this branch initiates and houses files dealing with the multitudinous matters of the Department. All correspondence is registered daily and immediately attached to the files and then distributed amongst the different branches dealing with the covering subject. The files in due time are returned to the central filing office and always in readiness for a call from any branch responsible for their use.

Provincial Land Tax. This branch lists all lands subject to the Provincial Land Tax Act, makes assessments and collects the taxes thereunder.

Statistics. Data of importance concerning the whole Department are detailed by this branch and carefully listed and properly catalogued. The work in this connection has been undertaken only within the last year or so and is still in a formative state, it being carried on in a more or less restricted way by the Secretary of the Department, but a good foundation is being laid upon which a permanent superstructure will ultimately be built.



UNDER THE DEPUTY MINISTER OF FORESTRY

Forest Fire Protection. This comprises the task of providing against and fighting forest fires, and includes a complete link up system of ground and air patrol and an effective body for suppression. Forest Reserve and Permit areas are set aside and governed by special legislative enactments and regulations.

Aerial Photography and Mapping and Radio Communications. In making inventory of our timber resources photographs from the air are taken preliminary

to careful ground cruises followed by map preparation for permanent records. Radio stations are operated in certain districts, largely for communication between provincial posts as part of the forest fire protection organization, although some stations are utilized to a large extent for commercial work.

Reforestation. This embraces the various nursery stations throughout the Province, the distribution of trees, the setting aside specific areas for experimental and replanting purposes and in general all investigations and inspections of a technical character that pertain to the welfare of the forest.

UNDER THE SURVEYOR-GENERAL

Surveys and Plans. Provides for supervision over and responsibility for all surveys made and plans prepared respecting Crown lands and resurveys under Municipal Act; the recording of mining claims in unsurveyed territory is closely linked up with and forms part of the duties of the officers.

Water Powers and Dams. Under this heading comes the engineering responsibility of reporting on power possibilities, issuing power leases, inspecting sites for dams and investigating matters falling within the purview of the Lakes and Rivers Improvement Act.

Cartography and Drafting. All maps authorized by the Province are prepared by the staff, and the plans and descriptions in respect thereof checked and approved.

LEGISLATIVE ENACTMENTS

During the session of 1930 the old *Forest Fire Prevention Act* was repealed and a new one enacted. This was done to facilitate control of forest areas in such a way as to eliminate as far as possible casual forest fire causes, to fully equip accredited officers of the Crown with authority to direct, identify and control those of the public who find it necessary for either business or pleasure purposes.

The Provincial Land Tax Act was primarily designed to cover those in unorganized territory who did not contribute anything to the provincial revenue, but were direct beneficiaries of general expenditures. It was not intended to apply to those coming within the category of *bona fide* settlers. But due to misunderstandings and misinterpretations of the Act certain doubts arose with respect to those subject to exemption, and to remove such doubts an amendment of the Act was passed last session, and such amendment has operated successfully and without hardship in the enforcement of the Act.

The Burlington Beach Act passed in the year 1907 created a Commission with all the powers of municipal corporation, within certain limitations, to administer Burlington Beach, at that time a mere sand bar with but few settlers or even transient occupants. The tremendous growth of this summer rendezvous, now one of the most important in the Province, demanded the exercise of additional powers to those vested in the Commission. To provide, therefore, for public services such as schools, waterworks, etc., and to more clearly define the provisions of the original Act and the powers of the Commission thereunder, a complete new Act known by the same name was passed during the last session.

INDIAN RIGHTS CEDED

Under this heading reference was made in last year's report to the fact that negotiations between Ontario and the Department of Indian Affairs had been undertaken with a view to concluding a Treaty with the Indians inhabiting that

far-flung area north of the Albany River added to Ontario in the year 1912. The Commissioners, Walter C. Cain, Deputy Minister of Lands and Forests, representing Ontario, and H. N. Awrey, of Ottawa, representing the Dominion, completed during the past summer the work begun the previous season. The trip was made by airplane, the Commissioners hopping off from Ottawa on July 2nd and making a complete circuit of Ontario's hinterland and returning on August 8th. Adhesions to Treaty No. 9 were signed the past year at Nikip, southwest of Trout Lake on the head waters of the Severn River and at Fort Severn and Winisk, both on the Hudson Bay, while important missions were carried out at certain other points. Some thirteen Indian posts were visited including, other than those above mentioned, a settlement at Sandy Lake Narrows near the Manitoba boundary and such points as Fort Hope, Lansdowne House, Osnaburgh, Attawapiskat, Albany and Moose Factory.

The result of these negotiations has been the surrender by the Indians of the entire area, some 128,000 square miles, and its acquirement by the Crown in the right of the Province. Important reserves at strategic locations, selected by the Indians themselves, were approved by the Commissioners and will later on be regularly surveyed at the expense of the Department of Indian Affairs.

A complete résumé of the Commissioners' activities for the year 1930 appears in the annual report of the Department of Indian Affairs for the fiscal year ending March 31st, 1930.

LAND TRANSACTIONS

Free Grants

In Free Grant activities the number of settlers locating and purchasing land under the Free Grant Section of the Act varied but little from the previous year. While during 1929—456 individuals were located, 460 were located during the year 1930, in addition to which eighty-three purchasers were effected as against ninety-nine for the year 1929. Approximately ten per cent. of those taking up such holdings is found in Southern Ontario, the balance in Northern Ontario. Thunder Bay District absorbed the highest number, there being 163, Rainy River coming next with 121, Kenora and Sudbury following in the order named with seventy-three and fifty-four respectively.

A consistent checking up of Free Grant sections resulted in the cancellation of 388 locatees who had for various reasons neglected to meet settlement requirements. Generally speaking, where just grounds are found for permitting extensions of time to fulfil obligations, leniency is granted, but persistent failure to respond to reasonable performance demands necessarily results in cancellation.

As pointed out in former annual reports, those sections of Southern Ontario allocated for free grants have been largely acquired in the past, the remaining lots being but few and for the most part sought by sons or immediate relatives of old settlers who successfully managed to steer through the pioneer period and by constant thrift round out producing farms and make comfortable livings. A strict application of confining the actual taking up of Crown land in the older parts of the Province to such lots as cannot be primarily considered good agricultural possibilities has lessened the conflict, that in former times operated between timber licensees and so-called settlers, and developed a healthy respect for the timber interests.

As an evidence that numbers are still clinging to their old free lots and acquiring title in fee, it may be observed that 245 secured their patents by proving up, this being an increase of twenty-five over last year.

The privileges extended to returned soldiers of taking up land free in the different portions of Northern Ontario have not been generally exercised by this class of individual as might be expected, and it is with regret that those who have taken advantage of the special regulations, have in the main found difficulty in making a success of pioneering in the north. During the year while only forty-one locations were thus acquired, no less than sixty-eight former holders had their lands cancelled by reason of their inability or failure to perform the necessary settlement duties.

Detailed figures with regard to Free Grant activities may be examined in Appendix No. 12.

SALE LANDS

A noticeable increase in the number of persons buying Crown land for settlement purposes occurred during the year. Practically every district in Northern Ontario shows an increase. The largest increase is found in the District of Cochrane, in that portion of the great clay belt traversed by the Transcontinental Railway, where over 1,000 acquired lots as against slightly over 400 for the year 1929. Temiskaming and Nipissing, served by the Temiskaming and Northern Ontario Railway, added to the number settling the previous year. Other districts when considered in the light of both free grant and sales transactions held their own in comparison with the preceding year.

Adequate enforcement of timber and wood cutting regulations, which require the individual settler to secure permits for pulpwood, etc., and subsequent clearances, is resulting in a more vigorous attempt on the part of land purchasers to meet their pioneer obligations. Should satisfactory progress be not made towards bona fide clearing and cultivation, clearances are refused and penalties imposed.

By a system of close checking the spurious operator is having greater difficulty than ever before in evading the law. Purchasers of and dealers in timber or wood, realizing the power of the Department to seize and control raw material taken without clearance, are protecting both the Department and themselves by insisting upon production of clearance papers prior to completing payments under contract. The percentage of withheld amounts is ample to cover the interests of the Crown in the timber or wood. Knowledge of a follow-up practice by Government officials and of such a co-operative move by the purchaser gives an impetus to the settler to make a satisfactory showing. Important arrangements entered into by the Department of Lands and Forests with the various railways, who have generously co-operated, provide that certificates of accredited agents of the Government be attached to and form part of the shipping bill of lading before any pulpwood or material is accepted for export.

The Supervisor of Settlement has visited various sections of the different districts throughout the year and reports reasonably healthy progress in clearing land, and while the confused state of business disconcerts all classes of settlers it is noted with satisfaction that many of the pioneer settlers are optimistically proceeding because of their abiding faith in the possibilities of the land.

OLD SALES

A decided effort in stirring up old claimants and occupants of land sold years ago, in many instances the cases antedating Confederation period, has had good effect. Of the numerous sales of old farm lots made prior to the year ending 31st October, 1909, nearly 2,000 were found to be in arrears, and after careful inquiry 536 were cancelled, the former claimants or occupants having abandoned them or ceased to take any interest therein in the way of paying arrears to the Crown or in certain cases taxes to the municipalities or school sections. Arrears upon 436 of these sales were duly paid, evidence of performance of duties lodged and patents for the land were issued.

There are remaining over 900 sales still in abeyance, and by persistent demands upon the holders of the land on the part of the Department it is expected that in due time like action to that taken as above cited will be followed, and the accounts outstanding under this head considerably reduced.

CLERGY SALES

The sum of \$2,643.57 under this heading was collected as against \$3,200.00 for the previous year.

COMMON SCHOOL LANDS

From this source the sum of \$8,728.08 was received or twice that of the year 1929.

GRAMMAR SCHOOL LANDS

Arrears on old sales of this kind accounted for \$2,028.83.

UNIVERSITY SALES

Collections under this heading amounted to only \$174.90.

CROWN LANDS

For settlement, tourist, townsite and other various purposes the total area sold and leased amounted to \$145,110.00 for which part payment to the extent of \$99,579.00 was received. In addition the sum of \$474,672.98 was collected on former sales and leases, the aggregate exceeding the receipts of the year 1929 by over \$76,000.00.

PROVINCIAL LAND TAX

The revenue derived from this tax was \$139,832.01, over \$12,000.00 in excess of the year previous. The property assessable is all situated in unorganized territory and does not include that held by bona fide settlers who are undertaking the task of pioneering in farm work. Certain objections to the Act have been cared for by amended legislation and enforcement is being followed, by the application of reasonable leniency in determining those subject to exemption. Nearly 60 per cent. of the tax collected came from old patented veteran claims, largely held now by individuals or companies for the exploitation of the timber, while approximately 18 per cent. came from summer resorts, an equal percentage from railway lands and the balance from miscellaneous parcels.

SUMMER RESORTS, ETC.

The sale of islands and mainland for tourist purposes and of town lots for building showed a slightly improved tone over the preceding period.

MILITARY GRANTS

The routine activities of this section of the lands branch have almost ceased to be of any real charge. Of the original certificates numbering 13,998 issued to the veterans of 1866 and those of the South African war only a number less than 1,000 are still outstanding. These certificates, authorizing each holder the privilege of acquiring 160 acres of land free, are accepted now, owing to statutory amendments to the original Act, only as scrip having a cash surrender value of \$50.00 each, or as payment for Crown land to the value of \$80.00. Three such certificates were surrendered during the year.

PATENTS, LEASES, LICENSES, ETC.

The number of instruments, as may be observed from Appendix No. 14, totalled 1,578. Patents and transfers issued under the Public Lands Act accounted for over 50 per cent., and licenses and leases under the same Act for 25 per cent., and mining patents for the balance.

COMMUNICATIONS

Some 50,858 communications were received by the various services, exclusive of those directly pertaining to the Minister's Office, Land Tax Branch and Forestry, while nearly 65,000 were mailed by the same services. Appendix No. 15 furnishes details.

PROVINCIAL PARKS

Unabated interest was manifested in the three great Provincial Parks, Algonquin and Rondeau in Southern Ontario and Quetico in the northwestern part.

The first mentioned has its headquarters at Cache Lake on the Canadian National Railways, where the railway company own and have operated a large and accommodating inn for the use of visitors and the travelling public.

The park consists of a staff of some 35 rangers whose duties involve a close control of the entire park, checking up on poachers, clearing trails, fighting fires and generally operating for the betterment of the park.

Several new shelter houses for rangers have been provided, certain camping areas selected for tourists and work on short roads undertaken. A new concrete dam on the Madawaska River to control the waters on Cache Lake and materially add to the safety and convenience of small craft has been projected and will be completed this fall. There was a slight decrease in non-resident fishing licenses and a noticeable increase in resident licenses, while a larger number of licenses for guides and motor boats issued.

With a view to co-ordinating the various services under a single head in the park, a change in the administration was introduced in the month of September, and Mr. J. W. Millar, who has been acting Superintendent for several years,

was transferred to the head office in Toronto, and Mr. J. H. McDonald, Forest Engineer, an efficient Forestry Officer of several years standing with the Department, appointed Superintendent. He has actively undertaken the responsibilities of the park, now in existence since 1893, and it is confidently expected that when his experience and technical knowledge are brought to bear on the administration there will in due time be evolved a system that will redound to the advantage of the public and be entirely consistent with the original aims and objects of those who were responsible for the establishment of this virgin area of 2,749 square miles.

Certain requests have been made for the construction of a motor road across the Province easterly from the Ferguson Highway to connect with the Northern Road from Lake Ontario and River St. Lawrence area to the Ottawa Valley points. A portion of this suggested road traverses a small corner of Algonquin Park in the southwest corner, and a division of opinion seems to exist as to the advisability of undertaking the project. However, if and when the time appears opportune for furthering the project, the Government will take such action as may be within the best interests of the Province as a whole and that will not be to the particular disadvantage of the great park area whose sanctuary requirements must be well maintained.

Quetico Park consists of 1,740 square miles in the Rainy River district along the International Boundary between Minnesota and Ontario. It is becoming increasingly popular, particularly with Americans. The park staff consists of a Superintendent, fifteen rangers and a housekeeper. In addition, to the buildings at headquarters, which are at Kawene, there are now 38 stop-over cabins for the use of rangers on patrol. Most of these cabins are equipped with stoves, blankets and cooking utensils. Telephones have been installed in four of the cabins to facilitate communications between the patrols and headquarters. During the year two new cabins have been constructed and consideration will require to be given to the renovation of the existing headquarters' buildings or the construction of new ones in the near future. Ninety-six portages have been cleaned out, two new ones have been cut and 280 signs have been placed on the portages.

In enforcement of the park regulations a number of persons were apprehended, and several served time in the Fort Frances jail. Two were given suspended sentences and one was fined. Confiscations were as follows: One Ford truck, five beaver pelts, one marten pelt, one shotgun, one revolver, one belt, three hunting knives, one flashlight, 71 traps.

1,234 persons entered the park during the year and purchased fishing licenses; the bulk of these being from the United States. Deer, moose, beaver and partridge are all increasing in number.

Rondeau Park, situated in Kent County, comprises some 5,000 acres, it being a point extending into Lake Erie being part of Kent County. It is the rendezvous during the summer months of those resident in the southwestern part of the Province and in the city of Detroit and adjacent American areas, who are seeking health and recreation. Over 250 leaseholders spend the summer months and countless visitors and week-end tourists find opportunities here for rest and enjoyment. Ample accommodation for transient tourists is made, and amusement features for the young provided.

A very capable Superintendent, a technical forester, is in charge and is assisted by a competent staff.

Though the area of the park is rather small when compared to the other Provincial parks, it is nevertheless no less interesting from the viewpoint of timber growth and wild life. An exceptionally fine type of mixed timber exists and offers good opportunities for experimental studies.

Hundreds of deer exist within the restricted area, to such an extent indeed that at times they become a menace and it is found necessary to reduce them.

Areas facing both the lake and bay have been subdivided for leasing purposes, and those interested in acquiring lots on favourable terms may get full particulars by writing the Superintendent, R. S. Carman, Morpeth Post Office, Ontario.

SURVEYS, WATER POWERS, VALUATIONS AND ENGINEERING

The Crown surveys carried on during the year, included provincial boundaries, township boundaries, base lines, ground control, summer resorts, lake and river traverses and other miscellaneous surveys.

The Ontario-Manitoba boundary line was completed as far as the eastern point of Island Lake and 30 miles of trial line were run on the last lap of this boundary. This work was performed under the instructions of the Commissioners, namely: Surveyor-General of Dominion Lands; Surveyor-General of the Province of Ontario, and Surveyor-Commissioner of the Province of Manitoba.

The Ontario-Quebec boundary was extended northerly from the 140th Mile north of Lake Timiskaming, as established some years ago, for a distance of 68 miles, and 11 miles of the old boundary, south from the 140th Mile Post, were retraced. This work was performed under the instructions of the Commissioners, namely: Surveyor-General of the Province of Ontario and Director of Surveys for the Province of Quebec.

Control surveys were made in co-operation with the Dominion Government's aerial photographic work for mapping purposes in Algonquin Park, and in the territory west of Fort William and Port Arthur.

Inspection of surveys including water lots, mining claims and other surveys, was carried on and valuations covering Crown lands applied for, for various purposes, were made where required.

The total expenditure for survey work during the past year was—\$144,059.55, being an increase of \$22,001.00 over the former year's expenditure.

The development of water powers under water power leases was carried on by the following:—Northern Ontario Power Co., Limited, at the "Upper Notch" on the Montreal River, District of Temiskaming; Algoma District Power Co., Limited, on the Montreal River, District of Algoma; Hydro-Electric Power Commission of Ontario at Camp Alexander on the Nipigon River, District of Thunder Bay; Ear Falls on the English River, District of Kenora, and Chats Falls on the Ottawa River, in the County of Carleton.

The revenue from water power rentals was \$249,523.18, being an increase of \$44,666.04 over the past year.

Plans and specifications of new dams on the different streams throughout the Province were filed for approval, as required, under the Lakes and Rivers Improvement Act.

Maps of the Province and different districts have been revised and published during the past year, as occasion required.

TIMBER ADMINISTRATION

It is gratifying to remark that the sympathetic co-operation, which has been so effectively developed during the last few years between the Government and the lumber operators, continued throughout the year just closed. The Inspector of Operators, Major J. I. Hartt, reports having visited various timber agencies and confirms the statement that those taking out logs or operating in the forests are anxious to work harmoniously with the Government officials in both a theoretical and practical way. The operators more than ever recognize that to act in terms of 100 years from now is the sanest method of providing for a perpetual crop of timber; hence they are interested in and try to carry out what the technical forester attempts to point out can be done to assist nature in sustaining the yield. Again, where improved practical methods in cutting or in selecting timber are suggested by our bush men and can be employed to the economic advantage of both the present user and the future, these are accepted in a spirit of fairness and readiness.

While the bush operations for the winter season of 1929-30 were particularly encouraging, the market for forest products ceased to be inviting as a result of the general financial oppression. It is true that for some time the industries depending upon forest supplies have been passing through expectant periods, and the downward trend of trade in the early part of 1930 accentuated their position. With restricted markets the manufacturers soon found themselves with an overproduction and were forced during the summer season, following a rather extensive winter undertaking, to curtail their mill output and to provide for a reduced bush operation this coming winter.

The troublous times through which the operators were passing actuated them in making a strenuous appeal to the Government for relief measures. This appeal included a request for the remission of all Crown dues on timber cut during the season and a reduction in the bonus rates on stumpage by 50 per cent. The extent of such an appeal, if given effect, from a monetary point of view would be too great a demand upon the financial resources of the Province and would not be uniformly fair.

It was felt, however, since the situation so far as the industries dependent upon timber and wood supplies was most serious, that some assistance could be given without requiring the Crown to make any cash contribution or refund any portion of the bonus or timber charges due the Crown for timber cut. As numbers of the operators deemed it important to maintain their logging organizations by going into the bush the coming season at least to a limited extent, although they would be greatly handicapped in so doing if all charges owing the Crown had to be paid, it was considered reasonable that the operators owing the Crown for timber cut should be given the privilege of paying their accounts on an instalment basis without the obligation of paying interest thereon. Consequently every operator was permitted to pay 50 per cent. of the charges arising from the 1929-30 operations on or before the 31st day of October, 1930, and to carry the balance without interest for the next six months or until the 30th of April, 1931, provided that at the end of the said six months another 25 per cent. of the account is paid, the balance or last 25 per cent. to be paid without interest on or before 31st October, 1931. The concession is applicable only to those who had paid up all accounts prior to those arising from this year's operations.

It is earnestly hoped this interest abatement concession will be accepted by a goodly number, and that some, who might otherwise be hard pressed by

taking men in the bush, will thus be able to assist somewhat the unemployment situation which is assuming serious proportions in the north country where so many communities are solely dependent upon logging activities for their fall and winter welfare.

TIMBER AREAS SOLD

Consistent with its policy to restrict the sale of timber areas to those in which existing concerns are interested and thus enable such concerns to continue, the Government offered for public competition some fifty-two parcels. These varied in size from one-quarter square mile to fifty-five square miles. Temiskaming led with twelve, followed by Thunder Bay with ten, Cochrane with nine, Kenora with six, Rainy River with five, Nipissing and Parry Sound with three each, and Renfrew, Haliburton and Peterborough with one each. A number of these areas, as may be observed by a reference to Appendix No. 11, were small pulpwood operations and the others straight or mixed logging and fuelwood with an occasional tie and pole proposition. The Crown received beyond its upset price in 70 per cent. of the sales, and at least the upset price in all other cases.

Reference was made in last year's report to a large area disposed of to the Howard Smith Paper Mills Limited, large book, bond, litho, writing and stationery paper manufacturers in Cornwall, Ontario, with subsidiary mills at Merritton and Georgetown. The agreement, duly executed since the last report, is covered by Appendix 15½, and specifically provides that the finished product must be other than newsprint. With the assurance of this material the company will be less dependent upon sources outside of the Province for their raw material supply and in a more advantageous position to enlarge the pay roll of employees in Ontario.

LOGGING

The areas covered by some 1,010 timber licenses comprised 21,744 square miles other than those included in special pulp agreements which comprise 55,590 square miles. Red and White Pine cut almost equalled that of last year's, there being 200,027,064 feet B.M. as against 207,742,496 feet B.M. for 1929. Jack pine for milling purposes decreased from last year by 16½ million feet, some 55,468,292 feet B.M. having been cut. Other classes of log timber for conversion into lumber, ties or some other product other than pulpwood, pulp or paper were less than last year's by over five million feet. Railway ties were less by five hundred thousand.

While there was a general reduction in the cut of the types mentioned, it is worthy and rather surprising to note that the cut of pulpwood from Crown areas reached the large total of 1,051,631 cords, or two and a quarter times the output for 1929, and this excessive cut more than counteracted, from a revenue accrual standpoint, the reduction in the sawmill timber.

The total accruals from all timber sources, which include ground rent, fire charges, bonus and dues, reached the very advanced figures of \$5,088,925.00, the largest in the history of the Department. Appendix No. 8 discloses the accruals in detail.

PULPWOOD OPERATIONS

Contrary to expectations the cut of pulpwood was, as already stated in this report, much larger than last year. It was predicted that there would be a lessening of field operations by reason of the general instability in the newsprint

situation, and yet from Crown lands over one million cords were cut, while last year there were less than five hundred thousand cords. Even on settlers' lands the cut, all of which is free from dues, increased over the previous year by nearly 100 per cent., there being operated no less than 917,026 cords as against 461,992 cords for the year ending October 31st, 1929.

Of the total taken from settlers' land, all of which is exportable, only 496,534 cords were exported, or 54 per cent. as against 64 per cent. last year.

In the large operations of such companies as the Abitibi and Spruce Falls, covered by special agreements, the areas to be cut are ear-marked, and the actual cutting is carefully checked by an official of the Department, and adequate measures adopted to ensure satisfactory fulfillment of the terms and conditions of the contract, the basic principle underlying which is the intention to promote forest growth and provide as far as it is possible for a continuous supply of raw material for the consuming plants.

It is with the keenest regret that the newsprint industry is going through such a perplexing period of uncertainty. This being one of the major national industries its prosperity is of deep concern to the whole country as it has contributed so largely to maintaining the balance of international trade.

So many factors enter into a consideration of the question, such as, amongst others, overproduction, restricted markets resulting from world wide economic depression, European importations and divided efforts towards stabilization, that it is impossible to say within reason what the future will bring. However, there are those whose faith and optimism in the natural resources of the country with the business acumen of the experienced leaders are such as to hope that in the general righting of things the industry in due time will recover from its present illness and assume a stronger position.

X FOREST FIRE PROTECTION

The Forest Fires Prevention Act was revised and with the exception of a few minor changes appears to contain all the legislation that is necessary for the present.

The fire season of 1930 was very similar to that of 1929 with almost every part of the Province experiencing a particularly high hazard at one time or another. The most critical situation developed in the western districts where the fires accounted for 94 per cent. of the total area burned.

Of the total number of 1,402 fires 54 per cent. occurred before the end of June and burned over 94 per cent. of the total area for the year.

The total area burned over was 711,809 acres and of this 56.1 per cent. was timber land, 9.8 per cent. cut-over land, 14.1 per cent. young growth and 20.0 per cent. muskeg, grass land and barrens.

The area burned according to causes was: Settlers 3.6 per cent., campers 77.6 per cent., railways 1.7 per cent., lightning 8.3 per cent., logging operations 0.8 per cent., smokers 0.8 per cent., road construction 0.1 per cent., miscellaneous 3.2 per cent. and unknown 3.9 per cent. See Part II of this report for details.

FOREST SURVEYS AND INVESTIGATION

Forest surveys were carried on over the unlicensed Crown lands of the Timagami and Georgian Bay Provincial Forests and covered in all 975 square miles.

Forest conditions following logging on pulpwood and pine stands were investigated in the Sault Ste. Marie, Sudbury and North Bay Inspectorates. See complete reference in Part II.

AERIAL SURVEYS

Aerial surveys included two main classes of work—(1) Type Sketching, (2) Mapping Forested Areas. Of these, Forest Type Sketching, which consists in subdividing the general forest growth into standard classes or types on the basis of size or age and tree species composition, was carried on mainly in an area northeast of the Nipigon Provincial Forest. Mapping forested areas, which is preliminary to field work of any kind, was confined very largely to the Eastern Provincial Forest. This work was based on vertical aerial photography. See Part II of this report.

RADIO COMMUNICATION

Radio was used for (1) point to point communication in new districts where long distances and the undeveloped condition of the country place it at a cost advantage over the standard bush telephone. Twenty-eight stations of this type were operated. In addition (2) a portable ground set and (3) an aircraft set were put into service in the past season. The usefulness of these latter will be further tested in the season of 1931. See Part II of this report.

REFORESTATION

Reforestation acquired increased attention this year on the part of the public, the total number of persons applying for trees being over 6,000. A new scheme of school planting was inaugurated this year including the publication of a pamphlet. This was well received by a school boards throughout the Province.

The four Department nurseries carried on their annual programme and an increasing number of visitors to these properties marked a further advance in interest in this work by the people of the Province. Several new demonstration plots were established and many others were added to. County forests were extended and preliminary work was done in the establishing of new ones. Reforestation on Crown land in Northern Ontario was extended and over 3,584,000 trees were planted for this work alone. See Part II of this report.

REVENUE

The world wide depression following the financial debacle that occurred early in the year affected all branches of the forest products' industries, and was reflected in the inability of dealers to market their manufactures, and to readily meet their payment obligations to the Crown. While the bush operations throughout the year comprised accruals to the extent of over five million dollars as against approximately four and a quarter million for the previous year, the actual collections or entire revenue of the Department amounted to only \$3,307,945.49 as against \$5,059,878.20 for the fiscal year ending October 31st, 1929. Special concession privileges on the basis of instalment payments with interest abatements were extended to operators and this urged some to effect at least initial instalments which otherwise might not have been paid within the year. Of the total amount collected \$2,024,248.75 is directly attributed to timber administration and the balance to the sale and lease of lands, water powers, rentals, land tax and incidental items.

Ground rent and fire protection charges brought in \$455,835.99 within \$7,000.00 of the previous year, while rentals on Crown Leases and Licenses of Occupation netted \$291,726.06 or an increase of over \$48,000.00.

The ordinary revenue exceeded the capital by \$1,757,261.07.

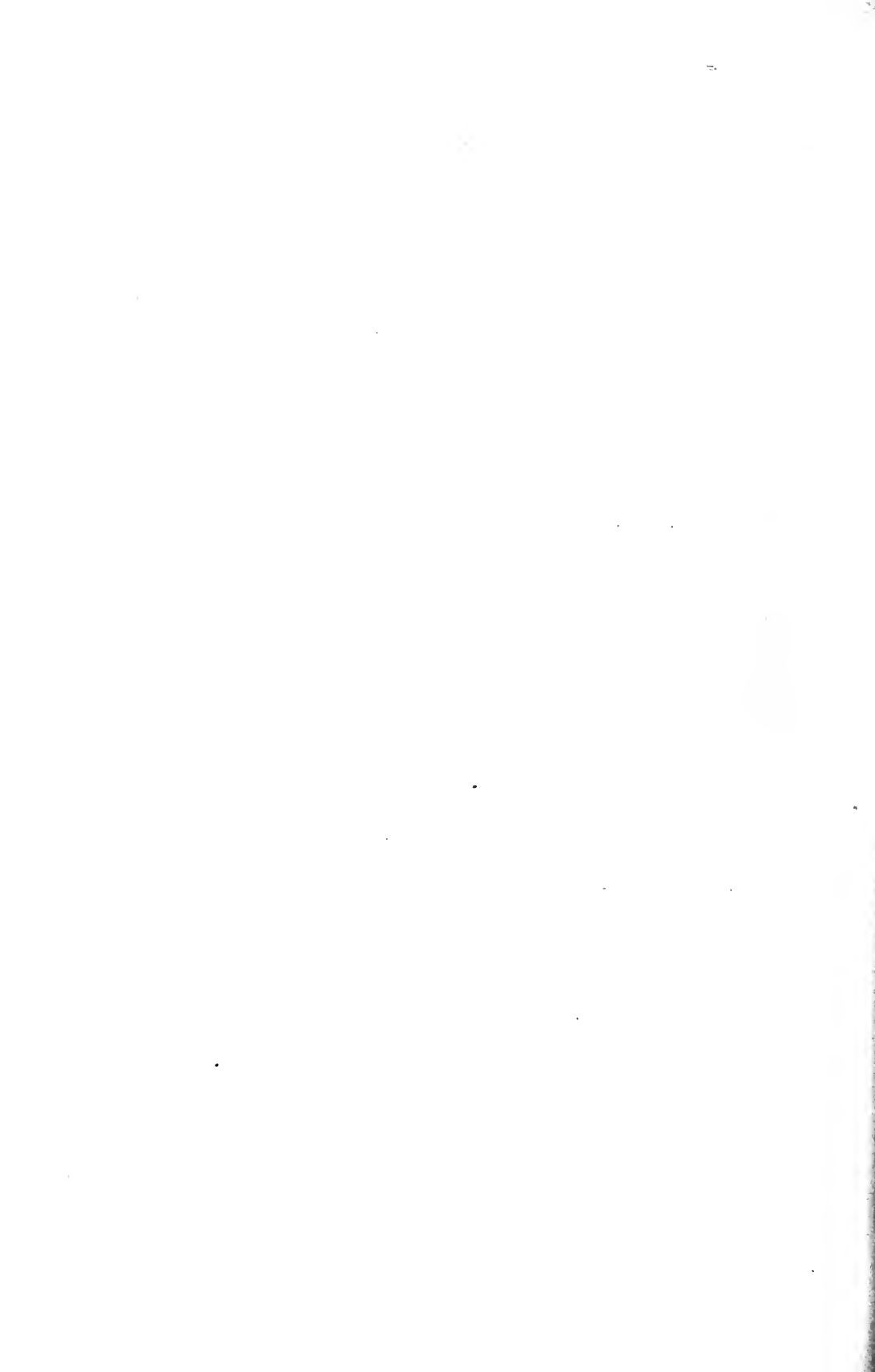
Although the outstanding dues and charges at the end of the fiscal year are in excess of three million dollars it is difficult to assert with any degree of accuracy what proportion of the accounts will be collected the ensuing year, but it is hoped that better times are in the offing for the operators and manufacturers and a goodly percentage of accounts will be met.

Attention is directed to the fact that timber purchasers and operators are required to lodge collateral in the form of cash deposits and Guarantee Company and personal bonds in the Department as an assurance for the fulfilment of their obligations. On deposit at the end of the year there was cash alone to the amount of over two and a half million dollars, returnable on completion of the terms of agreement, in addition to bonds far in excess of the cash deposits.

For details respecting the source and figures of revenue see Appendices 3 to 6, inclusive.

DISBURSEMENTS

Expenditures for the year amounted to \$3,834,684.37, of which \$2,408,332.57 comprised Ordinary and \$1,426,351.80 Capital. Fire Ranging cost \$2,215,838.56 and of this 78 per cent. was Ordinary and 22 per cent. Capital. The appalling forest fires that so long menaced and affected large and important areas made unprecedented demands upon the protection system and kept the reserves in constant action and accounted for the increase by over half a million dollars of the cost of fire-fighting. Forest ranging, and the measurement of timber accounted for \$362,703.06 and reforestation for \$400,000 and the Surveys Branch for \$194,475.09. For itemized Expenditure Services see Appendix No. 7.



APPENDICES

PART I

Appendix No. 1

Return of Officers and Clerks of the Department of Lands and Forests, for the year ending October 31st, 1930.

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks	
Main Office	Finlayson, Hon. Wm.	Minister	1926, Oct. 18	\$10,000 00		
	Cain, W. C.	Deputy Minister	1903, Mar. 1	6,000 00		
	Ferguson, A.	Assistant to Deputy Minister	1915, Dec. 15	3,300 00		
	Thompson, J. B.	Secretary to Minister and Dept. Secretary	1925, Feb. 2	2,850 00		
	Bliss, M. E.	Secretarial Stenographer	1909, Aug. 16	1,600 00		
	Halliday, E. G.	Clerk, Group 1	1907, Feb. 21	1,600 00		
	Harrison, E.	Secretarial Stenographer	1920, May 14	1,600 00		
	Molesworth, V. M.	Senior Clerk Stenographer	1928, April 10	1,400 00		
	Smedley, Dorothy	Clerk Stenographer, Group 1	1926, July 9	1,125 00		
	Budd, F.	Office Boy	1927, Nov. 4	675 00		
	Titus, F. E.	Solicitor	1920, Mar. 2	3,500 00		
	Solicitor's Branch	Draper, S.	Chief Clerk	1900, May 1	3,300 00	
		Ledger, W. R.	Head Clerk, Group 2	1894, Feb. 15	2,550 00	
Burns, C. E.		"	1897, July 29	2,550 00		
Millar, J. W.		Investigator, Provincial Parks	1915, Nov. 29	2,190 00		
Drinkwater, J. E.		Senior Clerk	1915, Oct. 19	2,100 00	Resigned January 1st, 1930	
Roc, A. E.		"	1906, Oct. 16	2,000 00	Superannuated as from April 1st, 1930.	
Lucas, F. A.		"	1906, Dec. 18	2,000 00	Superannuated as from Sept. 16th, 1930.	
Platt, S. A.		"	1905, June 12	2,000 00		
Robillard, A. E.		"	1894, May 4	2,000 00		
Benson, B. M.		Clerk, Group 1	1909, May 25	1,600 00		
Lands Branch	O'Neil, E. F.	"	1902, July 7	1,600 00		
	Hutcheon, J.	"	1923, Nov. 22	1,600 00		
	Ross, S.	"	1917, July 9	1,600 00		
	Carey, A. R.	Clerk, Group 2	1925, July 7	1,125 00		
	Eaton, E. F.	"	1927, Aug. 15	1,050 00		
	Griffith, F.	Clerk Stenographer, Group 1	1921, Jan. 22	1,200 00		
	Pepler, A. V.	"	1922, Sept. 14	1,200 00		
	Sutherland, M. I.	"	1921, Jan. 22	1,200 00		
	McLeod, L.	"	1925, June 9	1,200 00		
	Burke, M. G.	"	1928, Jan. 9	1,125 00		
	Feehely, R. M.	"	1928, Feb. 9	1,125 00		

	Stephens, A. M.	"	"	1...	1927, Oct.	4	1,050 00
	Mason, A. V.	"	"	2...	1929 May	6	900 00
	Kelly, J. P.	Vault Caretaker			1927, April	19	1,400 00
	Houser, J.	Chief Clerk			1905, July	17	3,300 00
	Gillard, H. D.	Head Clerk, Group 2			1897, Dec.	6	2,550 00
	O'Neil, A. H.	Principal Clerk			1906, July	19	2,200 00
	Meeking, S. D.	"			1910, Feb.	8	2,100 00
	Telfer, E. H.	Senior Clerk			1915, Sept.	27	2,000 00
	Lee, J. T.	"			1917, June	25	1,900 00
	Potter, G.	Clerk, Group 1			1923, June	1	1,600 00
	McCord, W. A.	"	1		1926, May	26	1,500 00
	Quigley, E. F.	"	1		1921, May	4	1,400 00
	Armer, E. C.	Senior Clerk Stenographer			1909, Aug.	6	1,500 00
	Bryce, J. J.	"	"		1922, July	24	1,400 00
	Ferguson, J.	"	"		1919, Aug.	4	1,400 00
	Stewart, F. E.	Clerk Stenographer, Group 1			1927, July	25	1,200 00
	Judd, Wm.	Clerk, Group 2			1928, April	24	1,050 00
	Lount, H. M.	Accountant, Group 2			1903, Oct.	1	3,000 00
	Clarke, C. J.	Principal Clerk			1905, Aug.	9	2,400 00
	Burritt, W. A.	Senior Clerk			1907, Sept.	24	2,000 00
	McLean, A.	"			1926, Feb.	8	1,900 00
	Warren, J. F.	Clerk, Group 1			1922, June	5	1,600 00
	Bowland, C.	"	1		1908, July	9	1,600 00
	Donald, L. G.	"	1		1924, June	2	1,500 00
	Bryson, James	"	1		1927, Jan.	4	1,500 00
	Whyte, M. A.	"	1		1921, June	1	1,400 00
	Stuart, D. E.	Office Appliance Opr., Group 2			1929, Jan.	5	1,050 00
	Fox, E. M.	Cheque Writer, Group 2			1927, Jan.	11	1,200 00
	Armitage, M.	Clerk Typist, Group 2			1927, Oct.	18	900 00
	Burdin, S. K.	Senior Clerk			1916, April	6	2,500 00
	Samuels, F.	"			1903, Dec.	5	2,000 00
	Squire, E. H.	Clerk, Group 1			1916, Jan.	4	1,600 00
	Hills, E.	"	1		1912, July	2	1,600 00
	Mathewson, N. B.	"	1		1915, May	7	1,600 00
	St. John, W. C.	"	1		1906, July	9	1,500 00
	Mulholland, S.	"	1		1918, May	6	1,500 00
	Black, R. N.	"	1		1915, Dec.	13	1,500 00
	Harris, C.	"	1		1925, Jan.	14	1,500 00
	Smith, Chas. J.	"	1		1928, April	14	1,400 00
	Meredith, Thos. A.	Senior Clerk Messenger			1929, Mar.	29	1,125 00
Woods and Forests Branch.							
Accounts Branch.							
Files Branch.							

Resigned as from Sept.
30th, 1930.

Appendix No. 1—Continued

Return of Officers and Clerks of the Department of Lands and Forests for the year ending October 31st, 1930.

Branch	Name	Designation	When Appointed	Salary per Annum	Remarks
Provincial Land Tax Office.	Ryan, L. M.	Land Tax Collector.	1925, July 1	2,500 00	
	Hinton, G. J.	Senior Clerk.	1925, May 4	1,600 00	
	Craddock, M. M.	Clerk, Group 2.	1928, Mar. 7	1,050 00	
	Deacon, C. H.	" " 2.	1927, Sept. 29	975 00	
	Stephens, F. E.	" " 2.	1926, May 27	975 00	
	Lyons, H. M.	Clerk Stenographer, Group 1.	1926, May 31	1,050 00	
	Riches, E. P.	" " 1.	1925, Aug. 10	1,050 00	
	Madill, S.	" " 2.	1927, July 14	975 00	
	Lomas, M. E.	Clerk Typist, Group 2.	1927, Oct. 18	825 00	
	Rorke, L. V.	Surveyor General.	1909, May 1	5,200 00	
	Morris, Jas. L.	Inspector of Surveys.	1928, Mar. 1	3,500 00	
	Butterfield, J. E. C.	Assistant Inspector.	1927, Jan. 17	2,700 00	Resigned as from Nov. 15th, 1929.
Surveys Branch.	Heath, W. H.	Geographer.	1923, Nov. 28	2,700 00	
	Burwash, N. A.	Surveyor and Sr. Draughtsman.	1917, April 26	2,400 00	
	Barnard, Wm. A. C.	Sr. Map Draughtsman, Group 2	1928, Jan. 1	2,300 00	
	Jarvis, E. M.	Senior Clerk.	1897, April 25	2,000 00	
	Treby, H.	Map Draughtsman.	1897, May, 8	2,000 00	
	Blanchet, F. E.	" "	1906, May 15	2,000 00	
	Leaman, A.	" "	1907, Sept. 12	2,000 00	
	Barr, F. L.	Senior Draughtsman, Group 2.	1923, Oct. 31	2,000 00	
	Vance, V.	Clerk, Group 2.	1924, Sept. 10	1,050 00	
	Dennis, S. O.	Senior Clerk Stenographer.	1924, April 5	1,300 00	
	Stork, G. E. M.	Clerk Stenographer, Group 1.	1927, July 28	1,125 00	
	Haskett, M. C.	Clerk Stenographer, Group 2.	1928, Sept. 5	900 00	
	Pugh, M. B.	Filing Clerk, Group 1.	1929, Aug. 15	900 00	
	Zavitz, E. J.	Deputy Minister.	1905, May 1	5,400 00	
	Mills, C. R.	Assistant Provincial Forester.	1921, Mar. 28	4,000 00	
Richardson, A. H.	Forester.	1921, June 15	3,300 00		
Johnston, R. N.	" "	1915, Aug. 15	3,300 00		
Sharpe, J. F.	Forester in charge of Prov. Forests	1922, May 15	3,300 00		
Westland, C. E.	Assistant Forester, Group 1.	1923, May 16	2,300 00		
Bayly, G.	" " 1.	1924, Mar. 1	2,300 00		
Simmons, J. F. L.	" " 2.	1928, Mar. 19	2,000 00		
Bishop, J. M.	Draughtsman, Group 1.	1924, Nov. 1	1,900 00		
Forestry Branch.					

Rogers, N. I.	Principal Clerk.....	1911, Aug. 1	2,100 00
Harris, G. W.	Senior Clerk.....	1906, Sept. 1	2,000 00
Cooper, E. W.	"	1921, Jan. 6	1,700 00
Rowland, M. C.	Senior Clerk Stenographer.....	1912, May 1	1,500 00
Bald, J.	"	1913, June 12	1,500 00
McKeyes, A. S.	"	1921, May 9	1,400 00
Cuthbertson, F. A.	Clerk Stenographer, Group 1.....	1926, Nov. 9	1,425 00
Overend, M. E.	"	1928, Feb. 10	1,050 00
Evans, G. H.	Clerk Typist, Group 1.....	1928, Mar. 22	975 00
DeNure, K. H.	Clerk Stenographer, Group 2.....	1928, Sept. 1	900 00

Appendix No. 2

List of Agents for the year ending October 31st, 1930

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
Alexander, James A.	Fort Frances.	Part Rainy River District.	1921, May 26	.....
Arthurs, E.	Espanola Mills.	" District of Sudbury.	1915, June 1	\$600 00	For salary see Crown Timber Agents and Mining Recorders.
Barnes, E. H.	Sault Ste. Marie.	" " Sault Ste. Marie.	1929, June 20	.....	For salary see Homestead Inspectors.
Blank, F.	Wilno.	" of Renfrew County and South Part Nipissing District.	1921, April 1	500 00	
Both, C.	Denbigh.	" of Frontenac, Lennox and Addington	1905, Oct. 20	300 00	
Bresnahan, John.	Hearst.	Part District of Cochrane	1924, April 28	1,200 00	
Cameron, Wm.	Stratton Station.	" " Rainy River.	1911, May 8	500 00	
Campbell, I. M.	Parry Sound.	" " Parry Sound.	1914, Nov. 15	650 00	
Clark, John.	Englehart.	" " Temiskaming.	1929, Mar. 14	800 00	
Dempsey, S. J.	Cochrane.	" " Cochrane.	1911, Feb. 1	1,100 00	
Ellis, H. J.	Powassan.	" " Parry Sound.	1909, May 20	500 00	
Fink, J. Arthur.	Mattawa.	" " Nipissing.	1925, Mar. 18	500 00	
Fleming, A. W.	Minden.	" Haliburton County.	1928, May 14	350 00	
Freeborn, J. S.	Magnetawan.	" District of Parry Sound.	1905, Nov. 10	500 00	
Freeland, A. W.	Emsdale.	" " "	1927, Nov. 1	500 00	
Fuller, David.	Bancroft.	" Hastings County.	1926, Mar. 20	500 00	
Gerhart, Wm. G.	Bracebridge.	Muskoka District.	1924, Oct. 14	.....	For salary see Homestead Inspectors.
Gibson, J. E.	Dryden.	Part District of Kenora.	1914, Dec. 5	1,300 00	
Grigg, Albert.	Bruce Mines.	" " Algoma.	1925, Sept. 1	1,000 00	Also Homestead Inspector.
Hales, W.	Apsley.	" County of Peterborough.	1911, July 17	250 00	
Hough, John A.	Matheson.	" District of Cochrane.	1926, April 20	1,400 00	
MacCrea, J. R.	New Liskeard.	" District of Temiskaming.	1924, Nov. 15	1,400 00	
MacLennan, J. K.	Sudbury.	" " Sudbury.	1905, July 3	700 00	
MacPhie, W. F.	North Bay.	" " Nipissing and Parry Sound.	1929, Oct. 1	1,050 00	
Marchildon, J. P.	Sturgeon Falls.	" " Nipissing and Part Sudbury.	1923, April 27	1.60	per day
Millichamp, Thos.	Markstay.	" " Nipissing and Sudbury.	1928, Nov. 1	700 00	

Smith, J. D. C.	Kenora	"	"	Kenora	1921, May 9	.....	For salary see Crown Timber Agents and Mining Recorders.
Sheppard, H. E.	Kapuskasung	"	"	Cochrane	1909, Feb. 13	.....	For salary see Homestead Inspectors.
Teasdale, R. A.	Massey	"	"	Sudbury	1917, July 1	600 00	
Trainer, W. J.	Hilton Beach			St. Joseph Island	1925, Sept. 12	300 00	
Watt, F.	Pembroke			Part Renfrew County	1923, Sept. 11	300 00	
Wilson, A. N.	Kimmount			" County of Peterborough and Haliburton	1915, May 6	175 00	
Wilson, S. H.	Port Arthur			" District of Thunder Bay	1921, Nov. 26	1,400 00	
<i>Homestead Inspectors</i>							
Barnes, E. H.	Sault Ste. Marie			Part Algoma District	1929, June 20	1,050 00	Also Crown Lands Agent.
Barr, J. C.	Fort Frances			District of Rainy River	1906, Dec. 1	1,800 00	
Bastien, J. A.	Chelmsford			West Part of Sudbury District	1913, May 12	1,400 00	
Cragg, W. V.	New Liskeard			South Part of Temiskaming District	1913, April 1	1,900 00	
Gerhart, Wm. G.	Bracebridge			Muskoka District	1924, Oct. 14	1,300 00	Also Crown Lands Agent.
Grigg, Albert	Bruce Mines			Part District of Algoma	1925, Sept. 1	.....	For salary see Crown Lands Agents.
Hough, Wm.	Englehart			Centre Part of Temiskaming District	1926, Jan. 18	1,400 00	
Hughes, T.	Murillo			Thunder Bay District	1908, July 29	1,400 00	
Jervis, H. F.	Callander			District of Parry Sound	1920, June 10	1,900 00	
Owens, H. B.	Cache Bay			East Part Sudbury and West part Nipissing Districts	1918, July 1	1,400 00	
Sheppard, H. E.	Kapuskasung			Part District of Cochrane	1909, Feb. 13	1,900 00	Also Crown Lands Agent.
Smith, D.	Cochrane			" Cochrane District	1912, April 24	1,900 00	
Van Horn, L. E.	Monteith			"	1920, Jan. 27	1,900 00	
Wigle, R. G.	Dryden			Kenora District	1914, June 1	1,900 00	
<i>Timber Agents</i>							
Alexander, J. A.	Fort Frances			Fort Frances District	1921, May 26	2,500 00	Also Crown Lands Agent and Mining Recorder.
Fletcher, N. B.	Parry Sound			Part Parry Sound and Muskoka Districts	1923, Dec. 1	1,900 00	
Huckson, A. H.	Sault Ste. Marie			" Part District of Algoma	1914, April 1	2,500 00	
Larose, S. C.	Ottawa			" Ottawa District	1890, May 8	1,800 00	
MacDonald, S. C.	New Liskeard			" Temiskaming District	1907, Jan. 1	2,500 00	
McDougall, J. T.	North Bay			Nipissing and part Sudbury Districts	1908, July 1	2,500 00	
Milway, Jos. H.	Port Arthur			Part Thunder Bay District	1910, Oct. 1	2,500 00	
Smith, J. D. C.	Kenora			Kenora District	1921, May 9	2,500 00	Also Acting Crown Lands Agent and Mining Recorder.

Appendix No. 2—Continued

List of Agents for the year ending October 31st, 1930

Name	Post Office Address	District or County	Date of Appointment	Salary per Annum	Remarks
Stevenson, A.	Peterborough.	Belleville District.	1905, Oct. 4	2,000 00	
Whelan, P. J.	Renfrew.	Renfrew Agency.	1908, Feb. 4	2,500 00	
McCaw, J. G.	Sudbury.	Part District of Sudbury.	1909, Oct. 1	2,500 00	
Hart, J. I.	Orillia.	Inspector of Crown Timber Agencies and Supervisor of Operations in connection with Timber Administration.	1923, Sept. 5	4,600 00	
Hawkins, S. J.	Toronto.	Relieving Crown Timber Agent.	1905, Aug. 16	2,500 00	

Appendix No. 3

Statement of Lands Sold and Leased. Amount of Sales and Leases, and Amount of Collections for the year ending October 31st, 1930

Service	Acres sold and Leased	Amount of Sales and Leases	Collections on all Sales, Leases, Land Taxes, etc.
<i>Lands Sold:</i>		\$ c.	\$ c.
Agricultural and Townsites	113,128.91	87,629.66	109,288.56
Clergy Lands	400.00	724 22	2,643 57
Common School Lands	573.00	1,048 60	8,728 08
University Lands			174 90
Grammar School Lands			2,028 83
<i>Lands Leased:</i>			
Crown	31,008.77	10,177 21	311,556 72
Provincial Land Tax			139,832 01
	145,110.68	99,579 69	574,252 67

Appendix No. 4

Statement of the Revenue of the Department of Lands and Forests for the year ending October 31st, 1930

Service	\$	c.	\$	c.	\$	c.
LANDS COLLECTIONS						
<i>Crown Lands:</i>						
Agricultural.....	100,165	56				
Townsites.....	9,123	00				
			109,288	56		
Clergy Lands.....	2,643	57				
Common School Lands.....	8,728	08				
University Lands.....	174	90				
Grammar School Lands.....	2,028	83				
			13,575	38		
					122,863	94
<i>Rent:</i>						
Crown Leases.....			291,726	06		
Algonquin Provincial Park.....			4,693	67		
Rondeau Provincial Park.....			9,349	75		
Bruce Beach.....			1,535	82		
Jordan Harbour.....			107	02		
Temagami Islands.....			4,144	40		
Provincial Land Tax.....			139,832	01		
					451,388	73
<i>Woods and Forests:</i>						
Bonus.....			949,839	25		
Timber Dues.....			1,277,147	67		
Ground Rent.....			111,424	12		
Fire Protection.....			344,411	87		
Transter Fees.....			2,120	00		
Mill License Fees.....			584	75		
					2,685,527	66
<i>Parks:</i>						
Algonquin Provincial Park.....			13,110	35		
Rondeau Provincial Park.....			2,925	44		
Quetico Provincial Park.....			7,809	34		
					23,845	13
Casual Fees.....			2,303	31		
Culler's Act.....			260	00		
					2,563	31
<i>Refunds:</i>						
Fire Ranging.....			6,352	30		
Forest Ranging.....			204	86		
Forest Research.....			51	10		
Forestry Act.....			133	87		
Lac Seul Storage Dam.....			5,262	65		
Lands Contingencies.....			77	35		
Long Point Park Road.....			132	23		
Reforestation.....			7,820	36		
Surveys.....			1,698	00		
Surveys Contingencies.....			24	00		
					21,756	72
					3,307,945	49

*Appendix No. 5*Statement of Revenue Refunds of the Department of Lands and Forests
for the year ending October 31st, 1930

Service	\$	c.
Algonquin Park—Rent.....	32	00
Algonquin Park—Miscellaneous.....	6	00
Casual Fees.....	18	75
Crown Rent.....	195	04
Crown Lands Sales.....	2,419	15
Lac Seul Storage Dam.....	44,975	95
Mill License Fees.....	16	00
Provincial Land Taxes.....	297	80
Rondeau Park—Rent.....	65	00
Rondeau Park—Miscellaneous.....	4	65
Surveys.....	340	00
Timber Dues.....	25,049	58
	73,419	92

Appendix No. 6

Statement of Receipts of the Department of Lands and Forests for the year ending
October 31st, 1930, which are considered as Special Funds

Service	\$ c.	\$ c.
<i>Clergy Lands:</i>		
Principal.....	1,274 07	
Interest.....	1,369 50	
		2,643 57
<i>Grammar School Lands:</i>		
Principal.....	1,237 68	
Interest.....	791 15	
		2,028 83
<i>Common School Lands:</i>		
Principal.....	5,601 91	
Interest.....	3,126 17	
		8,728 08
<i>University Lands:</i>		
Principal.....	119 10	
Interest.....	55 80	
		174 90
		13,575 38

Appendix No. 7

Statement of Disbursements of the Department of Lands and Forests for the year ending October 31st, 1930

Service	\$	c.
MAIN OFFICE AND BRANCHES:		
Salaries—Lands.....	128,372	20
Salaries—Forestry.....	39,183	36
Salaries—Surveys.....	31,637	50
AGENTS' SALARIES AND DISBURSEMENTS.....	101,620	41
ALGONQUIN PROVINCIAL PARK.....	44,382	03
ALLOWANCE TO SCHOOL SECTION—SOUTH WALSINGHAM.....	150	00
ALLOWANCE TO SCHOOL SECTION—TOWNSHIP OF VESPRA.....	250	00
ALLOWANCE TO SCHOOL SECTION—TOWNSHIP OF CLARKE.....	150	00
ALLOWANCE TO SCHOOL SECTION—TOWNSHIP OF CHARLOTTEVILLE.....	150	00
ADVERTISING.....	2,286	94
BOARD OF SURVEYORS.....	200	00
CONTINGENCIES—LANDS.....	27,807	68
CONTINGENCIES—FORESTEY.....	8,653	36
CONTINGENCIES—SURVEYS.....	18,578	04
CLEARING TOWNSITES AND REMOVING FIRE HAZARDS.....	74,291	18
CREATION AND EXTENSION OF PARKS.....	1,045	86
CULLERS' ACT.....	120	80
DISPLAY, TORONTO EXHIBITION.....	469	76
DISPLAY, FALL FAIRS AND EXHIBITIONS.....	988	01
EXPENDITURE UNDER FORESTRY ACT.....	44,479	84
FIRE RANGING.....	2,215,838	56
FOREST RANGING AND MEASUREMENT OF TIMBER.....	362,703	06
FOREST RESERVES.....	7,373	98
FOREST RESEARCH.....	17,863	79
FOREST INSECT CONTROL.....	5,399	59
GRANT—CANADIAN FORESTRY ASSOCIATION.....	1,000	00
INSURANCE.....	7,381	11
LAC SEUL STORAGE DAM.....	56,508	32
LEGAL FEES AND EXPENSES.....	200	00
LONG POINT ROAD.....	9,722	06
MOVING EXPENSES OF OFFICIALS.....	191	85
OTTAWA AGENCY.....	2,637	32
QUETICO PROVINCIAL PARK.....	21,405	13
RONDEAU PROVINCIAL PARK.....	26,795	08
REFORESTATION.....	387,573	96
SURVEYS.....	144,059	55
VETERANS' COMMUTATION.....	150	00
STATUTORY:		
Minister's Salary.....	10,000	00
Salaries not otherwise provided for.....	2,504	94
Refunds.....	1,445	26
SPECIAL WARRANTS:		
Long Point Park Road.....	6,020	66
TO PAY WAGES, ETC.,		
Re Matininda Forest Products, Limited.....	23,093	18
	3,834,684	37

Appendix

Statement of Timber cut and Amounts accrued from Timber Dues, Ground

QUANTITY AND

PROVINCE OF ONTARIO	Area covered by timber licenses	Saw Logs						Boom	
		Red and White Pine		Jack Pine		Other		Red and White Pine	
	Square Miles	Pieces	Feet	Pieces	Feet	Pieces	Feet	Pieces	Feet
		21,744	4,606,968	194,312,924	4,071,604	53,304,911	2,272,291	66,611,040	48,201	5,714,140

STATEMENT OF

PROVINCE OF ONTARIO	Stave Bolts	Posts	Tele- graph Poles	Pulp- wood	Rail- way Ties	Lagging		Stulls		Waney Pine		Car Stakes
	Cords	Pieces	Pieces	Cords	Pieces	Lineal Feet	Cords	Pieces	Feet	Pieces	Cubic Feet	Pieces
	712	36,501	46,660	1,051,631	1,393,299	89,425	2,008	346	11,695	716	35,010	29,825

Total amount received from all Forest sources, \$2,710,628.64. See Appendix No. 9.

No. 8

Rent, Fire Protection and Bonus, etc., during the year ending 31st October, 1930

DESCRIPTION OF TIMBER

and Dimension Timber				Piling			Cordwood		Tan- bark	Lath- wood	Box- wood	Shingle Bolts
Jack Pine		Other		Lineal Feet	Board Measure	Piece	Hard	Soft				
Pieces	Feet	Pieces	Feet	Feet	Feet	Pieces	Cords	Cords	Cords	Cords	Cords	Cords
36,486	2,163,381	18,749	1,927,700	197,555	603,575	1,847	7,836	41,656	299	74	8,303	2

TIMBER—Concluded

Amounts Accrued

Timber Dues	Bonus	Trespass	Interest on Dues and Bonus	Ground Rent	Transfer Fees	Fire Tax	Mill License Fees	Annual Bonus	Total Accruals
\$ c. 2,327,850 31	\$ c. 2,243,571 05	\$ c. 43,171 89	\$ c. 24,542 50	\$ c. 102,649 00	\$ c. 2,120 00	\$ c. 337,560 10	\$ c. 600 75	\$ c. 6,860 00	\$ c. 5,088,925 60

Appendix No. 9

Statement of Timber Revenue, Year 1929-30

Timber Dues.....		\$1,308,273 00
Bonus.....		943,798 90
Fire Protection.....		344,411 87
Ground Rent.....		111,424 12
Transfer Fees.....		2,120 00
Mill License Fees.....		600 75
		<u>\$2,710,628 64</u>
Timber Dues.....	\$1,232,495 50	
Interest on Timber Dues.....	24,542 50	
Timber Sale Deposits.....	51,235 00	
		<u>\$1,308,273 00</u>
Bonus.....		943,798 90
Fire Protection.....		344,411 87
Ground Rent.....	\$110,508 55	
Interest on Ground Rent.....	915 57	
		<u>111,424 12</u>
Transfer Fees.....		2,120 00
Mill License Fees.....		600 75
		<u>\$2,710,628 64</u>
Less Refund Account, Timber Dues.....	\$ 25,049 58	
“ “ “ Mill Fees.....	16 00	
		<u>\$25,065 58</u>
		<u><u>\$2,685,563 06</u></u>

Appendix No. 10

Acreage under License

The area covered by timber licenses where the holder pays regulation ground rent and fire charges, at the end of the fiscal year 1930, was 21,744 square miles.

The number of Crown Timber Licenses issued for the license season of 1929-30 was 1,010.

Appendix No. 11

Timber areas disposed of from November 1st, 1929 to October 31st, 1930

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid			Proposition	File
						Kind of Timber	Bid	Upset			Dues
1929 Nov. 9	1929 Nov. 26	Part Stoddart Township, District of Cochrane.	7 $\frac{3}{4}$	1	Fred Charpentier, Hearst	Spruce Pulpwood..... Burnt Pulpwood.....	\$0 35	..... \$1 40	Pulpwood	37700
Nov. 12	Nov. 26	Part Miscambell Township, District of Rainy River.	$\frac{1}{4}$	1	Jean Bugold, Fort Frances	Spruce Pulpwood..... Tamarac Fuelwood.....	..... 30	\$0 25 35	Pulpwood and Fuelwood	60347
Nov. 12	Dec. 3	Part Mulock Township, District of Nipissing.	7 $\frac{3}{4}$	1	Wm. Holden Lum-ber Co., Mulock	Birch..... Pine..... Spruce..... Hemlock..... Spruce Pulpwood..... Balsam Pulpwood.....	..... ..... ..... ..... ..... .....	4 00 5 00 4 00 3 00 50 1 20	Hardwood Logging	36985
Nov. 16	Dec. 3	Part Kendrey Township, District of Cochrane.	2 $\frac{1}{2}$	1	R. D. McKay, Cochrane	Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood.....	05	1 10 1 80 10	Pulpwood	21145
Nov. 13	Dec. 4	Part Lundy Township, District of Temiskaming.	1 $\frac{3}{4}$	1	R. M. Irvine, Hanbury, P.O.	Jackpine Green..... Jackpine Fire Killed..... Red and White Pine..... Spruce Pulpwood.....	25	4 00 6 00 10	Pine Logging	16080
Nov. 23	Dec. 4	Part Comnee Township, District of Thunder Bay.	$\frac{1}{4}$	1	N. Enders, Kakebeka Falls	Spruce Pulpwood..... Balsam Pulpwood.....	35 35	75 1 45	Pulpwood	33966 Vol. 2

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1929 to October 31st, 1930

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid			Proposition	File
						Kind of Timber	Bid	Upset Dues		
1929 Nov. 12	1929 Dec. 4	Part Bayly Township, District of Timiskaming.	1	1	Tomstown Lumber Co., Tomstown	Jackpine..... Red and White Pine..... Spruce.....	\$0 20 25 25	\$3 50 5 00 4 00	\$2 50 2 50 2 00	Pine Logging 23516
Nov. 20	Dec. 5	Part Chamberlain Township, District of Temiskaming.	½	1	D. Colquhoun, Krugerdorf	Jackpine..... Spruce Pulpwood..... Poplar Pulpwood.....	..... ..... .....	3 50 10 10	2 50 1 40 40	Logging and Pulpwood 30026
Nov. 14	Dec. 5	Part Wylie Township, County of Renfrew.	2½	1	Jake E. Stewart Pembroke	Spruce..... Pine..... Poplar..... Birch.....	..... ..... ..... .....	50 40 50	1 40 1 25 40 50	Mixed Logging 69691
Nov. 20	Dec. 6	Part Hunter Township, District of Nipissing.	½	1	Clarke, Howe, Waters & Knight Bros., Toronto	Birch..... Hemlock.....	..... .....	4 00 2 50	2 50 1 50	Hardwood 1698A
Nov. 20	Dec. 6	Part Clute Township, District of Cochrane.....	¼	1	A. J. Jackson, Cochrane	Spruce Pulpwood..... Balsam Pulpwood.....	..... .....	1 10 1 40	1 40 70	Pulpwood 20905
Nov. 27	Dec. 6	Area North of N.W. Part Stedman and West of Fire Steel River, District of Thunder Bay.	10½	1	Hacquoil Bros., Fort William	Spruce Pulpwood..... Balsam Pulpwood.....	..... .....	30 1 00	1 40 70	Pulpwood 77184

Nov. 20	Dec. 6	Part of Coleman Township, District of Temiskaming.	1	A. J. Murphy, Latchford	White Pine..... Spruce Pulpwood..... Cedar Posts.....	50 10	2 50 10 03	2 50 1 40 02	Pulpwood and Posts	8921A
Nov. 20	Dec. 9	Area North of Stedman Township and E. of Fire Steel River, District of Thunder Bay.	12	Hacquoil Bros. Fort William.	Spruce Pulpwood..... Balsam Pulpwood.....	30 1 00	1 40 70	1 40 70	Pulpwood	77184
Nov. 26	Dec. 18	Shore Island, Lake of the Woods District of Kenora.	1	Lake of the Woods Milling Co., Ltd., Keewatin.	Poplar Stave Bolts..... Poplar Fuelwood.....	15 10	60	40 25	Stave Bolts	30704
Dec. 11	Dec. 29	Part Pratt Township, District of Rainy River.	1/4	W. T. Steeman, Steeman.	Spruce Pulpwood..... Cedar Poles..... 20 to 30 feet..... 31 to 40 feet..... 41 feet and over..... Cedar Posts.....	10 25 05 10	20 25 40 90	1 40 25 50 75 02	Pulpwood and Poles	46493
Nov. 22	Dec. 29	Parts of Kendall and Casgrain Township, District of Cochrane.	2	Eugene Paradis Hallewood.	Green Pulpwood..... Fire Killed Pulpwood.....	.....	.....	1 40 40	Pulpwood	86180
Dec. 11	Dec. 30	N.E. Part Devon Township, District of Thunder Bay.	3	E. A. Bell, Fort William.	Spruce Pulpwood..... Balsam Pulpwood.....	1 05 1 05	60 1 30	1 40 70	Pulpwood	29031
Dec. 12	1930 Jan. 2	Part Dance Township, District of Rainy River.	1/2	J. A. Mathieu, Rainy Lake	Red and White Pine..... Spruce Pulpwood..... Jackpine Pulpwood.....	25 10 05	7 00 20 15	2 50 1 40 40	Pulpwood	20907
Dec. 20	Jan. 3	Berth J.A. 25, District of Kenora.	2 1/2	M. T. Cathcart Barwick, Ont.	Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... 51 feet and over.....	..... 10 25 50	..... ..... ..... .....	..... 25 50 75 1 00	Poles	63390

Appendix No. 11—Continued

Timber areas disposed of from November 1st, 1929 to October 31st, 1930

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File
						Kind of Timber	Bid	Upset	Dues		
1929 Dec. 16	1930 Jan. 6	Area West of and Adjacent Ames Township, District of Thunder Bay.	26	5	Fort William Forest Pro- ducts Co., Fort William	White Pine..... Jack Pine..... Spruce..... Jackpine Ties..... Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood.....	\$4 00 50 6 00 12 10 10 1 20	\$7 50 6 00 6 00 13 80 1 10 10 40	\$2 50 2 5 2 00 10 1 40 70 40	Pulpwood and Ties	76222
Dec. 20	Jan. 6	Part Morin Township, Dis- trict of Algoma.	¼	1	Messrs. Carney & Schultz, Poplar Date	Maple Ties.....	.....	2 00 05	2 50 10	Hardwood	31536
Dec. 16	Jan. 7	Area North of and adjoining G.T.P., Block 1 East of C.P. Ry., District of Thunder Bay.	8	4	Fort William Forest Products Co., Fort William	Spruce Pulpwood..... Balsam Pulpwood..... Jackpine Pulpwood..... Poplar Pulpwood..... Jackpine Ties.....	..... ..... 1 30 1 70	80 1 50 50 10 10	1 40 70 40 40 10	Pulpwood	43061
Dec. 20	Jan. 10	Area vicinity of Valora Sta- tion, District of Kenora.....	8	1	C. H. Moore, Fort William	Pulpwood.....	05	10	1 40	Pulpwood	24745
Dec. 20	Jan. 10	Parts Lundy and Auld Town- ship, District of Temiskaming.	1	1	Fred Alderdice, New Liskeard	Green Jackpine..... Fire Killed Jackpine..... Spruce..... Spruce Pulpwood..... Fuelwood, Hard..... Fuelwood, Soft.....	50 50 50 20	3 50 1 00 4 00 35 15	2 50 2 50 2 00 1 40 50 25	Mixed Logging	16080 20416
Dec. 28	Jan. 13	Part Auld Township, District Temiskaming.	¼	1	Fred Alderdice, New Liskeard	Red and White Pine..... Green Jackpine..... Fire Killed Jackpine.....	1 00 1 00 1 00	5 50 4 00 1 50	2 50 2 50 2 50	Pine Logging	10636

Dec. 20	Jan. 13	North Half Bristol Township, District of Cochrane.	18	2	H. H. Rudolph, Weston	Jackpine..... Spruce..... Spruce Pulpwood.....	2 25 4 05 50	4 50 5 00 50	2 50 2 00 1 40	Mixed Logging	32638
Dec. 20	Jan. 13	Part Williamson Township, District of Cochrane.	1 3/4	1	Stanislas Des- laurier, Val Rita	Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Poplar Pulpwood..... Fire Killed Spruce..... Fire Killed Pulpwood..... Fire Killed Balsam.....	02 01 30 01 01 01 01	3 00 60 30 10 50	2 00 1 40 70 40 2 00 1 00 50	Pulpwood	61075
Dec. 24	Jan. 16	Parts Blair and Mowatt Township, District of Parry Sound.	5	1	Pakesley Lumber Co., Ltd., Pakesley	Hemlock..... Birch..... Basswood..... Ash..... Elm..... Oak..... Maple..... Spruce.....	..... ..... ..... ..... ..... ..... ..... .....	1 50 2 50 2 50 2 50 2 50 2 50 2 50 3 00	1 50 2 50 2 50 2 50 2 50 2 50 2 50 2 00	Mixed Logging	328
Dec. 30	Jan. 16	Part Evelyn Township, Dis- trict of Cochrane.	1/2	1	Nick Blahey, Timmins.	Norway Pine..... Jackpine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Fuelwood, Hard..... Fuelwood, Soft..... Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... 51 feet and over..... Cedar Posts.....	50 50 1 25 35 05 05 05 10 10 15 15 01	6 00 4 50 5 50 40 90 20 15 05 10 15 25 02	2 50 2 50 2 00 40 70 50 25 25 50 75 00 02	Mixed Logging	72758
Dec. 27	Jan. 20	Part Fowler Township, Dis- trict of Thunder Bay.	1 1/4	1	Pigeon Timber Co., Ltd., Port Arthur	Jackpine..... Spruce Pulpwood..... Balsam Pulpwood..... Jackpine Ties.....	..... 46 12	5 50 25 80 10	2 50 1 40 70 10	Pulpwood and Ties	8616A

Appendix No. 11—Continued
Timber areas disposed of from November 1st, 1929 to October 31st, 1930

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid				Proposition	File	
						Kind of Timber	Bid	Upset	Dues			
1930 Jan. 3	1930 Jan. 22	Part Idington Township, District of Cochrane.	¼	1	Z. Fontaine, Cochrane	Spruce..... Poplar..... Spruce Pulpwood..... Poplar Pulpwood..... Cedar Posts..... Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... 51 feet and over.....	\$5 00 1 00 1 00 20 40 01 02 05 25 10 50 15 75 25 1 00	\$2 00 2 00 1 40 40 02 25 50 75 1 00			81410	
Jan. 10	Jan. 31	Part Cardiff Township, County of Haliburton.	¼	1	U. A. Hubbel, Bancroft	Beech and Maple..... Hemlock.....	2 50 2 50	2 50 1 50		Hardwood		18289
Jan. 15	Feb. 5	Parts Cane and Auld Townships, District of Temiskaming.	½	1	Thos. Martindale, Cane	Spruce Pulpwood..... Fuelwood, Soft..... Fuelwood, Hard.....	\$0 30 05 05	35 1 40 15 25 15 50		Pulpwood		18645
Jan. 23	Feb. 14	Certain Mining Claims, Grenfell Township, District of Temiskaming.	¼	1	J. T. Goldthorpe, Goldthorpe	Jackpine..... Spruce Pulpwood..... Poplar.....	..... ..... .....	3 50 35 1 40 10 40		Mixed Logging		1443A
Feb. 19	Mar. 5	Part Catherine Township, District of Temiskaming.	¼	1	John Armstrong, Englehart	Jackpine..... Spruce Pulpwood.....	..... 10	3 50 10 1 40		Mixed Logging		9469

Feb. 26	Mar. 17	Part Catherine Township, District of Temiskaming.	3/4	1	John Armstrong, Englehart	Pine..... Spruce Pulpwood..... Poplar Pulpwood.....	..... 10	3 50 10 10	2 50 1 40 40	Pulpwood	9469
Mar. 3	Mar. 24	Part Grenfell Township, Dis- trict of Temiskaming.	1/2	1	J. T. Goldthorpe, Goldthorpe.	Jackpine..... Spruce Pulpwood..... Poplar Pulpwood.....	..... ..... .....	3 00 35 20	2 50 1 40 40	Pulpwood	1443A
June 27	July 21	Part McKellar Township, District of Parry Sound.	1/2	1	Robert Harvey, McKellar	Pine, Birch, Elm..... Maple, Oak..... Hemlock, Tamarac.....	..... 25 25	..... 5 00 3 00	..... 2 50 1 50	Hardwood	4966
July 8	July 29	Part Stirling Township, Dis- trict of Thunder Bay.	1/4	5	Arvo J. Paju, Nipigon	Poplar..... Poplar Pulpwood..... Spruce Pulpwood..... Balsam Pulpwood.....	..... 65 75 1 06 1 06	2 00 10 60 80	2 00 40 1 40 70	Pulpwood	34146
July 15	Aug. 15	Berth M. 29, District of Kenora.....	6	1	P. A. Le Grow, Port Arthur	Jackpine..... Spruce Pulpwood..... Balsam Pulpwood.....	..... ..... .....	3 35 4 50 20	2 50 2 00 1 40 70	Mixed Logging	24429
July 15	Aug. 15	Part Berth W. 1, South of David Lake, District of Rainy River.	2	1	Shelvin Clarke Co., Ltd., Fort Frances	Red and White Pine..... Jackpine..... Spruce..... Spruce Pulpwood.....	..... 1 13 08 55	8 50 4 50 4 50	2 50 2 50 2 00 1 40	Logging	54680
July 15	Aug. 15	Berth M. 30, N.E. Part Lady- smith Township, District of Kenora.	10	1	Geo. Wardrope, Port Arthur	Jackpine..... Redpine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood.....	..... ..... ..... ..... .....	\$7 50 7 50 7 50 60 55	\$2 50 2 50 2 00 1 40 70	Mixed Logging	993B

Appendix No. 11—Continued
Timber areas disposed of from November 1st, 1929 to October 31st, 1930

Date Offered	Date Sold	Locality	Area sq. miles	No. of Tenders	To Whom Sold	Prices Paid			Proposition	File	
						Kind of Timber	Bid	Upset			
1930 July 31	1930 Sept. 2	Part Best Township, District of Nipissing.	12	1	Temagami Timber Co., Ltd., Goward	Red and White Pine..... Spruce..... Spruce Pulpwood..... Poplar Pulpwood..... Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... 51 feet and over.....	\$0 10 10 05 05 05 05 05 05	7 50 5 00 60 10 05 10 15 20	2 50 2 00 1 40 40 25 50 75 1 00	Logging and Pulpwood	50154
Aug. 13	Sept. 3	Berth J.A. 26, District of Rainy River.	1½	1	Chas. Cossitt, Fort Frances	Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... Cedar Posts.....	..... ..... ..... 25 .....	..... 10 25 50 50	..... 25 50 75 02	..... ..... Poles	5046
Aug. 11	Sept. 11	Area South East and adjoining North East Part of Allouanwater Limit, District of Thunder Bay.	11	1	John Fee Allenwater	Jackpine..... Spruce.....	..... .....	5 75 6 25	2 50 2 00	Mixed	16092
Sept. 11	Sept. 23	Part North Burleigh Township, County of Peterboro.	¼	2	John Carew Lumber Co., Ltd., Lindsay	Pine..... Hemlock.....	5 00 3 00	7 50 3 00	2 50 1 50	Mixed Logging	28733
Aug. 22	Sept. 24	W. ½ Godfrey Township, District of Cochrane.	18	1	Feldman Timber Co., Ltd., Schumacher	Jackpine..... Spruce..... Spruce Pulpwood..... Balsam Pulpwood..... Cedar Poles..... 30 feet and less..... 31 to 40 feet..... 41 to 50 feet..... 51 feet and over.....	10 10 05 05 02 02 03 03	5 50 6 00 60 1 30 04 08 12 20	2 50 2 00 1 40 70 25 50 75 1 00	Mixed Logging	40731

Aug. 22	Sept. 24	W. 1/2 Denton Township, District of Temiskaming.	18	1	Feldman Timber Co., Ltd., Schumacher	Jackpine. Spruce Spruce Pulpwood. Balsam Pulpwood. Cedar Poles. 30 feet and less. 31 to 40 feet. 40 to 50 feet. 51 feet and over.	25 25 05 05 02 02 03 05	5 00 5 50 5 50 1 00 04 08 12 20	2 50 2 00 1 40 70 25 50 75 1 00	Mixed Logging	32638
Aug. 21	Sept. 25	Township 196, Part N. and W. of Height of Land, District of Algoma.	28	2	Crane Lumber Co., Ltd., Bridgeburg	Red and White Pine.	30	3 50	2 50	Pine Logging	63937
Sept. 11	Oct. 9	Berths M. 31 and M. 32, District of Kenora.	55	6	Chas. H. Greer, Port Arthur	M. 31, Jackpine. M. 32, Jackpine.	15 00 13 00	4 00 6 00	2 50 2 50	Jackpine Logging	86613
Oct. 11	Oct. 25	Area between Northwest Bay and Alexander Bay, District of Thunder Bay.	1 1/2	1	Campbell Timber Co., Fort Frances	Jackpine Ties.	02	.....	10	Ties	87921
Oct. 13	Oct. 30	Part Joly Township, District of Parry Sound.	1/4	1	A. E. Fetterly, Gravenhurst	Birch Maple. Elm Ash. Hemlock. Spruce, Balsam.	6 00 2 50 1 50	50 50 3 50	2 50 1 50 2 00	Mixed Logging	5497

Appendix No. 12

Statement showing the number of Locatees and of acres located; of purchasers and of acres sold; of lots resumed for non-performance of settlement duties, and of patents issued in Free Grant Townships during the year ending 31st October, 1930.

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
Chapman.....	Parry Sound	J. S. Freeborn,	1	100			2	130		
Croft.....	"	Magnetawan..	1	200					2	200
Gurd.....	"	"	1	162			2	271	2	200
Lount.....	"	"							5	725
Machar.....	"	"	1	120			6	1,170		
Mills.....	"	"			1	36			3	336
Pringle.....	"	"					1	200	1	200
Ryerson.....	"	"							1	100
Spence.....	"	"					1	100		
Strong.....	"	"					1	100	3	598
Armour.....	"	A. W. Freeland,							2	200
Bethune.....	"	Emsdale.....							1	154
Joly.....	"	"					1	128		
McMurrich.....	"	"							1	103
Hardy.....	"	H. J. Ellis,					1	197	1	65
Himsworth.....	"	Powassan.....					8	1,001	5	886.88
Laurier.....	"	"								
Nipissing.....	"	"	1	100			3	400	4	585
Patterson.....	"	"			1	4.70	1	250	3	496
Bonfield.....	Nipissing..	W. F. MacPhie,			2	36			2	236
Boulter.....	"	North Bay...								
Chisholm.....	"	"	1	100			3	329	3	305
Ferris.....	"	"							2	291.87
Anson.....	Haliburton	A. W. Fleming,	1	52			1	52	1	96
Glamorgan.....	"	Minden.....					1	97		
Hindon.....	"	"							1	97
Lutterworth.....	"	"					1	93	1	68
Minden.....	"	"							1	100
Snowdon.....	"	"	1	100			3	298		
Stanhope.....	"	"	1	81			1	48	2	231
Anstruther.....	Peterboro'	Wm. Hales,							1	200
Burleigh.....	"	Apsley.....					6	592	2	197
Chandos.....	"	"	1	100			1	100		
Methuen.....	"	"	1	100			6	664	3	300
Cavendish.....	Haliburton	A. N. Wilson,	1	155			1	142		
Galway.....	"	Kinmount....	1	110			3	258		
Monmouth.....	"	"					1	100	1	100
Brunel.....	Muskoka...	W. G. Gerhart,								
Chaffey.....	"	Bracebridge..							1	100
Draper.....	"	"							1	191
Franklin.....	"	"					4	378	1	141
Medora.....	"	"							1	200
Muskoka.....	"	"								
Oakley.....	"	"	2	198						
Ridout.....	"	"							2	233
Ryde.....	"	"			1	24			1	24
Sherbourne.....	Haliburton	"							1	86
Sinclair.....	Muskoka...	"							1	200
Wood.....	"	"							1	115
Carling.....	Parry Sound	Miss I. M. Camp-							1	200
Christie.....	"	bell, Parry Sound							1	95
Conger.....	"	"							1	161
Ferguson.....	"	"					2	200		
Foley.....	"	"					1	157		
Hagerman.....	"	"							1	62
Henvey.....	"	"	1	100						

Appendix No. 12—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
Lumsden	Sudbury	J. K. MacLennan, Sudbury	1	79 $\frac{3}{4}$					4	639
Morgan	"	"			1	2 $\frac{1}{2}$			2	329.50
Neelon	"	T. A. Millichamp, Markstay	6	966			8	1,279.50	1	84.25
Appleby	"	"	2	322	1	2	1	162	2	252
Casimir	"	"	16	2,478	4	80.38	11	1,757.50	4	641
Hagar	"	"								
Jennings	"	"	1	154 $\frac{1}{2}$					2	312.54
Kirkpatrick	"	"	10	1,584 $\frac{1}{2}$	2	65 $\frac{1}{2}$	9	1,438.50		
Ratter	"	"			1	1			1	160
Caldwell	"	J. P. Marchildon, Sturgeon Falls								
Cosby	"	"	9	1,429 $\frac{1}{2}$	1	5	7	1,112	1	160
Grant	"	"	1	154			1	121.50	1	90
Macpherson	"	"	1	159 $\frac{1}{2}$			2	298		
Martland	"	"					2	320	1	50
Springer	"	"	4	454	1	5	2	194	2	397
Melick	Kenora	J. D. C. Smith, Kenora	1	130 $\frac{1}{2}$	1	80	1	45	3	553.50
Pellatt	"	J. E. Gibson, Dryden	8	939			6	791	3	388.50
Aubrey	"	"	5	750	2	38	3	481	1	160
Britton	"	"					2	200		
Eton	"	"	4	589					1	233.75
Langton	"	"	10	1,598 $\frac{1}{2}$	1	1			3	479.61
Melgund	"	"	6	952			11	1,640	1	132
Mutrie	"	"	9	1,198 $\frac{1}{2}$			2	301.50		
Rowell	"	"	2	317			9	1,275.25	2	317.05
Redvers	"	"	2	371			7	893	1	160
Rugby	"	"	1	195 $\frac{1}{2}$	4	174 $\frac{3}{4}$	1	161	1	160
Sanford	"	"	9	1,400 $\frac{1}{2}$	3	132 $\frac{3}{4}$	2	152	1	160.65
Southworth	"	"	3	478 $\frac{1}{2}$			4	423.50	2	312.25
Temple	"	"					6	860	2	285
Van Horne	"	"	4	431 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2	293	1	153
Wabigoon	"	"	3	478 $\frac{1}{2}$			4	498	2	278.22
Wainwright	"	"	2	203			5	498.50	1	109
Zealand	Thunder Bay	S. H. Wilson, Port Arthur	9	1,436			5	796	1	160
Blake	"	"	7	1,020 $\frac{1}{2}$			5	785.50		
Conmee	"	"	3	441 $\frac{1}{2}$						
Crooks	"	"	13	1,447	1	35	8	919	2	227
Dawson Rd.	"	"	8	1,154 $\frac{1}{2}$	1	$\frac{1}{2}$			5	799.50
Dorion	"	"	1	157 $\frac{1}{2}$						
Gillies	"	"	15	1,938 $\frac{1}{2}$	1	$\frac{1}{2}$	7	909.50	3	337.75
Gorham	"	"							1	160.25
Lybster	"	"	7	1,120	1	1 $\frac{1}{2}$	6	958.50		
Marks	"	"	5	800			3	550		
McGregor	"	"							1	158.50
McIntyre	"	"								
Oliver	"	"							1	158.50
O'Connor	"	"							1	158.50
Paipoonge	"	"			1	10			2	200
Pardee	"	"	50	7,000 $\frac{1}{2}$	1	80	12	1,820		
Pearson	"	"	13	2,000	3	13 $\frac{1}{2}$	13	2,139.50	8	1,201.25
Scoble	"	"	4	550 $\frac{1}{4}$			3	401.75		
Stirling	"	"	3	369 $\frac{1}{2}$			1	159.50	2	478.50
Strange	"	"	3	454 $\frac{1}{2}$			4	505	1	159.50
Ware	"	"	22	3,302 $\frac{3}{4}$	5	166 $\frac{1}{2}$	7	1,122.50	1	112
Blue	Rainy River	Wm. Cameron, Stratton	7	726	3	6	5	726	1	162
Curran	"	"	1	160	1	2				
Dewart	"	"	14	2,059 $\frac{1}{2}$						
Mather	"	"	3	310 $\frac{1}{4}$	1	12	3	489.50		
Morley	"	"								
Morson	"	"	9	1,281 $\frac{1}{2}$			10	1,307.50	2	256
McCrosson	"	"	10	1,012 $\frac{1}{4}$			10	1,118.50		

Appendix No. 12—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
Nelles.....	Rainy River	Wm. Cameron,	4	485	1	2	5	723	1	105.50
Potts.....	"	Stratton.....	5	804 $\frac{1}{2}$	1	2	2	274.50	2	316
Pratt.....	"	"	5	591 $\frac{3}{4}$	2	2 $\frac{1}{2}$	8	980.75	4	641
Richardson...	"	"	5	895	1	39	5	856.75		
Spohn.....	"	"	23	2,381 $\frac{1}{4}$	2	36 $\frac{1}{2}$	15	1,718.25	1	80
Sifton.....	"	"	9	1,019	1	17 $\frac{1}{2}$	6	700.25	1	160
Sutherland...	"	"	8	1,067			2	258.50	2	240
Tait.....	"	"	2	229 $\frac{1}{2}$						
Tovell.....	"	"	5	723	2	16	4	657.50	5	811.50
Burriss.....	"	J. A. Alexander,	1	200 $\frac{1}{2}$						
Carpenter....	"	Fort Frances..	2	322			4	664.50		
Crozier.....	"	"	1	164	1	4	1	81		
Dance.....	"	"	2	319 $\frac{1}{2}$	1	80	1	160	2	319.50
Devlin.....	"	"			1	4	2	202		
Fleming.....	"	"								
Kingsford....	"	"	4	566 $\frac{3}{4}$	2	91 $\frac{3}{4}$	3	396.50	1	160
Lash.....	"	"								
Misscampbell.	"	"	1	164	1	8 $\frac{1}{2}$				
Roddick.....	"	"								
Woodyatt....	"	"								
Abinger.....	Lennox and Addington	Chas. Both, Denbigh.....								
Miller.....	Frontenac...	"								
Shawanaga...	Parry Sound	Unattached....								
Sabine.....	Nipissing...	"					1	100	1	195
Murchison....	"	"							1	46
Total.....			460	62,891	83	2,182.96	388	51,681	245	3,3242.54

Number of lots assigned, 78.

Number of acres assigned, 10,057 $\frac{1}{2}$.

Appendix No. 13

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, 1930.

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Blount	Cochrane	S. J. Dempsay,	22	2,214.5	37	3,316.83	3	412.5
Brower	"	Cochrane.	1	79.75	2	239.75	2	293.41
Calder	"	"	92	7,265.5	24	2,609	5	764.27
Clute	"	"	13	1,095.8	10	1,226.5	4	544
Colquhoun	"	"	91	6,899.5	12	1,079.5		
Fox	"	"	17	1,350	8	966.5	3	475.5
Fournier	"	"	9	683.25	6	778.5	1	163
Fauquier	"	"	18	1,307.2	6	554	3	348
Glackmeyer	"	"	4	374.5	2	229	6	861.16
Kennedy	"	"	2	150	5	503	3	448
Leitch	"	"	34	2,470	11	1,120	2	299
Lamarche	"	"	3	236.7	5	561.75	3	483
Machin	"	"	13	974.5	12	1,418	1	15
Newmarket	"	"	10	787.09	3	552.5		
Pinard	"	"	1	12.4			1	12.4
Pyne	"	"	38	3,111.25	13	1,437		
Shackleton	"	"	4	331.5	6	801	2	281
Haggart	"	"	1	218			2	289.39
Kendry	"	"			1	163		
Barker	"	John Bresnahan,	17	1,275	2	150		
Casgrain	"	Hearst	28	2,065	6	757.5	3	426
Devitt	"	"	82	6,242	26	2,198.4	4	590.18
Eilber	"	"	46	3,525.5	14	1,470	7	557.1
Hanlan	"	"	38	2,966.5	23	2,282.5	7	1,031
Kendall	"	"	60	4,600	10	1,151	8	1,138
Lowther	"	"	128	9,698	30	3,215	3	448
McGowan	"	"	5	374	2	150		
Idington	"	H. E. Sheppard,	60	5,804.39	41	4,015	2	83.39
Nansen	"	Kapuskasing.	16	1,193	10	1,268	3	450
O'Brien	"	"	9	871	7	671	7	601
Owens	"	"	25	2,483	26	2,586	1	101
McCrea	"	"	84	6,498.5	37	3,526		
Williamson	"	"	21	2,054	21	2,006.25	2	167
Blain	Temiskaming	John Clark,	2	158				
Bayley	"	Englehart	2	79.25			1	160
Barrie	"	"	2	199				
Catharine	"	"			2	160		
Chamberlain	"	"	2	158.5			3	468.5
Dack	"	"	1	80			2	324.54
Eby	"	"	16	1,265.5	4	309.5		
Evanturel	"	"	2	158.5	4	637.5	2	319.5
Ingram	"	"	5	391.75	2	240.25	2	311.5
Marter	"	"	6	395.25	3	470.5	5	80
Marquis	"	"	10	791	4	360.3	3	480
Otto	"	"	21	1,638.25	10	891.5		
Pacaud	"	"	6	477	5	638.5		
Robillard	"	"	3	225.25	6	963		
Savard	"	"	4	319.25	8	1,275	2	321
Sharpe	"	"	1	72.25				
Benoit	Cochrane	J. A. Hough,	6	481.75	9	1,193	3	468.85
Beatty	"	Matheson			2	314.5	3	399
Bond	"	"			4	637		
Bowman	"	"			7	1,025.75	4	621.5
Calvert	"	"	1	79.75	1	159.5	1	159.5
Carr	"	"					4	482.5

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Currie	Cochrane	J. A. Hough,			13	1,681.25		
Cook	"	Matheson					1	160
Evelyn	"	"			2	287.5		
German	"	"	6	459.5	12	1,409.5	3	403
Guibard	"	"	1	183.5				
Hislop	"	"	2	159	3	394.5	4	537.6
Matheson	"	"	8	713.75	8	1,131.75		
Mountjoy	"	"	5	387.75	2	308.5	2	242
McCart	"	"	9	713.25	5	466		
Playfair	"	"	1	79.75	3	408	1	160
Stock	"	"			22	3,385.5		
Shaw	"	"	1	151				
Taylor	"	"	2	157	2	318.5		
Walker	"	"			6	903.94		
Auld	Temiskaming	J. R. McCrea,			3	221.50	1	153.50
Harris	"	New Liskeard					1	12.50
Casey	"	"					1	158.50
Beauchamp	"	"			1	163	3	479
Bucke	"	"	1	79.25			2	438.50
Brethour	"	"					1	159.50
Cane	"	"			3	483		
Dymond	"	"			8	1,226.27	1	1
Firstbrook	"	"	1	80	1	161.50		
Henwood	"	"	1	80.5			1	162
Hilliard	"	"			4	562.25	3	480
Hudson	"	"						
Lundy	"	"						
Tudhope	"	"						
Lorrain	"	N. J. McAulay,						
		Haileybury			1	84	1	153
Hugel	Nipissing	T. A. Millichamp,	2	320.5	1	160.50		
Henry	"	Markstay	5	665.5	1	161.50		
Loughrin	"	"	10	1,274	6	953.50	1	159
Loudon	"	"	3	312.3	1	161		
Ferris	"	W. L. MacPhie,	1	5			2	105
Phelps	"	North Bay	7	1,122	6	957		
Widdifield	"	"	3	481.5	1	122	1	160
Papineau	"	"					3	290
MacPherson	"	"					1	90
Hallam	Sudbury	R. A. Teasdale			5	793		
Harrow	"	Massey						
May	"	"						
Salter	"	"	3	236.1				
Bigwood	"	J. K. MacLen-	4	369.4			2	172.50
Baldwin	"	nan, Sudbury					1	85
Blezzard	"	"					2	326
Capreol	"	"					5	629.02
Awrey	"	"					1	160
Cardiff	"	"	2	10				
Delamere	"	"	7	1,065	1	160.50	1	150
Dowling	"	"	1	4.8			3	313.50
Appleby	"	"						
Bright	Algoma	Albert Grigg,	1	151.5	1	160	1	80.50
Bright Add	"	Bruce Mines						
Day	"	"					1	16
Deroche	"	"					1	
Gladstone	"	"	1	162.5			1	165.50
Gould	"	"						
Kirkwood	"	"						
Johnston	"	"	1	109				

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Parkinson	Algoma	Albert Grigg,	1	.99				
Striker	"	Bruce Mines	2	161.07			2	220
Tarbutt	"	"					1	68.38
Thompson	"	"	2	210	1	160		
Wells	"	"	1	158	1	143		
Grasett	"	"	1	1.08				
Van Koughnet	"	E. H. Barnes,					1	153
Aweres	"	Sault Ste. Marie	3	11.1	1	156	3	155.50
Parkinson	"	"						
Devon	Thunder Bay	S. H. Wilson,	8	1,112				
Forbes	"	Port Arthur	20	3,238	7	1,119	2	203
Fowler	"	"	3	10.3			1	189
Goldie	"	"	2	308	3	472		
Jacques & Fowler	"	"	3	447.5	6	920.25		
Lyon	"	"	1	3.4			6	604.70
McTavish	"	"	3	318	1	160	3	501
Nakina	"	"	10	1,506	2	320		
Nipigon	"	"	12	597.3				
Sibley	"	"	7	1,059	4	487		
Upsala	"	"	7	923.5	3	449		
Stirling	"	"					4	478.50
Drayton	Kenora	J. D. C. Smith,	1	51	1	105.50		
" Res	"	Kenora		17.75				
Jaffray	"	"	1	55				
Pellatt	"	"	1	80			3	553.50
Hartman	"	"					2	320
Cherriman	Sudbury	J. P. Machildon,	1	4.85			2	27.30
Mason	"	Sturgeon Falls						
Bastedo	"	"					1	160
Scollard	"	"	1	164				
Nairn	"	Ed. Arthurs, Espanola						
Hagarty	Renfrew	Frank Blank, Wilno	1	8			4	362.6
Arran	Bruce	Unattached			1		2	100
Admaston	Renfrew	"	7	750	10	950	32	3,328.25
Amaranth	Dufferin	"						
Anson	Haliburton	"					1	96
Alfred	Prescott	"						
Badgerow	Nipissing	"	2	126	1	80	4	516.22
Bagot	Renfrew	"	1	50	11	1,190	15	1,612.72
Barton	Wentworth	"						
Bedford	Renfrew	"	1	1.1	3	393	3	300
Blanford	Oxford	"	1	100				
Bruce	Bruce	"			2	67	9	760
Barrie	Frontenac	"			7	601		
Brant	Bruce	"						
Bentinck	Grey	"					2	93.75
Bromley	Renfrew	"					2	200
Burgess N.	Lanark	"						
Cavendish	Peterborough	"					2	7
Cleland	Sudbury	"					3	111.20
Clark	Durham	"						
Darling	Lanark	"	21	100	5	500	2	200
Dalhouseie	Lanark	"			1	100		
Dummer	Peterborough	"			2	160	2	200
Denison	Sudbury	"						
Drury	"	"			1	40	2	320
Dryden	"	"	1	163	1	76.25	1	159.50

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Escott	Leeds	Unattached	1	5				
Elmsley N.	Lanark	"					1	20.20
Elzevir	Hastings	"	1	199.5	13	1,267.81	9	889
Egremont	Grey	"					1	100
Effingham	Lennox and Addington	"	1	6.3				
Edwardsburg	Grenville	"						
Falconer	Nipissing	"	3	486.5	1	167		
Field	"	"					1	160
Fairbank	Sudbury	"						
Foster	"	"						
Fenelon	Victoria	"						
Gainsboro	Lincoln	"						
Glenelg	Grey	"	2	203	1	100	15	1,243
Hallowell	Prince Edward	"						
Hinchinbrooke	Frontenac	"	2	221	2	221	2	331
Hindon	Haliburton	"					1	97
Horton	Renfrew	"					1	100
Huron	Bruce	"	1	50				
Hungerford	Hastings	"	1	200	5	618	4	450
Harvey	Peterborough	"	3	452	9	847.50	10	1,479
Houghton	Norfolk	"			2	346		
Jones	Renfrew	"					1	3.35
Kaladar	Lennox and Addington	"			10	988	3	520.50
Kincardine	Bruce	"						
Kingston	Frontenac	"	1	23				
Kinloss	Bruce	"					1	50
Kennebec	Frontenac	"	2	50	3	375.50	2	145
Kitley	Leeds	"	1	200				
Lake	Hastings	"			5	600	1	96
Lanark	Lanark	"					1	100
Lavant	Lanark	"	1	100				
Limerick	Hastings	"					1	200
Lorne	Sudbury	"					1	166.50
Louise	Sudbury	"	3	306				
Laxton	Victoria	"	1	100	3	280.50	5	347
Lansdowne	Leeds	"	1	.75				
Lyndoch	Renfrew	"					3	300
Matchedash	Simcoe	"			1	200	1	97.2
Maclennan	Sudbury	"	3	4.92				
Mayo	Hastings	"					2	291.50
Olden	Frontenac	"			2	401	1	153
Osgoode	Carleton	"					1	100
Oso	Frontenac	"			6	853.50	3	479.62
Osprey	Grey	"	2	100			9	580
Petawawa	Renfrew	"					2	201
Proton	Grey	"			2	130	5	494
Richards	Renfrew	"					1	204
Sabine	Nipissing	"					1	195
Scadding	Sudbury	"					1	3
Saugen	Bruce	"	1	270				
Sebastopol	Renfrew	"					1	300
Seymour	Northumberland	"					1	100
Stanhope	Haliburton	"					2	231
Storrington	Frontenac	"					2	13.6
Strathearn	Sudbury	"	12	188.6			1	188.60
Sheffield	Lennox and Addington	"	1	8.5	7	622	1	50
Sommerville	Victoria	"					1	101

Appendix No. 13—Continued

Township	District or County	Agent	No. of purchasers	No. of acres sold	No. of lots cancelled	No. of acres resumed	No. of patents issued	No. of acres patented
Sherbrooke N.	Lanark.	Unattached.	1	100	2	296	1	100
Sherbrooke S.	Lanark.	"					1	100
Sherwood.	Renfrew.	"					4	448
Sandwich E.	Essex.	"	4	34.69				
Struthers.	Sudbury.	"	1	3.02			1	3.02
Sullivan.	Grey.	"	2	50.00			5	300
Tilsbury W.	Essex.	"					1	27
Thorah.	Ontario	"					1	198
Valentine.	Cochrane.	"					1	90.61
Wallbridge.	Parry Sound.	"					9	774
Waters.	Sudbury.	"					3	395.50
Walsingham.	Norfolk.	"	2	231.21				
Williamsburg.	Dundas.	"					2	200
Wollaston.	Hastings.	"					1	100
Wylie.	Renfrew.	"					1	100
Anglesea.	Lennox and Addington.	"			1	111		
Artemesia.	Grey.	"			1	61	2	86
Ashby.	Lennox and Addington.	"			1	50		
Bastard.	Leeds.	"	1	.25	1	47		
Belmont.	Peterborough.	"			1	1		
Blandford.	Oxford.	"			1	100		
Blythfield.	Renfrew.	"	1	100	1	100	1	100
Boyce.	Cochrane.	"			1	160		
Burt.	Temiskaming.	"	6	453.5	2	157.50		
Carden.	Victoria.	"			3	280	6	715.25
Dalton.	"	"	1	41	12	828	10	657
Digby.	"	"			14	1,324.50	1	104
Esquesing.	Halton.	"			1	100		
Griffith.	Renfrew.	"	1	100	1	90		
Grimsthorpe.	Hastings.	"			1	87.50		
Gross.	Temiskaming.	"			2	239.50		
Halkirk.	Rainy River.	"			2	325		
Head.	Renfrew.	"			1	135		
Houghton.	Norfolk.	"			2	262	1	50
Huron.	Bruce.	"			1	50	3	197
Kitley.	Leeds.	"			1	200	1	200
Loughborough.	Frontenac.	"	1	.60	1	100	1	.60
Luther.	Wellington.	"			1	200	1	100.50
Marlborough.	Carleton.	"			1	50	1	100
Marmora.	Hastings.	"			1	132	1	22.22
Montague.	Lanark.	"			1	100		
McNab.	Renfrew.	"			1	100		
Pakenham.	Lanark.	"			3	300	4	450
Portland.	Frontenac.	"			1	100		
Rama.	Ontario.	"	1	.36	2	198	1	100
Rose.	Algoma.	"			3	474		
Shedden.	"	"			4	258		
Springer.	Nipissing.	"			1	320	1	50
Sullivan.	Grey.	"			1	50		
Truax.	Temiskaming.	"			1	159.50		
Tudor.	Hastings.	"			5	480.50	2	228
Whitney.	Cochrane.	"			2	75.50		
Total.			1351	111,408,556	839	94,463.35	460	51,058.70

Number of lots assigned, 501.

Number of acres assigned 55,276.70.

Appendix No. 13—Continued

Locations by returned soldiers and cancellations for non-performance of settlement duties.

District	Agency	Locations	Cancellations
Cochrane.....	Cochrane.....	10	23
Cochrane.....	Matheson.....	4	16
Cochrane.....	Kapuskasing.....	7	7
Cochrane.....	Hearst.....	1	2
Algoma.....	Sault Ste. Marie.....	1	..
Temiskaming.....	Englehart.....	4	7
Temiskaming.....	New Liskeard.....	..	1
Nipissing.....	Markstay.....	4	1
Nipissing.....	North Bay.....	2	2
Thunder Bay.....	Port Arthur.....	6	9
Sudbury.....	Sudbury.....	1	..
Kenora.....	Kenora.....	1	..
		41	68

Statement showing the number of purchases, acres sold and patents issued in cities, towns and town plots during the year ending October 31st, 1930.

Towns, etc.	District or County	Agent	No. of acres sold	No. of purchasers	No. of patents issued	No. of acres patented
Alexandra.....	Sudbury.....	Unattached.....	..	..	1	.50
Amherstburg.....	Essex.....	".....	.1	1	1	.1
Armstrong.....	Thunder Bay.....	".....	..	..	3	.6
Capreol.....	Sudbury.....	".....	.11	1	..	..
Gogama.....	".....	".....	.22	2	1	.22
Gowanda.....	Temiskaming.....	".....	.25	1	1	.25
Hamilton.....	Wentworth.....	".....	..	..	..	..
Hearst.....	Cochrane.....	J. Bresnahan.....	.5	2	..	..
Hornepayne.....	Algoma.....	".....	..	..	1	.23
Hudson.....	Kenora.....	Unattached.....	7.44	9	4	.96
Inverhuron.....	Bruce.....	".....	2.61	1	..	..
Kirkland Lake.....	Temiskaming.....	".....	..	..	12	1.00
London.....	Middlesex.....	".....	..	..	..	..
Minaki.....	Kenora.....	".....	.5	1	..	..
Missinabi.....	Algoma.....	J. Bresnahan.....	.34	2	4	.85
Moonbeam.....	Cochrane.....	Unattached.....	.17	1	..	..
McFarlane.....	Kenora.....	".....	.23	1	1	.23
Nemegos.....	Sudbury.....	".....	4.05	7	5	2.49
Nakina.....	Thunder Bay.....	".....	.7	4	1	.18
Pembroke.....	Renfrew.....	".....	5.2	1	1	5.2
Sandwich E.....	Essex.....	".....	7.35	2	..	..
Shrewsbury.....	Kent.....	".....	3.5	1	1	3.50
Southampton.....	Bruce.....	".....	.25	1	2	.50
Sioux Lookout.....	Kenora.....	".....	.22	1	8	1.73
Smythe.....	Temiskaming.....	".....	.25	1	1	.25
Swastika.....	Temiskaming.....	".....	..	..	3	.66
Windsor.....	Essex.....	".....	.272	2	4	1.51
Winnipeg River Crossing.....	Kenora.....	".....	29.73	19	3	29.86
MacDiarmid.....	Thunder Bay.....	".....	..	..	3	.64
Goldpines.....	Patricia.....	".....	..	..	..	..
Foleyet.....	Sudbury.....	".....	..	..	1	.06
Walkerville.....	Essex.....	".....	..	..	1	43.403
Savant.....	Thunder Bay.....	".....	..	..	2	.64
Kapuskasing.....	Cochrane.....	".....	..	..	3	.43
Hamilton City.....	Wentworth.....	".....	..	..	1	9.12
Meaford.....	Grey.....	".....	..	..	1	5.50
Ottawa.....	Carleton.....	".....	..	..	..	..
Toronto.....	York.....	".....	..	..	..	..
Dryden.....	Kenora.....	".....	..	..	3	.75
Trenton.....	".....	".....	..	..	1	.34
			63.992	61	74	111.703

Appendix No. 13—Continued

ISLANDS SOLD

Under Summer Resort Regulations

Part or Parcel	Township	County or District	Agent	No. of acres
Idylbury Island in Loughborough Lake	Storrington	Frontenac		1.6
Parcel P.P. 692, Tobio Island	"	Thunder Bay		.14
Island A.D. 90, Loughborough Lake	"	"		12
Island G. 2361	Sabaskong Bay	Kenora		2.5
Island G. 1925	"	"		2.6
Parcel No. 1, Island T.B. 2434		Manitoulin		3
Island T.P. 562		"		4.15
Island T.P. 2831	Whitefish Bay	Kenora		6.2
E. Pt. Island G. 2656	"	"		4.75
Island T.P. 283	"	"		.30
Island K.G. 8607	French River	Parry Sound		1.7
Island in Deer Lake	Lount	"		$\frac{1}{4}$
Mickabish Island, Deer Lake	"	"		$\frac{1}{2}$
P. P. 267, Lower Shebandowan Lake		Thunder Bay		1.64
P. P. 441, Shebandowan Lake		"		1.07
P. P. 442, Shebandowan Lake		"		1.06
Island in Lower Leverly Lake		Lansdowne and Leeds		$\frac{3}{4}$
Island in Lower Leverly Lake		"		.75
Island No. 7, Bobs Lake	Bedford	Frontenac		1.1
Island T.P. 3240	Lake Penage	Sudbury		4
Island T.P. 3227	"	"		1.50
Island G. 2023, Lake of the Woods	Sabaskong Bay	Kenora		.15
Island G. 2009, Lake of the Woods	"	"		6
Island G. 1921, Lake of the Woods	"	"		1.5
Island P.P. 638, Two Island Lake	Fowler	Thunder Bay		5.1
Island P.P. 263, Two Island Lake	"	"		3.2
Island P.P. 632, Two Island Lake	"	"		3.5
Island P.P. 633, Two Island Lake	"	"		3.2
Island No. 1 in Island Lake	Aweres	Algoma		1.2
Island in Remi Lake	Fauquier	Cochrane		5.2
Lot 21, of Island 96a, near Point Au Baril		Georgian Bay		1
North Pt. Island in Green Lake	Brougham	Renfrew		1 $\frac{1}{2}$
Island Mississaga	Lake Cavendish	Peterborough		.25
Joy Island, Clear Lake	Perry	Parry Sound		.75
Bobby Island	"	"		3.59
Island No. 2, Steamboat	Loughborough	Frontenac		3/5
East Pt. Island 145c	Georgian Bay	Parry Sound		5
West Pt. Island 145c	"	"		5.18
Island K. 7884, Georgian Bay	French River			1.60
Parcel No. 1, Rama				.36
Pt. Island B (West Part)	Cariboo Lake	McConkey		5
North Pt. Island in Rib Lake	Gillies Limit			1.95
Island P.P. 692, Surprise Lake	Gorham			.14
Island 4, Clearwater Lake				3.6
Island 4, McQuay's Lake		Nipissing		1
Island 21, Clearwater Lake		Rainy River		3.6
Island N, Clearwater Lake		"		2

Appendix No. 13—Continued

ISLANDS SOLD

Under Summer Resort Regulations

Part or Parcel	Township	County or District	Agent	No. of acres
Parcel 8, Island T.P. 1503....	McGregor Bay..			4.70
Island D. 351.....	"			4.4
Island T.P. 1814.....	"	Manitoulin.....		4.16
Island in Rice Lake.....	Muskoka.....			3 $\frac{1}{4}$
Island in Rice Lake.....	"			$\frac{1}{2}$
Pt. Bluff Island, Charleston	Escott.....	Leeds.....		5
Island F, Weslemkoon Lake..	Effingham.....	Lennox and Addington.....		6.3
Island 80, Newboro Lake....	South Crosby..	Leeds.....		.75
Island 80, Newboro Lake....	"	"		.75
Pt. Island 210, in front.....	Harrison.....	Parry Sound.....		.39
Pine Island, St. Mary's River.		Algoma.....		1.7
Pt. T.P. 3464, Pickerel River.		Parry Sound.....		5
Island W.D. 1170.....	Poplar Bay.....	Lake of the Woods.....		.44
Island Bush Lake, Lough- borough Lake.....	Storrington.....	Frontenac.....		.60
Island 73, Rideau Lake.....	Bastard.....	Leeds.....		.25
Parcel 4, Island 36.....	Severn River.....			2.58
Island near Island 1, Lake Joseph.....	Humphrey.....	Parry Sound.....		.10
Island E. 18, front of Shaw- anaga.....				3.8
Island Hostess Island, Loc. G. 2956.....	Rainy Lake.....			5
Island in Loon Lake, Front 18 and 19, Con. 7.....	Chandos.....	Peterborough.....		1.06
Island T.P. 614, Bay Finn....	Lake Huron.....			4.15
Island H, West Arm of Lake Nipissing.....	Loudon.....	Nipissing.....		12.8
Island J.P. 595, North Shore, Lake Huron.....				1.07
			Total area...	186.48

Appendix No. 13—Continued

ISLANDS PATENTED

Statement showing Islands Patented as Summer Resorts

Part or Parcel	Township	District or County	Agent	No. of acres Pat'd
Sister Island in Kashegabagamog.....	Burton.....	Parry Sound.....		1 ³³ / ₃
Island B in Maskinonge Lake	Kelly.....	Sudbury.....		2
Islands 23, 24, 25 and 26.....	St. Joseph's Channel.....	Algoma.....	W. J. Trainor, Hilton Beach.....	4
Part of Island T.P. 2831.....	Whitefish Bay.....	Manitoulin.....		7
Part of Island T.P. 528.....	".....	".....		3
West Pt. Island T.P. 1457.....	McGregor's Bay.....	".....		5.68
East Pt. Island T.P. 1457.....	".....	".....		5.68
Island T.P. 1814.....	".....	".....		4.16
Parcel No. 4, Island T.P. 2831	Whitefish Bay.....	".....		3.5
Parcel No. 2, Island T.P. 2831	".....	".....		6.2
Island T.P. 2781.....	".....	".....		1.32
North part J.D. 1615.....	Bayfield Sound.....	".....		4.86
Island in Pine Lake, opposite Lot 18, Con. 2.....	Oakley.....	Muskoka.....	W. G. Gerhart, Brace- bridge.....	1 ²⁵ / ₄
Hemlock Island in Charleston Lake.....	Lansdowne.....	Leeds.....		3 ¹⁷ / ₉
Evergreen Island in Lake Mimisaganesing.....	Harley.....	Temiskaming.....	J. R. McCrea.....	2
Island No. 7 in Bob's Lake.....	Bedford.....	Frontenac.....	Chas. Both, Denbigh	1:1
Belle Island in Loon Lake.....	Chandos.....	Peterborough.....		1.06
Island E-70 in George Bay.....	Chawanaga.....	Parry Sound.....		5.6
Island E-18 in George Bay.....	".....	".....		3.8
Island A-35 in French River.....	Scollard.....	Sudbury.....		5
Island in Lake Rosseau, oppo- site Lot No. 27, in the 10th Concession.....	Medora.....	Muskoka.....		.25
Island T.G. 7834, Mouth of the French River.....		Parry Sound.....		1.60
Island 42, South Bay, Lake Nipissing.....		".....		9.33
Part of Island K.G. 6900, be- tween branches of the French River.....		".....		2.8
Idyllwyld Island in Lough- borough Lake.....	Storrington.....	Frontenac.....		1.6
Location A.D. 90 in Lough- borough Lake.....	".....	".....		12
Island in Devil's Lake, oppo- site Lot No. 29 in the 8th Concession.....	Cashel.....	Hastings.....	David Fuller, May- nooth.....	1.65
Tea Island in Gananoque Lake	Leeds.....	Leeds.....		.62
Island C in Clearwater Lake..	Perry.....	Parry Sound.....		.75
Part of Boom Island.....	Struthers.....	Sudbury.....		3.2
Steamboat Island in Bucke Lake, opposite Lot 23, in 14th Concession.....	Loughborough.....	Frontenac.....		.60
Island C in Clearwater Lake..		Rainy River.....		1.5
Island G, 1925, Sabaskong Bay		Kenora.....		2.6
Island G, 2038, Sabaskong Bay		".....		5.8
Island W.D. 1170, Poplar Bay	Lake of the Woods.....	".....		.44
Island G, 2010, Sabaskong Bay	".....	".....		4.9
North part of Island G, 2315, Miles Bay.....	".....	".....		5
Island G, 2017, Sabaskong Bay	".....	".....		9.2
Part of Island G, 2019.....	".....	".....		4.5

Appendix No. 13—Continued

LAND ON MAINLAND SOLD UNDER SUMMER RESORT REGULATIONS

Part or Parcel	Township	District or County	Agent	No. of Acres
Pt. of Lot 38, Con. 1	Watten	Rainy River	J. A. Alexander	2.1
Pt. of Lot 5, Con. 6	Malachi	Kenora	Unattached	1.14
Pt. N.W. ¼ of Sec. 35	Aweres	Algoma	E. H. Barnes	5
Pt. N.E. ¼ of Sec. 35	"	"	"	4.9
Pt. of Lot 24, Con. 11	Patterson	Parry Sound	H. J. Ellis	4.7
Pt. South Pt. Lot 33, Con. 2	Muskoka	Muskoka	W. G. Gerhart	5
Pt. of Lot 35, Con. 3	"	"	"	3.25
North Pt. Lot 29, Con. 11	"	"	"	5
South Pt. Lot 29, Con. 11	"	"	"	5
Pt. of Lot 10, Con. 1	Broder	Sudbury	J. K. MacLennan	5—
Pt. Lot 30, Con. 6	Cardiff	Haliburton	A. N. Wilson	5
Pt. West ½ Lot 11, Con. 6	Sheffield	Lennox and Add- ington	Unattached	8.5
Pt. of Lot 5, Con. 3	Bigwood	Sudbury	J. K. MacLennan	2.4
Location No. 65	Clearwater Lake	Rainy River	Unattached	1.29
Location No. 66	"	"	"	1.3
Location G. 2948	"	"	"	3.1
Lot 70	"	"	"	1.9
Lot 138, Part	"	"	"	1.24
Lot 138, Part	"	"	"	1.38
Lot 64	"	"	"	1.56—
Location G. 2944	"	"	"	4.9
Lot 119	"	"	"	1.61
Lot 110	"	"	"	1.13
Lot 111	"	"	"	1.7
Lot 93	"	"	"	.08
Pt. of Lots 24 and 25, Con. 1	Mattawan	Nipissing	J. A. Fink	5
Pt. of Lot 25, Con. 1	"	"	"	5
Location P.P. 442	Shebandowan Lake	Thunder Bay	Unattached	1.06
Location P.P. 441	"	"	"	1.07
Location P.P. 118, Lower	"	"	"	1.48—
Location P.P. 443, Middle	"	"	"	1.32
Lot 43, Trout Lake	Ware	"	S. H. Wilson	.96
Lot 47, Trout Lake	"	"	"	.7
Lot 46, Trout Lake	"	"	"	1.08
Part Lot 10, Con. 4	Dowling	Sudbury	J. K. MacLennan	4.8
Part Lot 23, Con. 5	Herschel	Hastings	David Fuller	2
Part Lot 22, Con. 16	Bonfield	Nipissing	W. J. Parsons	5.92
Pt. N.E. ¼ Lot 2, Con. 6	Parkinson	Algoma	"	.99
S.W. ¼ Lot 2, Con. 6	Grasset	"	"	1.08
Pt. Lot 18, Con. 1	Louth	Lincoln	(27 0 S. Ft.)—	8
Pt. Lot 5, Con. 13	Hagarty	Renfrew	"	8
Pt. Location 463-P	Lake of the Woods	"	"	1.2
Pt. Lot 15, Con. 7	Gorham	Thunder Bay	"	5
Pt. Lot 11, Con. 4	Scadding	Sudbury	"	3
Pt. L.K. 331	Long Lake	Kenora	"	1.60
Parcels	Struthers	Sudbury	"	3.02
Part Lot 26, Con. 9	Hardy	Parry Sound	"	3.80
Part Location L.K. 371	Kenora	Kenora	"	2.20
Lot 1, being Pt. Lot 18, Con. 3	Cavendish	Peterborough	"	5
Lot 2, being Pt. Lot 18, Con. 3	"	"	"	2
Lot D. 653, Tutle Lake	"	Kenora	"	1.88
Location P.P. 647	Jacques & Fowler	Thunder Bay	"	3.40
Pt. Lot 7, Con. 4	Ferris	Nipissing	"	5
Location N.T. 80, West Shore	Otter Lake	"	"	5
P.P. Location 638	Two Island Lake	Thunder Bay	"	5.1
Pt. Broken Lot 1, Con. 5	Cherriman	Sudbury	"	4.85
Parcel No. 4	MacLennan	Sudbury	"	2.75
Location 38, Wahnapiatae	"	"	"	2
Location P.P. 634	Fowler	Thunder Bay	"	3.6

Appendix No. 13—Continued

LAND ON MAINLAND SOLD UNDER SUMMER RESORT REGULATIONS—Continued

Part or Parcel	Township	District or County	Agent	No. of Acres
Location P.P. 264.....		Thunder Bay.....		2
Location L.K. 366.....	Granite Lake.....	Kenora.....		4.68
Location L.K. 367.....	“.....	“.....		4.42
R.B. 14.....	Mink Lake.....	Rainy River.....		.84
Location 39.....	Wahnapiatae Lake.....	Sudbury.....		.17
Parcel No. 1 of T.P. 2831....	Whitefish Bay.....	Kenora.....	Unattached.....	7
Location L.K. 369.....		“.....	“.....	4.70
Pt. West Pt. old Mining Loca- tion D. 12.....	Clearwater Bay.....	“.....	“.....	2.40
Location G. 2958 in Off Lake		Rainy River.....	“.....	3
Location L.K. 372, Granite Lake.....		Kenora.....	“.....	3.30
Location N.T. 84, Otter Lake		“.....	“.....	3
Location P. 653, Otter Lake..		“.....	“.....	1.85
Location L.K. 371, Granite Lake.....		“.....	“.....	2.20
Location L.K. 320, Clearwater Lake.....		“.....	“.....	4.47
Part of Lots 24 and 25, Con. 1	Mattawan.....	Nipissing.....	J. A. Fink, Mattawa.	5
Part of Lot 25, Con. 1.....	“.....	“.....	“.....	5
Location L.K. 376, Clearwater Bay.....		Kenora.....	Unattached.....	4.70
Location L.K. 377, End Trout Lake.....		“.....	“.....	4.72
S.E. Part Mining Location K. 57.....		“.....	“.....	.392
Location G. 2657, Kakagi Lake		“.....	“.....	4.80
Location L.K. 382, Trout Lake		“.....	“.....	4.40
Location L.K. 380, Granite Lake.....		“.....	“.....	2.37
Location L.K. 379, Granite Lake.....		“.....	“.....	4.70
Location P.P. 692, Tobio Isld.		Thunder Bay.....	“.....	1.4
				259.922

Appendix No. 14

PATENTS OFFICE (Lands Branch)

Statement of Patents, etc., issued from 1st of November, 1929, to 31st of October, 1930

Public Lands (Patents)	528
Free Grant Lands (Patents)	234
Pine Patents	20
Transfer (Crown)	22
Mining Lands (Patents)	386
Mining Rights (Patents)	5
Mining Leases	113
Crown Leases	35
License of Occupation	150
License of Occupation (Temagami Islands)	18
License of Occupation (Rondeau Park)	7
Temagami Island Leases	1
Water Power Leases	10
Algonquin Park Leases	9
Rondeau Park Leases	29
Bruce Beach Leases	4
Bruce Beach Renewal Leases	7
Total	1,578

Appendix No. 15

RECORDS BRANCH, 1929-30

Communications received:—

From Crown Land Agents	8,854
From Crown Timber Agents	5,000
From Mining Recorders	2,391
From Homestead Inspectors	2,190
From Superintendent, Algonquin Park	524
From Superintendent, Quetico Park	192
From Superintendent, Rondeau Park	397
Orders-in-Council	126
Telegrams	272
All other sources	31,012

Total incoming (Minister's Office and Land Tax Branch not included) 50,858

Communications sent out:—

To Crown Land and Timber Agents, Inspectors and Park Superintendents	19,000
To General Public	25,308
Re Statistics	2,000
Re Mill Licenses	5,600
Re Maps and Blue Prints	8,000
Summer Home Booklets	5,000

Total outgoing (Minister's Office and Land Tax Branch not included) 64,908

Files:—

New files issued—General	3,400
New files issued—Accounts Chargeable	1,144
New files issued—Accounts Free	300

Appendix No. 15½

This Agreement made and entered into this 26th day of November, 1929.

Between:

His Majesty the King represented herein by the Minister of Lands and Forests for the Province of Ontario, hereinafter referred to as the Minister,

of the first part,

—and—

Howard Smith Paper Mills Limited hereinafter referred to as the Grantee,

of the second part.

Whereas the said Grantee has expended in the erection and equipment of pulp and paper plants at the Town of Cornwall, in the County of Stormont, in the Province of Ontario and in a site for the same approximately Five Million dollars (\$5,000,000)—Four Million dollars (\$4,000,000) of which has been expended since the year 1920.

And whereas the said Grantee is now operating said plants at the said Town of Cornwall.

And whereas the plants of the said Grantee at the said Town of Cornwall have a capacity of approximately

Bleached Sulphite Pulp, 20,000 tons per year.

Bleached Soda Pulp, 17,000 tons per year.

Chlorine and Caustic Soda, 3,500 tons per year.

Book, Bond, Litho, Writing, Bristol, Blotting, Cover, Offset, Stationery, Text, etc., 22,500 tons per year.

And whereas the said Grantee and the subsidiaries hereinafter mentioned employ throughout the year in their plants approximately 700 men.

And whereas the said Grantee through subsidiary companies is now operating pulp and paper plants at the Towns of Georgetown and Merriton in the Province of Ontario.

And 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 26th day of August, 1929, for the right to cut pulpwood and other classes of timber on an area in the District of Sudbury therein described, including the lands hereinafter referred to, subject to certain terms and conditions of sale.

And whereas on the 24th day of August, 1929, the Minister received from the Grantee a tender for the right to cut pulpwood timber on said area in and by which said tender it offered to pay for such pulpwood timber the prices hereinafter mentioned, subject to certain terms and conditions of sale.

And whereas with its tender aforesaid the Grantee did deposit with said Minister its marked cheque payable to the Honourable the Treasurer for the Province of Ontario for the sum of Fifty Thousand dollars (\$50,000).

And whereas this agreement is entered into for the purpose of insuring the performance by the Grantee of the obligations contained in the said tender and acceptance thereof as hereinafter defined and of securing to the said Grantee the said supply of pulpwood timber for the purpose of the mills of the Grantee

now established at the Town of Cornwall in the County of Stormont and the said mills of its subsidiary companies at Georgetown and Merritton.

And whereas in view of the matters above recited the Minister has deemed it wise and in the public interest to grant to the said Grantee the right to cut pulpwood as herein provided.

Now therefore this Agreement witnesseth that the Minister with the approval of the Lieutenant-Governor in Council, and subject to the terms and condition hereof, doth hereby grant to the company for a period of twenty-one years from the date hereof, the right to cut and remove all spruce, balsam, poplar and whitewood timber, in or upon the following area, that is to say:

All and singular those certain parcels or tracts of territory, situate, lying and being in the district of Sudbury, in the Province of Ontario, containing 965 square miles, more or less, and being more particularly described as follows:

Township of Burrows.....	36	sq. miles	more or less		
“ Kemp.....	35	“	“	“	“
“ Mond.....	36	“	“	“	“
“ Togo.....	36	“	“	“	“
“ Cabot.....	36	“	“	“	“
“ Kelvin.....	35	“	“	“	“
“ Natal.....	36	“	“	“	“
“ Brunswick.....	36	“	“	“	“
“ Connaught.....	36	“	“	“	“
“ Churchill.....	36	“	“	“	“
“ MacMurchy.....	36	“	“	“	“
“ Londonderry.....	36	“	“	“	“
“ Miramichi.....	36	“	“	“	“
“ Asquith.....	36	“	“	“	“
“ Fawcett.....	36	“	“	“	“
“ Sheard.....	36	“	“	“	“
“ Ogilvie.....	36	“	“	“	“
“ Amyot.....	36	“	“	“	“
“ Browning.....	36	“	“	“	“
“ Hodgetts.....	36	“	“	“	“
“ Unwin.....	36	“	“	“	“
“ Stull.....	35	“	“	“	“
“ Valin.....	36	“	“	“	“
“ Cotton.....	35	“	“	“	“

Part of the township of Stetham.

Being all that part of said township lying north of a line drawn west astronomically across said township from the three-mile post on the east boundary thereof, containing 19 square miles, more or less.

Part of the township of Mattagami.

Being all that part of said township lying south, east and west of Mattagami Lake, containing 25 square miles, more or less.

Part of the township of Garibaldi.

Being all that part of said township lying north of a line drawn east astronomically across said township from the three-mile post on the west boundary thereof, and that part of said township lying east of a line drawn

from a point $5\frac{1}{4}$ miles east of the west boundary on said first mentioned line southwesterly to a point $4\frac{7}{8}$ miles east from the southwest angle thereof, containing 21 square miles, more or less.

Part of the township of Leask.

Being all that part of said township lying north of a line drawn east astronomically across said township from the three-mile post on the west boundary thereof and east of a line drawn north astronomically from the three-mile post on the south boundary thereof to intersect the aforementioned line, containing 25 square miles, more or less.

Part of the township of Howey.

Being all that part of said township lying west of a line drawn north astronomically from the three-mile post on the south boundary thereof, containing 15 square miles, more or less.

1. The said Grantee shall, from time to time, increase the capacity of, and make such additions to, its said plants at Cornwall as in the opinion of the said Minister of Lands and Forests the circumstances may warrant.

2. The Grantee covenants that it and the said subsidiaries shall, from and after the date hereof, constantly employ at least 650 men in or about the operation of said plants at Cornwall, Georgetown and Merriton and shall directly and indirectly afford employment in their woods operations in the Province of Ontario for not less than six months in each year for an average of 250 men.

Provided that, if the Grantee through extended interruption to power or other causes not attributable to any default on its part, shall at any time or times be unable to give continuous employment to the number of men provided for in this clause, the Minister may, by order in writing under his hand, relieve the Grantee from time to time from its liability so to do. No such order shall in any way invalidate this clause or relieve the Grantee from liability thereunder, other than and to the extent specifically set forth in such written order.

3. The deposit of Fifty Thousand dollars (\$50,000) made by the Grantee with its said tender shall be held by the Minister as security for due performance by the Grantee of its agreements herein contained and may be applied by the Minister and go in reduction of the first monies payable by the Grantee for bonuses hereunder, until in that way the Grantee has been given credit for the full sum of Fifty Thousand dollars (\$50,000).

4. Except as provided in clause numbered 8 (c) hereof, the timber covered by this agreement is spruce, balsam, poplar and whitewood.

5. All pulpwood cut by the Grantee under this agreement shall be manufactured into a finished product in the mill or mills of the Grantee or its subsidiaries within the Province of Ontario, for such purposes as high grade bond, magazine, book and writing paper, or such other finished product as may be required by the Minister; and it is hereby specifically stipulated and agreed that such finished product shall not cover or include newsprint.

6. It is distinctly understood that the right is hereby reserved by the Crown to deal with the lands above described and the timber standing, growing or being thereon, for reforestation and other purposes as the Minister may see fit, and in particular, but not so as in any way to limit or restrict the generality of the foregoing, it is hereby specifically stipulated and agreed as follows:

(a) All types or classes of timber other than those mentioned in clause numbered 4 hereof are especially reserved to the Crown and may be sold or

disposed of under such terms and conditions as are consistent with the Crown Timber Act.

(b) The Grantee shall not have the right to cut or remove timber of any kind from any lands already under timber license or permit from the Crown, without the special permission in writing of the Minister.

(c) The Crown reserves the right to sell such classes of timber referred to in clause numbered 4 hereof as, in the opinion of the Minister, may be too large for pulpwood purposes.

(d) The Crown reserves and excepts from the lands above described the right-of-way of any and all railways or travelled roads, islands, Indian reserves and all lands under the water of all rivers, lakes and streams; 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 of such lands, together with the right to sell, lease, locate or otherwise dispose of any lands within the area allocated for settlement, mining, summer resort or other purposes on such terms and conditions as may be deemed advisable.

(e) All water powers and privileges on the said area, together with the right of the Crown to raise, hold, lower or maintain the waters of the rivers, streams and lakes in said area at such height and in such condition as may be found necessary and expedient for the development of said water powers and privileges, are reserved to the Crown.

7. On or before the first day of September in each year, the Grantee shall apply to and obtain permission in writing from the Department of Lands and Forests for the portion or portions of said area on which cutting for the then coming season may take place and, at the end of each season's operations and not later than the first day of June in each and every year, shall file with the Minister a map indicating thereon the portion or portions of said area, if any, cut over during the preceding season, and the kinds and quantities of each class of timber taken therefrom.

8. (a) The Minister shall have the right, in and by the written permission provided for in the next preceding clause hereof, to fix a minimum diameter for all timber to be cut and to make any regulations and impose any restrictions and conditions in connection with the cutting of timber on such area, that he may think right and proper for the purpose of preserving young timber in the interests of reforestation or for any other purpose.

(b) The Minister shall also have the right to require the Grantee to leave any suitable seed trees that may from time to time be selected by him, and to conform to any other regulations in connection with the cutting of such timber he may deem proper.

(c) For the purpose of effecting a clean-up operation and providing for an efficient means of aiding nature in reforestation, and of gradually bringing the forest under a sustained yield basis, the Grantee, whenever so required by the Minister, shall cut in the manner directed by the Minister, any timber of any type not included in any timber license or concession other than that hereby granted, and shall pay therefor such rates of bonus and Crown dues as shall be fixed by the Minister after investigation is made and valuation determined by him.

9. Subject to the provisions of the next preceding clause hereof all merchantable timber of the classes mentioned in clause 4 hereof shall be cut

upon such portions of said area and in such manner as the Minister may from time to time direct.

10. To prevent injury or destruction by fire upon such area, the Grantee shall take such precautions and employ such means as the Minister may require, and shall pay an annual charge for fire protection of \$3.20 per square mile and an annual ground rent of \$2.50 per square mile, or such other rates or charges as may from time to time be fixed by the Lieutenant-Governor in Council.

11. Pulpwood taken out in four foot or eight foot lengths shall be measured, returned and paid for on the basis of 128 cubic feet to each stacked cord. Pulpwood taken out in lengths above eight feet shall be measured in the log on the cubic basis and each 100 cubic feet shall constitute a cord.

12. It is distinctly understood that the Minister does not guarantee any quantity of wood on the said area and the only right conferred upon the Grantee hereby is the right to cut sufficient timber of the character hereinbefore described as may be on the said area to enable the said Grantee or its subsidiaries to operate these said plants continuously to their full capacities during said term of twenty-one years, and any extension or extensions thereof as are hereinafter provided for on such area, and subject to such further 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 Lieutenant-Governor in Council, or by the Minister.

13. Proper sworn returns of the quantity of timber cut each season shall be made to the Government in conformity with the Crown Timber Regulations, and payment shall be made for timber not later than the first day of October in each year and the Government in addition to all the rights and powers herein contained shall have all the rights and powers in respect of enforcing such payment as are now provided in the case of timber cut under The Crown Timber Act. On all arrears of accounts due and payable on October 1st, interest at the rate of 6 per cent. per annum shall be charged up to the 31st of October of the same year, or for one month, and thereafter at the rate of one per cent. per month until paid.

14. The Minister shall have the right to inspect the timber operations carried on by the Grantee at any time he may deem it advisable, or in the public interests so to do, and if such inspection shall show 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 estimate the said timber and charge the same to the Grantee at the same rate of dues and bonus as if it had been actually removed.

15. No refuse, sawdust, chemicals or matter of any other kind shall be placed or deposited in any river, stream, or other waters, which shall be or may be injurious to game or fish life.

16. All slash made about camps, dumps, along tote roads, railroads or any other points which constitute a serious fire menace shall be disposed of by and at the expense of the Grantee in accordance with The Forest Fires Prevention Act and amendments thereto, and regulations made thereunder.

17. The Grantee shall co-operate to the satisfaction of the Minister in the purchase of all bonafide settlers' pulpwood.

18. All bona fide accounts due for settlers' pulpwood purchased by the Grantee shall, subject to the rights of the Crown, constitute a first claim against the Grantee.

19. The Grantee shall pay to the Minister, subject to the provisions and conditions herein contained, and subject to such other conditions, orders and

regulations as may be hereafter passed or enacted relating thereto, the following prices for said timber:

Spruce Pulpwood—per cord, Crown dues \$1.40, bonus \$0.75, making a total of \$2.15.

Balsam Pulpwood—per cord, Crown dues \$0.70, bonus \$1.45, making a total of \$2.15.

Poplar Pulpwood—per cord, Crown dues \$0.40, bonus \$0.30, making a total of \$0.70.

Whitewood Pulpwood—per cord, Crown dues \$0.40, bonus \$0.30, making a total of \$0.70.

20. It is distinctly understood that the Grantee obtains the right to cut the said timber only and has no right to the soil of said area or to the use thereof except as may be necessary for cutting and removing the said 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 Lieutenant-Governor in Council.

21. All pulpwood cut on said area shall be used for the supply of and shall be manufactured at the said mills.

22. The cutting and removing of timber on 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 cutting and removing shall have been declared satisfactory by the Minister.

23. When one or more of the classes of pulpwood timber covered by this agreement are not required or are not being cut for and manufactured into the finished product by the Grantee or its subsidiaries, the Crown, to prevent deterioration and to provide for reforestation, may undertake to dispose of it or them in such a way and under such terms and conditions as the Minister may deem advisable. If and when any question of dispute arises as to whether such one or more classes of timber are not so required, or are not being so used, the Minister shall be the arbiter and his decision shall be final and conclusive.

24. The Grantee shall furnish the Department of Lands and Forests, when required so to do by the Minister, with types and samples of the product or products of the timber taken from said area.

25. The Grantee hereby covenants and agrees to and with the Minister to observe, perform, and keep all the covenants, agreements, provisions and conditions on its part herein contained.

26. The Grantee shall furnish a bond of an approved guarantee company in an amount satisfactory to the Minister to secure the performance of its obligations hereunder.

27. Failure to employ the men as hereinbefore set forth or to observe, perform and keep one or more of the covenants, agreements, provisions and conditions on its part herein contained shall subject to the provisions contained in paragraph 2, hereof, forfeit all the right of the Grantee hereunder, and shall cause the deposit hereinbefore mentioned to be forfeited to and become the absolute property of the Crown.

28. If upon the termination of said period of twenty-one years the Grantee shall have fully performed the terms and conditions hereinbefore set forth to the satisfaction of the Minister, it shall be entitled to an extension hereof for a further term of ten years upon such terms and conditions (including the prices to be paid for wood and timber) as may then be fixed by the Minister, and at the expiration of such period of ten years to a further extension of ten years upon such terms and conditions (including the prices to be paid for wood and

timber) as may then be fixed by the Minister. If at the expiration of the last of such extensions the Grantee shall have in all respects fully performed the terms and conditions hereinbefore set forth and shall have maintained its plant and property in a high state of efficiency to the satisfaction of the Minister in all respects so that it shall then appear to the Minister desirable in the public interest to continue and maintain the operations of the said plants the Lieutenant-Governor in Council may grant to the Grantee a further extension or extensions of this agreement on such terms and conditions (including the prices to be paid for timber) as may then be fixed by the Lieutenant-Governor in Council.

29. The manufacturing conditions of The Crown Timber Act and amendments to the said The Crown Timber Act, and all other conditions, acts and regulations relating in any way to the cutting of the timber on Crown lands shall be applicable to the operations of the Grantee, and shall be binding upon the Grantee as fully and effectually as if they had been set forth herein. Provided always, that nothing contained in such conditions, acts and regulations shall limit, restrict or curtail the duties, liabilities and obligations imposed upon the Grantee by virtue of this agreement.

30. The decision of the Minister as to the true intent and meaning of this agreement shall be final and binding upon the Grantee.

31. This agreement shall be binding upon and enure to the benefit of the Grantee and its assigns, but this agreement and the rights of the Grantee thereunder shall not be assigned without the consent of the Minister, and then subject to the payment of a transfer fee of \$1.00 per square mile and to such terms and conditions as to him may be deemed fair and reasonable.

In witness whereof the parties hereto have executed these presents the day and year above written.

SIGNED, SEALED AND DELIVERED

HOWARD SMITH PAPER MILLS LTD.

J. L. PATENAUDE

H. CRABTREE,
President.

as to WM. FINLAYSON
J. B. THOMPSON

K. G. PENDOCK,
Secretary.
[SEAL]

W. FINLAYSON,
[SEAL]

REPORT
OF THE
MINISTER OF LANDS AND FORESTS
ONTARIO
1930
PART II — SURVEYS BRANCH

Appendix No. 16

REPORT OF SURVEYOR-GENERAL

The following surveys were carried out under instructions from this Department during the past year:—

PROVINCIAL BOUNDARIES

Ontario-Manitoba Boundary was completed and monumented from the 12th Base Line to the eastern end of Island Lake and a trial line of 30 miles north-easterly along the last stretch of said boundary was run by Ontario Land Surveyor J. W. Pierce, of Ottawa.

Ontario-Quebec Boundary was surveyed from the 140th mile point north of Lake Timiskaming for a distance of 68 miles, and 11 miles of the boundary retraced southerly from said starting point, by Ontario Land Surveyor Shirley King as the Ontario representative, and Quebec Land Surveyor J. M. Roy as the Quebec representative.

BASE LINES

The 7th Base Line was continued east through the district of Cochrane as far as Niven's Meridian Line of 1898 by Ontario Land Surveyors Beatty & Beatty of Pembroke.

Survey of Base Line extending east from the north-east angle of the township of Blount, in the district of Cochrane, to the Ontario-Quebec Boundary Line by Ontario Land Surveyor G. P. Angus of North Bay.

TOWNSHIP OUTLINES

9-Mile Township Outlines north of Canadian National Railway in the district of Cochrane by Ontario Land Surveyor H. W. Sutcliffe of New Liskeard.

9-Mile Township Outlines north of Canadian National Railway in the district of Cochrane by Ontario Land Surveyors Speight and vanNostrand of Toronto.

6-Mile Township Outlines south of Canadian Pacific Railway and west of Lake-of-the-Woods, in the district of Kenora, by Ontario Land Surveyors Phillips & Benner of Port Arthur.

6-Mile Township Outlines west of the Ottawa River, in district of Nipissing, by Ontario Land Surveyor R. W. Code of Windsor.

RE-SURVEYS

Retracing of part of Ontario Land Surveyor Niven's Meridian Line of 1898, in the district of Cochrane, by Ontario Land Surveyor E. L. Moore of North Bay.

LAKE AND RIVER TRAVERSES

Traverse of islands and main shore lines in the north part of Lake Superior, in the district of Thunder Bay, by Ontario Land Surveyor James S. Dobie of Thessalon.

Traverse of part of the Little Abitibi River, in the district of Cochrane, by Ontario Land Surveyor J. Lanning of Cochrane.

TOWNSHIP SUBDIVISIONS

Subdivision of the township of Joynt and the south part of the township of Langworthy, in the district of Thunder Bay, by Ontario Land Surveyor R. S. Kirkup of Fort William.

ROAD SURVEYS

Survey of constructed roads in the townships of Lorne, Louise, Shakespeare, McKinnon, Trill, Fairbank, Lumsden, Creighton, Snider and Broder, in the district of Sudbury, by Ontario Land Surveyor E. Stewart, of Collingwood.

Survey of constructed roads in the townships of Kirkwood, Bridgland, Rose, Plummer, Haughton, Galbraith, Aberdeen, Otter, Morin and McMahon, in the district of Algoma, by Ontario Land Surveyor C. E. Bush of Toronto.

GROUND CONTROL SURVEYS FOR MAPPING PURPOSES

Traversing of certain roads and water routes in the districts of Nipissing and Parry Sound, and in Haliburton and Renfrew Counties, by J. T. Coltham, Ontario Land Surveyor of Parry Sound.

Traverse of roads and water routes in the territory west of Fort William, in the district of Thunder Bay, by Ontario Land Surveyor E. M. McQuarrie of Sault Ste. Marie.

MISCELLANEOUS SURVEYS

Summer Resort Locations on Island and Patten Lakes in the townships of McMahon and Aberdeen, district of Algoma, by Ontario Land Surveyor T. J. Patten of Little Current.

The re-survey of certain township boundaries and mining claims, adjacent, and inspection of same in the district of Algoma, by Ontario Land Surveyor C. R. Kenny of Sault Ste. Marie.

Inspection of mining claim surveys in the district of Kenora (Patricia Portion), by Ontario Land Surveyor John Butterfield of Toronto.

Survey of additional park lots in Rondeau Provincial Park, by Ontario Land Surveyor John Butterfield of Toronto.

MUNICIPAL SURVEYS

Municipal Surveys performed under instructions and authority of the Lieutenant-Governor-in-Council were completed and confirmed as follows:—

1. Road Allowance in the township of Burford, in the County of Brant.
2. Road Allowance in the township of Cumberland, in the County of Russell.
3. Survey of Kipling Avenue, in the municipalities of New Toronto and the township of Etobicoke, in the County of York.
4. Road Allowance in the township of Toronto, south of Dundas Street, in the County of Peel.
5. Part of Mill Street, in the town of Port Hope, in the County of Durham.

6. Road Allowance in the Township of Saltfleet, in the County of Wentworth.
7. Survey of part of West Street, in the town of Simcoe, in the County of Norfolk.

MAPS

The following maps have been published during the year:—

Province of Ontario—35 miles to the inch—(20A.)

Thunder Bay—7.89 miles to the inch—(23A.)

Islands in Lake Timagami—60 chains to the inch—(24C.)

Extracts from the reports of the several surveyors employed during the year will be found in Appendices 21 to 29.

Appendix No. 17

Statement of Crown Surveys in progress during the twelve months ending
October 31st, 1930

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
				\$ c.
1	Mar. 11, 1930	Speight & VanNostrand	Survey certain Township Outlines, District of Cochrane.....	7,020 00
2	Mar. 10, 1930	G. P. Angus.....	Survey of Township Outlines, District of Cochrane.....	5,000 00
3	Apr. 10, 1930	Beatty & Beatty.....	Survey of Base and Meridian Lines, District of Cochrane.....	12,560 00
4	Apr. 9, 1930	Phillips & Benner.....	Survey Township Outlines, District of Kenora.....	6,000 00
5	Apr. 17, 1930	J. Lanning.....	Traverse of Little Abitibi River, District of Cochrane.....	2,600 00
6	Jan. 30, 1930	J. W. Pierce.....	Boundary between Provinces of Ontario and Manitoba.....	3,000 00
7	Mar. 4, 1930	H. W. Sutcliffe.....	Survey of Township Outlines, District of Cochrane.....	6,600 00
8	Apr. 28, 1930	J. T. Coltham.....	Control Survey in Districts of Parry Sound, Nipissing, Haliburton and Renfrew County.....	5,120 00
9	Apr. 10, 1930	E. L. Moore.....	Retrace O.L.S. Niven's Meridian Line 1898, District of Cochrane.....	6,000 00
10	May 13, 1930	J. S. Dobie.....	Traverse Shore and Islands north part of Lake Superior, District of Thunder Bay.....	6,900 00
11	May 9, 1930	R. S. Kirkup.....	Survey Townships Joynnt and Langworthy in District of Thunder Bay...	4,100 00
12	May 9, 1930	W. F. B. Rubidge.....	Control Survey in District of Thunder Bay.....	1,500 00
13	May 26, 1930	Shirley King.....	Boundary between Provinces of Ontario and Quebec.....	7,250 00
14	May 30, 1930	E. Stewart.....	Survey certain roads, District of Sudbury	3,690 00
15	June 7, 1930	C. R. Kenny.....	Survey certain Mining Claims in Township 29, Ranges 22 and 23, District of Algoma.....	1,000 00
16	June 11, 1930	J. Butterfield.....	Inspection Survey work on Mining Claims, District of Kenora.....	1,300 00
17	May 12, 1930	C. E. Bush.....	Survey certain roads in District of Algoma.....	3,950 00
18	June 23, 1930	E. M. MacQuarrie.....	Control Survey in District of Thunder Bay.....	3,820 00
19	Apr. 30, 1930	R. W. Code.....	Township Outlines, District of Nipissing.	2,680 00
20	Aug. 5, 1929	T. J. Patten.....	Summer Resort Locations of Shore of Island and Patten Lakes, Townships of McMahan and Aberdeen.....	1,100 00
				\$91,190 00

Appendix No. 18

Statement of Crown Surveys completed and closed during twelve months ending October 31st, 1930

No.	Date of Instructions	Name of Surveyor	Description of Survey	Amount paid
				\$ c.
1	April 9, 1929	H. W. Sutcliffe.....	Retrace certain Township Boundaries, Districts of Temiskaming and Cochrane	6,816 00
2	May 10, 1929	E. L. Cavana.....	Survey certain roads in District of Sudbury.....	2,837 43
3	Nov. 18, 1929	J. Butterfield.....	Survey certain lots, Rondeau Park, Township of Harwich.....	642 85
4	May 15, 1929	Elihu Stewart.....	Survey certain roads in Districts of Nipissing and Sudbury.....	3,915 70
5	Mar. 21, 1929	E. D. Bolton.....	Survey of westerly part of Inverhuron Townplot.....	1,229 65
6	April 9, 1929	Speight & VanNostrand	Survey of Meridian Line, District of Kenora.....	2,548 83
7	April 9, 1929	Phillips & Benner....	Survey Base and Meridian Line in Patricia portion, District of Kenora...	2,617 36
8	Mar. 23, 1929	Beatty & Beatty.....	Survey of Base Line, District of Cochrane	3,369 24
9	May 2, 1929	D. J. Gillon.....	Survey of Summer Resorts, One Sided Lake, District of Rainy River.....	639 36
10	April 9, 1929	E. L. Moore.....	Retrace certain Township Boundaries in Districts of Sudbury and Temiskaming	2,500 00
11	May 22, 1929	T. J. Patten.....	Survey of roads in District of Sudbury and Manitoulin.....	1,027 26
12	May 1, 1929	R. S. Kirkup.....	Survey certain roads in District of Kenora	3,196 89
13	May 1, 1929	J. S. Dobie.....	Traverse of Albany River from Opichouan River to James Bay, Districts of Thunder Bay and Cochrane.....	2,066 80
14	May 15, 1929	E. W. Neeland.....	Retrace certain lines in Townships of Munro, McCool and Beatty in the District of Cochrane.....	926 00
15	May 15, 1929	C. E. Bush.....	Survey roads in District of Algoma.....	1,104 86
16	April 9, 1929	J. R. Gill.....	Retrace township boundaries in the District of Sudbury.....	3,628 14
17	April 7, 1930	J. Butterfield.....	Survey additional lots, Rondeau Provincial Park, Township of Harwich...	1,396 30
18	April 26, 1929	J. W. Pierce.....	Survey Boundary between Provinces of Manitoba and Ontario.....	679 56
19	May 28, 1929	A. McMeekin.....	Survey of certain roads in District of Kenora.....	1,104 10
20	May 31, 1929	A. Matheson.....	Survey of certain roads in the District of Temiskaming.....	1,320 45
21	April 9, 1929	C. R. Kenny.....	Traverse of certain lakes and rivers north of Lake St. Joseph, District of Kenora (Patricia Portion).....	1,668 50
22	May 2, 1930	R. F. Dynes.....	Survey of addition to Townsite at Hudson, District of Kenora.....	295 02
23	Aug. 16, 1930	C. R. Kenny.....	Survey Broken Lot 2, Con. 2, Bigwood, District of Nipissing, etc.....	376 32
24	May 1, 1929	D. J. Gillon.....	Survey of certain roads in District of Rainy River.....	1,297 06
25	Sept. 8, 1930	C. E. Fitton.....	Subdivide Islands No. 9 and 25 in Buck Lake, Township of Bedford.....	592 03
26	May 6, 1930	P. Payette & Co.....	Surveyors' metal posts.....	3,400 00
27	Jan. 11, 1930	E. M. MacQuarrie.....	Inspection of Pine Island lots.....	39 35
28	Oct. 2, 1930	W. T. McPhee.....	Travelling expenses.....	20 00
29	May 4, 1929	C. E. Fitton.....	Summer Resorts on Timagami Lake Islands, District of Nipissing.....	1,592 61
30	.....	Bank of Montreal.....	Cost of wiring cheque.....	1 88
31	Nov. 6, 1930	J. W. Evans.....	Taking levels, Salmon River, Tyendinaga Township, County of Hastings.....	20 00
				\$52,869 55

Appendix No. 19

Statement of Municipal Surveys for which instructions issued during the twelve months ending October 31st, 1930

No.	Surveyor	No.	Date of Instructions	Description of Survey
1	N. B. MacRostie.....	776	Mar. 29, 1930	That part of original road allowance between Concessions 7 and 8, across Lots 14, 15 and 16, in the Township of Lochiel.
2	Robert B. Erwin.....	777	Apr. 25, 1930	Define the boundaries of West Street between Talbot Street and Queen Street, in the Town of Simcoe, in the County of Norfolk.
3	A. W. Gray.....	778	June 20, 1930	To establish the line of the 6th Concession, in the Township of Hinchinbrooke, as laid out in the original survey between Lots 18 and 23 inclusive.
4	S. B. Code.....	779	July 24, 1930	To survey the original side road allowance between Lots 25 and 26 in the 11th Concession of the Township of Huntley, in the County of Carlton.
5	F. N. Rutherford.....	780	Sept. 2, 1930	The limits of the original road allowance between Concessions 9 and 10 across Lots 14 and 15, in the Township of Pelham, County of Welland.
6	Speight & VanNostrand	781	Sept. 26, 1930	To survey the road allowance between Lots 20 and 21 from the shore of Lake Ontario to the 2nd Concession in the Township of Saltfleet, in the County of Wentworth.

Appendix No. 20

Statement of Municipal Surveys confirmed during the twelve months ending
October 31st, 1930

No.	Surveyor	No.	Date of Instructions	Description of Survey	Date of Confirmation
1	Roger M. Lee..	745	Aug. 25, 1925	Road allowance between the 6th and 7th Concessions of the Township of Burford, across Lots 13 to 18 inclusive.....	Jan. 6, 1930
2	T. H. Wiggins..	767	Dec 18, 1928	Concession road allowance between the 10th and 11th Concessions in front of Lots 12 to 28 inclusive, in the Township of Cumberland, County of Russell.....	Aug. 1, 1930
3	Speight & Van- Nostrand....	772	May 7, 1929	Kipling Avenue between the Lake Shore Road and Queen Street, in the municipalities of New Toronto and the Township of Etobicoke, otherwise known as the original road allowance, if any, between Lots 5 and 6, Concession 1, of the south part of the Township and the road allowance on the west and in front of the first meridional concession of said Township, across Lots 6 to 9 inclusive....	Nov. 29, 1929
4	W. F. B. Rub- idge.....	773	July 2, 1929	Establish the boundaries of the original road allowance between Lots 30 and 31 in the 2nd Concession south of Dundas Street in the Township of Toronto, and County of Peel.....	Jan. 21, 1930
5	Camp. T. Smith	774	July 31, 1929	Boundaries of Cavan Street and that part of Mill Street lying between Walton Street and Ontario Street, in the Town of Port Hope.....	Dec. 11, 1929
6	MacKay & MacKay....	775	Aug. 6, 1929	Original road allowance between Lots 14 and 15 across the Broken Front and Ccncessions 1, 2 and 3, in the Township of Saltfleet.....	Dec. 9, 1929
7	Robt. B. Erwin	777	April 25, 1930	Define boundaries of West Street between Talbot Street and Queen Street in the Town of Simcoe, in the County of Norfolk.....	Oct. 31, 1930

Appendix No. 21

Extract from the field notes of the Survey of Base Line, District of Cochrane, by G. P. Angus, O.L.S., 1930.

I left Cochrane with party and supplies on May 16th *via* Temiskaming and Northern Ontario Railway to the Sucker Creek, and up the Sucker Creek to the north boundary of the Township of Blount, and along the north boundary of said township to the north-easterly angle thereof where I commenced line cutting on the 21st of May. Line was run east astronomically on nine mile chords of latitude for sixty-one miles and forty-four chains and sixty-six links to the intersection of the Quebec boundary. From here I moved up the Patten River and along the north boundary of the Township of Adair to the north-easterly angle of the Township of Abbotsford, and ran a line north astronomically for eight miles and seventy-six chains and fifty-three links to intersect the line previously run at mileage fifty-four plus thirteen chains and seventy-eight links, which completed the season's work.

Wooden posts, principally spruce of at least six inches square, were planted at each mile with the mileage marked, and either mounded with rocks or standard pits and mounds erected, and at each third mile except at the 9th, 18th, 27th, 36th, 45th, and 54th mile, the standard iron post was planted and marked with the mileage and pits and mounds erected.

Frequent observations were taken and are shown in the field notes.

GENERAL FEATURES

On the base line at mileage sixteen a range of hills forty to fifty feet high was crossed, and at mileage twenty-two, three gullies about forty feet deep were crossed, and from mile fifty-four to fifty-six the country is hilly, but for the most part the country is rolling, interspersed with spruce flats.

SOIL

From mile twenty-four to mile twenty-six the land is stony, but the greater part is good clay land and in the spruce flats the clay is covered with a deep layer of moss.

TIMBER

From mileage twenty-three and a half to mileage thirty-nine and a half the country has been burnt over some years ago and is now grown up with spruce, jack pine and poplar up to three inches in diameter, except for the lower lands which are green spruce flats of commercial timber. The balance of the base line, fire has not touched, and is covered with spruce, balsam, poplar, birch and jack pine and is commercial timber.

The country along the line between the townships of Clive and Singer is green spruce with scattered poplar and jack pine interspersed with open muskeg.

ROCK

On the base line rock outcroppings were encountered at one-half mile from starting and at mileage nine, sixteen, twenty-five and a half and from fifty-four to fifty-six, but no economic minerals were identified.

WATER POWERS

No water powers were encountered on this survey.

FISH AND GAME

Moose were plentiful especially along the Patten River. Partridge and rabbits were not very numerous, and the lakes are well stocked with pike and pickerel.

Accompanying this report are the plan, timber plan and field notes.

Appendix No. 22

Extracts from the report and field notes of the retracing of certain Township Boundaries in the Districts of Sudbury and Temiskaming, by E. L. Moore, O.L.S., 1929.

This survey consisted of retracing the line between the following townships, namely: Beaumont and Beresford, McNamara and Cotton, Leask and Valin, Unwin and Stull, Browning and Dufferin, Ogilvie and North Williams, Fawcett and Leonard, MacMurchy and Tyrrell, Natal and Knight, Mond and Raymond, Halliday and Midlothian, Hutt and Montrose, Zavitz and Hincks, Geikie and Cleaver, Douglas and Fallon which was surveyed originally as one straight line by Ontario Land Surveyor A. Niven in 1898.

The survey consisted of opening out the original line, checking the alignment and measurements, and renewing such of the original posts as could be located. Hence the line was well opened out from post to post and cut particularly wide at and for some distance from the shores of all lakes, and at the tops of all prominent hills for the benefit of those engaged in aerial surveys. The trees along the line were blazed in the usual manner. New posts of the most durable wood obtainable, and not less than six inches square, were planted at all points where the original post or bearing tree could be found, and this applies to every point marked in the original survey with one exception, and that is the point where a post was planted on the shore of Burwash Lake in lieu of the 30 mile post, which point is now under water as the lake has been raised. Where possible a substantial mound of stones was built around each post, and where stones were not available standard pits were dug. At each post two or more trees, where such were in the vicinity, were blazed conspicuously, facing the post and marked with the letters "B.T." indicating "Bearing Tree." The distance in chains and the astronomic bearing from the post to such blaze was noted and recorded in my field notes. All marking was done by carving deeply in the wood with a scribe or knife. Each post was marked as the original that it renewed but in "Arabic," whereas the originals were marked in "Roman." Where a mile post marked also a township corner the names of the respective townships were carved thereon.

Two steel tapes, five chains and two hundred feet in length respectively, were used on this work, after having first been compared with a standard tape. Where the ground was not level, slope measurements were taken and a clinometer was used to measure the degree of inclination from which the horizontal measurements were deduced. In many places, however, the hills were so high and steep that I did not consider a hand clinometer sufficiently accurate and in

such cases the transit was used instead. Knowing the difficulty of obtaining accurate measurements in such a rough country, I personally took charge of the chaining. The distances across lakes that could not be chained, were triangulated in the prescribed manner. During the first few miles of the survey, the transit work was carried on by means of running a straight line as near the original line as possible, making deflections wherever it was found necessary, but later I found that the line could be run straight from one post to the next, and when deflections were made they were made only at the posts. Very often several miles could be run without making a deflection. All angles of deflection were measured by means of perpendicular offsets.

It is rather remarkable to note that the greatest difference I made with the original survey in the bearing of the line is a little over three minutes, and the total difference in distance over the whole ninety miles is only eight feet.

The country through which this survey passes is situated wholly in the Timagami Forest Reserve, and it is well adapted for this purpose as there is no land suitable for agricultural purposes. The soil is generally a light sand overlying gravel or bed rock. The southerly twenty-four miles of the line passes through a very rough country, almost mountainous in places, with many rock outcroppings and large boulders. From the forty-second to the forty-eighth mile posts the country is chiefly very wet, spruce swamps with an occasional low sand ridge. Continuing on to about the 75th mile the country is fairly level or rolling, while north of this to the 99th mile the country is again very hilly. From the 99th mile to the end of the work the line passes through a fairly level tract, though high hills could be seen at no great distance from the line.

Red and white pine was seen in spots as far north as the 98th mile post. There is a particularly good stand of this timber south of East Shining Tree Lake in the 55th and 56th mile. Jack pine and spruce are the predominant timbers throughout. The jack pine being particularly good in the vicinity of the Wanapitei River in the Townships of Unwin and Stull. Large yellow birch and hard maple are plentiful between the 31st and 37th mile.

White birch, balsam and cedar grow in varying quantities throughout. The tamarac which grew plentifully in this country was all killed by some blight about a year after the original survey was made, and much of it is still standing while young tamarac is fast growing up to take its place.

There are many lakes in the vicinity of the line, some of them being very picturesque. The outlets of Burwash and Welcome Lakes have been dammed for lumbering purposes, hence there is more or less drowned land along their shores.

Fish are plentiful in all the waters of any size, the chief varieties being pike and pickerel. Bass and lake trout were caught in Burwash Lake and speckled trout in the Night Hawk River.

The chief game in this country is moose. There is also an occasional red deer. Bears are numerous in some parts as are also wolves. Beaver were plentiful a few years ago, but they have been almost exterminated.

The geological formation, in a general way, is as follows: Huronian rock occurs between the 18th and 22nd miles, between the 31st and 54th miles, and between the 70th and 78th miles. This usually consists of quartzite, conglomerate and diabase. The balance of the line is in Pre-Huronian formation consisting of granite-gneiss and schists.

No water-powers of any importance were seen and no economic minerals were discovered.

Appendix No. 23

Extract from field notes of retracement survey of Niven's Meridian Line between Original Districts of Nipissing and Algoma, from Mile 108 to Mile 198, now in the Districts of Temiskaming and Cochrane, by H. W. Sutcliffe, O.L.S., 1929.

TIMBER

A considerable portion of the area traversed by this line has been occupied by people for either mining or agricultural purposes. Most of the area south of the Porcupine Branch of the Temiskaming and Northern Ontario Railway has been staked as mining claims at sometime, though much of it has since been abandoned. During the time of these activities, large areas were over-run by fire. Those areas are now covered with young timber growth, a large percentage of which is poplar. In the vicinity of and north of the above mentioned railway line through Hoyle and Matheson Townships, farm lots are being timbered, and close to the railway a small amount of cultivating is being done. From the north-west corner of Matheson Township to the north-west corner of Hanna Township, the timber is in its original state. It is of commercial grade, but typical of that area in that a large percentage of it is best suited for pulp. From Hanna to within about a mile of the Abitibi River, the land has been taken up for settlement, and practically all the timber has disappeared. North of the Abitibi, the whole area is timber covered, though some of it is young growth, of which a fair percentage is spruce.

SOIL

With the exception of some rock areas in the Townships of Langmuir, Eldorado, Carmen, Shaw and Whitney, the soil is clay and well suited for agriculture.

ROCK FORMATION

The only rock areas encountered are included within the so-called Porcupine mining area, for which there are geological maps issued by the Department of Mines.

ANIMAL LIFE

The coming of civilization has largely meant the outgoing of wild animal life. This area is no longer a game country. Some of the streams have fish, but not good enough for commercial purposes. There are a few very good trout streams which provide recreation for enthusiastic fishermen. The Frederickhouse River is said to have sturgeon, but the water is very muddy, and I doubt if fish are there in commercial quantity.

GENERAL

It would be unfair not to say something about the first survey made by Mr. Alex. Niven. A comparison will show that the former errors in chainage and bearings were very small, particularly having regard to the circumstances under which surveys had to be made in those days. In 90 miles we differ only 4 links for chainage. I find him to be 60.93 links too far east for departure.

Appendix No. 24

Report of resurvey of Township Boundaries, District of Sudbury, by J. R. Gill, O.L.S., 1929.

The party left Sudbury *via* Canadian National Railways on June 10th and detrained at mileage 21 west of Capreol. The work was started from the northerly limit of the boundary between the townships of Creelman and Roberts. After a little difficulty the post at this point was located and the boundary retraced to the south.

Work was continued southerly, retracing the meridian line as run by O.L.S. Proudfoot in 1888, and along the township boundaries to about midway on the boundary between the townships of Blezard and Rayside.

About the end of July the party moved to the southerly end of the work, going *via* Canadian National Railways to Burwash and thence by canoe to Long Lake. The boundary between Humboldt Township and the townships of Kilpatrick and Travers was re-run and a meridian run north to tie to the south-westerly angle of Tilton Township.

I was unable to find any evidence of the survey between townships 67 and 68 or between 59 and 60 in order to make the tie called for in the instructions. A great deal of time was spent endeavouring to get this line but no evidence was found.

The work was then continued northerly to connect with that done earlier in the season on the boundary between Blezard and Rayside.

On a great part of the work there was little or no evidence of line, and it often required a considerable time to locate evidence of a post. In some cases posts located were three miles apart.

The timber plan accompanying these returns is of little value, as commercial timber is practically non-existent. For the most part the country has been burned over once and in some cases many times. This has destroyed nearly all the evidence of the original survey. Also considerable of the land is completely cleared, being under cultivation.

It seems unnecessary to touch on the geology in this report as the whole area has been covered by geological parties at one time or another.

All original posts found in poor condition were replaced, and if in good condition a stone cairn was added. Iron posts were planted where called for, and rock posts put in at prominent points on the line.

Appendix No. 25

Extract from report of the resurvey of Certain Lines in the townships of Beatty, Munro and McCool, District of Cochrane, by E. W. Neelands, O.L.S., 1929.

LINE WORK, INCLUDING CHAINAGE

By using two first-class brush hook men with Swedish steel hooks, and a general utility man who used the clinometer and pulled a 4-chain chain while the writer ran trial line and acted as rear chainman, the work was speeded up, as the preliminary chainage was always up with the instrument and posts quickly relocated and proper line re-established before the regular chainmen

started work. The general utility man then took the front end of a 200-foot tape with one of the chainmen, while I re-ran the line and the other two chainmen used a 2 chain tape. In this manner from 4 to 5 miles of trial and final lines were frequently run in a day.

Until the chainmen became proficient with the clinometer, some lines were double chained twice and one or two miles thrice, but in most instances in addition to my preliminary chaining, the difference between the two chains was seldom more than $\frac{1}{2}$ link and frequently $\frac{2}{10}$ link.

Four rock posts were established during the survey as shown on accompanying notes, and the geodetic survey triangulation point Lot 6, Concession V, Munro, tied in.

INSTRUMENT WORK

Two 5-inch Cook instruments were carried on the work, the one used being kept in first-class adjustment. In many cases each mile point could be sighted from an intermediate point and in some instances the pickets were visible for a much greater distance.

Intersection or deflection angles were in most cases read after the line between posts had been established, and in several instances were from post to post.

POSTS, PITS AND MOUNDS

Great difficulty was experienced in finding timber sufficiently large or sound enough for 6-inch posts, and many had to be carried great distances. A timber scribe was used for marking posts.

The regulation pits and mounds were constructed as per instructions and wherever possible stone mounds were used, even if stones had to be carried a considerable distance.

OBSERVATIONS

Due to good visibility and long sights the seven observations taken, pretty well controlled the whole situation. I did not use a sidereal watch, preferring for accuracy sake a very reliable standard time-piece and reduced to sidereal time on the ground.

My observation on Lots 6 and 7, Concession 4 and 5, Munro, checked to the minute with one made two miles farther north in 1926.

GEOLOGY

The presence of serpentine, porphyry and diabase south of Painkiller Lake and a diabase outcrop on Lot 11, Concessions 5 and 6, near an old shaft was all of importance noted along or near the line between Concessions 5 and 6. A large body of porphyry also crosses the line between the north halves of Lots 3 and 4, Concession 3, Beatty, and in the opinion of the writer is the westerly continuation of a very important geological condition that follows the low lying land, roughly along the creek in Concessions 2 and 3, Munro to Dead Man's Mountain, Lot 8, Concession 2, of the same township. Very little work has been done on account of the depth of overburden, but large bodies of porphyry such

as this in contact with greenstone and cut at intervals by diabase should not be overlooked.

The copper zinc of the Potter Doal and Galena farther east occurs in basalt in contact with diabase among high gabbro hills and never impressed the writer, although it may yet be important.

I did not see anything out of the ordinary in McCool save an outcrop of porphyry on Lot 2, Concessions 2 and 3, and some serpentine north of Fades camp, Lots 10 and 11, Concession 4, neither of which in my opinion are of importance.

LUMBER

On account of almost entire absence of any green mature timber and no recent burnt areas seen since the young growth started after the fire of 1916, it is difficult to make a proper timber plan. Consequently I have only shown hatched in green the all sand areas on which jack pine occurs in greater or less quantities but which, nevertheless, is ideally suited for the growth of this particular and useful timber.

I travelled the western portion of McCool and all of Munro pretty thoroughly, but am not sufficiently familiar with the western part of Beatty or the eastern part of McCool to give accurate information re timber.

SOIL

A large portion of the township of Beatty, as settled, is suitable for farming. The area close to and drained by the various branches of Shallow River both in Beatty and Munro is also good. The remaining portion of Munro except approximately two miles of sand plains along the east side is either rough and rocky or too much of a muskeg nature to be of any immediate agricultural value.

The sand plains, however, which extend into and form about half of McCool produce tons of blueberries and could quite easily support a canning factory.

GAME AND FISH

The string of springs on either side of the sand plains and the source of some of the tributaries of Shallow River to the west and Ghost River to the east, provide the proper condition for speckled trout of which there are many.

A few partridge were seen, a few bear, also observed during the strawberry season in Munro as well as a few moose in the same township. Deer, moose and bear tracks were seen in McCool. A few beaver have still outwitted the trapper in Munro Township.

Appendix 26

Report of survey of Traverse of Dog Hole, Crow River, Otoskwin River, Lake St. Joseph, District of Kenora (Patricia Portion), by C. R. Kenny, O.L.S., 1929.

Following your instructions dated April 9th, 1929, to continue the meridian line run north astronomically by O.L.S. Phillips and Benner in 1923, in west longitude 90 degrees and 12 minutes, which point is at the southerly shore of

the Albany River, and also make a control traverse from the northerly extremity of this meridian line down the Otoskwin River to the mouth of the Spruce River, and from this point traverse certain waters as were followed by O.L.S. Proudfoot in the year 1927, to the north-westerly angle of the Osnaburg Indian Reserve No. 63A, which point is at the southerly shore of Lake St. Joseph, I commenced the survey of the meridian line on June 3rd, 1929, and after reaching a point within two and a half miles of the Crow River, the outfit was moved back to the north-west angle of the Osnaburg Indian Reserve No. 63A, to commence the control traverse survey. The control work was carried to a point on the Crow River where it would intersect with the meridian line. The line survey was then continued to its northerly extremity, the south shore of the Otoskwin River. From this point the traverse survey was again resumed and completed on August 30th, 1929.

MERIDIAN LINE

The first seven miles of line run across water, islands and peninsulas in the Albany River expansion, and in another three and a half miles intersects the north limit of the Osnaburg Indian Reserve No. 63B. The timber along this portion of the line and in the near vicinity of the Albany River consists chiefly of young growth birch, poplar and spruce, the latter being large enough for pulpwood.

About a mile north of the northerly shore of the Albany River the country carries a much better stand of spruce, all of which is merchantable.

The country in the vicinity of the Albany River is rolling sandy soil with boulders. For a few miles about the Indian Reserve boundary the land is quite level, with deep moss covering a sandy soil.

From the north limit of the Indian Reserve along the line for a distance of twelve miles, the country is generally level. The character of the soil being sand with boulders overburdened with deep moss and carrying an excellent stand of spruce suitable for pulpwood.

Continuing along the line from about Mile 145 to the Otoskwin River, the country is generally rolling, interspersed occasionally by muskeg. The timber on the higher land in this section consists of spruce, jack pine, birch, poplar and balsam. The jack pine and spruce being large enough for commercial use.

At Mile 123 will be found a small showing of granite rock formation and the same formation exists in places along the westerly shore of Jean Lake.

Greenstone rock formation makes its first appearance at about Mile 137, and does not show up again until near the north shore of Donna Lake, this point being about the southerly limit of the Pickle-Crow mining area. Very few outcroppings of greenstone rock formation were noted on the line running through the above mining area for a distance of 6 miles, on account of the country being heavily overburdened with sand and carrying a good stand of timber, such as spruce and jack pine.

Between Mile 149 and Mile 150, the line crosses a small rock ridge of diabase formation. Its highest point of elevation, above the level of the muskeg around it, being approximately 25 feet.

At Mile 154 is the foot of a ridge which rises for a few hundred feet above the level of the surrounding country, and extends in an easterly and westerly direction for a considerable distance from the line. Its width is about one mile and a half. This ridge is of granite rock formation heavily overburdened with sandy soil and large granite rock boulders. The timber is chiefly spruce, jack

pine, birch and poplar. The spruce and jack pine are large enough for commercial use.

CONTROL TRAVERSE SURVEY

Lake St. Joseph

The part of Lake St. Joseph (Ele. 1218) surveyed under these instructions is navigable for large boats and launches. The water of the lake is clear and deep and the bays generally free from muddy bottom.

The country in the vicinity of the lake on the westerly shore is of sandy soil with occasional outcroppings of rock. The timber about the lake consists chiefly of young growth poplar and birch, interspersed with quantities of spruce, suitable for pulpwood.

Along the easterly shore the banks are from three to ten feet in height with outcroppings of greenstone rock formation. The timber is young growth poplar, birch, spruce and balsam.

At the northerly end of this portion of Lake St. Joseph there is a portage about 60 chains in length, and following a north-westerly direction to Dog Hole Lake.

DOG HOLE LAKE

Dog Hole Lake (Ele. 1225) has an approximate water area of 2,500 acres and contains many islands of varying sizes. It is shallow, with muddy bottom, and in low water period would be difficult to navigate in many places with canoes.

The timber about the lake shore is chiefly young growth spruce, poplar and balsam, the spruce being of sufficient size for pulpwood.

At the north-westerly side of the Lake will be found a small river about 60 chains in length and flowing in a south-easterly direction and connects these waters with Annimwash Lake.

ANNIMWASH LAKE

Annimwash Lake (Ele. 1231) lies in a south-westerly direction for a distance of about four and a half miles from its outlet, and together with this has a narrow body of water reaching in a north-easterly direction for one and a half miles from its outlet. Its width would average three-quarters of a mile.

The lake in general is deep and can be navigated by small boats and launches. There are some shallow rock places and muddy bays.

The shores are from three to ten feet in height and made up of sandy soil and scattered rock exposures.

The timber nearby the lake consists principally of young growth spruce, poplar and balsam. The spruce is of merchantable value.

At the west shore of Annimwash Lake will be found a small stream about 2 miles in length and flowing in an almost due east course, draining the water from Kasagiminnis Lake. This river is shallow with muddy and boulder bottom and has a sluggish current. The banks are low and marshy with scattered outcroppings of granite rock formation. The timber is chiefly young growth spruce and poplar.

KASAGIMINNIS LAKE

Kasagiminnis Lake (Ele. 1235) is made up of four arms of water. From a point at about the head of its outlet to Annimwash Lake, three of the arms extend in a northerly direction and one in a south-westerly direction. The lake bottom is generally shallow, consisting of mud and boulders. The character of the soil about the lake is sand with rock outcrops and the banks are from three to five feet in height, timbered chiefly with young growth spruce and poplar. The spruce of pulpwood size. At the north end of one of the north-westerly arms of Kasagiminnis Lake is the mouth of a small river flowing from Little Ochig Lake in a south-westerly direction. The river is two miles in length and averages one and a half chains in width. The bed of the stream is made up of mud and boulders and the flow is moderate. The banks are usually low and marshy and the timber along the shore mostly destroyed by fire.

LITTLE OCHIG LAKE AND OCHIG LAKE

Little Ochig Lake (Ele. 1243) lies in a northerly direction for about two miles from its outlet to Kasagiminnis Lake, and its width averages about half a mile. It is shallow with mud bottom throughout its entire area, and is difficult to navigate with loaded canoes.

Above Little Ochig Lake is Ochig Lake (Ele. 1250), connected by a small stream about fifteen chains in length and two chains in width. Ochig Lake, from its outlet lies in a north-easterly direction for about three and a half miles and the widest of this section is one and three quarter miles. At the north-easterly end of this first section of the Lake is a narrows having a length of ten chains and a width of fifteen chains. From the narrows the lake continues in a westerly direction for about three miles and has a width of about three quarters of a mile.

Ochig Lake in general is not deep, there being many shallow places of mud and boulders.

In the vicinity of Little Ochig and Ochig Lakes the soil is sandy with granite rock outcroppings along the shores. The timber is second growth spruce, poplar, and birch. The spruce being of merchantable size.

The lakes and streams heretofore described flow in a southerly direction and empty into a river at the south end of Dog Hole Lake. From this point these waters run in a south-westerly direction and reach Lake St. Joseph in a distance of about 6 miles.

MUD LAKE

At the north shore of Ochig Lake a portage of 50 chains in length is necessary to reach Mud Lake (Ele. 1263). This lake from the portage, which is near its south-west end, lies in a north-easterly direction for one and a half miles and has a width of about half a mile.

The shores are low and marshy with an occasional showing of granite rock formation. It has mud bottom, is shallow throughout its entire area, and difficult to navigate with loaded canoes.

WIMBABIKA LAKE

North-westerly from Mud Lake a portage one and a quarter miles in length is made to reach Wimbabika Lake. About midway on the portage is the height

of land which divides the waters flowing southerly to Lake St. Joseph from the waters flowing to the Crow (Kawinogans) River.

Wimbabika Lake (Ele. 1186) which drains to the Crow River *via* Pickle Lake, consists of two arms, the north-easterly arm which is the main waters and the south-westerly arm which extends within half a mile of Kapkichegimaga Lake where there is a portage.

The country in the vicinity of Wimbabika Lake is rolling, and timbered with young growth, spruce, poplar, jack pine and balsam. The spruce and jack pine are in fair quantities and of commercial size. The soil consists of rock heavily overburdened with sand.

KAPKICHEGIMAGA LAKE

Kapkichegimaga Lake (Ele. 1173) is one of the many headwater lakes of the Crow River. From the portage, which is about two miles from the southerly end of the lake, it lies in a north-easterly direction a distance of six and a half miles, at which point is the head of the Crow River.

The water of the lake is generally deep and clear, except for a portion of a mile or two in length which is at the north-easterly end and which is shallow with muddy bottom.

The shores are from three to twenty feet in height and are made up of sandy soil and rock. The timber about the lake is chiefly young growth poplar, spruce and balsam, and sandy ridges carrying jack pine timber. On the westerly side of the lake considerable brule was noted.

CROW RIVER (Ele. 1173) at head

From Kapkichegimaga Lake the Crow River follows a north-easterly course for a distance of about thirty miles and from this point it takes on a more lake-like appearance, varying in width of from ten to sixty chains and of uniform depth. This expansion is Badesdawaga Lake.

From its head to Badesdawaga Lake the bed of the river is composed of sand and gravel, with numerous boulders and rock occurring at falls and rapids.

The fall of the river to the head of Badesdawaga Lake is eighty-two feet, taken up in rapids and falls and moderate current.

From the head of the river for a distance of about ten miles down stream, the river banks are from three to twenty feet in height, consisting of clay and sandy soil, timbered with young growth spruce, birch and poplar. The country in this vicinity appears to be rolling, with scattered areas of sand ridges carrying a fair stand of jack pine suitable for commercial use. The remaining portion of the river traverses through sand and clay banks of from three to five feet in height. The timber is chiefly spruce to pulpwood size.

Along the northerly shore of Badesdawaga Lake the country appears to have considerable spruce timber, interspersed with young growth birch and poplar. On the south shore the timber has been burned and since has grown up with small poplar and brush.

OTOSKWIN RIVER

The survey of the Otoskwin River was started at the northerly extremity of the meridian line surveyed by me, and from this point the stream flows in a

south-westerly direction for a distance of about 25 miles, where it empties into Badesdawaga Lake.

Its total fall in this distance is 47 feet, taken up in several falls and rapids and a moderate current. The river traverses through banks of sand and clay soil, which are usually low and brushy.

The country in the vicinity of the river appears to be fairly well timbered with spruce of commercial size, interspersed with poplar, birch and balsam.

On account of the small water shed areas of these parts of the Crow and Otokwin Rivers, it seems improbable that water power development would be of economic value, although the flow of either of the rivers could be readily controlled at or near the outlets of the lakes using moderate limits of regulation.

There are plenty of fish such as pike, pickerel, and sturgeon in the lakes and streams, but it appears to be a poor country for game, although there are signs of moose, red deer, and caribou.

During the course of the control traverse and meridian line survey, together with the miles of water and land to travel in, the transportation of supplies and outfit for line work, I venture to state that the total net-work of survey and travel would bound an area of about 500 square miles. This total area appears to be well timbered with pulpwood.

Appendix No. 27

Report of the Traverse Survey of the Albany River, by J. S. Dobie, O.L.S., 1929.

In accordance with your instructions dated May 1st, 1929, I have completed the survey of the Albany River from the mouth of the Opichuan River to James Bay, and beg to submit the following report.

The survey was started at Transit Station No. 1162 of the survey of the Albany River by myself in 1928, and was carried forward continuously to where the Albany River empties into James Bay, a little over four miles below Fort Albany.

The upper portion of the river which was surveyed during the season flows through several fairly large lake expansions, and an outline survey was run around both sides of these lakes in a manner similar to that described in previous years. Below Marten Falls there are in some places some large islands several miles long, and a traverse was run down each channel at most of these. From Marten Falls to James Bay the survey follows the north bank of the river for almost the entire distance.

The survey was made by transit and stadia in the same manner as in previous years. Every effort was made to reduce the errors in reading distances to as near an absolute minimum as possible, while the use of a transit with a telescope sufficiently powerful to permit of an observation being taken on polaris at any hour of the day made it possible to almost eliminate azimuth errors.

On account of the manner in which mapping by means of oblique aerial photographs has been developed during recent years, and as it is expected that this method of mapping will be applied to the territory adjacent to the Albany River, it was not considered advisable to go into great detail in locating the shore line. The traverse of numerous islands and of many bays, particularly in the lake expansions, was dispensed with, as the details of these can be plotted later

from the photographs. The plans of the survey give a sufficiently accurate representation of the main physical features for present requirements.

The whole survey was carried out in such a manner as to form part of the ground control necessary for plotting oblique aerial photographs for a considerable distance on either side of the traverse, and particular care was taken to accurately locate small islands, sharp points and other physical features which it was thought could be easily identified on the photographs. Below Marten Falls the Albany River runs in a series of long sweeping curves, and is of such a nature that points easily identified on the photographs are not nearly as numerous as they are farther up-stream.

Posts were planted at intervals of about three miles along the shore and marked consecutively as in previous years. Stone mounds were built around these posts and bearing trees were marked and recorded in the field notes wherever suitable trees were at hand. A large number of posts, however, have no bearing trees, as very often the most suitable place for a post is on a rocky point or in some other place bare of timber. In cases such as this there is very little danger of the post being destroyed by fire. Every wooden post is surrounded by a substantial mound of stones.

Twenty-three metal posts were planted along the river. The most of the metal posts planted above Marten Falls were placed near waterfalls where they can be used as bench-marks. Below Marten Falls the problem of finding suitable places to plant these metal posts was a difficult one. The river in this section occupies a deep valley with high clay banks subject to very severe floods at times. The wooden posts could not be planted below the extreme high water mark or they would be washed away by the floods, and the metal posts could not be planted much above the ordinary water level owing to the absence of rock in which to cement them. It was found, however, that large boulders, which have every appearance of being permanently located, occur all along the river banks above the ordinary summer level, but considerably below the extreme flood level. The metal posts were cemented into holes drilled into these boulders and tied to the nearest transit station. A wooden post was also planted above the flood level and tied to the same station.

The Albany River, from the point where the survey commenced to Marten Falls, is a large river with several lake expansions and is broken with numerous rapids and falls. Makokobarter Lake is the first of these lake expansions and is about sixteen miles long and from half a mile to nearly two miles wide. The shores are low with sandy and stony beaches, particularly on the north side. From Makokobarter Lake to Washi Lake is a distance of nine miles and the river flows with a swift current broken with several rapids at two of which portages are necessary. The Albany River falls thirty-three feet between Makokobarter Lake and Washi Lake.

The Albany River enters Washi Lake on the south side and flows out of the north-east end of the lake about four miles from where it enters. Two miles west of where the river enters Washi Lake the lake narrows for some distance and then widens out into a lake expansion nearly as large as the easterly portion.

Makokobarter Lake has two outlets, the northerly one being the one most used by travellers. The southerly outlet is a large stream and is said to be very rapid throughout its entire course. It rejoins the main river in a small lake expansion about four and a half miles below Washi Lake.

From the point where the southerly outlet of Makokobarter Lake rejoins the main river the general course of the Albany River is a little north of east for over six miles, and the river flows with a gentle current broken by a couple

of small rapids and one heavy rapid at which a portage is necessary. The river then turns north and for three miles is a succession of rapids and falls at five of which portages are necessary, the last one being at Kagiami Falls, which is the largest fall on the section of the Albany River surveyed during the season of 1929. There are a number of small islands in this section of the river.

From Kagiami Falls to Marten Falls the river flows in a general northeasterly direction with a swift current all the way. There are several rapids, at four of which portages are required. From Marten Falls to James Bay the Albany River flows with a uniformly swift current, averaging about four miles per hour. At a few places there are flat rapids where the current is very strong, but all of these can be easily run with fully loaded canoes, and coming up-stream a six horse-power oversterm motor will drive a large canoe up any of these swift places without any difficulty.

Although the Albany River from the mouth of the Opichuan River to Marten Falls is swift with many rapids and falls, the power possibilities of the river are rather disappointing when one considers the size of the stream. There is no great fall at any one place, and on account of the low nature of the banks it looks as though it would be very difficult to concentrate any great head at any one place. The largest fall on this section of the river is at Kagiami where the river drops 22.5 feet in about one thousand feet. It might be possible to materially increase this head in which case a very valuable power could be developed; but without a great deal of detailed investigation it is impossible to say how great a head could be developed nor just where the dam should be located. At Marten Falls the river falls fifteen feet in a little over half a mile and a detailed survey might show that this head can be considerably increased.

From the mouth of the Opichuan River to Marten Falls the river flows through a rolling country with scattered low rock ridges. The soil is largely sand and gravel in the upper portions, but as one approaches Marten Falls clay becomes more and more noticeable and the banks are generally higher. The highest rocks seen were on a deep bay running off the south side of Makokobarter Lake.

About thirty-eight miles below Marten Falls the Ogoki River comes in from the south. The Hudson's Bay Company have a post here on an island opposite the Ogoki River. There is also an Indian Reserve here on the north bank of the Albany River, and the east and west boundaries of the Indian Reserve were tied to the survey.

A number of Indians were camped on the Reserve during the summer. About eighty-five miles below the Ogoki River the Kenogami River enters from the south. The Kenogami River is nearly as large as the Albany River above the forks and was traversed by T. G. Code, O.L.S., in 1923. A tie was made to Mr. Code's survey in passing. About fifty-three miles below the Kenogami River the Chipie or Ghost River enters from the south. The Hudson's Bay Company have a winter outpost here.

From Marten Falls to the Kenogami River the Albany River is fifteen to twenty chains wide and flows through a level clay country with high clay banks rising in places to a height of one hundred feet. From the Kenogami River to James Bay the river is wider, being nearly half a mile wide in places, and the banks are not so high. Previous mention has been made of several large islands which occur in this section of the river, some of which are several miles long. The current is still very strong but will probably average half a mile per hour less than in the section above the Kenogami River.

The river is fairly well confined to one channel excepting for these large islands for the greater part of its course from Marten Falls down, but about twenty-two miles above Fort Albany the river widens out to a width of over three miles in places and there are a great many islands of all sizes. The current becomes swifter, and there are small rapids in many places. The last of these rapids is about three miles above Fort Albany and is sometimes flooded by a high tide. On the north side of the Albany River in this stretch there is an Indian Reserve and a tie was made to the south-west corner.

The Albany River below Marten Falls is subject to a very heavy freshet every spring. The water rises to a great height and the swift current has washed away the soil and consolidated the stones and boulders so that after the freshet recedes the banks are clear for some distance back from the average summer level of the water and the consolidated stones and boulders resemble a rough pavement. There is good walking along the banks after the freshet has receded for practically the whole distance from Marten Falls to James Bay. This feature was a very great advantage in the old days when supplies for the inland posts of the Hudson's Bay Company had to be tracked up-stream in York boats.

The timber resources of the territory adjacent to the Albany River appear to be of considerable importance, although the country has suffered from disastrous fires of very large extent in the past, and much second growth timber of varying ages is in evidence along the banks. Much of this second growth is now of considerable size. The prevailing timber is spruce and poplar. In the territory around Makokobarter and Washi Lakes where there is much sand and gravel in the soil there is considerable jack pine, balsam, and white birch, but these varieties are not nearly so plentiful farther down stream, and in fact the jack pine almost disappears on the clay areas. It is difficult to get a proper idea of what the timber resources of the country really amount to from an inspection from the river. A short distance back from the top of the bank the country becomes very wet and the timber is much smaller than near the river where the drainage is better. This condition appears to prevail over very large areas tributary to the lower Albany River.

From a few miles above Marten Falls to James Bay the soil is clay and appears to be of good quality. If it can be drained there appears to be no reason why it should not produce abundant crops of whatever agricultural products the climate will permit. The only attempt at farming in this section of the country is at Fort Albany where there is a considerable clearing at the mission conducted by the Roman Catholic Church. From an agricultural standpoint the results have not been very successful, due to the fact that the land at the mission is flooded every year notwithstanding that it is at a considerable elevation above the river. In the spring of 1928 the flood was of exceptional severity and the water rose to such a height that the floor of the church and other mission buildings was about six feet under water. In order to secure a location which would not be exposed to such a flood risk, a new site has been chosen about four miles up-stream on the south side of the river and several acres have been cleared and temporary buildings erected. A saw-mill was brought down the river from Pagwa a year or more ago to cut lumber for the erection of permanent buildings, but unfortunately it was destroyed by fire shortly after sawing operations were commenced. It is the intention to proceed with the erection of permanent buildings and to conduct an industrial farm for the education of the Indians in agricultural methods. The traverse of the Albany River was continued behind some islands on the south side of the river so as to include the site of the proposed industrial farm, and it is shown on the plan of the survey.

The Hudson's Bay Company and Revillon Frères both have well stocked trading posts at Fort Albany, and schools for the Indian children are conducted by both the Anglican and the Roman Catholic churches.

The rocks exposed along the upper stretches of the portion of the Albany River surveyed during the season are principally granite. On the shores of Makokobarter and Washi lakes and on the river between these two lakes there are some exposures of Keewatin rocks in which micaceous and dioritic schists were noticed. Similar rocks occur along the river near Marten Falls and for several miles above that point. The granites are seen again as small islands in the river a short distance below Marten Falls. The last exposure of granite is on a small island about thirteen miles below Marten Falls. Not far below this the limestone appears and this formation continues to James Bay. Limestone appears in the form of low steep banks at three or four places along the river, but the most of the exposures of limestone are in the bottom of the river which runs over these flat beds of limestone with a very swift current approaching a rapids at times.

Very little game of any kind was seen during the season, and the scarcity of signs of large game such as deer, caribou, moose and bear indicates that they are not plentiful. Fur-bearing animals appear to be decreasing from year to year. Pike, pickerel, and whitefish are plentiful in the lake expansions and sturgeon were numerous at all rapids during the early part of the season. At nearly all the rapids speckled trout of large size are plentiful. These splendid game fish were caught all along the river as far as the mouth of the Kenogami River, but none were caught between the Kenogami River and James Bay. Ducks and geese are very plentiful in the fall of the year on the low land around the mouth of the Albany River and along the coast of James Bay.

The magnetic variation is fairly constant, and there does not appear to be much local attraction. The magnetic variation increases gradually from four degrees near the west end of Makokobarter Lake to thirteen degrees at Fort Albany.

The plans, field notes and other records of the survey including my account in triplicate have already been forwarded to your Department, and this report completes the returns of the survey. I trust that you will find everything satisfactory.

Appendix No. 28

Extract from the report on the survey of the Little Abitibi River from Reference No. 87, Abitibi River Survey, 1922, to its Intersection with the Northerly Limit of the Township of Kineras, by J. Lanning, O.L.S., 1930.

TOPOGRAPHICAL

Between the points surveyed almost the entire distance consists of rapids and swift water.

Levels were taken only when canoes had to be lined along the shore and could not be poled or paddled.

The total fall thereby obtained amounted to three hundred and thirty feet, approximately.

Between stations 46 and 58 comparatively smooth water occurs and also between stations 153 and 163.

All other sections are rapid and cannot be paddled by canoe; poles and lines have to be used.

Between station 0 and 142, there is no portage, while the fall in this section is about one hundred and twenty feet.

The river has not been used for transport or by canoes within the limits of the survey.

The first heavy fall occurs at station 143 where a portage of thirty chains was cut to avoid two drops in the river totalling 40 feet 9 inches of fall.

At these two points the water flows through fractures in granite and gneissic rocks on contact with dykes of diabase.

At the narrowest point the falls are less than twenty feet in width and form admirable water powers.

The amount of water available at normal flow, however, limits the amount of power possible at any point in this river and does not amount to much during the summer season.

Between station 143 and the end of the work canyons occur frequently, the largest fall occurring at station 169-170, and amounting to 53 feet.

None of the side streams within the limits of the survey can be navigated for any distance from the mouth.

They consist in the main of rapid little brooks not more than half a chain to one chain in width at the mouth. Bad River is the largest and this cannot be travelled by canoe for more than a quarter of a mile from its connection with the Little Abitibi River.

During spring floods both Bad River and Trout Creek might be traversed by canoe for a few miles from their junctions, but the swift waters would render the use of paddles impossible.

Several good water powers occur over the eight-mile stretch of canyons between the first portage and the end of the work at station 204.

These are shown on plan together with outlines of the various portages cut to avoid them.

Approximately two and one quarter miles of portage were cut during the progress of the survey.

TIMBER

With the exception of a small burn limited between stations 10 and 18, a mile or so from the mouth, virgin forest predominates along both banks of the river to station 83, a distance of over 15 miles along the banks.

This forest consists of spruce, a limited amount of balsam, birch, poplar, balm of Gilead, with heavy cedar along the shore line and skirting the banks of the creeks.

Along the high ridges, ten chains or more from the river banks, good jack pine occurs, but the growth is not continuous, and there are long stretches where jack pine is not noticeable from the river.

The spruce is of good quality and above the average in size and quantity.

The timber on the whole continues good to the highest level of the banks and along all creeks examined in route.

From station 82, near the mouth of Bad River which approaches from the east, to station 132, near Trout Creek, approaching from the west, the river traverses burnt country and no timber of any value obtains along this section.

I estimate this burn to have occurred ten to twelve years ago, as most of the charred timber has fallen and forms a network of impassable underbrush along the banks and extending almost to the top of the ridges.

At Trout Creek original forest begins again and continues to the end of the work.

Along this section the timber is similar in size and quality to that obtaining between stations 0 and 83, with a greater predominance of jack pine along the high ridges, and extending in some places along the rocky country to the river banks.

Good timber does not extend inland for any distance except along the streams and deep ravines in which permanent creeks occur.

ROCK FORMATIONS

The first outcrop of rock in place occurs at station 16 and consists of a very fragile limestone, which is bedded horizontally and forms a bluff along the shore line about thirty feet high.

Many of the shallow rapids between the mouth of the river and the first portage are caused by ridges of this limestone.

It occurs at intervals along the river to the first portage, noticeably at stations 28-32, where it lays unconformably upon an outcrop of granite, gneiss and pegmatite, also at station 103, and along a rapid section of river near the mouth of Trout Creek.

From the first portage southwards no further outcrop of this limestone was observed.

Throughout the eight or ten-mile stretch of canyon rock, occurs almost continuously and consists of granite, gneiss, with dykes of pegmatite and diabase.

With the exception of certain diabase dykes, occurring at station 133 and forming the rim of the main waterfall at this point, Keewatin rocks do not occur within the section surveyed.

Small dykes of trap and lamprophyre were observed at intervals among the granites and gneisses which persisted from the first portage to the end of the work at station 204.

SOIL

Along the river between its mouth and the first portage clay banks predominate.

Owing to the presence of the fragile limestones throughout this section the clays are very calcareous and in many places form a marl.

At other places where the banks are steep and rise to nearly one hundred feet the clays are partly consolidated into a shale.

As a general rule the banks of the river are steep and the only flats observed occur at points where the river takes a somewhat extended turn, and as is usually the case the low land obtains on the side of the river remote from the current.

From the first portage southwards to the end of the survey the country is hilly and very little soil of material value can be found.

GENERAL

As the section of this river within the limits of the survey has not been used as a canoe route there is very little evidence to be observed of the activities of man.

No improvements are shown along the route and with the exception of two small cabins, one at the mouth of Fisher Creek, station 160, and the second

near the boundary of the Township of Kineras, used by a lone trapper during winter months, there are no records left of encampments.

The country has been trapped overland from the Abitibi River during winter and a trail has been followed east and west along the Kineras Boundary.

A trail also runs west from Fisher Creek to connection with this boundary.

As far as could be learned during the season's operations from people experienced in the trapping game, our canoes were the first over the route beyond the first portage and station 204.

The dangers along this section of the river were so great that at the conclusion of the survey we chose to pack a canoe and most of our outfit westwards across country to the Abitibi River, a distance of over ten miles, rather than take canoes back along the route we had come.

Appendix No. 29

Extract from report of survey of Summer Resort Locations on One Sided Lake, District of Rainy River, by D. J. Gillon, O.L.S., 1929.

One Sided Lake is situated on the Kenora Highway about sixty miles from Fort Frances, and about five miles from Nester's Falls on the Lake of the Woods. It is, in calm weather, a clear water lake; but it is a shallow lake, and when the wind blows the waves stir up the mud from the bottom and the water assumes a brown tinge. It can only be called a jack fish lake, although there are some pickerel to be caught.

The lands bordering on the lake are eminently suitable for summer resort purposes, particularly on the north side of the lake, where they are almost park-like. Poplar, birch, spruce, and balsam, with some red, white and jack pine growing on land rising from the lake with practically no brush. While behind locations 30 to 44, there is a typical pinery, red and white pine, 65 to 70 years old, growing on a carpet of pine needles with no underbrush. An ideal park.

The shores are rocky with boulders and small sand beaches, part of the land is rocky and part composed of top soil on boulders, but there are good building sites on every lot and boat landings can easily be made.

On the east shore there is much more high rocky land, unsuitable for resorts. The west shore is also rocky and is covered with only a young growth of poplar and jack pine. The south shore is all swamp, with the exception of Poplar Point, which is a peninsula jutting out from the swamp. Resorts laid out on this point are well treed with poplar 4 to 6 inches in diameter, with very little underbrush, while on Lots 71, 72 and 73, there are the best sand beaches on the lake.

The north-east end of the lake is a grassy bay with mud shores.

Log River flows out of the north-west end of the lake, about three-quarters of a mile north of Lot 1. The shores of this bay of the lake are all of very soft mud so that although the land is quite suitable, no locations were laid out. The entrance to Log River is in a large wild rice field, which in the fall forms one of the best duck hunting grounds in the district. During the summer season, moose and red deer are very plentiful and may be seen at any time along the banks of this river, which is navigable for canoes, so that Nester's Falls can be reached without any portage.

REPORT
OF THE
MINISTER OF LANDS AND FORESTS
ONTARIO
1930

PART III — FORESTRY BRANCH

Appendix No. 30

I.—FOREST FIRE PROTECTION

(1) *Legislation*

“The Forest Fires Prevention Act, 1930,” which is a revision of the Act of 1917, provides some very desirable legislation from a forest protection standpoint and with the exception of a few minor changes appears to contain all that is necessary for the present.

The most important new features of this Act are as follows:

1. The close season now extends from April 1st to October 15th instead of to September 30th.

2. Organized townships are required to make provision for extinguishing forest fires within their boundaries.

3. Persons carrying on operations of any kind liable to cause the accumulation of slash or debris within the Fire Districts are required to obtain a permit from the Provincial Forester or other authorized officer, excepting where land is being cleared for agricultural purposes.

4. Woods operators are required during the close season to furnish each employee with a badge approved by the Department.

5. All persons travelling within a Travel Permit Area are required to obtain a travel permit.

6. The Minister may close to all travel any area where the fire hazard is deemed such as to warrant such a step.

7. The minimum penalty for offences against the Act is now \$25.00.

On the 9th day of June an Order-in-Council was approved placing the following further areas under Travel Permit:

1. All that area lying within the following described boundaries—

Commencing at the south-west angle of Radisson township; thence north to the south-east angle of Abbott township; thence west to the south-west angle of Doherty township; thence north to the north-west angle of Doherty township; thence west to the south-west angle of Caithness township; thence north to the north-west angle of Orkney township; thence east to the south-east angle of Shetland township; thence north to the north-east angle of Shetland township; thence east to the north-east angle of Staunton township; thence south to the south-east angle of Staunton township; thence east to the north-east angle of Cumming township; thence south to the south-east angle of Cumming township; thence east to the north-east angle of Swanson township; thence south to the south-east angle of Swanson township; thence east to the north-east angle of Bradburn township; thence south to the south-east angle of Bradburn township; thence east to the north-east angle of Ottaway township; thence south to the south-east angle of Ottaway township; thence east to the north-east angle of Hanna township; thence south to the south-east angle of Little township; thence west to the south-west angle of Little township; thence south to the south-east

angle of Gowan township; thence west to the north-west angle of Murphy township; thence south to the south-east angle of Jessop township; thence west to the south-west angle of Jessop township; thence south to the south-west angle of Ogden township; thence east to the south-east angle of Shaw township; thence north to the north-west angle of Carman township; thence east to the shore of Night Hawk Lake; thence southerly, easterly and northerly following the windings of the shore of Night Hawk Lake to the intersection with the northern boundary of Macklem township; thence east to the north-east angle of Macklem township; thence south to the south-east angle of Macklem township; thence east to the north-east angle of McCann township; thence south to the south-east angle of McCann township; thence east to the north-east angle of Black township; thence south to the south-east angle of Burt township; thence east to the north-east angle of Blain township; thence south to the south-east angle of Blain township; thence west to the south-west angle of Blain township; thence south to the south-west angle of Truax township; thence west to the boundary of Temagami Provincial Forest; thence southerly and easterly along the boundary of Temagami Provincial Forest to the point of intersection with the north boundary of Speight township; thence east to the north-east angle of Auld township; thence south to the south-east angle of Auld township; thence east to the north-east angle of Barr township; thence south to the south-east angle of Barr township; thence west to the boundary of Temagami Provincial Forest; thence northerly and westerly along the boundary of Temagami Provincial Forest to the point of intersection with the north boundary of Klock township; thence west to the south-west angle of Wallis township; thence south to the south-east angle of Gamble township; thence west to the south-west angle of Dufferin township; thence north to the north-west angle of Hincks township; thence west to the south-west angle of Childerhose township; thence north to the north-west angle of Childerhose township; thence west to the south-west angle of Hillary township; thence north to the north-west angle of Byers township; thence west to the south-west angle of Lisgar township; thence north to the north-west angle of Lisgar township; thence west to the south-west angle of Allenby township; thence north to the north-west of angle of Allenby township; thence west to the south-west angle of Oscar township; thence south to the south-east angle of Radisson township; thence west to the south-west angle of Radisson township, the point of commencement.

2. That part of Coleman township lying between Temagami Provincial Forest and the Montreal River.

3. That part of the township of Lorrain in Concessions I, II, III, IV, V, VI, VII and VIII, and all that part of the townships of South Lorrain, Best and Cassels not included within the Temagami Provincial Forest.

4. The townships of McNish, Pardo, Hobbs, McCallum, Thistle, McWilliams, Fell, Charlton; that part of Janes and Dana north of the right-of-way of the Canadian National Railways; Lots 1 to 10, inclusive, in Concessions III and IV and Lots 1 to 12, inclusive, in Concessions V and VI, Gibbons township; Lots 1 to 8, inclusive, in Concessions I and II and Lots 1 to 15, inclusive, in Concessions III, IV, V and VI, Bastedo township; Lots 1 to 7, inclusive, in Concession IV and Lots 1 to 8, inclusive, in Concessions V and VI, Field township; Lots 1 to 6, in Concessions I, II, and III and Lots 1 to 12 in Concessions IV, V and VI, Grant township.

5. All that area lying within and north of the following townships: Sanky, Fleck, Neely, Nixon, Teetzel, North quarter of Fauquier, Beardmore, Hurdman,

Webster, Beniah, Marven and Thorning; the unsurveyed area north of Kennedy township and the area within and north of the townships of Stimson, Mortimer, Edwards, Teefey, Wilkie, Coulson, Munro, Guibord, Barnet, Melba, Bisley, Clifford, Ben Nevis and Pontiac.

6. All that area lying within the following described boundaries:

Commencing at the south-east angle of the township of Haycock; thence north to the point of intersection with the south shore of Silver Lake; thence easterly and northerly following the windings of the shore of said lake to the point of intersection with the northern boundary of township 42; thence east to the north-east angle of township 41; thence south to the point of intersection with the southern boundary of the right-of-way of the Canadian Pacific Railway; thence easterly along the southern boundary of said right-of-way to the point of intersection with the shore of Eagle Lake; thence in a southerly and easterly direction along the mainland shore of said lake to the south-east angle of Indian Reserve 27 south of Aubrey township; thence east astronomically to the point of intersection with the Sixth Meridian; thence north to the south-west angle of the township of Van Horne; thence east along the southern boundary of said township to the point of intersection with the shore of Wabigoon Lake; thence easterly and southerly along the mainland shore of said lake to the point of intersection with the boundary of Indian Reserve 27 south of the township of Southworth; thence along the westerly, southerly and easterly boundaries of said Indian Reserve to the point of intersection with the southern boundary of the township of Southworth; thence east to the north-west angle of the township of Melgund; thence south to the south-west angle of said township; thence east to the south-east angle of the township of Revell; thence north to the north-east angle of the township of Revell; thence west to the north-west angle of the township of Melgund; thence north to the point of intersection with the shore of Sandy Lake; thence east astronomically to the point of intersection with the Fifth Meridian at the 69th mile post; thence south three miles to the 66th mile post; thence east astronomically six miles; thence south astronomically three miles; thence east astronomically six miles; thence south astronomically fifteen miles; thence west astronomically six miles; thence south astronomically six miles; thence west astronomically eighteen miles; thence north astronomically six miles, more or less; thence west astronomically thirty miles, more or less, thence south astronomically eighteen miles, more or less, to a point east astronomically from the most northerly point on Bluff Lake; thence west astronomically to the said point on Bluff Lake; thence in a general south-westerly course following the several points and bays on the north-westerly shores of Bluff Lake, Bluff Lake Outlet, Strawberry Lake, Strawberry Lake Outlet, Pipestone Lake to the boundary between the Districts of Kenora and Rainy River; thence westerly along this boundary to the eastern shore of Sabaskong Bay on Lake of the Woods; thence along the northern shore of Sabaskong Bay and all its windings to Turtle Portage; thence along the easterly shore of Whitefish Bay and all its windings to Andrew Bay and Bigstone Bay on Lake of the Woods to the mouth of Long Lake River flowing into Bigstone Bay of the said lake; thence up the said river to Long Lake and northerly along the east and northerly shores of Long Lake to the south-east angle of Mining Location M-8; thence north astronomically along the east limit of Mining Location on M-8 and Mining Location 224-P to the south limit of the township of Haycock; thence east to the place of commencement, excepting and reserving nevertheless from the above described area all Indian Reserves, and all lands patented or leased.

7. All that area lying within the following described boundaries:

Commencing at the south-east angle of the township of Laval; thence west to the south-east angle of Lot 15, Concession VII of said township; thence north to the north-east angle of Lot 15 in Concession XII of said township; thence east to the north-east angle of Laval township; thence south to the south-east angle of said township, the place of commencement.

8. All that area lying within the following described boundaries.

Commencing at the south-west angle of the township of Strange; thence north to the north-west angle of said township; thence west astronomically to the point of intersection on the boundary between the Districts of Rainy River and Thunder Bay; thence south to the international boundary; thence along the international boundary to the south-east angle of the township of Robbins; thence north to the south-west angle of the township of Strange, the point of commencement.

9. All that area lying within Algonquin Provincial Park, excepting only the townships of Peck and Canisbay.

10. All lands vested in the Crown in the following townships and parts of townships:

Boulter, Concessions I to VIII, inclusive.

Lauder, Concessions I to VI, inclusive.

Boyd, Concessions XI to XVIII, inclusive.

Papineau, Concessions I to IV, inclusive.

Cameron, Concessions I to XIV, inclusive.

Clara, Concessions I to VI, inclusive, and Lots 1 to 15, inclusive, in Concessions VII, VIII, IX and X.

Maria, Concessions A to IX, inclusive.

Head, Lots 16 to 40, inclusive, in Concessions I, II, III, IV, V, VI, and VII.

Ralph, that portion south and west of the Chalk River.

McKay, Lots 16 to 31, inclusive, in Concessions I, II, III, IV, V, VI, VII and VIII, and that portion of Lots 16 to 31, inclusive, south of Barron River in Concessions IX, X, XI, and XII.

Fraser, Lots 16 to 31, inclusive, in Concessions IX, X, XI, XII, XIII, XIV, XV and XVI.

Richards, Concessions XI, XII, XIII and XIV, and that part of Lots 26 to 35, inclusive, north of the Bonnechere River in Concessions VII, VIII, IX and X.

Burns, Concessions IX to XIV, inclusive.

Dickens, Concessions XI to XIV, inclusive.

Murchison, Concessions XIII to XVI, inclusive.

Clancy, all that part not included within Algonquin Provincial Park.

Airy, that part of Concessions XI, XII, XIII and XIV not included within Algonquin Provincial Park.

Nightingale, all that part not included within Algonquin Provincial Park.

Lawrence, that part of Concessions VII to XIV, inclusive, not included within Algonquin Provincial Park.

Livingstone, Lots 11 to 35, inclusive, in Concessions VII, VIII, IX, X, XI, XII, XIII and XIV.

(2) *Organization and Personnel*

In April the Assistant District Forester at Sudbury was transferred to Port Arthur as District Forester in charge of the old Western Inspectorate which is now known as the Port Arthur Inspectorate. The Forest Supervisor previously in charge of the Western Inspectorate was transferred to Macdiarmid as Chief Ranger in charge of the Nipigon District.

Forest Assistants were appointed during the year in the Hudson, Port Arthur, Oba, Sudbury and Algonquin Inspectorates.

In the North Bay Inspectorate the new Latchford Chief Ranger District was formed with headquarters at Latchford. This district is composed of part of the old Temagami East Chief Ranger District. At the same time the Chief Ranger at Elk Lake was appointed a Fire Inspector with supervision of the Latchford and Temagami North Districts.

The total field supervisory staff for the eleven inspectorates was as shown in the following table and consisted of twelve District Foresters, eleven Forest Assistants, one Forest Supervisor, eight Fire Inspectors, one Assistant Fire Inspector, thirty-five Chief Fire Rangers and one hundred and twenty-six Deputy Chief Fire Rangers. The Forest Supervisor at Macdiarmid, the Fire Inspectors at Goose Island, Elk Lake, Gogama and Biscotasing and the Assistant Fire Inspector at Longlac also acted as Chief Fire Rangers.

There was direct supervision of one Chief or Deputy Chief Ranger to an average of every seven rangers.

ORGANIZATION AND PERSONNEL

Inspectorate	Area (acres)	Headquarters	Supervisory Staff	Chief Ranger Districts	Headquarters
Hudson...	26,000,000	Sioux Lookout	1—District Forester 1—Forest Assistant 1—Fire Inspector 1—Fire Inspector and Chief Ranger 2—Chief Rangers 13—Deputy Chief Rangers	Red Lake Sioux Lookout Armstrong	Goose Island Sioux Lookout Armstrong
Kenora . . .	14,080,000	Kenora . . .	2—District Foresters 1—Forest Assistant 3—Chief Rangers 10—Deputy Chief Rangers	Kenora Minaki Rainy River	Kenora Minaki Fort Frances
Port Arthur	11,459,000	Port Arthur	1—District Forester 1—Forest Assistant 1—Forest Supervisor and Chief Ranger 1—Chief Ranger 11—Deputy Chief Rangers	Thunder Bay Nipigon	Port Arthur Macdiarmid
Oba	25,880,000	Kapus-kasing	1—District Forester 1—Forest Assistant 2—Fire Inspectors 1—Assistant Fire Inspector and Chief Ranger 6—Chief Rangers 17—Deputy Chief Rangers	Nakina Longlac Oba Franz Hearst Kapus-kasing	Nakina Longlac Oba Franz Hearst Kapus-kasing
Cochrane.	11,942,000	Cochrane.	1—Fire Inspector 4—Chief Rangers 16—Deputy Chief Rangers	Cochrane Abitibi Timmins Matheson	Cochrane Stimson Timmins Matheson

ORGANIZATION AND PERSONNEL—Continued

Inspectorate	Area (acres)	Headquarters	Supervisory Staff	Chief Ranger Districts	Headquarters
North Bay	5,105,000	North Bay	1—District Forester	Temagami North	Elk Lake
			1—Forest Assistant	Temagami East	Temagami
			1—Fire Inspector and Chief Ranger	Latchford	Latchford
			3—Chief Rangers	North Bay	North Bay
			11—Deputy Chief Rangers		
Sudbury..	12,644,000	Sudbury..	2—District Foresters	Foley West	Elsas
			1—Forest Assistant	Foley East	Gogama
			2—Fire Inspectors and Chief Rangers	Mississagi West	Chapleau
			6—Chief Rangers	Mississagi East	Biscotasing
			20—Deputy Chief Rangers	Webbwood	Espanola
Soo	7,394,000	Sault Ste. Marie..	1—District Forester	A.C.R.	Sand Lake
			1—Forest Assistant	Blind River	Blind River
			3—Chief Rangers	Mississagi South	Ranger Lake
			12—Deputy Chief Rangers		
Georgian Bay	3,711,000	Parry Sound..	1—District Forester	Georgian Bay W.	Parry Sound
			2—Forest Assistants	Georgian Bay E.	Powassan
			3—Chief Rangers	Georgian Bay S.	Coboconk
			6—Deputy Chief Rangers		
Algonquin	3,522,000	Pembroke	1—District Forester	Algonquin North	Pembroke
			1—Forest Assistant	Algonquin South	Brule Lake
			2—Chief Rangers		
			6—Deputy Chief Rangers		
Trent	3,163,000	Tweed	1—District Forester	Trent	Bancroft
			1—Forest Assistant	Madawaska	Dacre
			2—Chief Rangers		
			4—Deputy Chief Rangers		

Total area, 124,900,000 acres.

The average daily force, including the Chief and Deputy Chief Rangers, was as follows: April, 208; May, 837; June, 1,177; July, 1,235; August, 1,204; September, 1,035; October, 299. The largest number of men on duty at any one time, including Chief and Deputy Chief Rangers, was 1,239.

NUMBER OF MEN ON DUTY INCLUDING CHIEF AND DEPUTY CHIEF RANGERS

	1930	1929	1928	1927	1926	1925	1924
April 1st	104	77	49	44	19	24	22
April 15th	189	139	98	159	42	62	60
May 1st	454	454	293	361	168	360	215
May 15th	880	683	628	675	549	648	525
June 1st	1,111	981	992	958	896	822	756
June 15th	1,173	1,066	1,026	1,040	966	842	810
July 1st	1,216	1,090	1,071	1,046	982	847	812
July 15th	1,235	1,085	1,080	1,062	992	848	813
August 1st	1,205	1,072	1,068	1,051	987	845	806
August 15th	1,208	1,081	1,055	1,019	983	841	792
September 1st	1,184	1,083	988	926	918	835	745
September 15th	1,136	987	778	865	798	806	626
October 1st	477	407	242	240	257	245	148
October 15th	288	245	131	120	129	82	47
October 31st	179	154	93	57	44	.....	.....

CLASSIFICATION OF EXPENDITURES

Item	1930	1929	1928	1927	1926	1925	1924
Pay roll.....	\$962,860 47	\$925,173 08	\$786,600 74	\$780,527 29	\$664,260 69	\$615,811 09	\$480,481 98
Equipment.....	412,135 88	168,367 55	137,070 76	109,496 05	108,387 12	134,692 18	144,540 75
Travel (inspection).....	50,244 53	53,097 39	58,259 25	39,494 42	29,065 24	33,649 18	32,797 35
Improvement work.....	118,059 30	82,180 13	76,496 09	63,333 45	19,097 63	225,723 85	61,427 30
Extra fire-fighting.....	364,240 16	183,210 35	21,028 90	43,509 13	34,728 85	67,023 32	16,450 78
Express, postage, etc.....	25,951 38	21,619 43	16,866 97	20,951 71	30,105 86	39,472 70	33,818 69
Maintenance.....	170,819 55	159,764 39	112,716 04	89,888 11	95,931 36	98,520 56	28,877 18
Miscellany.....	1,779 10	2,669 46	4,192 22	13,273 84	17,327 48	11,964 07	8,971 53
Gasoline and oil.....	167,091 41	129,738 04	51,797 50	72,295 61	67,720 04	26,924 17	40,527 77
Rent.....	8,732 79	8,194 05	6,748 25	7,226 40	5,920 17	7,528 62	7,206 91
Totals.....	*\$2,281,914 57	*\$1,734,013 87	*\$1,271,776 72	*\$1,239,996 01	*\$1,072,544 44	*\$1,261,309 24	\$855,050 24

*Of this total \$80,000.00 was transferred in 1925, 1926 and 1927, \$60,000.00 in 1928, 1929 and \$70,000.00 in 1930 to a charge against Forest Ranging to cover air operations in connection with that work.

(3) *Expenditures*

The total expenditure for the year was \$2,281,914.57, less \$70,000.00 transferred to a charge against Forest Ranging to cover air operations in connection with that work, leaving the actual charge against Forest Fire Protection at \$2,211,914.57. The amount of fire tax collected for the year was \$344,411.87.

(4) *Fires*

The season of 1930 was very similar to that of 1929 with every part of the Province excepting the eastern Clay Belt region experiencing one or two hazardous periods with the most critical situation developing in the Thunder Bay District. The Hudson and Kenora Inspectorates which were hit the hardest in 1929 escaped the most severe weather this year, the greatest hazard developing further east and just reaching the westerly edge of the Clay Belt.

As usual the spring hazard was the worst, the hot dry weather being accompanied by exceptionally strong winds. On June 2nd a terrific wind carried many settlers' slash-burning fires out of control and more damage was done on that one day than during all the rest of the season together.

Of the total area burned over, 711,809 acres, 448,033 acres were in the Port Arthur Inspectorate and of this total one fire accounted for 173,350 acres. This particular fire was discovered when it was quite small, but before it could be extinguished it was fanned out of control by the gale of June 2nd, and within thirty-six hours had covered an area some seventy miles long and two to four miles wide. Men and equipment were placed at strategic points along the edge of the burn just as rapidly as possible, but this took time and much strenuous labour due to the inaccessibility of the area. However, it was possible to prevent the fire spreading over any further great area and the fact that this spread was less than five per cent. speaks volumes for those in charge. At one time 226 men were engaged on the fire with eighteen fire fighting pumps. Approximately 100 tons of freight was transported to the fire area by aircraft in addition to that taken in by canoe. Actual fire fighting ended July 2nd but the burn was patrolled for fear of further outbreaks until September 13th. The total cost of extinguishing the fire was \$71,778. The cause is thought to be an old Indian. A considerable amount of very fine timber was killed which probably cannot be salvaged at the present time.

Of the total number of 1,402 fires fifty-four per cent. occurred before the end of June and burned over ninety-four per cent. of the total area for the year.

In spite of the high hazard at various times 70.9 per cent. of the fires were confined to areas of 10 acres or less and 86.8 per cent. to areas of 100 acres or less, with 3.3 per cent. reaching 1,000 acres and over.

Regarding the causes of fires campers again accounted for the greatest area burned, 77.5 per cent. of the total, with lightning coming next with 8.2 per cent.

The timberland burned over totalled 399,583 acres of which the greater part was west of Lake Nipigon.

Of the total area burned 94 per cent. was in the territory west of Longlac and Nakina. This was also true in 1929 and 1928.

CLASSIFICATION OF AREA BURNED OVER

BY MONTH

Inspectorate	April		May		June		July		August		September		October		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	358	0.2	11,819	7.7	130,010	85.0	4,541	2.9	4,223	2.8	2,082	1.4	2	.....	153,035	.....
Kenora.....	175	0.5	15,737	46.4	8,617	25.4	239	0.7	8,826	26.0	328	1.0	.....	.....	33,922	.....
Port Arthur.....	1,222	0.2	233,566	52.1	202,318	45.4	203	.....	10,658	2.3	61	.....	5	.....	448,033	.....
Oba.....	.....	.....	1,309	3.1	41,348	94.1	150	0.3	1,067	2.5	7	.....	.....	.....	43,881	.....
Cochrane.....	.....	.....	878	18.5	3,238	69.0	11	0.2	1,579	12.3	4	.....	1	.....	4,711	.....
North Bay.....	.....	.....	1,480	91.5	23	1.4	.....	.....	115	7.1	.....	.....	.....	.....	1,618	.....
Sudbury.....	249	6.0	2,858	69.0	40	1.0	15	0.4	932	22.5	39	0.9	7	0.2	4,140	.....
Soo.....	469	4.2	5,818	51.4	386	3.4	6	3.4	4,161	36.8	471	4.2	.....	.....	11,311	.....
Georgian Bay.....	100	6.7	1,257	84.8	3	0.2	.....	.....	102	6.9	21	1.4	.....	.....	1,483	.....
Algonquin.....	487	8.5	1,676	29.4	3,532	61.8	2	.....	3	.....	3	.....	16	0.3	5,719	.....
Trent.....	654	16.5	2,573	65.1	514	13.0	1	1.0	9	0.2	6	0.1	199	5.0	3,956	.....
Totals.....	3,714	0.5	278,971	39.2	390,029	54.8	5,168	0.8	30,675	4.3	3,022	0.4	230	0.0	711,809	.....

CLASSIFICATION OF AREA BURNED OVER
BY ORIGIN

Inspectorate	Settlers		Campers		Railways		Lightning		Logging Operations		Smokers		Road Construction		Miscellaneous		Unknown		Totals	
	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.	Acres	Per cent.
Hudson.....	560	0.3	98,096	64.1	3,726	2.4	21,003	13.7	350	0.5	1,801	5.3	.....	.....	*16,267	10.5	13,033	8.5	153,035	8.5
Kenora.....	13,864	40.9	8,387	24.7	23	0.1	2,737	8.1	.....	.....	79	.....	21	.....	2,882	8.5	4,207	12.4	33,922	12.4
Port Arthur.....	4,328	1.0	409,394	91.4	556	0.1	24,832	5.5	465	0.1	.....	.....	35	.....	10	.....	8,334	1.9	448,033	1.9
Oba.....	4,470	10.1	30,535	69.9	158	0.4	7,535	17.1	381	0.8	619	1.4	30	.....	.....	.....	153	0.3	43,881	0.3
Cochrane.....	633	13.4	13	0.3	917	19.5	.....	.....	227	4.8	1	.....	1	.....	.....	.....	1,120	38.2	4,711	38.2
North Bay.....	197	12.1	117	7.2	5	0.4	.....	.....	350	21.6	822	50.8	105	6.5	.....	.....	1,799	1.3	1,618	1.3
Sudbury.....	229	5.6	1,065	25.7	376	9.1	807	19.5	31	0.7	1,478	35.7	50	1.2	92	2.2	12	0.3	4,140	0.3
Soo.....	139	1.2	3,487	30.8	5,760	50.9	1,517	13.4	.....	.....	69	0.7	338	3.0	.....	.....	.....	.....	11,311	11.3
Georgian Bay.....	303	20.4	272	18.3	192	12.9	505	34.1	102	6.9	13	0.9	.....	.....	.....	.....	.....	.....	.....	.....
Algonquin.....	16	0.3	284	5.0	216	3.8	8	0.1	3,719	65.0	330	5.8	.....	.....	1,020	17.8	126	2.2	5,719	2.2
Trent.....	729	18.5	591	15.0	38	1.0	.....	.....	10	0.2	310	7.8	315	7.9	1,614	40.8	349	8.8	3,956	8.8
Totals.....	25,468	3.6	552,241	77.6	11,967	1.7	58,946	8.3	5,636	0.8	5,552	0.8	895	0.1	23,005	3.2	28,129	3.9	711,809	3.9

*14,950 acres were burned in Hudson Inspectorate by a fire which came in from Manitoba.

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CLASSIFICATION OF FOREST AREAS BURNED OVER

Inspectorate	Number of fires	Timber land, mainly coniferous, i.e., softwood	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)
Hudson.....	119	68,627	5,328	2,014	.....	4,709	17,853	54,415	89	153,035
Kenora.....	168	2,894	282	9,120	132	6,317	527	14,457	193	33,922
Port Arthur.....	215	279,467	9,375	41,055	652	59,965	2,521	51,066	3,932	448,033
Oba.....	83	31,908	997	2,075	468	1,978	730	5,471	254	43,881
Cochrane.....	87	207	4	1,377	18	51	2	2,672	380	4,711
North Bay.....	66	34	1	479	245	120	78	476	185	1,618
Sudbury.....	218	11	1	323	90	347	88	2,499	781	4,140
Soo.....	122	4	5	5,777	579	558	1,930	2,300	158	11,311
Georgian Bay.....	57	6	2	132	138	81	518	325	281	1,483
Algonquin.....	77	54	180	301	3,306	404	88	1,276	110	5,719
Trent.....	190	34	162	451	549	372	1,353	911	124	3,956
Totals.....	1,402	383,246	16,337	63,104	6,177	74,902	25,688	135,868	6,487	711,809
1929 totals.....	1,550	114,026	912	109,315	5,261	177,464	8,085	205,302	5,278	625,643
1928 ".....	536	37,220	21	6,530	634	29,758	1,101	24,024	1,095	100,383
1927 ".....	924	831	119	4,202	974	4,294	2,041	18,061	5,220	35,742
1926 ".....	1,110	10,266	2,468	12,866	9,378	17,583	11,303	19,262	5,248	88,374
1925 ".....	1,149	4,634	5,555	13,555	21,588	22,391	34,164	68,414	19,242	189,543
1924 ".....	851	24,067	6,592	11,089	12,057	31,760	15,908	42,353	2,190	146,017

CLASSIFICATION OF LAND BURNED OVER

INSPECTORATE	Fires burning on one class of land only				Fires burning on both Crown and private land								Totals					
	Crown land				Private land				Originating on Crown land						Originating on private land			
	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.	No. of fires	Area in acres	Per cent.			No. of fires	Area in acres	Per cent.	No. of fires	Area in acres
Hudson.....	106	151,848	99.2	12	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kenora.....	118	19,321	57.0	44	1,143	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Arthur.....	65	23,218	5.2	142	62,454	14.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oba.....	41	38,471	87.7	34	3,152	7.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cochrane.....	31	2,956	62.7	53	1,724	36.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Bay.....	18	870	53.8	48	748	46.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sudbury.....	59	2,573	62.2	150	1,186	28.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Soo.....	47	4,121	36.4	73	1,690	14.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgian Bay.....	20	806	54.4	34	451	30.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Algonquin.....	51	4,729	82.7	24	97	1.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Trent.....	89	1,763	44.6	96	1,665	42.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	645	250,676	35.2	710	74,334	10.4	9	1,345	0.2	3,947	0.6	38	105,510	14.8	275,997	38.8	711,809	

MEANS OF FIRE DETECTION

INSPECTORATE	CHIEF RANGER DISTRICT	TOTAL FIRES	AIR SERVICE		TOWERS		RANGERS		PUBLIC	
			Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hudson	Red Lake.....	60	54	90.0	..	..	3	5.0	3	5.0
	Sioux Lookout.....	32	14	43.7	2	6.3	4	12.5	12	37.5
	Armstrong.....	27	9	33.3	..	....	6	22.2	12	44.5
Kenora		119	77	64.7	2	1.7	13	10.9	27	22.7
	Kenora.....	80	39	48.8	12	15.0	11	13.7	18	22.5
	Minaki.....	24	13	54.2	1	4.2	2	8.3	8	33.3
	Rainy River.....	64	40	62.5	6	9.4	4	6.2	14	21.9
Port Arthur		168	92	54.8	19	11.3	17	10.1	40	23.8
	Thunder Bay.....	167	65	39.0	22	13.1	36	21.6	44	26.3
	Nipigon.....	48	25	52.1	5	10.4	10	20.8	8	16.7
Oba		215	90	41.9	27	12.5	46	21.4	52	24.2
	Nakina.....	9	5	5.6	1	1.1	1	1.1	2	2.2
	Longlac.....	10	5	50.0	..	....	2	20.0	3	30.0
	Oba.....	12	..	....	1	8.3	4	33.3	7	58.4
	Franz.....	13	1	7.7	1	7.7	1	7.7	10	76.9
	Hearst.....	16	..	....	1	6.2	6	37.5	9	56.3
	Kapuskasing.....	23	1	4.4	2	8.7	13	56.5	7	30.4
Cochrane		83	12	14.5	6	7.2	27	32.5	38	45.8
	Cochrane.....	61	..	....	1	1.6	28	45.9	32	52.5
	Abitibi.....	4	..	....	2	50.0	1	25.0	1	25.0
	Timmins.....	12	..	....	..	....	12	100.0	..	...
	Matheson.....	10	..	....	..	....	8	80.0	2	20.0
		87	..	....	3	3.5	49	56.3	35	40.2

North Bay.....	6	..	....	1	16.6	2	33.4	3	50.0
Temagami North.....	1	..	....	17	34.7	21	42.9	1	100.0
Temagami East.....	49	..	....	3	30.0	5	50.0	11	22.4
North Bay.....	10	..	....	..	..	..	..	2	20.0
Latchford.....	66	..	....	21	31.8	28	42.4	17	25.8
Sudbury.....	9	..	66.6	1	11.1	7	77.8	1	11.1
Foleyet West.....	3	2	33.4	1	33.3	..	33.3	..	....
Foleyet East.....	3	1	33.3	1	33.3	..	33.3	..	....
Temagami West.....	9	3	29.8	28	22.6	1	11.1	5	55.6
Sudbury North.....	124	37	21.9	19	29.6	9	14.1	28	22.6
Sudbury South.....	64	14	..	19	29.6	..	..	22	34.4
Webbwood.....	1	..	40.0	..	20.0	..	..	1	100.0
Mississagi East.....	5	2	..	1	..	..	..	2	40.0
Mississagi West.....	218	59	27.1	51	23.4	49	22.4	59	27.1
Soo.....	65	19	29.2	3	4.6	22	33.9	21	32.3
A.C.R.....	52	12	23.1	11	21.1	13	25.0	16	30.8
Blind River.....	5	2	40.0	..	..	2	40.0	1	20.0
Mississagi South.....	122	33	27.1	14	11.5	37	30.3	38	31.1
Georgian Bay.....	25	..	..	13	52.0	6	24.0	6	24.0
Georgian Bay West.....	32	..	..	14	43.7	4	12.5	14	43.8
Georgian Bay East.....	..	..	..	..	..	..	..	..	..
Georgian Bay South.....	57	..	..	27	47.4	10	17.5	20	35.1
Algonquin.....	41	..	..	10	24.4	18	43.9	13	31.7
Algonquin North.....	36	..	..	10	27.8	10	27.8	16	44.4
Algonquin South.....	77	..	..	20	26.0	28	36.4	29	37.6
Trent.....	94	..	..	64	69.0	7	7.0	23	24.0
Madawaska.....	96	..	..	73	76.0	9	9.0	14	15.0
Totals.....	1,402	363	25.9	327	23.3	320	22.8	392	28.0

No
Aircraft
in
use

(5) *Permits*

The total number of burning permits issued during the season was 15,094 for an area of 50,278 acres. The burning permit law is now being enforced throughout the Fire Districts and its benefits are gradually being felt. The hearty co-operation of the settlers is in most cases very noticeable.

STATEMENT OF PERMITS ISSUED

DISTRICT	Number of Permits						
	1930	1929	1928	1927	1926	1925	1924
Red Lake.....	111	63	129	24	31}	99	70
Sioux Lookout.....	66	78	40	103	26}		
Armstrong.....	10	13	5	28	.....	.....	.....
Kenora.....	606	769	611}	497	179	3	128
Minaki.....	66	55	44}				
Rainy River.....	40	40	29	61	31	19	16
Thunder Bay.....	395	293	333	433	264	235	100
Nipigon.....	.....	3	4	10	.....	.....	.....
Nakina.....	2	7	4	37	51	95	36
Hearst.....	1,173	1,074	1,501	1,264	1,804	1,656	1,011
Longlac.....	2	3	5	.....	2	.....	.....
Oba.....	24	15	24	34	29	11	16
Franz.....	13	9	6	14	5	10	.....
Kapuskaing.....	2,113	1,903	2,274	1,245	1,022}	1,187	668
Smoky Falls.....	.....	16	.....	84	76}		
Cochrane.....	2,755	2,078	2,637	2,871	2,506	2,486	1,815
Abitibi.....	8	20	.....	5	65	157	2
Matheson.....	1,915	1,664	1,236	1,482	1,603	1,515	1,275
Timmins.....	1,093	1,241	1,034	1,173	1,407	1,212	580
New Liskeard.....	.....	.....	.....	.....	836	637	408
A.C.R.....	93	95	51	72	97	82	18
Blind River.....	250	191	134	298	164	126	100
Mississagi South.....	.....	.....	2	3	.....	.....	.....
Foleyet West.....	74	43	43	59	58	3	34
Foleyet East.....	170	199	185	163	175	169	102
Mississagi West.....	48	55	22	77	67	2)	15
Mississagi East.....	64	6	12	26	18	12	9
Webbwood.....	225	222	169	322	183	162	119
Sudbury North.....	12)	12	15	18	16	36	173
Sudbury South.....	962	854	540	766	580	411	149
Temagami West.....	18	27	12	11	14	19	.....
Temagami North.....	924	988	951	765	294	253	200
Temagami East.....	17}	277	139	223	395	174	86
Latchford.....	18}						
North Bay.....	731	914	724	829	971	691	360
Georgain Bay West.....	93	105	111	87	83	100	.....
Georgian Bay East.....	224	165	155	162	207	159	.....
Algonquin North.....	41	50	29	45	14	33	29
Algonquin South.....	122	106	105	73	103	84	58
Trent.....	172	150	77	57	31}	106	24
Madawaska.....	327	235	181	172	59}		
Totals.....	15,094	14,038	13,611	13,593	13,466	11,962	7,602

STATEMENT OF PERMITS ISSUED

DISTRICT	Acreage covered by Permits						
	1930	1929	1928	1927	1926	1925	1924
Red Lake.....	1,786	29	109	56	15}	416	215
Sioux Lookout.....	375	570	85	189	63}		
Armstrong.....	4	18	.....	.....	.....	.....	1
Kenora.....	1,738	2,170	1,671}	3,123	442	2	325
Minaki.....	22	18	5}	.....	.....	.....	.....
Rainy River.....	90	403	378	1,162	2,144	174	57
Thunder Bay.....	2,201	1,137	7,777	2,428	993	1,029	463
Nipigon.....	.....	15	2	110	.....	.....	.....
Nakina.....	.....	3	18	19	35	28	25
Hearst.....	4,805	4,898	7,119	3,358	3,435	3,721	2,311
Longlac.....	.....	.....	.....	.....	.....	.....	.....
Oba.....	25	7	7	7	28	1	60
Franz.....	.....	.....	.....	.....	.....	1	.....
Kapuskasing.....	6,437	7,443	13,807	5,085	4,106}	4,222	2,351
Smoky Falls.....	22	22	.....	72	205}		
Cochrane.....	8,735	6,414	16,901	5,577	5,623	4,462	4,010
Abitibi.....	39	19	.....	4	213	426	.....
Matheson.....	8,441	7,554	5,031	3,251	4,884	5,211	4,573
Timmins.....	5,669	6,801	2,222	1,812	2,354	2,064	1,421
New Liskeard.....	.....	.....	.....	.....	2,039	2,154	1,345
A.C.R.....	603	184	1,121	269	408	1,257	100
Blind River.....	690	380	130	1,199	1,041	1,119	619
Mississagi South.....	.....	.....	1	27	.....	.....	.....
Foleyet West.....	19	23	29	1,370	1,008	25	2,959
Foleyet East.....	161	65	87	2,280	1,613	3,152	3,402
Mississagi West.....	83	331	310	2,373	2,208	2,555	81
Mississagi East.....	27	9	26	2,984	2,843	4,741	2
Webbwood.....	915	648	449	7,565	4,125	2,768	2,009
Sudbury North.....	339	13	14	556	137	293	425
Sudbury South.....	1,670	2,184	941	5,105	2,089	1,957	6,900
Temagami West.....	5	34	3	7	27	6	.....
Temagami North.....	1,692	1,228	1,272	1,412	319	1,197	303
Temagami East.....	1}	579	217	514	458	819	172
Latchford.....	9}						
North Bay.....	875	1,697	1,366	1,348	1,830	1,384	518
Georgian Bay West.....	169	307	157	297	201	742	.....
Georgian Bay East.....	623	730	380	456	558	418	.....
Algonquin North.....	121	3,362	33	15	148	377	719
Algonquin South.....	180	1,753	141	139	199	121	599
Trent.....	437	295	268	550	111}	326	60
Madawaska.....	1,296	423	810	1,043	86}		
Totals.....	50,278	51,752	62,905	55,762	45,988	47,168	36,025

STATEMENT OF PERMITS ISSUED

MONTH	Number of Permits						
	1930	1929	1928	1927	1926	1925	1924
April.....	756	640	116	663	100	451	127
May.....	3,531	2,579	3,372	2,857	3,580	2,185	849
June.....	3,025	5,043	4,494	4,641	3,341	2,273	3,614
July.....	2,150	2,937	2,581	2,082	2,643	2,172	1,388
August.....	2,753	1,520	2,139	1,671	2,065	2,484	1,093
September.....	2,469	1,221	899	1,656	1,672	2,367	528
October.....	410	99	10	23	65	30	3
Totals.....	15,094	14,038	13,611	13,593	13,466	11,962	7,602

STATEMENT OF PERMITS ISSUED

MONTH	Acreage Covered by Permits						
	1930	1929	1928	1927	1926	1925	1924
April.....	4,888	2,662	701	7,138	3,686	7,981	4,956
May.....	14,134	9,882	21,435	15,265	13,484	12,397	2,812
June.....	10,696	24,581	23,453	13,896	12,020	5,851	10,188
July.....	7,263	8,627	9,589	5,662	7,521	7,685	3,546
August.....	6,871	2,693	5,796	8,408	4,434	6,667	5,021
September.....	4,923	2,302	1,812	4,742	4,800	6,546	9,450
October.....	1,503	1,005	119	651	43	41	52
Totals.....	50,278	51,752	62,905	55,762	45,988	47,168	36,025

(6) *Equipment*

All the various kinds of equipment used by the forest protection organization was again subjected to strenuous use due to the character of the fire season. In the western part of the Province the fire fighting equipment on hand was not nearly sufficient to meet the needs and it was necessary to augment the stock by purchases of new material and by transferring from the east all that could be spared. The almost continuous use of fire pumps and other such articles naturally resulted in great wear and tear but the equipment on the whole stood up wonderfully well.

Of the new equipment purchased, the Port Arthur Inspectorate received a goodly portion because of the small stock there and the high fire hazard.

The most important addition to the equipment supply was eighty fire fighting units with 294,500 feet of hose. These units paid for themselves many times over in enabling the control of some of the larger fires which otherwise would probably have burned unchecked until the autumn rains.

To accommodate the many fire fighting crews it was necessary to purchase additional tents and blankets. More canoes were also necessary for transportation, but the greater number of those purchased were for replacement.

Of the thirty-four automobiles purchased seventeen were replacements. These cars are practically all half-ton trucks.

MAJOR EQUIPMENT PURCHASED AND IN USE

INSPECTORATE	Fire Fighting Units		Fire Fighting Hose (feet)		Portable Hand Pumps		Tents		Blankets (pairs)		Canoes		Small Motor Boats		Launches		Auto Trucks		Railway Motor Cars		Velocipedes		Out-board Motors		Binoculars	
	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use	Purchased 1930	Total in use
Hudson..	14	82	40,000	174,600	36	135	20	102	81	599	62	3	12	1	4	2	1	3	2	9	3	22	3	3	3	4
Kenora...	9	47	59,500	126,800	72	161	20	56	135	379	25	4	13	3	4	2	5	1	1	1	4	13	4	4	3	
Rainy River..	8	20	32,500	60,300	...	28	12	30	37	121	15	1	2	...	...	1	3	...	1	2	...	1	6	1	3
Port Arthur.	30	49	77,100	95,800	265	372	109	139	1,014	1,086	31	5	6	4	4	2	5	1	3	7	7	8	3	5		
Oba.....	3	40	5,800	79,400	22	229	13	140	50	792	57	...	14	...	2	3	6	...	12	...	28	...	13	...	18	
Cochrane	2	33	11,000	74,800	9	179	4	58	20	464	2	54	...	2	6	4	12	...	5	...	28	...	1	4	5	
Soo.....	2	25	8,000	44,200	...	85	8	78	20	399	34	...	...	...	1	3	6	1	3	...	9	...	1	5	13
Sudbury..	3	69	30,000	194,600	30	234	21	220	20	1,184	1	164	2	12	3	11	4	11	1	7	...	6	4	17	7	
North Bay	6	32	18,000	70,600	20	102	16	98	225	815	12	91	...	3	1	8	6	16	1	1	...	13	5	8	4	
Georgian Bay....	2	20	8,000	39,000	...	96	2	45	20	334	2	49	3	...	7	4	8	...	...	1	5	1	4	2	11
Algonquin	1	14	4,600	28,400	3	83	...	61	...	461	2	55	2	8	...	3	2	5	...	4	...	7	1	7	9	
Trent.....	...	6	...	16,200	24	71	3	22	30	213	...	17	2	10	...	...	3	9	...	1	...	1	3	10	1
Totals.	80	437	294,500	1,004,700	481	1,775	228	1,049	1,652	6,847	55	675	19	85	8	50	34	86	5	41	3	115	31	117	25	132

(7) Locomotive Inspection

Two men were again engaged throughout the fire season on the inspection of the fire protective appliances on all railway locomotives operating through the Fire Districts. These men also made inspections of the appliances on steam loaders, alligators and tugs where necessary.

A total of 1,456 locomotive inspections were made covering 632 locomotives operating on railway lines under the jurisdiction of the Board of Railway Commissioners for Canada, the two inspectors having appointments as officers of the Board. In addition fifty-seven inspections were made of Temiskaming and Northern Ontario Railway locomotives and twenty-four inspections of logging locomotives, 1,537 inspections in all.

LOCOMOTIVE INSPECTIONS

Railway	Number Inspected					Total No. Locomotives	Total Number Inspections							Inspections Showing Defects	Percentage Defective							
	Times						1930	1929	1928	1927	1926	1925	1924		1930	1929	1928	1927	1926	1925	1924	
	1	2	3	4	5 and over																	
C.P.R.	129	61	36	37	31	294	665	890	918	805	739	799	851	4	0.6	0.5	1.2	0.8	0.5	1.9		
C.N.R.	149	45	35	40	41	311	721	995	925	915	962	988	1,001	23	3.2	1.6	1.5	0.8	1.8	0.5	1.5	
A.C. & H.B.R.	4	2	8	7	...	21	60	64	65	19	20	45	45	...	...	...	...	...	...	...	...	...
A.E.R.	2	4	...	...	...	6	10	12	17	15	18	21	15	...	...	...	...	...	...	...	...	...
N.C.R.	...	...	...	...	...	...	3	3	...	...	3	3	8	...	...	...	...	...	...	...	...	...
T. & N.O.R.	18	18	1	...	...	37	57	110	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Logging Railways	20	2	...	...	...	22	24	46	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	322	132	80	84	72	691	1,537	2,120	1,925	1,754	1,742	1,856	1,920	45	4.3	1.4	1.0	1.0	1.3	0.6	1.6	...

Average cost per inspection: 1930, \$1.39; 1929, \$1.84; 1928, \$1.74; 1927, \$1.78; 1926, \$1.91; 1925, \$1.78; 1924, \$1.80.

(8) *Improvements*

It was possible in spite of the high fire hazard, to complete quite an extensive programme of building during the year. Considerable winter work was carried out in connection with this building, particularly in transportation, and resulted in a considerable saving both in time and money.

The most important addition was the erection of twenty-two steel lookout towers and 518 miles of permanent telephone lines. In connection with the towers the cabins surmounting the towers were made by our own staff and proved more satisfactory in every way than those it has been possible to purchase.

The number of wireless stations was increased by ten, new stations being opened at Otter Lake steel tower, Lake St. Joseph Deputy Headquarters, Macdiarmid Chief Ranger Headquarters, Jackfish Island Deputy Headquarters, Sault Ste. Marie District Headquarters, Pukaskwa Deputy Headquarters, Manitou Lake Deputy Headquarters, Kenora Chief Ranger Headquarters, Latchford Township steel tower, and North Bay District Headquarters.

PERMANENT IMPROVEMENTS

Completed to October 31st, 1930

Cabins.....	303
Storehouses.....	71
Boathouses.....	30
Combined Storehouses and Boathouses, etc.....	12
Bunkhouses.....	51
Offices.....	15
Garages.....	50
Other Buildings.....	102
Hose Towers.....	50
Wooden Lookout Towers.....	117
Steel Lookout Towers.....	113
Permanent Telephone Lines (miles).....	3,050
Temporary Telephone Lines (miles).....	54

(9) *Air Operations*

Aircraft again performed yeoman service, particularly in the transportation of men and supplies to and from fires in outlying areas. The great demand for flying for this purpose especially in the month of June again necessitated the purchase of a considerable number of flying hours from commercial companies.

Aircraft were located during the season as follows:—

Goose Island.....	1 Moth
	1 H.S.2 L.
Caribou Lake.....	1 Moth
Sioux Lookout.....	1 Moth
	1 H.S.2 L.
	1 Hamilton
Kenora.....	1 Moth
	1 Hamilton
Fort Frances.....	1 Moth
	1 H.S.2 L.
Port Arthur.....	1 D.H. 61
	1 Moth
	1 H.S.2 L.
	1 Hamilton

Orient Bay.....	1 Moth
Twin Lakes.....	1 Moth
	1 H.S.2 L.
Oba Lake.....	1 Moth
	1 H.S.2 L.
Remi Lake.....	1 Moth
Sault Ste. Marie.....	1 Moth
Biscotasing.....	1 Moth
Sudbury.....	2 Moths

(10) *Hazard Disposal*

The policy of disposing of accumulations of slash around settlements and wherever possible on settlers' lots and along routes of travel was continued.

Considerable burning was done around Sioux Lookout, Hudson, Savant Lake, Armstrong, Redditt, along the Kenora-Redditt Road, Harbour Island, Taché, Amethyst Harbour, Mississagi Road, Gowganda, Elk Lake, along the Ferguson Highway, Kirkland Lake and Timmins.

(11) *Travel Permits*

The travel permit system was applied to a further area during the season as outlined under "Legislation." This system is proving of great help in preventing fires and is receiving better support from the public in general as its use becomes better understood.

A total of 36,799 permits were issued during the season covering approximately 91,457 persons. Of this number 25,907 permits were issued for cars travelling along the Ferguson Highway between North Bay and Latchford and covered some 65,000 persons.

(12) *Meteorological Studies*

The Dominion Meteorological Service again co-operated to the fullest extent possible in supplying weather recording instruments and special daily forecasts. These forecasts are of the greatest benefit preceding and during hazardous periods.

II. REPORT OF THE DIRECTOR OF AIR SERVICE

Introduction:

The growth of the Provincial Air Service is impressively represented by the increased flying hours, expansion of its operating area and the important work it performed during 1930.

It has been perhaps the saddest year of operation since the inception of the Service. During the operating season of 1930 we lost one of Canada's outstanding pilots.

It is with regret that I have to report the death of Major John O. Leach, General Superintendent of the Service at Port Arthur, June 26th, 1930.

The death of Major Leach leaves a gap in aviation which will be difficult to fill. His congeniality endeared him to all who came in contact with him. His enthusiasm and courage brought about his untimely end. He was performing aerobatics on a Hamilton aircraft, contrary to our regulations, and crashed into the harbour at Port Arthur from a height of 300 feet, his death being instantaneous. Major Leach had an enviable war record, taking part in numerous historic air battles. He was a recipient of the M.C. with bar.

During the last seven years of active flying operations the Service have flown 45,640.37 hours. During the operating season of 1930, the Service flew 14,192.40 hours.

The fire hazard in all districts was as severe as in the year 1929, with the result that the transport aircraft were needed in the majority of districts at one time to cope with the emergency. To meet the demands of the Branch and fulfil the flight requisitions a new fast aircraft was introduced into the Service at the commencement of the season. In the transportation of fire fighters, fire fighting equipment and supplies, speed is essential; every minute wasted in the air means the loss of some important function on the ground. The new machine is an all metal aircraft having a cruising speed of 120 m.p.h., with performance which permits it to carry a pay-load of 1,500 pounds.

The introduction of the new transport type favourably impressed the members of the Service by its clean cut, streamline appearance, high speed and big pay-load. The all metal structure is a strong feature as well as economical because it reduces the annual reconditioning costs which are to be met in overhauling wood and fabric machines. The metal structure considerably lessens the possibility of damage by trees and rocks when approaching rugged shorelines and by fire fighters climbing in and out of the machine. It is particularly adapted to winter flying as it can be left in the open without fear of its structure being detrimentally affected by the elements. In the operation of three of these craft during the 1930 season, operating staff find that with a few modifications the machine will certainly compare favourably with any machine on the market.

The excellent performance of the new Hamilton machines which collectively flew a total of 1,204.40 hours, carried a total load of 988 tons, 608 pounds and covered 126,420 miles, as illustrated below:

CF.OAH	326.00 hours	259 tons	1,622 lbs.
CF.OAI	496.40 hours	469 tons	289 lbs.
CF.OAJ	315.50 hours	213 tons	391 lbs.
NC. 878	66.10 hours	46 tons	306 lbs.

Twenty-six aircraft were in use during the season, comprising four Hamilton all metal aircraft, six H.S.2. L. flying boats, fourteen Moths, one Vedette and one D.H. 61.

The D.H. 61, which hitherto has not been flown a great number of hours each year, performed excellently after a new metal propeller was fitted, completing 343.10 hours' fire suppression duty in the Western District. This particular machine has a remarkable pay-load, as much as 2,200 pounds being lifted from the water at one time. Its ability to take off and land in small lakes permitted the Service to comply with many emergency flight requisitions, operating in the hazard zone north of Port Arthur.

The remaining six H.S.2 L. flying boats did good work. These machines have now gone through seven heavy operating seasons. The fact that these machines still continue to perform in a satisfactory manner reflects particularly well on the excellent reconditioning or overhaul that they receive each winter in the shops at Sault Ste. Marie. It is feared that in the very near future the services of these reliable, steady machines which have served the Branch so remarkably well, will be dispensed with, as they are obsolescent and with their age we find that each year it is more costly to recondition and very difficult to obtain operating spares. It was decided to scrap six of these machines last winter after a rigid examination which disclosed that through fair wear and tear of the hulls and other components, reconditioning would not be effective.

The continuing success and sturdiness of the Moths is manifest by the splendid work they accomplish year after year and the severe treatment to which they are subjected. The fourteen machines in service this year contributed 9,297.45 hours' flying without any engine or structural failure. Each year we see them being used by the Forestry Branch officials in connection with urgent duties in their respective districts. A number of Moths were used considerably in connection with the suppression or transport programme.

Organization—Flying Operations.

During the operating season no drastic changes were made in the personnel, other than a new position created, that of General Superintendent. One Senior Pilot was promoted to the rank of District Superintendent to fill the vacancy caused by the resignation of the former Western District Superintendent.

Two new bases were organized, one at Port Arthur, the other at Lake St. Joseph. The formation of the first mentioned was found necessary because of the severe fire hazard which existed in the district.

The Disposition of Aircraft in the Western District was as follows:

Sioux Lookout.....	Moth	CF.OAA
	Hamilton	CF.OAH
Goose Island.....	Moth	CF.OAE
	H.S.2.L.	G-CAOK
Fort Frances.....	Moth	G-CAOU
	H.S.2.L.	G-CAOJ
Kenora.....	Moth	CF.OAC
	Hamilton	CF.OAI
Orient Bay.....	Moth	G-CAOZ
Port Arthur.....	Hamilton	CF.OAJ
	D.H. 61	G-CAPG
Caribou Lake.....	Moth	G-CAOY
Lake St. Joseph.....	H.S.2.L.	G-CAOQ
Shebandowan.....	Moth	G-CAPA
	H.S.2.L.	G-CAPE

The Disposition of Aircraft in the Eastern District:

Sault Ste. Marie.....	Moth	CF.OAG
Sudbury.....	Moths	G-CAOW G-CAOX
Biscotasing.....	Moth	CF.OAD
Remi Lake.....	Moth	CF.OAF
Oba Lake.....	Moth	G-CAPC
Twin Lakes.....	Moth	G-CAPB
	H.S.2.Ls.	G-CAOA G-CAPF
<i>Photography.....</i>	<i>Vedette</i>	<i>CF.OAB</i>

Reconditioning.

The reconditioning period, the period from November 1st, 1929 to May 1st, 1930, was administered as of previous season. All work in connection with the reconditioning or overhaul of aircraft and aircraft engines was carried out at the Provincial Air Service Plant at Sault Ste. Marie under the very strict supervision of the Plant Superintendent who is directly responsible to the Director.

As in past seasons it was again deemed advisable to overhaul all engines other than Gipsy, the installation of the Moth, at Sault Ste. Marie. This necessitates that all engines be shipped, freight or express, to Sault Ste. Marie, overhauled and tested and returned to the operating base.

The manufacture of motor boats of various sizes, scows, portable sectional canoes and other articles kept the personnel continually busy.

The plant itself was reorganized, new offices were built, the Stores Department enlarged and racks erected to store additional aircraft equipment.

Fire Detection.

The 4,506.00 hours devoted to this duty shows an increase of approximately fifty per cent. on the figures for the preceding year, and three hundred per cent. increase on those for 1925.

The Moth aircraft contributed the greater portion of the flying which was controlled as usual by the District Foresters or officers nominated by them.

The area patrolled was far greater in proportion to the increase in hours because the Moths were faster with the new Gipsy engine, and occasionally the faster transport machines were used.

Fire Suppression and Transportation.

At the commencement of the season it was decided to separate the flying under two distinct classifications, namely, Suppression and Transportation.

In former years all transportation whether conveying equipment to and from fires, or rangers' headquarters, etc., was included in Fire Suppression. There is no need to dilate on the advantages of this new arrangement as it speaks for itself. Fire Suppression absorbed 3,659.40 hours and Transportation, 2,537.50 hours.

The transport machines were used to their utmost capacity especially in the Port Arthur district where three fires of huge proportions were raging at one time. Records show that the total load carried by the five modern transport planes during the season was 1,298 tons, 1,240 pounds.

The distinct advantage of machines with a good pay-load is that they can transport in one load a complete crew and equipment consisting of five men, one pump, hose, food and equipment for one week. During the operating season many such suppression flights were organized and carried out.

The spacious cabins of our new aircraft accommodated from one to twelve men without discomfort, and permitted the Service to transport as many as six sectional canoes on one flight.

Ferrying.

The increase in hours spent on the flying under this head may be attributed to the necessity of ferrying the new Hamilton machines from Milwaukee to Sault Ste. Marie and the Moth from Toronto to Sault Ste. Marie, and in the necessity of transferring machines between bases during the season in order to cope with the high hazard of Western Flying Operations.

The greater proportion of the total 590.25 hours was absorbed in transferring machines from and to Sault Ste. Marie, either at the opening or closing of the season or for engine change or overhaul.

Administration—Inspection.

The item "Operation" which covers Service flying was cancelled this year and all flying of this nature is now recorded "Administration." Also the item

"Inspection" which includes certain Service flights now relates exclusively to routine flights made by officials of the Forestry Branch.

The combined total of 1,145.35 hours, comprising Administration, 194.15 and Inspection, 951.20, is considerably less than last year. It does not, however, indicate that aircraft were not used so much for these duties. In fact, they were used extensively this year and the decrease in hours can be largely attributed to the speed in which the fast machines completed the flights.

It would be well to mention also that officials very frequently carried out these duties in conjunction with other flights for which requisitions had already been issued or which had prior claim on the services of the aircraft.

Sketching.

The progress of aerial sketching has reached a higher stage of development, not only in the functions of the Government Service, but in the industrial and commercial life of the country. Its uses are not only confined to the classification of forest types and mapping but to plotting the location and extent of fires, water routes, portages and many other features in unmapped or comparatively unknown districts.

A large percentage of the 47.05 hours is accounted for by the mapping of forest types to enable the District Forester to keep an accurate check on the progress of the fire and the location and movement of the crews.

Sketching from the air is intricate work, requiring constant attention and experience on the part of the sketcher. Unlike photography it is more or less independent of weather, in fact, every advantage is taken of bad weather because more aircraft are available.

Photography.

As in the former season the Vedette was placed at the disposal of the photographic section of the Forestry Branch. The work it accomplished in the 187.45 hours devoted to topographical survey compensated for the loss of its services in other directions. Smoky weather conditions which prevailed in some districts and the diurnal changes in weather and temperature hindered the operation to a great extent; but these are factors that have to be contended with in work of this nature.

Now that photographic survey holds a prominent place in the Service, routine consideration should be paid to the type of machine most suitable for all conditions. Aircraft with performance, a speedy climb—high ceiling—warm and spacious cockpits, are some of our main features to consider. Cold temperatures found about 5,000 feet in the spring and early fall affect the operations of the camera, to say nothing of the operator whose hands are exposed to the icy wind. I regret to advise that these are some of the troubles that our photographic crews experience, performing the duties in connection with the photographic programme as flown in the Vedette aircraft.

Instruction.

The hours spent on instruction at the school last winter are reflected in the success of the pilots who graduated from Applicant to Junior Pilots and who were appointed to flying machines during the operating season.

Six pilots were chosen from among the pupils and they contributed 3,026.35 hours, an average of more than 500 hours each with little or no damage to the

machines. One pilot secured two records, namely, the greatest number of hours for the first year's flying, that is 798.45 hours, and the Service record of 18.10 hours in one day.

Another first year pilot secured third place in the individual record for the year's flying—731.20 hours.

These first year pilots proved by the convincing manner in which they performed their duties, to be worthy pilots of the Service and fully justified the confidence placed in them by the instructors and superintendents.

Some 529.20 hours were devoted to instruction, a decrease of 129.25 hours compared with last year's figures.

Fourteen students received instruction, of which six received licenses, three took a refresher course for commercial license, four did not complete training and one was failed as not being up to standard. Four of the six who were awarded pilots' licenses already held their air engineers' license and have been with the Service for some time in the capacity of Air Engineers.

It is the policy of the Service to train a limited number of engineers each year to become pilots, with the ultimate intention of producing a full complement of pilot engineers.

A glowing tribute was paid to the pupils by the Superintendent of Air Regulations, Ottawa, who gave them their final examination. An extract from the summary of his report reads as follows:

"It is desired to congratulate the instructors responsible for the good showing made on these written examinations, since the marks obtained are considerably above the average on these subjects.

"Flying tests were given to six new pilots and all were successful in passing. In particular, the exhibition of flying by two pupils on H.S.2. L. aircraft was excellent."

Followed by further comment during the operating season, as follows:

"Certainly the 1930 graduates reflect most favourably upon your training and I am glad to know that I was not carried away by my enthusiasm when I told you that they were among the finest boat pilots I had ever examined."

Special Flights.

Hitherto all flying of this nature was recorded under the heading "Special Transportation." It is thought that the word "transportation" covers so wide a range that it is likely to be confusing and that it is not an appropriate word to cover this type of transportation. To obviate any tendency towards error or misunderstanding the word "transportation" was cancelled and "flight" substituted.

The 247.45 hours devoted to this work involved a variety of flights, such as conveying Government officials to various parts of the Province, sick and injured to hospital, doctors to attend sick and police officials to investigations.

Conclusion.

The Service suffered the loss of one machine during the past season—the Hamilton at Port Arthur.

This Hamilton which was on loan to the Service was crashed at Port Arthur, under the circumstances as previously stated, becoming a total wreck and causing the death of the pilot.

Six minor accidents also occurred. A Hamilton was damaged when attempting to take off at Goose Island. A Moth turned over in a gale at Goose Island. In taking off from a small lake in the Biscotasing area a Moth under-carriage was damaged. The machine was not heard of for four days, but when found and parts taken in the machine was flown back to the operating base for repairs. The Vedette was damaged at Bear Island and a Moth was turned over in a gale of wind at Orient Bay. The D.H. 61 was damaged on account of propeller failure when taxiing.

In each of the above referred to cases the machines were repaired, returned to the Service bases without undue loss of time or heavy reconditioning expenses.

Again it is my happy privilege to commend the entire personnel of the Provincial Air Service upon the splendid, honest, untiring efforts expended to carry out requirements, to supply the flying when and where requested to the Branch.

The annual report hides many inspiring examples of courage and devotion to duty of the Personnel. Hardly a day passes without outstanding incidents taking place. The flying crews may not agree that they perform outstanding feats, probably have never given it a thought. To mention one case would be unfair as everybody in the Force has contributed to making a Service of high standard. It owes its success to the *esprit de corps* of the Personnel and their unceasing and staunch effort to do all that is required of them.

Operating Statistics.

The statistical summary herewith records the record year of the Provincial Air Service in the past seven years of flying operations.

EFFICIENCY—PROVINCIAL AIR SERVICE OPERATIONS, 1930

MONTH	Requisitioned	Attempted	Completed	Completed same day but delayed	Not completed same day	Percentage completed uninterrupted	Percentage completed same day but delayed	Mechanical causes	Weather
January	6	6	6	..	..	100.00	....	..	..
February	26	26	23	..	3	88.46	....	..	3
March	31	31	30	..	1	96.77	....	1	..
April	9	9	9	..	..	100.00	....	..	..
May	339	339	325	8	6	95.87	2.36	4	10
June	578	574	544	8	26	94.12	1.38	9	25
July	592	592	569	8	15	96.11	1.35	6	17
August	792	780	746	13	33	94.19	1.64	23	23
September	413	389	364	8	41	88.14	1.94	13	36
October	202	183	164	2	36	81.19	.99	1	37
November	1	1	1	..	..	100.00	....	..	..

HOURS FLOWN ON VARIOUS PHASES OF FLYING OPERATIONS

	1925		1926		1927		1928		1929		1930	
	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.	Hrs. Min.	Per cent.
Fire Detection.....	1,440.40	52.5	1,957.44	55.4	2,170.53	44.7	1,736.10	28.4	3,070.30	26.4	4,506.00	31.7
Fire Suppression.....	155.45	5.7	640.17	18.1	948.00	19.5	1,717.55	28.1	4,592.55	39.5	3,659.40	25.8
Transportation.....	244.42	8.9	142.56	4.0	523.00	10.8	583.20	9.5	297.05	2.6	2,537.50	17.9
Sketching.....	53.15	1.9	99.25	2.8	173.00	3.6	163.15	2.7	207.45	1.8	471.05	3.3
Photography.....	197.40	7.2	194.50	5.5	127.10	2.6	185.10	3.0	246.05	2.1	187.45	1.3
Special Transportation..	26.50	0.9	17.14	0.5	31.35	.07	.....	.....	4.50	.04	247.45	1.7
Observers' Instruction...	.....	.....	.....	.....	.....	.....	.....	.....	21.25	.18	13.40	.09
Dusting Operations.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wireless Tests.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Administration.....	62.05	2.2	62.10	1.8	426.35	8.8	1,016.20	16.6	1,584.40	13.7	4.55	.03
Inspection.....	36.04	1.3	29.25	0.8	17.50	.04	30.35	0.5	222.30	1.9	194.15	1.4
Forced Landings.....	330.41	12.0	234.36	6.6	240.25	4.9	345.15	5.6	523.10	4.5	164.15	1.2
Ferrying.....	47.27	1.7	42.55	1.2	65.30	1.3	117.35	1.9	172.20	1.5	590.25	4.2
Test Flights.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flying Instruction and Demonstration.....	144.43	5.7	117.50	3.5	137.05	2.8	192.55	3.0	658.45	5.6	134.25	.9
Totals.....	2,739.52	.....	3,539.22	.....	4,861.03	.....	6,108.40	.....	11,602.00	.....	14,192.40	.....

	1930	1929	1928	1927
<i>Flights.</i>				
Total number of flights	11,955	9,472	4,130	2,745
Average duration of flight	1.19 hrs.	1.22 hrs.	1.47 hrs.	1.76 hrs.
Average miles flown per flight	73.2	70.6	83	105
Average altitude	1,892 ft.	1,720 ft.	2,354 ft.	2,610 ft.
Average number of flights per day	40.8	33	17.9	13.8
Average number of flights per day per machine on days machines employed	4.13	3.9	2.55	2.10
Number of miles flown	875,043	669,423	342,343	287,305
<i>Load.</i>				
Total load-weight carried	9,477,386	7,586,368	4,258,984	3,888,091
Total operating load	7,179,208	6,171,649	3,495,552	3,170,178
Effective or useful load	2,298,178	1,414,719	763,432	717,913
<i>Passengers Carried.</i>				
Total number of passengers carried	4,766	2,672	2,606	2,268
Average number of passengers per flight . . . . .	.40	.27	.63	.82
Average number of passengers per machine	191	103	172	119
Total number of passengers and personnel carried Machine days, one machine for one day, machines employed	9,821	7,279	8,938	7,195
Fair weather machine days, machine available and idle	2,893	2,336	1,614	1,307
Machine days, machines available and weather unfit for flying	642	644	754	661
Total number of machine days supplied by the Service	633	456	805	615
Number of times one machine unserviceable one day	4,168	3,436	3,713	2,583
Total possible machine days in the season	286	328	161	84
Number of patrols requisitioned	4,454	3,764	3,334	2,667
Number of times machines unable to complete patrol on account of machine trouble	2,989	1,960	1,540	1,261
Service patrol efficiency	38	24	16	12
Machine patrol efficiency	93.2	90.45	95.2	96.85
	98.7	98.7	98.95	99.05

OPERATIONS STATISTICS, 1930

MACHINES	No. of days serviceable	No. of days Unserviceable	Machine days machine employed	Clear days machine available and idle	Available but weather unit	Unable to complete patrol. Mechanical	Requisitions	Patrols abandoned account of weather
Albatross.....	164.5	15.5	82	43	39.5	2	67	3
Auk.....	202.5	9.5	164.5	7	31	5	154	8
Avocet.....	255.5	4.5	183	22	50.5	..	177	3
Blackbird.....	161	20	57.5	12	91.5	1	49	9
Bobolink.....	152.5	4.5	91.5	33	28	1	94	2
Crane.....	183	6	116.5	35	31.5	1	142	1
Crow.....	219.5	14.5	120.5	55	44	2	157	5
Dove.....	167.5	6.5	119.5	24	24	1	127	2
Eagle.....	152	17	107	30.5	14.5	4	99	13
Emu.....	150	23	131	9	10	1	106	1
Finch.....	152	5	77	54	21	..	81	6
Flamingo.....	153	3	70	75	8	..	64	3
Goose.....	86	49	69	9	8	1	51	..
Grouse.....	177.5	10.5	146.5	17.5	13.5	2	166	7
Heron.....	82.5	11.5	66	5.5	11	5	54	7
Ibis.....	161	11	117	30.5	13.5	2	155	8
Jackdaw.....	155	16	100	28	27	3	114	1
Jay.....	87	....	69	1	17	1	80	7
Kestrel.....	145	15	125.5	4	15.5	..	116	3
Quail.....	137.5	13.5	116.5	7	14	3	106	2
Upstart.....	195	4	121	35	39	2	138	1
Wren.....	174	2	134	28	12	..	170	1
Xebec.....	276	8	186	59	31	..	207	4
Yellowbird.....	208.5	7.5	173	7	28.5	1	156	4
Zeno.....	159.5	8.5	139	10.5	10	..	148	1
Nc-878-H.....	11	....	11	....	....	..	11	..
Total.....	4,168.5	285.5	2,893.5	641.5	633.5	38	2,989	102

HAMILTON AIRCRAFT—LOADS CARRIED

OPERATIONS, 1930

Machine	Month	Operating Load	Effective Load	Total
CF. OAH. (Flying time, 326 hours)	May.	119,051 lbs.	37,139 lbs.	156,190 lbs.
	June.	40,204 lbs.	12,775 lbs.	52,979 lbs.
	August.	100,608 lbs.	32,640 lbs.	133,248 lbs.
	September.	95,377 lbs.	27,540 lbs.	122,917 lbs.
	October.	39,768 lbs.	14,520 lbs.	54,288 lbs.
		395,008 lbs. (197 tons, 1,008 lbs.)	124,614 lbs. (62 tons, 614 lbs.)	519,622 lbs. (259 tons, 1,622 lbs.)
CF. OAI. (Flying time, 496.40 hours)	May.	79,591 lbs.	22,756 lbs.	102,347 lbs.
	June.	151,520 lbs.	24,115 lbs.	175,635 lbs.
	July.	158,813 lbs.	72,428 lbs.	231,241 lbs.
	August.	169,173 lbs.	47,955 lbs.	217,128 lbs.
	September.	130,999 lbs.	41,004 lbs.	172,003 lbs.
October.	28,815 lbs.	11,120 lbs.	39,935 lbs.	
		718,911 lbs. (359 tons, 911 lbs.)	219,378 lbs. (109 tons, 1,378 lbs.)	938,289 lbs. (469 tons, 289 lbs.)
CF. OAJ. (Flying time, 315.50 hours)	August.	157,603 lbs.	91,558 lbs.	249,161 lbs.
	September.	92,528 lbs.	48,250 lbs.	140,778 lbs.
	October.	26,797 lbs.	9,655 lbs.	36,452 lbs.
		276,928 lbs. (138 tons, 928 lbs.)	149,463 lbs. (74 tons, 1,463 lbs.)	426,391 lbs. (213 tons, 391 lbs.)
NC. 878 (Flying time, 66.10 hours)	June.	53,455 lbs. (26 tons, 1,455 lbs.)	38,851 lbs. (19 tons, 851 lbs.)	92,306 lbs. (46 tons, 306 lbs.)
Total all machines. (Flying time, 1,204.40 hours)		1,444,302 lbs. (722 tons, 302 lbs.)	532,306 lbs. (266 tons, 306 lbs.)	1,976,608 lbs. (988 tons, 608 lbs.)

III. REPORT OF THE FOREST LIAISON OFFICER

During the season of 1930, work undertaken may be classified as follows:

- (1) Aerial Forest Type Sketching;
- (2) Aerial Photography;
- (3) Radio Communication.

1. Aerial Forest Type Sketching.

During 1930, Aerial Sketching was confined almost entirely to an area northeast of Lake Nipigon, between the C.N.R. and the Albany.

A general investigation of this area, which includes some twelve thousand square miles, has shown that approximately one-third can be eliminated as a non-timbered muskeg area. This includes the whole northeastern section which probably represents an extension of the James Bay Coastal Plain. In this area, drainage is poor and what timber exists is confined to the margins of streams. Lakes are of infrequent occurrence. In the remaining two-thirds, conditions for timber growth are much more favourable, the country is higher, and while not bold, is generally rolling. Lakes are numerous and of good size, while muskeg conditions are relatively uncommon. The whole country drains north and east to the Albany. The drainage system is well developed.

Work on this area was commenced in 1929. During the present season however, a modification of previous methods was employed with considerable success. Briefly, this consists of a combination of oblique photographic survey and aerial sketching. The photographs, which must be taken and plotted a season in advance, do not cover the whole area, but are laid down in a regular system of strips. With this control system established, sketching can be employed to fill in the gaps with a high degree of accuracy. At the same time, Forest Types and details of topography hidden from the camera in the oblique position can be added.

Because of lack of uniformity in conditions, cost figures for Aerial Survey vary a great deal and averages cannot be very closely applied to any specific case. Records available, however, indicate that this procedure in the present instance was no more costly than a straight sketching survey. The saving results from the estimated saving in flying time for the combined operation, as against a straight sketching survey. In so far as quality of the product is concerned, there can be little doubt that the map produced by this method will be more useful to the Branch than either a straight sketching or a purely photographic map. Accuracy of topographic data should in general compare very favourably with a survey based on vertical photography.

Summary of the status of this survey at the close of the season of 1930 is as below:

Non-timbered.....	4,000 square miles
Oblique photo strips run.....	8,000 square miles
Forest types completed by sketching.....	4,000 square miles

2. *Photographic Survey:*

(a) Control for sketching in the Ogoki-Little Current Watershed.

Eleven and one-half rolls of oblique photos, totalling approximately eleven hundred exposures were used in this area. In addition, from the same base, two rolls were exposed north of the Albany to obtain a general idea of the character of the country and its timber conditions. This work was based on oblique photography and is described in greater detail in the section preceding in connection with Aerial Sketching. The actual area covered by the photos approximates three thousand square miles.

(b) Survey of Provincial Forests.

Photography for these surveys was all vertical and totalled some six hundred exposures. The reserves and areas in each are as follows: Eastern, three hundred and fifty square miles; Mississagi, seventy-two square miles; Kawartha, one hundred and sixty-two square miles.

(c) Survey for Provincial Hydro-Electric Power Commission.

Photos for this purpose were also vertical and totalled fifteen hundred exposures.

3. *Radio Communication.*

During the past season, twenty-eight stations were operated by the Branch. Of this total, four were located in the North Bay District, two in the Cochrane District, two in the Sault District, three in Port Arthur, three in Kenora and fourteen in the Hudson District.

Of these stations, perhaps one of the most deserving of notice was the station at Garden Lake. Equipment for this station was installed at this point in the first place as an emergency unit and on that account the power plant was of the portable type. This plant is a development of the Branch radio section and though tested during the season of 1929, had never received a lengthy working trial. On this location, however, the equipment provided power for a standard set for a period of over one month, or until the need for a permanent power unit had demonstrated itself and purchase, delivery and assembly had been completed.

Late in the season an aerial transmitting set was tested in the Sault Inspectorate and was used on several service flights. Unfortunately, the machine carrying this equipment capsized after an attempted take-off in rough water. As no duplicate equipment was on hand, further work was postponed until the commencement of winter flying.

Records of radio traffic for the Branch for the past season show a continued increase in Branch traffic. Commercial traffic has, however, fallen off, due to the depression of the mining industry in the Red Lake District. A tabulated statement and comparisons are shown below:

TRAFFIC RECORDS SUMMARIZED

(In Words)

Totals for Districts, 1930

District	Total, 1930
Hudson.....	393,398
Kenora.....	29,576
Western.....	21,678
Cochrane.....	10,780
Sault Ste. Marie.....	22,654
North Bay.....	22,098
Total.....	500,184

Comparison with Previous Years

Year	Total Traffic
1927.....	58,239
1928.....	233,855
1929.....	545,983
1930.....	500,184
Total.....	1,338,261

IV.—REFORESTATION

ST. WILLIAMS

On the 17th day of December, 1929, one of the worst ice storms in the memory of the oldest inhabitants swept in from the lake devastating plantations and woodlots alike over a wide belt along the northern shore of Erie. Plantations of Scotch pine and larch suffered most severely, in some instances thirty per cent. of the entire stand being broken down. Indigenous species such as red pine and jack pine were least affected.

(1) *Nursery Operations*

Nursery operations commenced on March 11th, seven days earlier than last year. A comparatively mild winter resulted in shallow soil freezing, and by the first of April practically all species were lifted, heeled-in by the shipping shed and ready for distribution.

In addition to 1,412,000 deciduous species which were lifted during the late fall of 1929, 5,440,000 conifers were raised in the spring of 1930, making a total of 6,852,000 trees for permanent disposal.

(a) *Fertilizers.*

Forty-five acres of soy beans were turned under at Station No. 1, and at Station No. 2 thirty acres of rye and vetch and five acres of field peas were ploughed down for their fertilizing value.

Barnyard manure and commercial fertilizer applied at Station No. 1 was slightly less than that used during the previous year.

A large pile of bog heads and muck which had been decomposed three years, was spread on standard seed-bed Compartment No. 3. Two hundred and twenty-five truck loads provided a dressing to an average depth of four inches. This was applied in September of the current year, leaving ample time to work the fertilizer in, and mix thoroughly with the underlying soil.

A new pile of muck soil in excess of 300 wagon loads has been built up this year and will function in relieving future fertilizer purchases.

(b) *Tree Seed.*

Seed collections at the local Station were considerably less than last year. The quantity of jack pine seed on hand make it unnecessary to collect much of this species. A few bushels of Scotch pine cones were accepted, while no white pine cones of local origin were brought in. Norway spruce cones were fairly plentiful, and black walnuts prolific. In connection with black walnut propagation, an experiment conducted during the recent year proved conclusively that a higher percentage of germination is obtainable where the husk has been removed prior to planting.

Consequently, 819 bushels of walnuts were husked by passing them through a motor-driven machine specially constructed for the purpose.

Several countings reveal that there are on an average 400 black walnuts (husks on) to the bushel, whereas there are 1,600 nuts to the bushel (husks removed).

Where the husks are removed, nicety of handling in planting is greatly increased and a more regular germination procured, since the nuts may be covered to an even depth.

TREE SEED ON HAND—FALL, 1930

Species	Amount in Pounds
Red Pine.....	88
White Pine.....	207
Scotch Pine.....	7½
Jack Pine.....	493
White Spruce.....	380
Norway Spruce.....	80
White Cedar.....	73½
Sitka Spruce.....	10
Austrian Pine.....	12
Black Locust.....	50
Honey Locust.....	10
Balsam.....	12
Total.....	1,423

(c) *Seed Beds.*

CONIFEROUS SEED SOWN DURING 1930

Spring		Fall	
Species	Beds sown	Species	Beds sown
Red Pine.....	1,018	White Pine.....	255
White Cedar.....	104	Scotch Pine.....	94½
		Jack Pine.....	95½
		White Spruce.....	132
		Red Cedar.....	16
		Siberian Larch.....	49
		European Larch.....	6
		Hemlock.....	14
Total.....	1,122	Total.....	662

HARDWOOD SEED SOWN DURING 1930

Species	Amount Sown	
	Pounds	Bushels
Elm.....	120	
Soft Maple.....	57	
Walnuts.....		195 husked
Walnuts.....		153 not husked
Hickory Nuts.....		12 husked
White Ash.....	165	
Hard Maple.....	160	
Black Locust.....	7½	
Basswood.....	235	
Totals.....	744½	360

(d) *Transplanting.*

The number of transplants shipped to other stations shows a decrease over that of 1929. Slightly less than 150,000 two-year old conifers were transferred to Orono and Midhurst. Importation of transplant stock includes 250,000 red pine from the Midhurst nursery and 85,000 white pine from Orono.

An exceedingly dry summer prevailed. Very little rain fell during the month of July, August and September, but this shortage of natural precipitation was satisfactorily overcome by our excellent irrigating equipment. Seedling growth was rather above normal, losses from damping off practically nil, but development of 2-1 stock fell off somewhat due directly to the protracted drought.

Lining out of transplants started early in April, the operation continuing until the end of May when all transplants of suitable development were transferred from seed-beds to nursery lines.

LINING-OUT RECORD FOR SPRING, 1930

White Pine.....	201,000
Red Pine.....	1,831,000
Scotch Pine.....	1,085,000
Jack Pine.....	1,888,000
White Spruce.....	1,419,000
Norway Spruce.....	1,662,000
White Cedar.....	882,000
Korean Larch.....	119,000
Norway Maple.....	9,000
Mugho Pine.....	37,000
Silver Fir.....	6,000
Pitch Pine.....	5,000
Mixed Reline.....	113,000
Hemlock.....	2,000
Poplar Cuttings.....	295,000
Total.....	9,554,000

(e) Nursery Stock Available for Spring (1931) Shipment.

CONIFERS		HARDWOODS	
Species	Number	Species	Number
White Pine.....	100,000	White Ash.....	84,000
Red Pine.....	1,200,000	Hard Maple.....	80,000
Scotch Pine.....	500,000	Soft Maple.....	200,000
Jack Pine.....	985,000	Black Walnut.....	100,000
White Spruce.....	833,000	Basswood.....	19,000
Norway Spruce.....	894,000	Rooted Poplar.....	123,000
White Cedar.....	401,000	Elm.....	100,000
Korean Larch.....	129,000	Black Locust.....	5,000
European Larch.....	182,000	Red Oak.....	20,000
Austrian Pine.....	26,000	White Oak.....	14,000
		Poplar Cuttings.....	455,000
		Willow Cuttings.....	50,000
Total.....	5,250,000	Total.....	1,250,000
Summary—			
Conifers.....	5,250,000		
Hardwoods.....	1,250,000		
Total.....	6,500,000		

(2) Improvements

Station No. 1.

The fifth concession road west to what is known as the quarter town line was graded, one bad hill cut down and one half mile gravelled, two loads in a place. This completes development work on this particular road which borders Station No. 1 property on the south side for a distance of two and one half miles.

A combination office and forest museum was constructed during the recent summer on the old barn site. This erection was specifically planned to fit with the general surroundings, and constitutes a decided improvement.

It was considered necessary to re-roof our packing shed which was leaking badly. At the same time the old peak type roof was converted into a hip roof, metalled, and the east half reconditioned to serve as a dining hall for the employees. This room, twenty-six feet by forty feet in dimensions, is now completed and relieves a long-felt want of better accommodation for the men.

A paint and oil shed twelve feet by fourteen feet was also erected and a one car garage built for the foreman.

It may be interesting to note that in practically all of the construction effected this year, studding and rafters used were the direct product of thinnings removed from a seventeen-year-old plantation of Scotch pine.

Station No. 2.

No buildings were erected at this Station.

Road extension includes the construction of one mile of gravel on the property, and re-surfacing of one mile of old road. In spite of the dry summer all property roads were maintained in good condition.

Twenty acres of good nursery land were tiled, broken up and summer fallowed. The soil is deep, rich and friable.

Permanent windbreaks were established on a thirty acre field, subdividing it into five (six acre) compartments. One compartment of this new land is being used for the development of nursery stock.

(3) Permanent Planting

On account of failures due to drought and a severe visitation of "white grub," *Lachnosterna*, extensive "fillings" in the more recently established plantations were necessitated. Each and every plantation at both Stations Nos. 1 and 2 were thoroughly inspected and all gaps replanted.

Twenty-one experimental plantations were set out at Station No. 2 using red pine in mixture with other species.

Thirteen two-acre plots were furrowed in October in preparation for the establishment of the Scotch pine group. These experimental plantings should prove interesting since *Pinus sylvestrus* of five definite and widely spread origins will be planted. A complete description of the arrangement, spacing, grouping and associations, will be incorporated in the 1931 Annual Report.

Five new plantations were set out at Station No. 1.

A total of 115,000 trees 2-1 stock of red pine was required to complete this planting.

In addition to the experimental plantations set out at Station No. 2, a ten-acre plantation of red pine was established and a total of 10,350 trees were planted.

PERMANENT PLANTING FOR 1930

Species	Number
White Pine.....	2,784
Red Pine.....	278,788
Scotch Pine.....	53,589
Jack Pine.....	8,148
White Spruce.....	40,932
Norway Spruce.....	4,900
White Cedar.....	1,200
Elm.....	1,350
Balsam.....	3,128
Willow.....	13,000
Carolina Poplar.....	7,358
Red Cedar.....	1,786
White Ash.....	7,166
Soft Maple.....	6,637
Korean Larch.....	3,100
Total.....	433,866

*(4) Protection**Animals.*

All dead wood in the older windbreaks was cut out. The entire nursery section at both Stations was thoroughly cleaned up twice during the year—spring and fall.

Damage from mice and other rodents was practically nil, and it is felt that the expenditure in maintaining a clean nursery is well worth while from this

reason alone, admitting, of course, that a clean nursery is less subject to factors of disease.

Rabbit damage is on the decrease. It appears that lack of food under the coniferous plantations is forcing these animals to winter farther afield in the vicinity of deciduous growth.

Squirrels create little damage as plenty of food from the ever-increasing annual cone crop prevents the necessity of girdling Scotch pine or eating the terminal buds.

Insects.

Injury from white pine weevil was severe.

All plantations were gone over very thoroughly three times during the season. An exceedingly dry summer as was experienced this year is most effective in favouring the action of this pest.

For the first time in the history of this Station two species of bark beetles, viz., *Ips pini* and *Ips sciligrani* made their appearance and resulted in the loss of several fifteen-year-old jack and red pine.

Indication of the presence of the beetles were revealed in late October, and shortly after Dr. J. M. Swaine of the Entomological Branch, Ottawa, was on the job.

Immediate steps were taken to check the spread of this pest. All infested trees were cut down and burned. Needle droppings and duff were treated similarly and a flame thrower used to sear the soil over the entire area of infestation.

Since part of the insects hibernate in the tree trunks and part in the litter, complete extermination is hoped for. According to Dr. Swaine these bark beetles are not common to the more northern regions, this being only the second known outbreak in Canada. Dry weather and the presence of slash creates a medium favourable to propagation.

In all there were eight outbreaks of this insect necessitating the removal of one hundred and sixty-three red pine and twelve jack pine.

Intensive inspection will be maintained during 1931 for evidence of recurrence.

"*Tetranychus telarius*," the common red spider, prevailed in small patches on both white and Norway spruce 2-2 nursery stock at Station No. 2. Upon the advice of the Dominion Entomologist this stock will be held for spray next year, and will not be distributed. Sulphur spray is most effective in killing this insect and a complete formulae may be procured either from this Station or from Dr. Swaine.

Successful efforts were made to offset nursery stock losses by the common cut worm. Three applications of poisoned bran were applied to all nursery beds during the recent summer and losses usually running into hundreds of thousands of 1-0 and 2-0 and coniferous seedlings were reduced to practically nothing. The dates of application are as follows—May 1st, July 16th and August 6th.

Disease.

Damping off of coniferous seedlings was negligible. Lack of rain permitted perfect control of watering.

No evidence of blister rust was encountered. However, the area in the neighbourhood of the nurseries was worked and all members of the family "Ribes" dug up and destroyed.

Ribes Eradication.

With further reference to ribes eradication, we are pleased to report that it is annually becoming more difficult to find wild currant and gooseberry bushes, indicating that their extermination in this vicinity is gaining certainty.

Ninety per cent. of the native sweet chestnut (*Castanea dentata*) are blighted. About half the trees are already dead and the remaining stems rapidly dying. Even one-year-old coppice is suffering from the same malady. A few trees appear to be resisting the blight, giving a faint ray of hope that the species will not be exterminated. Utilization of standing chestnut not too far gone is being advised.

(5) *Woodlot Improvement*

Plantation thinnings were heavy. Severe storm injury necessitated the removal of broken, bent or otherwise damaged trees in practically every plantation of fifteen or more years of age. Fortunately the younger trees suffered very little. As far as was practical all of the produce resulting from these enforced thinnings was utilized either for fuel, stakes or posts. The following record is submitted to indicate yield accruing from the above mentioned thinnings.

YIELD FROM PLANTATION THINNINGS, 1930

SCOTCH AND JACK PINE

Cords			Stakes		Logs
16"	30"	48"	24" long	30" long	F.B.M.
220	58	120	17,118	12,072	3,488

An extensive area of our natural woodland at both Stations Nos. 1 and 2 was cleaned up. Broken-down trees, as well as ill-formed specimens, and others revealing disease, were cut down and converted into lumber and fuel-wood. A total of one hundred and four acres were thus subjected to woodlot improvement.

The yield in fuel from such woodlot improvement was 1,351 cords.

One fortunate condition arriving from storm damage is prominent in that, by the operation of cleaning up the area in question, an equal acreage has been made available for the planting of trees of superior species and, in the long run, a much more valuable stand of timber than nature provided will be developed.

(6) *Publicity*

During 1930 the Norfolk Forest Station was the mecca of tourists, exceeding all previous years. The fame of reforestation, as carried on in Ontario, is being broadcast far and wide. American visitors of other years are coming back and bringing their friends who are amazed at the advanced status of forestry in Ontario. All visitors are supplied with experienced guides who are prepared to explain operations in detail, and make the tour one of educational value rather than just a matter of sight-seeing.

Arrangements have, moreover, been made to have interested parties taken care of at Station No. 1 where reclamation, planting, experimental plantations and nursery activities offer an entertaining inspection.

Reforestation exhibits were set up at Port Dover, Tillsonburg, Aylmer, St. Thomas, Woodstock, Courtland and Simcoe. Requests for our exhibit were made by Ingersoll, London and Jarvis, and these places have been promised consideration next year.

Several addresses have been given before Kinsmen, Lion and Rotary Clubs, and these have been received with interest.

The use of lantern slides and, better still, motion pictures applying directly to reforestation, invariably brings out a larger audience who are given a clearer conception of the project when illustrated by picture and story.

Through the medium of the press seasonable hints and advice serve in solving the "how and why of reforestation."

ORONO

An unusually severe drought, extending throughout the entire year, accompanied by high temperatures, caused very severe loss in the transplant lines, as well as a stunting of height growth. The precipitation for the year was approximately seven inches below the normal for the preceding six years. Of this precipitation, two-thirds fell during the period preceding April 1st, 1930, and was lost in the spring "run off," or succeeding October 1st, 1930, and was not available to the small trees. The remainder was spread over the intervening six months in light showers.

(1) Nursery Operations

(a) Fertilizers.

Quantities of fertilizers used were as follows:

ANIMAL		MINERAL		
Manure	Dried Blood	Acid Phosphate	Muriate of Potash	Sulphate of Ammonia
446 tons	150 lbs.	1,000 lbs.	500 lbs.	500 lbs.

(b) Seed.

Seed gathered during the year comprised 500 bushels of walnuts. Present seed on hand at the nursery is composed of deciduous tree seed entirely, which has been stratified in shallow, screened pits for spring planting. They consist of the following:

Species	Amount in Bushels
White Ash.....	20
Basswood.....	8
Butternut.....	120
Black Cherry.....	2
Hard Maple.....	20
Red Oak.....	23
Walnut.....	800
Total.....	993

(c) Seed Beds.

During the year a total of 847 coniferous seed beds were sown—102 beds in the spring and 745 beds in the fall. In addition 708 bushels of hardwood seed were planted.

CONIFEROUS SEED SOWN DURING 1930

Spring		Fall	
Species	Beds Sown	Species	Beds Sown
Red Pine.....	101	White Cedar.....	33
White Spruce.....	1	Hemlock.....	11
		Jack Pine.....	77
		Red Pine.....	264
		Scotch Pine.....	25
		White Pine.....	139
		Norway Spruce.....	77
		White Spruce.....	119
Total.....	102	Total.....	745

HARDWOOD SEED SOWN

Species	Bushels
White Ash.....	14
Basswood.....	5
Butternut.....	90
White Elm.....	3
Hard Maple.....	25
Soft Maple.....	25
Red Oak.....	25
Walnut.....	564
Totals.....	751

(d) Transplanting.

Owing to a poor germination in the seed-beds sown in the fall of 1927, the number of seedlings available for transplanting was much below normal. To supplement the 1,784,000 seedlings available for transplanting from our own beds, an additional 680,000 red pine 2-0 seedlings were received from Midhurst and transplanted.

SPRING TRANSPLANTING OF CONIFEROUS STOCK

Species	Number
White Cedar.....	394,000
Jack Pine.....	270,000
Red Pine (Midhurst).....	680,000
Red Pine (Orono).....	126,000
Scotch Pine.....	62,000
White Pine.....	356,000
Norway Spruce.....	300,000
White Spruce.....	276,000
Total.....	2,464,000

In addition, 220,000 white pine 2-0 seedlings were lifted and shipped to St. Williams for transplanting. In the fall, 50,000 red pine and 50,000 white pine, 2-1 stock, were shipped to Thessalon reforestation area for experimental heeling-in over winter.

HARDWOODS TRANSPLANTED

Species	Number
White Ash	10,500
Basswood	500
Butternut	3,000
White Elm	15,000
Hard Maple	7,500
Soft Maple	25,000
Walnut	3,000
Total	64,500

Owing to the very severe drought conditions which prevailed throughout this section of Ontario during the entire year, and more especially during the growing season of 1930, very severe losses and considerable stunting in growth were experienced in the transplant lines. Those transplants which suffered stunting in growth, while perfectly healthy, developed unusually strong root systems and a corresponding reduction in Crown development. As a result of a shortage of available transplant land, however, it is almost impossible to carry these transplants over for another year. They are therefore being listed in a separate column headed 5-inch to 6-inch height in the stock lists.

NURSERY STOCK ON HAND AS AT NOVEMBER 31st, 1930

CONIFERS

Species	Seedlings		Shipping Stock—Height in Inches				Totals
	1 year	2 year	5 to 6	6 to 9	9 to 12	12 to 18	
White Cedar	1,600,000	225,000	25,000	175,000			2,025,000
European Larch (Finnish Stock)			28,000	40,000	1,000		69,000
Jack Pine	103,000	675,000	10,000	40,000			828,000
Red Pine	2,025,000	500,000	125,000	400,000			3,050,000
Scotch Pine	475,000		13,000	20,000			
Scotch Pine (Swedish)		33,000					541,000
White Pine	500,000	510,000	175,000	165,000			1,350,000
Norway Spruce	1,825,000	575,000	45,000	375,000			2,820,000
White Spruce	225,000	1,000,000	68,000	265,000		1,200	
White Spruce (Exper.—N. Que.)	27,000						1,586,200
Totals	6,780,000	3,518,000	489,000	1,480,000	1,000	1,200	12,269,200

DECIDUOUS

Species	Height in Inches			Larger Stock	Totals
	6 to 9	9 to 12	12 to 18		
White Ash	20,000	11,000	10,500		41,500
Basswood		400			400
Butternut		12,800	2,800		15,600
Black Cherry	800	800			1,600
White Elm	125,000	100,000	14,000		239,000
Hard Maple	9,000	8,000	7,000		24,000
Red Maple	10,000	5,300			15,300
Silver Maple	100,000	100,000	10,000	1,000—10 ft. to 12 ft.	211,000
Red Oak	1,200	2,500			3,700
Walnut	38,000		2,500		40,500
			CUTTINGS		
Carolina Poplar		50,000			50,000
White Willow		50,000			50,000
Totals	304,000	340,800	46,800	1,000	692,600

(2) *Improvements*

Buildings.

A combined office and lunch room, twenty-six feet by thirty-six feet was erected on the foundation previously installed. The building is of frame construction with a shingled roof. The first floor comprises an office with a small room adjoining for office storage, lunch room and lavatory accommodation. The second floor was made available by the use of a gambrel roof and was finished for special storage purposes or emergency accommodation. The building is lathed and plastered throughout and lighted with electricity.

Roads and Bridges.

The drive through the southern section of the nursery was widened to twenty-one feet, graded up throughout its length and gravelled. Two concrete culverts were built for drainage purposes. Two miles of township road adjoining the Nursery on the west was also widened, graded and gravelled. The approach from the village was further improved.

During the year the implement shed, tool-house, workshop and barn were wired for electricity.

(3) *Permanent Planting*

A small area of eight acres was planted out this year to spruce—four acres being pure white spruce and four acres pure Norway spruce. In all, 9,750 spruce were used in these plots—4,875 white spruce and the same quantity, 4,875 of Norway spruce.

In the two hundred acre block in Manvers Township, on a strip of some thirty acres on the south end which was burned over during the summer of 1929 a beginning was made at clear-cutting all injured trees. Uninjured pine, oak and maple are being left to insure some seed trees but certain sections will have to be planted in order that the establishment of a reasonable stand may not be unduly delayed.

(4) *Protection*

Animal.

The nuisance of girdling by mice was reduced to a minimum. Squirrels again proved a nuisance and became so bold that shooting was the only remedy. We experienced the usual trouble with crows in the butternut and walnut areas but after several had been shot little further damage was noted. Rabbits were very numerous last winter and considerable damage was done. By the use of ferrets, however, marked progress was made in ridding the neighbourhood of these pests during the past season.

Insects.

Very little damage was noted this year from the white pine weevil in the nursery itself or in adjacent plantations. A number of white pine of from eight to ten feet in height on the 200-acre block in Manvers were attacked, however, and it was necessary to adopt the usual control measures—the infected leaders were removed and placed in screened containers.

The larvae of the June bug, which have been reported as being so prevalent in eastern Ontario this year, were very abundant in the Durham Forest plantations. Several areas of an acre or more were completely denuded of all vegetation

including young trees up to sixteen inches in height. These areas are now coming up into burdocks. Areas which have been attacked are being ploughed and worked for a season where this is possible.

For the first time serious deprecations were observed in plantations as a result of infestations of the larvae of Leconte's sawfly. No injury was noted on the nursery or Durham Forest plantations nor the township demonstration plots, but two private plantations some four miles north of the nursery were very severely attacked. The infected trees were sprayed with a stock solution of lead arsenate which stopped the damage.

No new infections of white pine blister rust have been located this year. In plantations which were previously noted, we co-operated with the owners in removing and destroying infected trees.

(5) *Woodlot Improvement*

On the 200-acre block in Manvers Township an effort was made to clear up the slash resulting from the logging and cordwood operations which preceded the acquisition of the property. Tops were lopped and the brush piled and burned. In addition, crooked and suppressed trees are gradually being cleared out. Some 300 logs were made—white pine, oak, beech and maple and 150 cords of wood cut and split. The logs are being hauled into the saw-mill at Orono for sawing into dimension stuff and lumber, while the fuel is being sold locally as opportunity offers.

On the Durham forest the improvement cuttings were extended toward the east, some fifty acres being cleared of weed and wolf trees.

(6) *Publicity*

Several addresses were given at horticultural meetings throughout the district. These appear to be a worthwhile endeavour judging by the interest shown and the number of enquiries received.

The municipal demonstration plots which have been established throughout this district are just now beginning to attract most favourable attention. The Darlington Township and Clark Township plots are especially favourably situated for effect and growth in both has been excellent and in the case of the latter, no filling has been necessary. The favourable impression created throughout the "Pine Ridge" by these plots is very noticeable.

Seven exhibits were placed at fall fairs. This was rather more than had been arranged for and were in most cases the result of special requests from the agricultural societies concerned.

An effort was made to reach the agricultural communities to the east and as a result the exhibit was placed at rather more distant points than has been customary. The results obtained were such as would indicate that an extension of this work still farther afield would be advisable.

MIDHURST

(1) *Nursery Operations*

(a) *Fertilizers.*

The following fertilizers were used this year at this Station:

Fertilizer	Lbs.	Ozs.
Tankage.....	24	..
St. Bone Meal.....	12	..
Acid Phosphate.....	20	..
Rock Phosphate.....	12	..

Wood Ashes.....	12	..
Sulphate of Potash.....	20	..
Blood (Tankage).....	90	..
Muriate of Potash.....	12	..
Sheep Manure.....	12	..
0-12-15.....	12	..
4- 8-10.....	20	..
2- 8-10.....	12	..
Nitrate of Soda.....	12	..
Ammonia Sulphate.....	12	..
Sulphuric Acid.....	2	4
Totals.....	284	4

Besides the above-mentioned fertilizers, well decomposed humus from the swamp was used extensively at this Station. The new land received this type of fertilizer at the rate of thirty-five loads per acre. Older land that had not received a coating during the last five years was also similarly treated. Altogether, 1,605 loads were put out last year. This humus is an excellent means of improving the soil physically.

(b) *Seed.*

All seed was obtained from the extracting plant located at Angus, Ont.

(c) *Seed-beds.*

Seeding operations last fall began on the 28th of October and continued until November 12th. This year only a portion of the seed was sown in the fall as the seed from the extracting plant could not be obtained in time.

The following seed was sown in the fall:

Species	No. of Beds	Amount	
		Lbs.	Ozs
Red Pine.....	170	137	14
White Pine.....	288	663	10
White Spruce.....	110	138	12
Balsam.....	15	15	..
Norway Spruce.....	29	21	13
White Cedar.....	42	34	2
Yellow Birch.....	4	5	..
Red Cedar.....	15	17	2
Totals.....	673	1,030	5

The following seed was sown in the spring:

Species	No. of Beds	Amount	
		Lbs.	Ozs.
Red Pine.....	351	321	8
Scotch Pine.....	34	24	6
Jack Pine.....	56	38	2
White Pine.....	26	49	..
White Spruce.....	32	50	..
Norway Spruce.....	26	20	..
Totals.....	525	503	..

In addition twenty-three experimental beds were sown.

Only a small amount of hardwoods were sown and were as follows:

FALL		SPRING	
Species	Amount in Bushels	Species	Amount in Bushels
Black Walnut	222 $\frac{3}{4}$	Elm	10
Red Oak	79 $\frac{5}{8}$	Soft Maple	4
Butternut	48		
White Ash	10		
Black Cherry	4 $\frac{3}{4}$		
Hard Maple	5		
Totals	370 $\frac{1}{8}$		14

(d) *Transplanting.*

The following conifer seedlings were lined out in the spring:

Species	Number
Red Pine	4,683,328
White Pine	963,087
Jack Pine	53,853
Scotch Pine	149,023
Norway Spruce	714,435
White Spruce	405,141
White Cedar	337,859
European Larch	58,504
Total	7,365,230

(e) *Trees for Distribution in 1931.*

CONIFERS		HARDWOODS	
Species	Number	Species	Number
Red Pine	3,047,801	Silver Maple	38,625
White Pine	800,801	Elm	31,195
Jack Pine	4,561	Red Oak	28,900
Scotch Pine	24,365	Butternut	11,525
Norway Spruce	138,846	Walnut	10,700
White Spruce	50,746	Hard Maple	2,025
White Cedar	143,187	White Ash	1,650
European Larch	40,352	Basswood	875
Austrian Pine	8,035	Black Cherry	675
Totals	4,258,694		126,170
Grand Total	4,384,864		

(f) *Nursery Stock in Other Stages of Development.*

CONIFERS		HARDWOODS	
1-year olds	4,415,269		110,000
2-year olds	4,132,339		

(g) *Trees Shipped from this Nursery in the Spring of 1930.*

Conifers to private individuals	1,487,036
Hardwoods to private individuals	203,824
Total trees shipped to government projects (mainly conifers)	1,034,225
Total seedlings shipped to government projects and other nurseries	2,104,000
Total	4,829,085

(2) *Improvements*

This year considerable work was done down at the two reservoirs; a small park was started and an excellent road was laid out. All paths and roadways at the park were given a coating of crushed stone. A cement lily pond was constructed here last fall.

Last spring a new 40-horsepower electric motor and a two-phase centrifugal pump was installed at the pump-house. This necessitated the installation of a new 4-inch suction pipe. The 3-inch outlet from the pump was connected through a swing check valve with the 4-inch main leading to our tank.

The hydro electric was installed in the various houses and buildings around headquarters, as well as at the pumping station. Yard lights were installed and the sign on the highway illuminated.

A mile or more of fencing was done this year. This nearly completes the fencing of the property at present at this Station.

Considerable new nursery land was broken up this year and this required extensive hedge planting in the spring.

A road system was laid out and gravelled in connection with the new heeling-in ground. This area was also provided with a water system.

Owing to a fire, caused by spontaneous combustion, the loft of our barn was destroyed and had to be replaced.

A new up-to-date club house for the men was erected this year. This building, built on a hall type with a spacious cellar, was provided with wash rooms and two shower baths. To make the club house section more homelike a rustic cobblestone fire-place was installed. This building provides a necessity that was long lacking. In addition to serving the men as a splendid eating place at noon, it is very convenient for field days, school fairs and other occasions when visitors are present at the Station.

A small auxiliary eating house was erected on the west end of the property. This provides a clean sanitary eating place for the men engaged in nursery work on this part of the property.

A new road leading to the buildings at the west end of the property was built and received a light coat of gravel.

The road systems dividing the new nursery compartments recently opened up have all been stumped. In another year this work will be almost completely finished.

A perennial border 405 feet long was laid out at the grounds surrounding the Superintendent's house.

(3) *Permanent Planting*

Owing to the rush with which spring work opened up this year, little permanent planting was undertaken. The following trees were planted:

MIDHURST NURSERY		HIGHWAY	
Red Pine.....	10,000	Red Pine.....	600
White Pine.....	8,000	White Ash.....	510
		Oak.....	500
		Red Cedar.....	100
		Silver Maple.....	1,050
		White Cedar.....	300
		Basswood.....	500
		White Spruce.....	1,100
		Elm.....	1,000
Totals.....	18,000		5,660
Grand Total.....			23,660

(4) *Protection*

Our two old friends the white pine weevil and the poplar canker (*Hypoxylon pruneatum*) still are with us. The control measure undertaken with the weevil is the destruction early in July of the leaders containing the grub.

The diseased poplar trees were cut and used for wood.

The plantations were patrolled in August for the presence of the pine needle-eating sawfly (*Neodiprion lecontei*). When isolated patches were found the branches on which the larvae were feeding were burnt or else the tree sprayed with a stomach poison.

The sparrow traps were used to good advantage this year.

Our fire guard system as usual was kept in the best of condition, free from all growth.

(5) *Woodlot Improvement*

Considerable silvicultural work was undertaken in the winter of 1929-30. About forty acres were thinned and improved. This yielded firewood and fence-post as well as logs for box-wood lumber.

(6) *Publicity*

The park at this Station was used extensively by the public, including numerous picnics and other gatherings.

SAND BANKS

(1) *Nursery Operations*

(a) *Fertilizers.*

(1) *Sand.* The soil in the Nursery is a shallow gravelly clay of a limestone origin. It has been in the past rather difficult to manage in the transplant beds due to irregularity in texture and its great tendency to bake and crack during dry weather.

Earlier soil improvement consisted in raking off the small rocks and stones in an endeavour to improve its workableness. The gravel obtained was used for road improvements.

It has been found that, due to the application of pure sand, which abounds at close proximity, the till of the soil is vastly improved. All tendency to bake or crack seems to be eliminated and the moisture-holding qualities greatly improved.

Sand was first applied as a soil improver in 1928 and, due to its marked beneficial results, it has been the practice to apply it yearly. A total of 1,150 loads were spread on a one and a half acre transplant area during the past year.

The quantity of sand proposed to be added to the transplant beds will be sufficient to equal about one-half of the worked depth of the soil or a layer of 2-2 inches in thickness. The resultant soil is a sandy loam.

2. *Commercial fertilizers.* It has not been the practice to use much commercial fertilizer. Two hundred pounds only of bone meal were used mainly for lawns and hedges.

3. *Manure.* Three tons of stable manure were used during the past year.

The use of pure sand, it appears, is quite sufficient as a soil improver at present. It may be that larger quantities of fertilizers will be necessary later, but as the Sandbanks is, in essence, a transplant nursery, the use of fertilizers, at present at least, does not seem to be necessary.

(b) *Seed.*

A small quantity of seed, mainly hardwoods, was gathered by the Nursery organization last fall. Also, a small quantity was purchased from local pickers.

HARDWOODS		CONIFERS	
	Bushels		Bushels
Silver Maple.....	6	White Spruce.....	83
Hard Maple.....	40	White Pine.....	63
White Ash.....	15	Red Cedar.....	6
Hickory.....	15		
Walnut.....	97		

No seed is kept on hand at the Nursery.

(c) *Seed Beds.*

Since this is mainly a transplant nursery seedling stock is obtained from the other provincial nurseries for the most part.

HARDWOODS SOWN DURING 1930

	Beds Sown	Amount in Bushels
Soft Maple.....	2	$\frac{1}{2}$
White Elm.....	2	$\frac{1}{4}$

(d) *Transplanting.*

In the spring a total of 90,950 hardwoods and 208,900 conifers were lined out in the nursery beds. These trees were transferred from St. Williams.

HARDWOODS		CONIFERS	
Soft Maple.....	27,900	White Spruce.....	29,700
Red Oak.....	7,500	Scotch Pine.....	73,800
White Ash.....	12,400	White Cedar.....	10,900
Black Cherry.....	5,900	White Pine.....	56,000
White Elm.....	21,900	Norway Spruce.....	28,500
White Birch.....	150		
Walnuts.....	700		
Basswood.....	4,500		

Besides the rooted stock a quantity of cuttings were lined out:

Poplar Cuttings.....	8,000
Willow Cuttings.....	400

(2) *Improvements*

Roads.

It is necessary each year to construct a work road over that part of the sand banks upon which reclamation work is being done. This involves an application of straw which is necessary to give sufficient resistance for moving loads. About one-half mile of such road was made during the year.

(3) *Permanent Planting*

Permanent planting within the nursery was limited to filling in along hedge rows and about the grounds.

The main body of permanent planting was done on the sand banks for reclamation purposes. Of necessity the work tends to be of a scattered nature due to the fact that certain small areas in the property require replanting from year to year. This will be described later.

PERMANENT PLANTING

POLES		CUTTINGS	
Poplar.....	2 cords	Poplar.....	35,000
Willow.....	15 "	Willow.....	30,000

The above material was cut in the vicinity, the poles being purchased from farmers.

ROOTED STOCK

Rooted Poplar..... 5,474

A total of 65,000 poplar cuttings were cut, 30,000 being shipped to other Government nurseries.

(4) *Protection*

Reclamation Work.

The reason for forming the small nursery at the Sand Banks was to establish a base from which the sand menace could be controlled. For years drifting sand has been gradually encroaching on and burying agricultural land and woodlots to such an extent that it has been found advisable to take some means of controlling it. To-day it may be said that the menace is under control.

Reclamation work which was begun in 1921 has been progressing steadily to date and that portion of the banks concentrated on has been successfully stopped from shifting onto, and burying, agricultural land and timber. The eastern margin of the banks, being the last portion to be attacked by the plank barriers, brush and straw, will be, it is expected, completed within the next two years. The planting of this portion with poplar and willow will complete the preliminary work, i.e., develop a sufficient vegetative covering to prevent further drifting.

The sand is temporarily halted by use of plank barriers which may be raised as a sand barrier develops. Barriers were placed at various distances apart, usually 500—700 feet depending on conditions.

After this temporary halting of the sand, poplar and willow poles are, ploughed into the sand in the spring. In the following autumn the area is covered with straw and brush as a further means of controlling it. This is followed in the spring by a sowing of sweet clover (two bushels being sown last year), and by planting of rooted poplar, spacing five feet by five feet.

The above treatment is successful in the main, but usually, there are small areas throughout which must be given further attention—the application of straw and brush and planting.

Poplar and willow cuttings are also planted, 65,000 being used last year. This type of tree is not as successful, as a rule, as the rooted poplar, but helps develop a vegetative cover.

Treatment as described above is carried on yearly, all stages being a succession of operations. About six to seven acres yearly is completed save for repeated patching up which is always necessary.

The advance of the sand banks during the past year is negligible and only apparent in isolated spots.

Fires.

No fires occurred on the property. The only menace which became apparent was a burning building. A man was delegated to watch the property and to quell any outbreak.

It has been the practice to place signs and placards at vantage points to warn the public of the fire menace. These signs were made on the premises.

Animals.

Nursery beds have had to be protected from the depredation of rabbits. It was necessary to enclose the whole of the transplant area with fine mesh wire.

The menace seems to be limited to the nursery area and to places protected from the weather as no damage is evident on the banks proper.

Insects.

An insect attacking Scotch pine was discovered in 1929. A spray of soap and kerosene was used successfully. It required only one spraying last summer. All the Scotch pine on the premises were sprayed.

The spruce gall louse was found to be infesting several Norway spruce in the nursery. The infested trees were removed. No further outbreaks has been noted.

Willows and poplars on the sand banks required spraying with arsenic of lead for a leaf-eating insect. This spray afforded a control.

(5) *Moss Gathering*

A moss swamp was discovered near Northbrook at Kaladar from which a quantity of moss was obtained for nursery work.

The gathering was of an experimental nature to determine cost and quality comparisons with moss purchased from other organizations.

The location is the margin of a lake on the top of a height of land. It was impossible to get horse equipment to the site due to the steep banks leading to it. The moss, however, was quite clean and free from other vegetation. A total of 2,224 pounds was procured.

COUNTY FORESTS

HENDRIE (Simcoe County)

During the winter of 1929-30 considerable improvement cuttings were undertaken in the natural stands as well as clearing many conifer plantations of scrub growth.

The land at this Forest is now completely planted and only refill work was necessary.

The following trees were planted:

White Pine.....	21,000
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ORR LAKE (Simcoe County)

The planting at the main block of the Forest was completed this spring.

Nine experimental plantations were laid out and planted on the point facing the Penetang road.

A new steel sign was erected on the Penetang road this year.

A new block of about 140 acres was added to the Forest, about thirty acres of which were planted this spring.

TREES PLANTED IN THE SPRING 1930

Red Pine.....	76,000
White Pine.....	4,000
Jack Pine.....	3,000
White Spruce.....	9,700
Norway Spruce.....	1,500
White Cedar.....	800
Red Cedar.....	600
European Larch.....	825
Total.....	96,425

VIVIAN (York County)

Red Pine.....	75,000
White Pine.....	45,000
Scotch Pine.....	10,000
Jack Pine.....	10,000
Ash.....	2,000
Maple.....	2,000
Elm.....	2,000
Rooted Poplar.....	10,000
Total.....	156,000

UXBRIDGE (Ontario County)

White Pine.....	20,000
Red Pine.....	22,000
Jack Pine.....	45,000
Scotch Pine.....	20,000
White Spruce.....	65,000
Black Cherry.....	500
Total.....	172,500

NORTHUMBERLAND (Northumberland and Durham Counties)

White Pine.....	10,000
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DURHAM (Northumberland and Durham Counties)

White Pine.....	72,500
Red Pine.....	32,500
Jack Pine.....	25,000
Total.....	130,000

LAROSE (Prescott and Russell Counties)

White Pine.....	115,000
Red Pine.....	65,000
Jack Pine.....	10,000
White Spruce.....	50,000
Total.....	240,000

VICTORIA (Victoria County)

Red Pine.....	6,000
Scotch Pine.....	10,000
White Spruce.....	15,000
Ash.....	3,000
Total.....	34,000

CAMP BORDEN FOREST

Red Pine.....	20,000
White Pine.....	1,500
Total.....	21,500

PRIVATE FOREST

OSLER

White Pine.....	5,000
Red Pine.....	5,000
Scotch Pine.....	10,000
White Spruce.....	5,000
Total.....	<u>25,000</u>

NORTHERN PLANTATIONS

NAIRN (Sudbury)

Red Pine.....	220,000
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KIRKWOOD (Algoma)

Red Pine.....	1,425,000
White Pine.....	550,000
White Spruce.....	195,000
Total.....	<u>2,170,000</u>

LITTLE BLACKSTONE (Parry Sound)

Red Pine.....	15,000
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LAURIER (Parry Sound)

Red Pine.....	150,000
Jack Pine.....	100,000
Total.....	<u>250,000</u>

DIVER (Nipissing)

Red Pine.....	322,000
White Pine.....	150,000
Total.....	<u>472,000</u>

KIOSK (Nipissing)

Red Pine.....	175,000
White Pine.....	75,000
Total.....	<u>250,000</u>

BURLEIGH (Peterborough County)

Red Pine.....	100,000
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MISCELLANEOUS

Greenwood—North Bay.....	50,000
McEwen—Parry Sound.....	33,000
Ranger Plantations.....	24,000
Total.....	<u>107,000</u>

DEMONSTRATION PLOTS

New plots established:

Ebor Park.....	4,000
Girl Guides.....	10,000
Guelph.....	4,000
Humphrey.....	19,000
Spanish River Indian Reserve.....	5,200
Westwanis Camp.....	1,300
Total.....	<u>43,500</u>

Additions to plots previously established:

Angus.....	48,000
Boy Scout Forest.....	110,000
Lindsay.....	15,000
London Kiwanis.....	2,650
Long Branch.....	750
Oro.....	40,000
St. Thomas Res. Park.....	84,000
Warkworth.....	6,400
Woodstock.....	15,000
Highway.....	5,660
Total.....	<u>327,460</u>

DIRECT SEEDING

The seeding of an area in Conger Township to jack pine was completed this year. This area consists of 412.87 acres and 400 pounds of jack pine seed were used.

On the same area 36,000 red pine were planted or approximately ninety trees to the acre.

An area of fifty acres was seeded to white spruce near Ardbeg in the Township of Burton.

PRIVATE PLANTING

In the spring of 1930, 6,142 people secured trees from the Ontario Forestry Branch totalling in all, 5,822,650.

SEED COLLECTING

CONIFERS

	Quantity in Bushels
Red Pine.....	3,250 4/8
White Pine.....	5,826 1/8
Scotch Pine.....	137
Jack Pine.....	381
Austrian Pine.....	4 4/8
White Spruce.....	3,465
Norway Spruce.....	648 4/8
Black Spruce.....	1 6/8
Balsam.....	32
Tamarac.....	2 2/8
Hemlock.....	71
White Cedar.....	395
Red Cedar.....	6 3/8
	<u>14,221</u>

DECIDUOUS		Quantity in Bushels
Walnuts.....		1,589 7/8
Butternuts.....		270
Hickory Nuts.....		25 7/8
Red Oak Acorns.....		125 6/8
Burr Oak Acorns.....		3 2/8
Basswood.....		67 3/8
White Birch.....		15 7/8
Yellow Birch.....		1/8
Black Cherries.....		7
White Ash.....		85 1/8
Sugar Maple.....		77 1/8
Beechnuts.....		2 2/8
		2,269 5/8
Grand Total.....		16,490 5/8

SUMMARY OF TREES PLANTED PERMANENTLY

PLACE	Conifers	Hardwoods	Cuttings	Totals
Private Planting:				
Reforestation.....	3,388,197	760,575	315,518	4,464,290
Windbreaks.....	1,358,360			1,358,360
Demonstration Plots.....	345,750	10,910	14,300	370,960
County Forests:				
Hendrie.....	21,000			21,000
Vivian.....	140,000	16,000		156,000
Uxbridge.....	172,000	500		172,500
Northumberland.....	10,000			10,000
Durham.....	130,000			130,000
Larose.....	240,000			240,000
Victoria.....	31,000	3,000		34,000
Orr Lake.....	96,425			96,425
Camp Borden.....	21,500			21,500
Osler (Private).....	25,000			25,000
Northern Plantations:				
Nairn.....	220,000			220,000
Kirkwood.....	2,170,000			2,170,000
Little Blackstone.....	15,000			15,000
Laurier.....	250,000			250,000
Diver.....	472,000			472,000
Kiosk.....	250,000			250,000
Burleigh.....	100,000			100,000
Rangers' Plantations:				
North Bay.....	50,000			50,000
Parry Sound.....	33,000			33,000
Tweed.....	24,000			24,000
Nurseries:				
St. Williams.....	398,355	42,261		440,616
Midhurst.....	18,000			18,000
Sand Banks.....		5,474	65,000	70,474
Orono.....	9,750			9,750
Totals.....	9,989,337	838,720	394,818	11,222,875

SUMMARY OF NURSERY STOCK FOR PLANTING, 1931

NURSERY	Conifers	Hardwoods	Cuttings	Totals
St. Williams.....	5,250,000	745,000	505,000	6,500,000
Midhurst.....	4,158,694	126,170		4,284,864
Orono.....	1,971,200	288,600	100,000	2,359,800
Sand Banks.....	198,900	80,950	100,000	379,850
Totals.....	11,578,794	1,240,720	705,000	13,524,514

V.—FOREST SURVEYS

The surveys commenced in 1929 in connection with the Timagami and Georgian Bay Provincial Forests were continued during 1930. As in the previous surveys the object of the work was to furnish detailed information as to the existing forest conditions.

The total area examined amounted to 621,000 acres and of which 188,000 acres are within the Timagami Provincial Forest and 433,000 acres the total area of the Georgian Bay Provincial Forest.

Timagami Provincial Forest Survey

This survey is the extension of the stock-taking survey commenced in 1929 and includes the Townships of Le Roche, Canton, Aston, Cole, Leo and Dane. In addition a detailed examination was made of the Gillies' Limit, a cut-over area recently returned to the Crown and added to the Timagami Provincial Forest.

Forest conditions within the townships named show that the stands are practically all immature, only two and one-half per cent. of the area being typed as mature. The immature stands are those reproduced following fires sixty-one and sixty-seven years ago.

Forest conditions now existing on the Gillies' Limit are the result of logging and forest fires. Over one-half of the area is covered by immature stands and the balance is mature cut-over stands. This area has been under license from 1864 until 1928 and operations were carried on intermittently during that time. Two of the most active years were the seasons of 1905-6 and 1906-7 when over forty-six million feet were cut.

Georgian Bay Provincial Forest Survey

The field work in connection with the Georgian Bay Provincial Forest survey had for its main object the identification of the different forest types. Prior to placing the party in the field the vertical photographs of this tract were purchased from the Dominion Topographic Surveys Department and the information on these pictures was transferred and compiled into township plans showing the revised topographic features together with the boundary lines of the different forest associations. No effort was made to identify these associations in the office and it constituted the main activity of the field party.

The results of this survey are in the course of preparation. The eight township plans for the forest are being consolidated into one map on the scale of one inch equals one mile and will picture the existing forest conditions.

FOREST INVESTIGATIONS

The forest investigation programme for the year 1930 involved a study of conditions on cut-over pine and pulpwood lands unburnt since logging, special attention being directed towards the amount of regeneration present to form the basis of a future crop of pulpwood or pine lumber.

Three survey parties of six men each were employed on field work throughout the summer season. One party studied conditions in mature uncut stands on the Sand river drainage area, District of Algoma. A party worked in cut-over unburnt pulpwood stands in the vicinity of Onaping lake, Sudbury District, and a third party studied conditions on cut-over pine lands located some twenty miles north of North Bay.

