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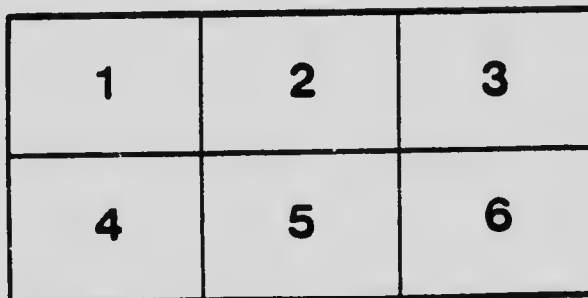
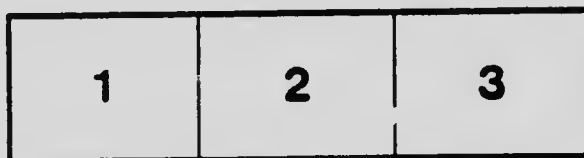
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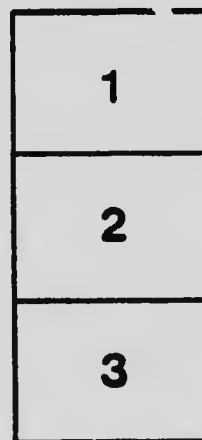
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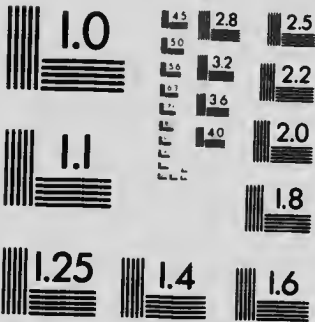
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GREEN LAKE SETTLEMENT.

DEPARTMENT OF THE INTERIOR, CANADA

NORTHLAND EXPLORATION

Report of Exploration by
FRANK J. P. CREAN, C.E.
In Saskatchewan

Between the Saskatchewan and Churchill Rivers, Season of 1908



OTTAWA
GOVERNMENT PRINTING BUREAU
1909



DEPARTMENT OF THE INTERIOR,

OTTAWA, May 1st, 1909.

SIR:—I have the honour to transmit herewith the report dated April 10th last of Mr. Frank J. P. Crean, C.E., of my Branch, giving the results of his exploration last season covering a portion of the country north of Prince Albert to the Churchill River and bounded on the west by Green Lake and the Beaver River. I also attach a copy of my instructions to Mr. Crean, dated August 6th, 1908.

Mr. Crean's report gives a great deal of useful information about the district, and the results of his observations appear to shew that mixed farming may confidently be expected to prove successful over a large area. When the country is made accessible by roads a considerable settlement of agriculturists may, I think, be looked for. The country is also shewn by his report to be rich in natural resources.

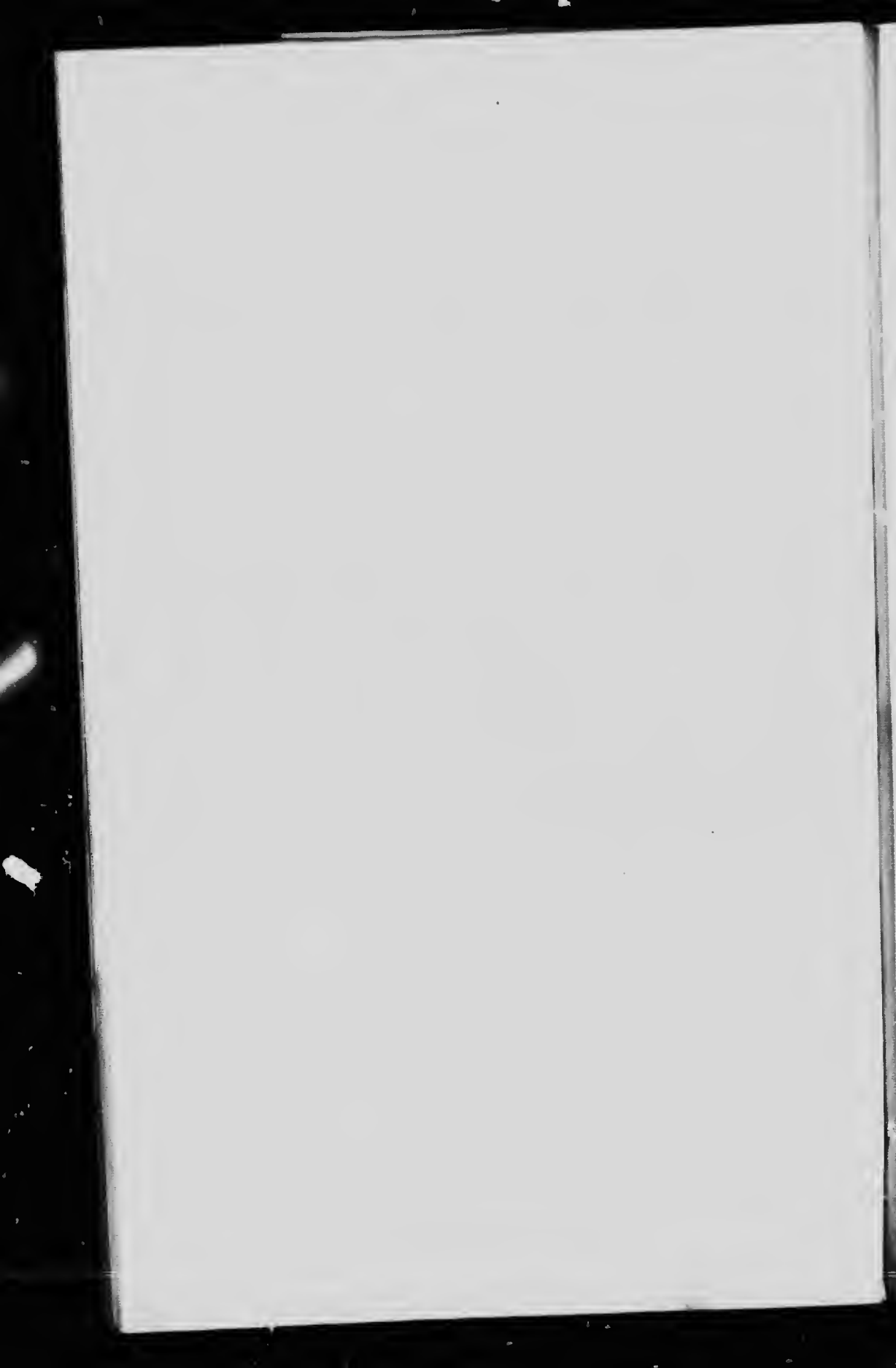
I have the honour to be,

Sir,

Your obedient servant,

R. E. YOUNG,
Superintendent Railway Lands Branch.

HONOURABLE FRANK OLIVER,
Minister of the Interior,
Ottawa.



LETTER OF INSTRUCTIONS

RAILWAY LANDS BRANCH, DEPARTMENT OF THE INTERIOR,

OTTAWA, Aug. 6th, 1908.

FRANK J. P. CREAN, Esq., C.E.,
Ottawa, Ontario.

DEAR SIR: Respecting the exploration of which you are taking charge the following instructions are given you:

You will at once proceed with the necessary arrangements for your departure, procuring and forwarding necessary equipment and supplies to Prince Albert, so far as same cannot be more advantageously procured at that point. It will no doubt be most advantageous to deal with the Hudson's Bay Company as far as possible as that Company has posts along your route. A letter of credit can be obtained from the Company and be used instead of carrying cash.

The object aimed at is to procure all the information possible about that tract of country lying to the east of the Beaver River and Green Lake, south of the Churchill River and extending east to the old canoe route from Cumberland House via Frog Portage to Stanley Mission. The water routes in this district have been travelled by many travellers and explorers, but as little is known of the interior, particular attention should be paid to obtaining information about the character of the country away from the travelled routes. Expeditions should be made inland and the approximate course and distance noted.

The object of this exploration is to ascertain the value of the district to be traversed for farming, lumbering and mining purposes, and any useful information bearing upon these subjects not included specifically in these instructions should be included in your report. You will keep a diary in which will be entered your work from day to day, the direction travelled, whether by land or canoe, if the latter, by what streams, their size, and all particulars thereof, entering full observations as they are made, and under the proper date. Yourself and assistant will also keep a careful record of temperatures every morning and evening, also barometer readings. Whenever your assistant is travelling separately from you, he will be expected to keep a diary covering the same information.

It is not intended that you should be given exact instructions as to the route to be taken. You will be expected to decide on that point from such information as you can gather before leaving Prince Albert. Your instructions are necessarily general in their character as it is impracticable to give directions which shall meet every contingency or set of conditions that may arise, and much must necessarily be left to your good judgment. Both yourself and assistant will keep steadily in mind the object of the expedition and aim to bring back all information which would be of interest or value concerning the district to be explored, even if not specially referred to or required in these instructions. You will be careful to require your assistant and any men temporarily employed by you to carry a saw, axe and a box of matches, and to be careful on any side trip alone, and observe the same rule yourself.

You are being supplied with two cameras, one for yourself and one for your assistant. You will both have a convenient opportunity to take photographs of anything you meet with. Photographs will be of special value in connection with your report. It is specially desired that you have good photographs of any growing or harvested crop in the district, where you may have an opportunity to take

NORTHLAND EXPLORATION

These photographs, and also any and all information you or your assistant and party may gather, are to be considered as the property of the Department.

The information to be acquired by you will embrace:

(1). The nature of the soil, whether sandy, gravelly, clay, etc., and its quality, and whether in your opinion it is capable of producing grain, hay or any other kind of crop. Wherever it is found that land has been occupied and cultivated or is now being cultivated, as for instance at posts of the Hudson Bay Company, you will make mention of the circumstance and give such particulars as you can obtain of the success or failure of such cultivation. If you meet with any considerable peat deposit give such information regarding it as you can conveniently obtain.

(2). The various kinds of forest trees and the extent, size and quality of the timber, the comparative prevalence of the several varieties and generally all information concerning the forest growth and conditions which may be useful or valuable. You will also particularly note the extent of damage to timber by fire and whether of recent origin or not. If you meet any case of extensive damage from this cause within say the last year, get what information you can as to the cause.

(3). The fixed rocks met with, and economic minerals, if any.

(4). The flora, collecting and preserving specimens for subsequent identifications where this can be conveniently done.

(5). The fauna, particularly deer, moose, elk, fur-bearing animals and birds, or information concerning any of these which can be procured from the Indians, also the several species of fish in the lakes and rivers.

(6). The general features of the country from the explorations made on each side of the rivers and lakes.

(7). Valuable water powers, giving such information as regards the flow and volume of water as can be conveniently obtained and an estimate of the fall in each case, also describing the banks on each side of the stream.

If any large body of timber of economic value be observed or any considerable tract of good land be met with, you will take such steps as may be taken with the time at your disposal to arrive at a correct idea of its extent, nature, etc. Also in case a portion of the country appears to be of more than usual promise mineralogically. You should also indicate the most feasible ways in which land, timber or minerals may be opened up for occupation or use by roads, railways or waterways.

You will be supplied with 50 of the notices for "Prevention of Forest Fires," issued by the Forestry Branch of this Department. You will post these notices wherever they may in your opinion be placed to the most advantage and in other respects in regard to the protection of timber you will be expected to advise and assist the Department.

Your party will consist of Mr. W. R. Caldwell, who will act as your assistant, and yourself, together with such temporary help as you may require, but it is not expected that you will employ more than two local men as canoe men and packers. Both in regard to the procuring of equipment and supplies and the employment of labour and transport you will be expected to exercise due economy.

The members of your party including such temporary employees as you may engage are to be responsible to you and may be dispensed with if necessary.

An inventory of all articles of outfit supplied to you, or which you are purchasing at the Government's expense, should be made out by you and sent to the Department before you leave Prince Albert to be placed on file. This inventory to be itemized and classed under proper heads and in case of loss or damage to any of these articles, such loss or damage should be satisfactorily explained when your final return are made. Any article worn out and unreplaceable shall be at the same time so reported with such explanatory remarks as may seem to be required. Your assistant will be accountable to you for loss or damage to articles or instruments placed in his keeping for his use or otherwise.

When the approach of winter has made travel by canoe no longer possible you will be expected during the earlier part of the winter to cruise any timber which may have noted. You will be expected to return by dog team as soon as the route is safe for such travel, or so as to report at headquarters about January 1st, 1909.

Your final returns will include the plotting on a large scale map of your routes travelled with remarks showing the approximate areas of good land, timber, and any additional information which can be shown. You will also make a copy of your notes and diary kept in the field for future reference.

You should arrange to leave Ottawa for your destination previous to or not later than August 19th.

Owing to the distance from ordinary lines of travel and irregularity of communication, it will not be possible to make reports of progress at regular intervals, but you will be expected to take such opportunities as may occur to keep the Minister informed of the progress of the work.

You are herewith furnished with a cheque for \$1,500 payable to your order. This amount is on account of travelling expenses, and general disbursements for yourself and party, and to be properly accounted for.

All bills and vouchers must be rendered to the Department in triplicate, properly certified by yourself.

(Sgd.) R. E. YOUNG,
Superintendent.

NORTHLAND EXPLORATION



NORTHERN STREAM HARNESSSED FOR THE USE OF
MAN. POWER DEVELOPMENT AT LA
PLONGE MISSION.

NORTHLAND EXPLORATION

OTTAWA, April 10th, 1909.

To the

HONOURABLE FRANK OLIVER,

Minister of the Interior, Ottawa.

SIR.—I have the honour to report on my exploration during the last season. By the foregoing letter of instructions to me, dated August 6th, 1908, and signed by Mr. R. E. Young, D.L.S., Superintendent of Railway Lands, I was to make an exploration of that part of Saskatchewan north and west of Prince Albert as far north as the Churchill River covering as much of this country as time would permit.

The following are extracts from this letter:—

"The object aimed at is to procure all the information possible about that tract of country lying to the east of the Beaver River and Green Lake, south of the Churchill River and extending east to the old canoe route from Cumberland House via Frog Portage to Stanley Mission. The water routes in this district have been travelled by many travellers and explorers, but as little is known of the interior particular attention should be paid to obtaining information about the character of the country away from the travelled routes. Expeditions should be made inland and the approximate course and distance noted.

"The object of this exploration is to ascertain the value of the district to be traversed for farming, lumbering and mining purposes and any useful information bearing upon these subjects not included specifically in these instructions should be included in your report."

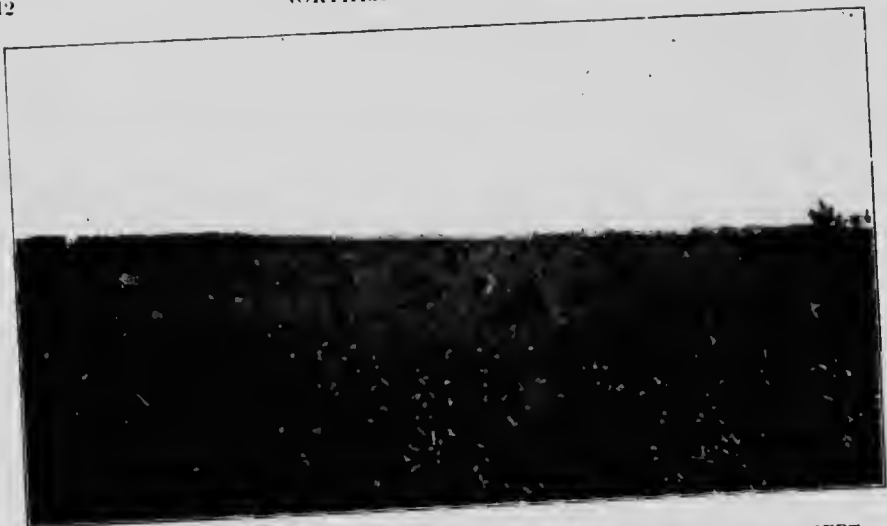
I have the honour to report that in compliance with the above instructions I proceeded at once by train to Prince Albert and arrangements were made with the Hudson's Bay Company to provide me with men and the means of transportation. In this they were not altogether successful and much valuable time was lost by the disinclination of the natives for work, although I offered double wages.

We left Prince Albert on August the 20th, 1908, and I returned on January 6th, 1909. My assistant, Mr. Caldwell, who I regret to say met with a painful and serious accident to his knee, returned somewhat earlier. I bear willing testimony to his valuable services. From Prince Albert I proceeded by team to the south end of Green Lake. The road from Prince Albert to Green Lake is a surveyed highway, and in most seasons of the year would be considered a fairly good wagon road except perhaps the last twelve miles.

After reaching Green Lake I travelled chiefly by canoe making side trips inland where possible or when it seemed desirable to do so.

When the setting in of winter made further canoe travel impossible I procured dog teams to continue the exploration.

An effort was made to keep a record of the temperature each day but owing to the fact that we seldom camped longer than one night in the same place and had to do our own cooking and in the winter drive our own dogs, this was found impracticable. However, I placed a thermometer at Ile à la Crosse in care of the Hudson's Bay Company, and had a temperature record kept there. At the conclusion of this report I give a table showing the result from August 27th, 1908, to March 15th, 1909.



FARM AT MT. NERO ON THE GREEN LAKE TRAIL, 65 MILES FROM PRINCE ALBERT.

No attempt was made to accurately survey our route. Sketches were made of all topographical features of interest and a fairly accurate map has been compiled. In this I have used all data obtainable from the Dominion Lands Survey of the old canoe route and from the Geological Survey maps and other sources. Photographs were taken of anything which appeared to me to be useful or interesting and all possible information was collected from the residents in the country. Owing to the lateness of the season when the expedition set out the exploration was necessarily hurried; still, though the area covered was large, the report will be found to be accurate and because of the peculiar flatness of the country, fairly minute. The soil was investigated wherever it was thought necessary by digging a hole to a sufficient depth to ascertain the formation. To report on the whole area at once would be impossible, but in general it may be said that the whole tract, though not exactly fitted for agricultural settlement throughout in its present state, is still capable of producing large quantities of cereals and farm produce and supporting a large population. The over abundance of water and lack of natural drainage, causing large swamps and muskegs, might in my opinion be easily remedied by clearing out some of the rapids on the Churchill River and providing outlets for the surplus water where natural outlets are lacking. Very little work would be necessary to open fine waterways navigable for small craft throughout this country. To build roads passable in summer would be difficult but by no means impossible. Winter roads could easily be located and would not require much expense to build.

The climate seems well adapted for raising any cereal. In fact, wherever wheat has been tried it has grown successfully. At Portage la Loche, which is considerably north (Lat. 56 degrees, 35', 11"), oats and barley have been grown. Wheat was not tried, but I feel sure it would grow successfully, notwithstanding the relatively high altitude. Portage la Loche has an altitude of about 1,677 ft. as compared with 1,398 ft. at Prince Albert. It is very much above the general level of the country to the south and east.

Professor John Macoun, the well known naturalist of the Geological Survey, points out that in considering the possibilities of agricultural development of this northern country, one fact to be kept steadily in mind is the advantage of the low altitude and the long day, which are fixed conditions and will always remain the same. In altitude, Prince Albert is nearly 500 feet lower than Regina, and

Stanley on the Churchill is 260 feet lower than Prince Albert. A comparison of the hours of sunshine per day on specified days during the summer at Prince Albert and Portage la Loche, and, for the purpose of comparison, at Ottawa, shows as follows:—

Date	Length of Day		(Sunrise to Sunset)			
	Ottawa 45 N. Lat.		Prince Albert 53 N. Lat.		Portage la Loche 56 36' N. Lat.	
	h.	m.	h.	m.	h.	m.
May 1	14	4	14	46	15	12
May 10	14	28	15	18	15	48
May 20	14	50	15	52	16	28
June 1	15	10	16	20	17	2
June 10	15	20	16	34	17	20
June 20	15	26	16	42	17	30
July 1	15	22	16	36	17	22
July 10	15	14	16	24	17	8
July 20	14	58	16		16	42
Aug. 1	14	32	15	24	15	56
Aug. 10	14	10	14	54	15	20
Aug. 20	13	42	14	17	14	36

The above table has been verified by Dr. W. F. King, Chief Astronomer of the Department.



CUTTING OATS ON OCTOBER 1ST, AT ÎLE A LA CROSSE.

I did not see as many growing crops as I expected to. The reason of this is that in recent years the native has practically abandoned farming, confining himself to cutting hay, which he sells to freighters. Upon the advent of Revillon Bros., Ltd., as fur-traders in competition with the Hudson's Bay Company, the latter company gradually abandoned the water transport wherever it was possible to use horse transport instead, and with the increased use of horses, the native soon found it far easier to haul heavy loads of grain or flour than to grow it.

The gross area explored, and about which some information has been collected, is approximately 22,000,000 acres, being that tract outlined in red on the accompanying plan marked "A." The water covered area in this tract (area of lakes and rivers) may be set down at approximately 3,000,000 acres, the remaining land area - 19,000,000. I would estimate that an area of fully 5,000,000 acres is suitable for settlement as soon as surveyed and made accessible by roads and an area of about 12,000,000 acres of swamp or land probably too wet at present for successful cultivation, could be reclaimed at a moderate expenditure. All the swamp will, however, eventually repay the cost of reclamation.

The above figures are, of course, the result of an exploration, extending over only a few months and must be considered only approximate. The distance travelled was about 3,000 miles of which 1,200 was made running behind dog trains.

The cost of the exploration figures out at about 1.125 of a cent per acre of land, excluding the water area.

The general report covering the whole tract follows, and in addition I have prepared a more detailed report by sections, which follows the general report.



TRANSPORT ON GREEN LAKE.

ACCESS.

There are several routes by which one can reach the district I have explored but they may fairly be sifted down to two: the road to Montreal Lake and the road to the south end of Green Lake, both starting from Prince Albert.

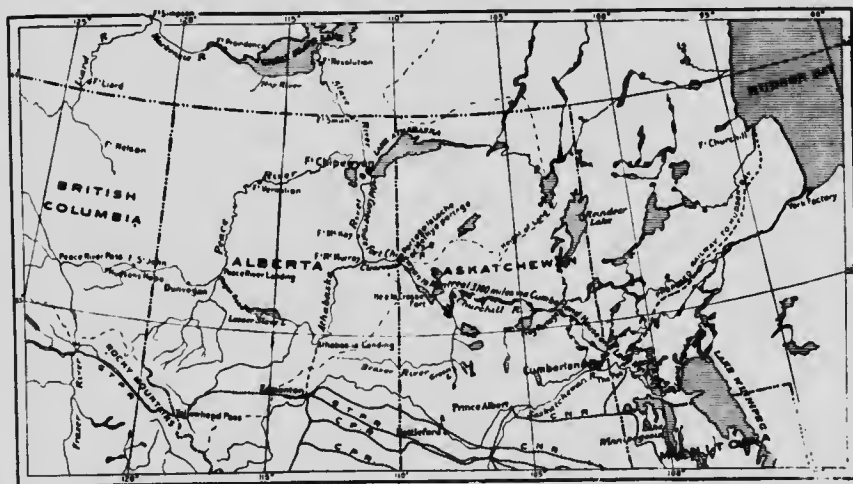
The road to Montreal Lake while good in winter is almost impassable in the summer months. Though I did not travel over it I was informed that it was very rough and swampy. Some parties of prospectors went that way last year and managed to get through, though under great difficulties. The Green Lake road was reported to me as in every way superior though somewhat longer. From Prince Albert to Montreal Lake is generally estimated at 120 miles by trail while the distance is supposed to be 150 miles.

Persons wishing to reach Lac la Ronge would of course go via Montreal Lake. An expert canoeist might launch their canoes in Deer Lake and run the rapids on the Deer River. These rapids are very swift but can be run. By using the Deer

River one would avoid the worst piece of the road. From Montreal Lake to Lac la Ronge the Montreal River is full of treacherous rapids, but they too can be run.

There are several canoe routes from Lac la Ronge leading in almost every direction. To reach the westerly side of the tract Green Lake road is the obvious way. It also is the better route to follow to Cree Lake and other points north of the Churchill.

The Green Lake road is good to Devil's Lake, about 70 miles from Prince Albert, and there is a water route from this lake which has been travelled but I am informed is not practicable for loaded canoes. From Devil's Lake the road crosses the Shell River and becomes rough and crosses some bad swamps. The Big River is crossed about four miles north from Shell River. Both these rivers are bridged. After crossing Big River the road traverses a piece of hilly country for about twenty miles and then returns to the valley of the river. After following the valley for about four miles it follows a small creek for some eight or ten miles, when it becomes very bad and swamps occur frequently. The last twelve miles to the freight depot at the foot of Green Lake is almost impassable. From this freight depot the canoe route on Green Lake and Beaver River is good. There are no portages on the river going north. Rapids occur but they are easily run. The La Loche River, by which the connection is made to the Clearwater River en route to the Athabaska, is very shallow in places and is difficult to ascend owing to numerous rapids. Indians coming from Fort Chipewyan or Fond du Lac on Lake Athabaska, come via Cree Lake and down the Mudjatik River, but returning they go via Clear Lake, Island Lake, thence by water course with portages to Sandy Lake, thence by the Gwillim River to the height of land, where a portage of 1,100 yards long crosses the height of land; thence a small lake and river brings one to Cree Lake. This region is reported to contain good indications of minerals.



MAP SHEWING PART OF THE OLD FUR-TRADERS' CANOE ROUTE FROM MONTREAL LAKE TO FT. CHUPEWYAN ON LAKE ATHABASKA.

The old canoe route of the fur-traders, 3,000 odd miles in length, from Montreal to Fort Chipewyan on Lake Athabaska, passes along the north limit of the district covered by my exploration. This route is shown in part on the small accompanying map. It left the Saskatchewan near Cumberland House and a chain of water was followed to Frog Portage, at which point the Churchill was reached, thence up the waters of this river with its numerous lake expansions to Portage la Loche, thence

down the Clearwater and the Athabaska to Fort Chipewyan. For over 100 years the travel incidental to the fur trade of all the far northwest country was carried over this famous route but, as stated in another part of this report, it was practically abandoned about 1885 and the traffic now goes chiefly via Edmonton and Athabaska Landing.

SOIL.

The soil throughout the district varies so much that a general report of it would be inadequate. In the south-easterly portion the soil is good, being a light loam, with a blue clay subsoil; towards the west the soil is light loam with sandy clay subsoil. North of Montreal Lake the soil is still good but large stones occur more frequently till at Lac la Ronge rock outcrop is met with. There are of course fertile spots where the soil attains a considerable depth, but no large compact areas of land occur in the northeastern part of the tract explored, except at Stanley, where, perhaps three thousand acres of arable lands may be found in one block. To the west of Lac la Ronge though rock outcrop continues, fertile spots occur more frequently, till at Trout Lake there is no sign of rock. The soil around Trout Lake is light and rather sandy, muskegs occur frequently until Snake Lake is reached. Sandy River flows through a large hay meadow, bounded on the west by a muskeg or peat bog, extending westerly to Lac Ile a la Crosse. This hay meadow varies in width from one quarter of a mile to three miles. Abundance of good hay might be cut along this river. This whole country between Snake Lake and Ile a la Crosse Lake, needs drainage and there are few high spots in it except along the shore of the lakes or rivers. On the west side of Ile a la Crosse settlement there is practically no land fit at present for cultivation, the country being all low and almost a muskeg. I explored this side pretty thoroughly for a distance of about 60 miles and found it to be practically all the same, and almost the same level as the lake. Along what is termed Deep River, connecting Ile a la Crosse Lake and Little Buffalo Lake, the banks are higher and the land good, but this is only a fringe along the river, seldom extending more than half a mile inland. These muskegs could, of course, be easily drained.

The soil around Buffalo Lake is light, but appears to be fertile. It is generally a light loam rather inclined to be sandy, with a sandy subsoil. In some places the soil is much heavier and is very fertile. La Loche River flows through an immense swamp, which extends for miles on each side, no ridges being even in sight. At La Loche Lake the soil is very much better, being a heavy loam varying from 18 inches to almost any depth. Once the height of land at Portage la Loche is crossed on the portage, the whole country towards the west takes on a far better aspect, and the soil appears to be as good as could be desired.

TOPOGRAPHICAL FEATURES.

The topography of this tract varies very much as one travels north. In the southerly portion, on the west side, along the valley of the Big River, the country is broken by deep conlees, and the prairie is rolling with round topped hills admirably suited for ranching; farther north it becomes flat and low. In the latter part of the tract it is all flat, very few ridges occurring. In this latter part of the tract the construction of roads would not be easy as swamps occur frequently. Winter roads of course might be built in almost any direction by simply following the way.

CLIMATE.

The climate conditions seemed to be most favourable. The expression "Frozen North," sometimes used, is a misnomer. Of course the winter is cold but

not any colder nor longer than the winter in some of the settled portions of Saskatchewan. In August, 1908, a frost occurred almost all over the settled parts of Saskatchewan but did not apparently affect the northern portion which I explored. Locally this frost may have been felt but it was certainly not felt all over. I was not in the district at the time but the first frost registered by my thermometer was on October 2nd, when the thermometer fell to 24 degrees F. I was at Portage la Loche on September 17th, and the potato tops were not frozen in the least.



POTATOES AT MOUTH OF BUFFALO RIVER, SEPTEMBER 12TH, 1908.

The garden was also quite untouched. Cabbages, carrots, parsnips, etc., all looked well. Nor had I seen any frozen vegetables on the way up. At La Plonge Mission the wheat was touched, but it was grown close to the river and caught any frost there could have been. The vegetables in the garden here were quite untouched and looked well on September 4th; the tomatoes had been removed from the garden in case frost might come.

The lakes began to freeze on October the 20th, but remained open for perhaps two weeks, the weather turning quite mild again. There was not sufficient snow to travel with dogs until November 20th, and even then there was very little. The snow was not deep until about December 15th.

The rainfall in this district is ample, though not excessive, and its uniformity from year to year is a valuable feature. As far as I could learn the heaviest rain occurs in the early summer just when rain is most needed for agricultural operations. The snowfall is not generally heavy, seldom exceeding 18 inches and as with the rainfall, is uniform.

RANCHING.

Along the Big River in the southern portion of the tract, is a splendid ranch country. Hay abounds and water and shelter are easily obtained. The country is principally open, dotted with bluffs of poplar, and hay is to be had everywhere. The grass cures here and the rolling hills would be blown clear of snow which would afford a winter range for stock almost equal to the Porcupine Hills in South-

Alberta. Farther north, however, the country is too flat until Portage la Loche is reached. The valley of Clearwater River below Portage la Loche would furnish a cattle range that to my thinking would be hard to beat.



VALLEY OF THE CLEARWATER LOOKING WEST FROM THE HEIGHTS
AT PORTAGE LA LOCHE.

I am informed that there is even a better cattle range in the valley of the Pembina River, southwest of Portage la Loche, but I did not see it. Generally speaking in my opinion mixed farming would be the industry best adapted to the entire tract explored.

HAY.

Everywhere I travelled there was an abundance of hay and along the main routes hay was stacked in quantities in many places but always with an eye to proximity to the trail. Sometimes the meadows would be small but always numerous. At Green Lake there were particularly fine meadows, and I am told to the west of it is even better.

ANIMAL LIFE.

Game of all kinds abounds; the principal species being moose, cariboo, deer, black bear, cinnamon bear, lynx, wolf (timber), fox, wolverine, otter, beaver, mink, marten, muskrat, rabbit, squirrel. Among the principal birds found are: swan, geese, ducks, partridge, ptarmigan, gulls, jay (whiskey jack), kingfisher, crow, robin and loon.

Moose are still plentiful but are being killed in large numbers by the natives and the wolves. The same remark would apply to cariboo of the woodland variety. The Barren Land cariboo or reindeer come down as far as Cree Lake (100 miles north of the Churchill) in numbers, and a few stray farther south. I shot one in the muskeg just north of Lac Ile a la Crosse.

Deer are preyed on by the wolves almost to extermination. Bear of both varieties are plentiful. Lynx was scarce last year owing to the scarcity of rabbits. Wolves are very plentiful. The wolf is very difficult to trap and his pelt is not very valuable so he is not very much hunted.

Fox, like all fur bearing animals, seem to have a cycle of good and bad years. Just now they are scarce. Wolverine are fairly plentiful. Otter, which at one time were a great source of revenue to the Hudson's Bay Company, are now scarce. Lynx follow the rabbits on whom they prey, and are not plentiful at present.

BEAVER.

The method used in beaver hunting is well known and needs no description from me. The inquirer is referred to Samuel Hearne's description in his account of his great inland journey from Ft. Churchill, 1769 to 1772. The method of that day has not changed. Suffice to say that wherever a beaver lodge is found the inhabitants are exterminated. Their house being broken, those not caught are left to freeze as it is impossible for them to build again that winter. The principal time for beaver hunting is in January or February when other kinds of fur are not plentiful. Last October I saw a beaver lodge in the course of completion on Muskeg River (a tributary of Lake He a la Crosse), and I spent the better part of a night listening to the beaver working. In November I was again in the locality, but alas, some persons had found the location and the lodge was broken. I am told that a few years ago beaver abounded around Green Lake, but this year I do not think there are any.



WINTER CAMP NEAR CANOE LAKE.

The pay in trade for a prime male beaver now is 12 lbs. of sugar or its equivalent. At one time male beaver was the standard value, hence the term "skin" which is used in trading, everything being priced at so many skins.

Mink are plentiful.

Marten are rare.

Muskrat abound.

Rabbits are scarce at present.

Squirrels are not too plentiful.

FISH.

The staple food of the native north of the Saskatchewan is fish and with this commodity he is amply supplied. White fish are found in all the lakes and rivers. Green Lake is stocked to repletion with as fine white fish as will be found anywhere. He a la Crosse Lake is also amply supplied. Canoe Lake, Marten Lake and all the immense water area comprised of the numerous lakes in this district are well stocked with this valuable food. As to the value of white fish as a food I cannot do better than quote Sir John Richardson's encomium as his opportunity for forming an opinion was of the best. There is no traveller in our North Country

who has left a more valuable scientific record of his observations than Sir John Richardson who was associated with the Sir John Franklin Overland Arctic Expeditions. He says:—

"Several species of this subgenus (*Coregonus*) have been celebrated for the delicacy of their flavour but none have been more justly so than the Attihawmeg which is an inhabitant of all the interior lakes of America from Erie to the Arctic Sea.

"Several Indian hordes mainly subsist upon it and it forms the principal food at many of the fur posts for eight or nine months of the year the supply of other articles of diet being scanty and casual. Though it is a rich fat fish instead of producing satiety it becomes daily more agreeable to the palate; and I know from experience that though deprived of bread and vegetables one may live wholly upon this fish for months or even years without tiring."

Fauna Boreali Americana III. page 195, 1836.

Pike or Jack fish are equally as widely distributed as white fish though not so numerous and of course are not so valuable for food. It should be remembered, however, that the pike of the northern waters is a very much finer fish than the fish we know under the same name. Along Churchill River, which is really more like a series of lakes than a river, there are occasionally shallow lakes or bays of the river which contain only pike or Jack fish. Doré, or its English equivalent pickerel, are caught in places notably at Doré Lake. Doré, as this fish is always called by the native, is a very fine fish. Mr. E. Preble, Assistant U.S. Biological Survey, speaking of Doré says:—

"It is an excellent food fish but of course must yield the palm in this regard to the unsurpassed white fish with which it is associated."

Page 514, *North American Fauna*, No. 27. (A biological investigation of the Athabaska-Mackenzie region). 1908.

TROUT.

The only variety of this fish I saw or heard of is lake trout. This species is found in Clear Lake, Lac la Ronge, and some other smaller lakes. Speaking of this fish Preble says:—"In the larger bodies of water, lake trout frequently attain a weight of 50 pounds and occasionally even more. They are caught in large numbers and furnish a rich and nourishing food, but cannot be eaten steadily as they soon pall upon the appetite."

North American Fauna, No. 27, page 510.

LOACH.

Loach, loche, methye, maria and ling are the several names of a voracious and worthless fish. Even the dogs unless starving won't eat it. The liver and roe, however, are considered delicacies. This fish is found everywhere, particularly in the lake of that name.

Tullibee—This fish to a great extent resembles white fish but is not much used as food. It is fairly plentiful. There are no sturgeon in the district. About 60 miles below Frog Portage on the Churchill River there are falls which the natives call "the place where the sturgeon stop." No sturgeon are found above this place. If the head waters of the Churchill were stocked with this fish it would be a pity if they did not thrive. At Lac la Ronge the white fish are not as good as elsewhere. They may be a different species but I think the methods used in catching fish are the same. The lake trout is said to prey upon them but as at Montreal where there are no trout, the white fish are little better. If the laws and regulations in regard to fish are reasonably lived up to, these valuable food fish will in the future form an asset of the country to enable settlers, when such a time comes, to supplement the necessarily frugal fare of the pioneer.

TIMBER.

Although numerous prairie openings occur this tract may be spoken of as practically covered with small timber not generally of any commercial value. The poplar is the principal growth; and, following the rule so well known throughout the western prairie country, indicates good land. Some spruce is found and large quantities of small second growth jack pine. There is some tamarac. There is of course no white or red pine. The poplar in some places would make fine pulpwood or barrel staves. Generally speaking it is of no commercial value. There are several small groves of good spruce along the Churchill River, and at Portage la Loche there is a large quantity of good spruce. Along the White Fish River the timber is large and of good quality. On both the east and west side of Green Lake some good timber is found but it is scattered. Generally there is ample timber for settlers' use but not enough to supply any lumber industry.



SAWMILL AT R. C. MISSION, LAC LA PLOIE. RUN BY WATER POWER.

While on this subject I wish to call attention to the destruction of timber by fire. Large areas of good merchantable timber at one time existed in this tract but they have long since been destroyed by fires.

I posted fire notices wherever I went, but they were written in English which the natives cannot read. Fire notices have been posted in Chinese syllabic, and notices in these characters are intelligible to the natives of the district. I have forwarded a number of copies of these latter notices to the missionaries and others with the request that they should post them in various places.

MINERALS.

North of the Churchill lies a district of great promise as a mineral province of view. Already prospectors have pushed into this district as far north as Cree Lake and no doubt many more will be in the district this year. It is important that all prospectors in this country should use their utmost care to prevent forest fires. While there is little doubt of there being several deposits of minerals, it should be remembered that the existence of timber for mining purposes, for the construction and even to make the country habitable for man might be the deciding factor as to the economical development of the mineral wealth.

On the east side of the tract rock outcrop occurs and numerous creeks have been staked at Lac la Ronge on the Churchill River in the vicinity of St. Mary's. I did not have time to prospect in this tract. I saw several specimens of ore and located claims. As Mr. McInnes of the Geological Survey was through this country

this year, I did not stop to investigate. His report, when published, will cover it. At Buffalo Lake there is a small tar sand outcrop. Whether it will ever be of commercial value or not I cannot say. This is, apparently, of the same character as the famous tar sands of Athabaska and Clearwater farther west. Prospectors are going farther north this year. Some of the prospectors who have been on the north shores of Cree Lake are very sanguine of successful finds, particularly in copper and silver. The country looks like a mineral country, and it is not yet prospected.

It would be impossible to say definitely at present whether the claims at Lac la Ronge will be valuable or not, but the owners are investing considerable capital in development work. There is one shaft now being sunk to a depth of 70 feet. Several syndicates have been organized and expect to make sample shipments of ore to the smelter this year.



THE GRAND RAPIDS ON THE BEAVER RIVER. HEAD
OF STEAMBOAT NAVIGATION.

WATER POWER.

Throughout this district there are many points where a large amount of water power could be developed, and there are numerous small power sites.

Power having been successfully transmitted for two hundred miles and upward in the United States, it is conceivable that the power now going to waste in this

district might be utilized so as to create great industrial centres. The great advantage of the numerous water powers is the fact that sufficient power can be obtained at many points to supply the needs of a fair sized community. On almost every stream there are sites where small powers could be easily developed and grist mills, saw mills, lighting and pumping plants could be operated at the minimum of expense. I did not gauge or measure the possibilities of any of the water powers but made rough estimates of a few prominent ones. On the Beaver River at what is termed Grand Rapids probably 10,000 h.p. could be developed.

On the La Plonge River half a mile from its junction with the Beaver River, the Roman Catholic missionaries have a small saw mill operated by water power. This power is also used to pump water into the large mission school and an electric light plant is being installed. The Rapid River, which enters the Churchill about 7 miles below Stanley, falls 70 feet in one cascade. This should afford a large amount of power.

The Churchill River between Ile a la Crosse Lake and Knee Lake, a distance of about twenty-five miles, has a fall of 80 feet. This fall is practically all in three rapids, all of which have sharp descents. At one rapid there is a cascade eight feet high. The power possibilities here would be large but I fancy it would be more advantageous for the development of the district to blow some of these rapids out in order to increase the natural drainage.

All the tributaries on the north side of the Churchill afford ample opportunity of development of power. Mudjatiek River is a series of waterfalls, so much so that Indians travelling from Ile a la Crosse to Cree Lake prefer to use the somewhat longer route by Clear Lake than to face the strong current and numerous portages on the more direct route.

I did not travel along the Churchill River all the way from Knee Lake to Stanley, but the numerous rapids along it are well known. I am informed that in this portion of the river there are five portages caused by water falls or rapids so swift as to preclude safety of descent.

I am indebted to Mr. William McInnes, M.A., of the Geological Survey for the following description of rapids occurring farther down the Churchill and on Montreal River.

GEOLOGICAL SURVEY

R. W. Brock, Acting Director.

DEPARTMENT OF MINES.

OTTAWA, April 21st, 1909.

While making track surveys of the Churchill and Montreal Rivers last summer I made estimates of the heights of the rapids as follows:—

CHURCHILL RIVER.

Rapid just below influx of Reindeer River, $\frac{1}{2}$ a mile long, by barometer,	15 feet
Kettle Falls, 4 miles above influx of Reindeer River, $\frac{1}{2}$ mile long, by barometer,	12 feet
Grand Rapids, head of Island Lake, $\frac{1}{2}$ mile long, by barometer,	10 feet
Keg Rapids, 2 chains long, by barometer,	7 feet
Rapid at foot of Drinking Lake, 6 chains long, by barometer,	6 feet
Pine Rapid, 2 chains long, by barometer,	7 feet
Grave Rapid, 1 chain long, by barometer,	4 feet

NORTHLAND EXPLORATION

MONTREAL RIVER.

Near mouth in $\frac{1}{2}$ mile rapid, by barometer.....	15 feet.
At 70 chain portage, by barometer.....	45 feet.
At $2\frac{1}{2}$ mile portage, by barometer.....	165 feet.

There are many other rapids in Montreal River, but these seemed to have the greatest pitch.

(Sgd.) WILLIAM McINNES.

In subdividing the district into sections in order to more minutely describe the country it is difficult to determine where boundaries should be placed, but I have been governed as much as possible by natural features.

GREEN LAKE SECTION.

Attached hereunder is a plan (marked "B") showing the approximate boundaries of what I term "the Green Lake section."

This section forms the south-easterly portion of the district and is separated from the belt of settled country extending about 40 miles north-west of Prince Albert by a sandy belt and some large swamps.

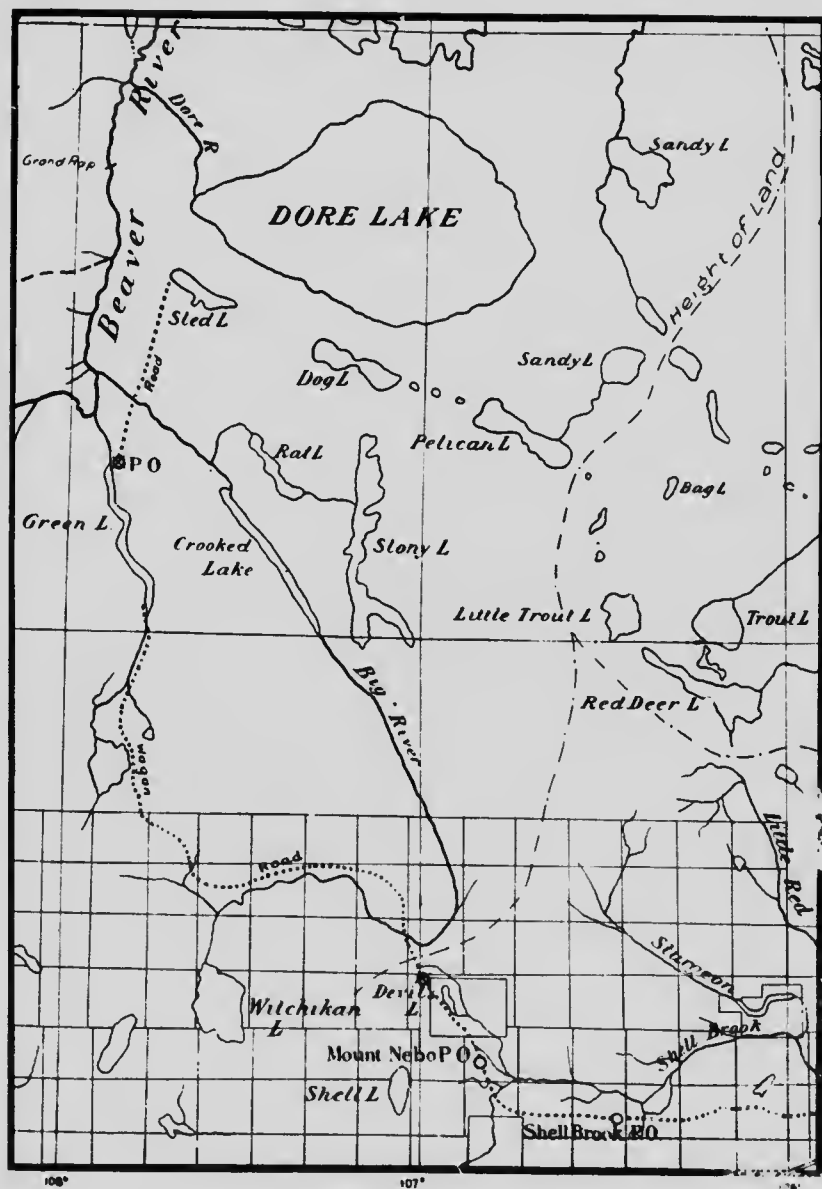


AT THE FREIGHT DEPOT AT SOUTH END OF GREEN LAKE.

The country is covered with a dense growth of poplar, occasionally small groves of good spruce occur, and here and there one sees a lone spruce of considerable size. There are some open prairie spots which yield abundant hay. These openings are, I fancy, dried up beaver workings along Crooked River. These openings occur frequently making the country suitable for cattle grazing. I passed here about the 15th of December on my return trip and saw stock grazing. This country is almost all good land and it extends easterly to the height of land between Montreal River and Beaver River. This height of land is well defined. There is a very remarkable difference between the white fish on each side—those on the east side being, in most of the lakes, under-sized, while those on the west side are very large. The ordinary maps give one a very erroneous idea as to the

lake areas in all our Northern Country. In the Green Lake section numerous lakes are found not shown on the published maps and all contain excellent white fish.

PLAN "B"



GREEN LAKE SECTION

Scale 20 miles-1 in.

At Sled Lake, which lies about twenty-five miles north east of Green Lake and is reached by winter road, a native that is a half-breed, named Baptiste Morasty, has a good log house, trading post and other buildings, and grows successfully vegetables and oats. The lake is about ten miles long and varying from one-half to two miles in width; all around it is good land and there might be located here a compact prosperous settlement of farmers. Though the land is covered with bush still clearing would be easy. Several families live here and both the Hudson's Bay and Revillon's have winter posts here. About 14 miles south-east of Sled Lake is Dog Lake also about ten miles long and surrounded by excellent land. Pelican Lake about 18 miles long and 2 miles to $\frac{1}{2}$ a mile in width is about ten miles south-east of Dog Lake. Here a native named Louis Vallé lives and trades for Revillon Frères. Vallé has a good vegetable garden. There are very large hay meadows here but as Vallé has no stock he does not cut any hay. Moose are particularly plentiful around this lake. There are considerable stretches of good land surrounding this lake. To the north of Pelican Lake are some other large lakes little known and called by various names which causes much confusion. The height of land between Beaver and Montreal Rivers passes about four miles east of Pelican Lake, running in a north-westerly direction. The soil along the easterly slope of this water shed is very good. Pelican Lake appears to have an outlet towards Stoney Lake; I did not, however, follow it. The whole country around Pelican Lake has been burnt off, the last time about ten years ago, and from the appearance of the brush much valuable timber has been destroyed.

The northerly portion of this section contains some timber but not sufficient to supply any industry. It is fairly level, some ridges occurring.

Clearing should be easily accomplished and where drainage is necessary the conformation of the country is such as to present few difficulties. There are some muskegs but generally small.

Some idea may be gained of the nature of the country in this section and its value for agricultural purposes by assuming a small area of say 160 acres, equal to one quarter section, not selected as particularly good but representing a fair average. Such a parcel of land carefully reported on would show the following estimate of resources:—

Good land prairie,	8 acres.
Good land bush, not hay,	80 acres.
Hay land (not requiring drainage),	15 acres.
Hay land in need of drainage,	20 acres.
Muskeg (probably possible to drain),	10 acres.
Muskeg (difficult or impossible to drain),	10 acres.
Stoney land,	2 acres.
Water (small ponds),	15 acres.

160 acres.

About 15,000 feet of good lumber might be cut and about 3,000 cords of poplar. However, there are a great number of large and small lakes. The aggregate of land available as compared with the gross area would therefore be very much reduced.

In the western part of the Green Lake Section there appears to be as much or more good land than farther east, and along Beaver River hay abounds. I did not go far to the west. The soil generally is a light loam covered by about 4 inches of decayed vegetation, the subsoil varies and is sometimes sandy clay, sometimes blue clay. In places I have found a peculiar reddish, gritty soil which appears to be marvellously productive. Pea vine is abundant here and grows to about two feet in height. Game of all kinds abounds in the woods and fish in the lakes, and the native makes an easy living by catching fish and occasionally snooting a moose. Wolves are very numerous in this section and do a lot of damage to game. Fur is not plentiful except muskrats which are very numerous.

At and around the Hudson's Bay Company's Post on the north end of Green Lake there is a considerable settlement of half-breeds. A Roman Catholic Mission is established here. Revillon Frères have also a post. The Priest has a good garden having all kinds of vegetables, also has a small fruit garden growing currants, gooseberries, and raspberries, also strawberries. These all thrive and mature.



THE PRIEST'S OAT FIELD AT GREEN LAKE SETTLEMENT.

Green Lake is important as a stopping place for freighters in winter and consequently large quantities of hay are stacked. Some oats and barley are grown, but no real effort has been made to farm. Father Teston of the Mission says that he has grown oats and barley for fifteen years in succession and so far has not had a failure. I interviewed a native named Morin, who said that he had grown potatoes, oats and barley in small quantities for 35 years and could not recall having ever had a failure. He has never kept a record of when he sowed or when he harvested, neither has the Reverend Father. Morin owns thirty-five head of cattle and twelve head of horses. He has sown wheat on six or seven occasions and it always ripened. In his opinion there is no doubt that wheat could be raised anywhere in the locality. The ice in Green Lake goes out early and it is generally very late before it freezes. The summers are always warm and there is ample rain. The gardens, which I saw here, were certainly fine although they were not cared for as they should have been. Weeds were allowed to grow in profusion.

HE LA LA CROSSE SECTION.

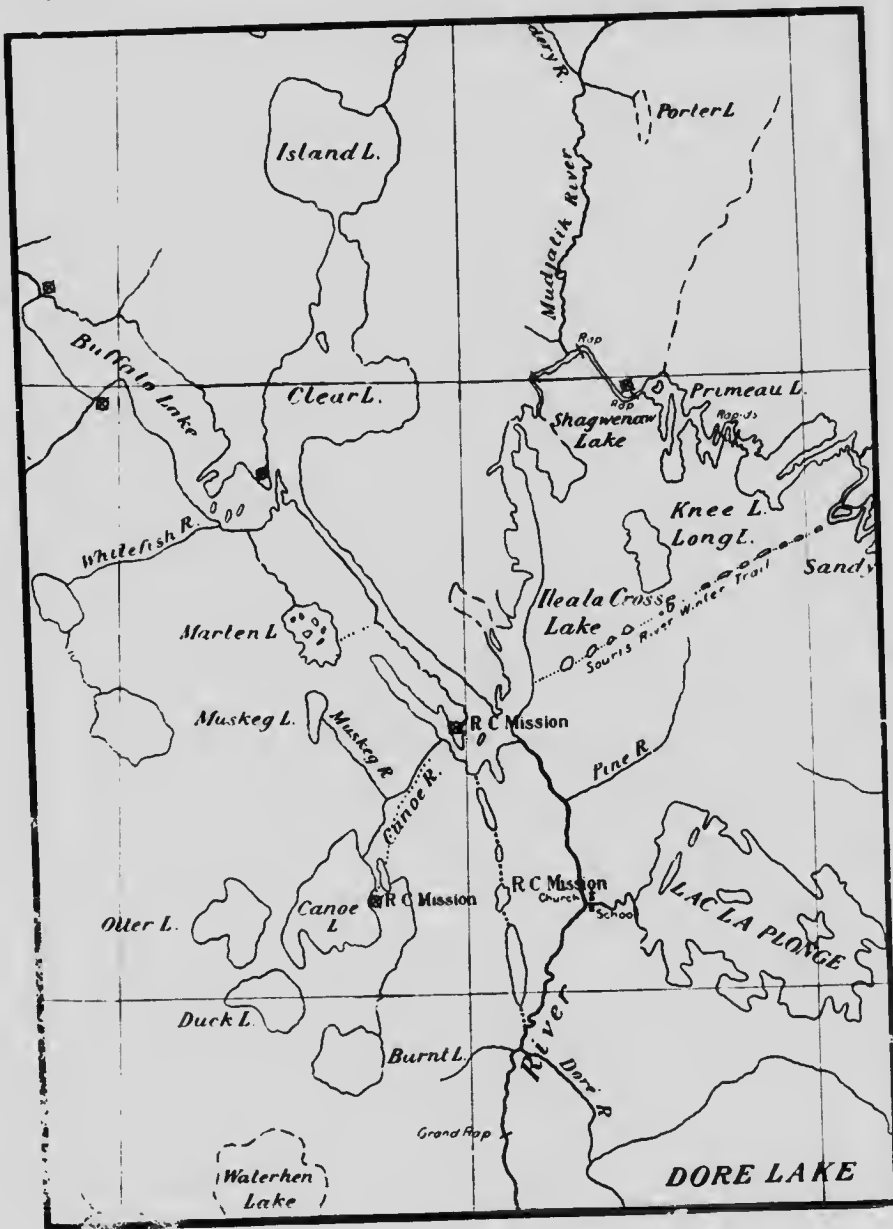
Attached hereunder is a plan marked "C" showing the approximate boundaries of what I term "He la la Crosse Section."

This section is by no means so good from an agricultural point of view as the Green Lake Section. Nevertheless it is capable of considerable agricultural development to sustain a fair population, and though there are some fine spots of good land along the shores of lakes and rivers the general character of the land is low and swampy and the natural drainage will have to be considerably improved to make any large area available for settlement.

He la la Crosse Lake, Buffalo Lake and Clear Lake are practically all one body of water. No current is noticeable in what is called "Deep River," connecting He la la Crosse Lake and Clear Lake, it being simply a protracted narrows of these lakes. This immense body of water may be taken as the head waters of the Churchill River.

La Loche Lake, about forty miles north-west of Buffalo Lake, is generally spoken of as the head water of the Churchill, but there are several lakes just as large tributary to Ile a la Crosse. Of course, La Loche Lake affords the best portage to the waters of the Mackenzie Basin.

PLAN "C"



ILE A LA CROSSE SECTION

Scale 20 miles-1 in.

By blowing out some of the numerous rapids on the Churchill below these lakes, their elevation could be materially reduced and thus furnish much better facilities for drainage for the large areas of marshy land surrounding them.

The Hudson's Bay Company own and operate a small tug on Ile a la Crosse Lake, to haul their freight from the foot of the rapids on the Beaver River just above the mouth of the Doré River to the Post. The tug also plies up to the mouth of La Loche River at the west end of Buffalo Lake and down to the Dipper Rapids on the Churchill below Ile a la Crosse Lake.

At the confluence of the La Plonge and Beaver Rivers a Roman Catholic Mission is situated. There is some very good land on both sides of the Beaver River here. At the Mission there is a priest and three lay brothers besides several nuns. The priest operates a small but well equipped saw mill obtaining power from the La Plonge River. This mill is rated at 5,000 b.m. feet per day, capacity. It includes a planer and a shingle mill.



WHEAT AT LA PLONGE MISSION, SEPT. 4TH, 1908.

The main building of the Mission is the school. It is a frame building, three stories high and 120 x 60. All the Mission buildings are painted and look well. The priest has a good house. Another house is used by the lay brother. There

are large and well appointed stables, all the lumber was sawn on the spot. The school is not quite finished inside, but as the Mission has only been two years in existence the amount of work accomplished is remarkable.

Here too, I saw some wheat and oats growing.



OATS AT LA PLONGE MISSION, SEPT. 4TH, 1908.

The wheat was a first attempt, but will be tried on a much larger scale this year. The small patch sown last year must have been put in late in the spring. It appeared well matured but frosted; this I fancy was due to its being planted close to the river. The priest has cleared a good sized patch, perhaps about 10 acres which he intends sowing in wheat. The oats were splendid and grew to a great height. The vegetables were especially good. The variety astonished me. Almost every vegetable was represented and appeared to thrive. Potatoes, cabbage, cauliflower, lima beans, green peas, carrots, turnips, onions, lettuce, beets, parsnips, and tomatoes, all growing splendidly. I never saw a better garden, and indeed I don't remember seeing as good in the West. This garden is indicative of what can be done.

The land around the Mission is all good and easily cleared as it is covered with poplar. There is no large body of timber here but good spruce logs are found

scattered among the poplar. In the photo of the saw mill given herewith, some logs can be seen which are a fair average of those cut.

Spruce is the only kind of saw timber found. Tamarac is very scarce. There is abundance of wood suitable for cordwood. It might be fancied that this was a particularly fertile spot selected by the mission, but such is not the case. What has been done here could be done at a number of places in the section. The priest told me that in his opinion Ile a la Crosse was better adapted to farming than where he is stationed at La Plonge. This mission was moved from there two years ago. At Ile a la Crosse the priests have a very nice church and a comfortable dwelling house, also large barn and about three acres ploughed and in use as a garden. At the Hudson's Bay Company Post which is their district distributing point there is about 35 acres ploughed and last year about five acres was in oats. The company do not endeavour to grow much now as the Revillons have opened roads for winter hauling and things are brought by team from Prince Albert direct to Ile a la Crosse. I saw oats sold there for \$1.00 per bushel; this price was considered very cheap so it would evidently pay to grow them. The Hudson's Bay Company grow potatoes for sale but the native being almost entirely a flesh eater, looks on vegetables with contempt. The Revillon Post at Ile a la Crosse is their district distributing point. No cultivation has yet been attempted by their employees. Prof. John Macoun in the Dominion Government Canadian Pacific Railway Report, 1877-8, says: "I was at Ile a la Crosse on September 22nd, 1875, and saw potatoes still green as they were in July. I was told by Mr. Cummins that these potatoes hardly ever were killed by frost in September. Here there was a flour mill driven by horsepower and I am told that all kinds of grain ripen successfully." At the mouth of the Canoe River is a small patch of good land. At Canoe Lake I found a Chipewyan village, also a small Roman Catholic Church and an out-post of the Hudson's Bay Company.



GARDEN AT BUFFALO RIVER, SEPT. 12TH, 1908.

From Ile a la Crosse to Canoe Lake the river flows through immense hay swamps, and there was a large amount of hay stacked but of a rather poor quality being slough grass. At Canoe Lake the land is somewhat higher and there were some good gardens. One Chipewyan grew some barley but cut it too soon. At the south-west of Canoe Lake the country rises considerably and the soil is good.

The natives call this section Burnt Hills. There is no settlement here but the country is adapted to farming. All the country between Canoe River and Canoe Lake and the Beaver River is muskeg, and though it might be drained it is not in its present state fit for farming.

I explored to the north-west of Canoe Lake towards Little Buffalo Lake pretty well but could not locate any considerable area of land. Muskeg and swamp were everywhere and no good timber. The shore of Little Buffalo Lake is higher but it is only a narrow strip along the shore. At Big Buffalo Lake the land is better with some cultivated stretches though there is considerable swamp and low ground. At Buffalo River there is quite a large settlement of Chipewyans. They grow quite a little barley and some oats. The Chipewyans and some half-breeds seem not to care for flour when left alone and so they grow barley in preference to any other grain. It is easier to cook, being just thrown in soup. The land on the northerly side of Buffalo Lake is good but there are no people living there. The Chipewyans at Buffalo River told me that they never heard of the crop of barley being a failure for the past fifty years.

At the narrows between Little Buffalo Lake and Buffalo Lake there is a tar-sand outcrop. The Indians use it to patch their canoes. The shores of Clear Lake are more inclined to be stony and in the north sandy ridges occur. A few Chipewyans live around this lake but do not attempt to grow any crops. The land between Clear Lake and Ile a la Crosse Lake is low and swampy. There are fine trout in Clear Lake. Around Ile a la Crosse Lake game is not so plentiful but it is generally easy to shoot some variety of deer or moose. The natives here say that wolves are very plentiful.

LA LOCHE LAKE SECTION.

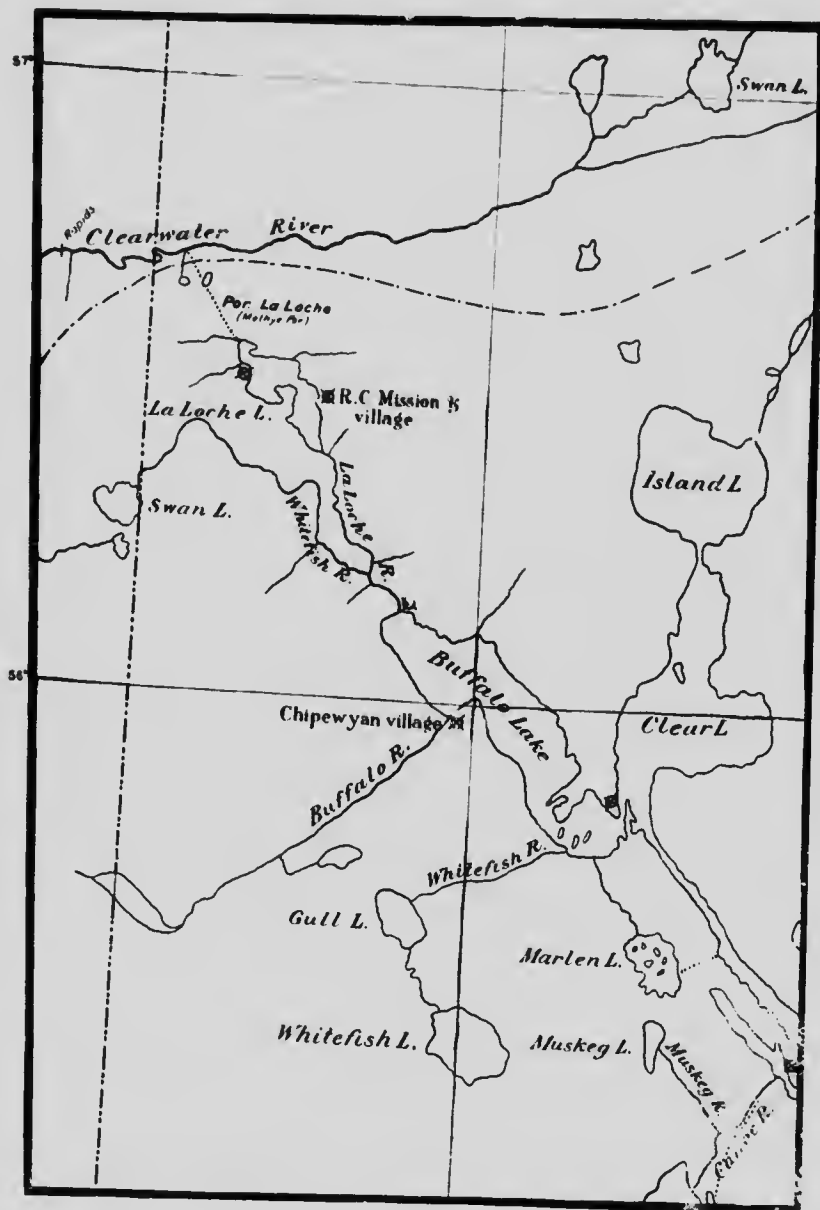
Attached hereunder is a plan marked "D" showing the approximate boundaries of what I term "La Loche Lake Section."

This Section shows a distinct improvement on the Ile a la Crosse Lake Sections. There is much more high land and a considerable quantity of merchantable spruce timber is to be found there. The La Loche River flows through an immense swamp and it is peculiar that though there are numerous and bad rapids the country on both sides is wet and swampy. The junction of the La Loche and White Fish River is about 12 miles from the mouth of the former. I crossed from the La Loche River to the White Fish River near La Loche Lake. It is about the same sort of country as along the La Loche. There is some remarkably fine spruce along the banks of the White Fish River and it extends in not very dense forest across to La Loche Lake, a distance of about eight miles. The swamp through which La Loche River flows, though very wet, produces a large quantity of hay. A winter road has been cut for single horses and flat sleds. The La Loche River is not a good route for canoes and needs considerable clearing of large boulders. La Loche Lake is a fine body of fine fresh water and is well stocked with fish. Wild fowl of every kind abound here. Moose and caribou are plentiful. The result of Nature's bounteousness, is that the native content with Nature's provision grows nothing. He kills the moose for its hide. There is a Roman Catholic Mission near the east end of La Loche Lake, and a priest, Fr. Pinard, in charge. He has a small garden and had a little patch of barley. Both did well. He complains of difficulty in getting seed. As this difficulty had been brought to my notice by several residents of the district covered by my exploration, upon my return to Ottawa I obtained through the kindness of Dr. Saunders, Director of Experimental Farms, a number of packages of seed which I have forwarded to persons who will be likely to make good use of them. On the West side of the Lake about 10 miles away stands the Hudson's Bay Company's Post.

The map shows this post as being at one end of the Portage. It really is six miles from there, south. The Hudson's Bay Company's buildings stand in a large

clearing and the situation is most picturesque. A large growth of merchantable spruce forms a back ground which adds considerably to the appearance of the whole.

PLAN "D"



PORTAGE LA LOCHE SECTION

Scale 20 miles-1 in.

A garden of about one acre is fenced in by a rail fence. This garden looked splendidly on the 17th of September. The potatoe tops were not touched by frost.

The Hudson's Bay Company abandoned this route to the Mackenzie about the time of the Riel Rebellion in 1885.



THE HUDSON'S BAY COMPANY'S PORTAGE LA LOCHE POST.

The winter supply of feed for the cattle on Portage la Loche in its palmy days was grown at La Loche Post and at Buffalo Lake at the mouth of La Loche River (hence called Bull's House), but now there is no necessity for raising grain or fodder. In 1897, some people endeavoured to go this way to the Yukon, and the Hudson's Bay Company re-opened this once famous portage. The view from the top of the Portage looking west, of which a cut is given earlier in this report, has been enthusiastically described by many travellers. The valley of the Clearwater River would, in my opinion, be a magnificent cattle range, and should be a farming country. There are large open prairies, and the grass is splendid. Vetch and pea-vine grow everywhere. I was greatly impressed with the Clearwater Valley, it is quite similar to the North Saskatchewan Valley. The soil is a good loam with a sandy clay subsoil. I had ample opportunity to observe it carefully as the whole place in the vicinity of the Portage is pitted with prospect holes. The loam would be about a foot deep on an average. Sir Alexander Mackenzie in his "Voyages from Montreal through the Continent of North America to the Frozen and Pacific Oceans in 1789 and 1793," says of the Clearwater Valley:—

"The Valley is about three miles in breadth and is confined by two lofty ridges of equal height, displaying a most beautiful admixture of wood and lawn, and stretching on until the blue mist obscures the prospect. Some parts of the inclining heights are covered with stately forests, relieved by promontories of the finest verdure, where the elk and buffaloes find pasture. These are contrasted by spots where fire has destroyed the woods and left a dreary void behind it. . . ."

From conversation with the natives, the priest and the Hudson's Bay Company's manager, I feel sure that the climate here would be quite favourable to wheat raising. I am informed by the residents that this section is not affected by early frosts and the gardens which I saw certainly bear out their statements. John A. Groat, the Hudson's Bay Company's manager at Portage la Loche post informs me that he has heard from Indians that the Valley of the Pembina River is still a better country as the prairies are larger. This valley lies to the south west of the Clearwater, which the Pembina is a tributary. In the matter of collecting information here as in other sections I met the same difficulty that though I was told that crops had been grown successfully I could not ascertain particulars as to the extent of the crop or the yield per acre. In fact, no detailed information could be obtained.

Attached hereunder is a plan marked "E" shewing the approximate boundaries of what I term "Snake Lake and Sandy River Section."

A hand-drawn map of the Churchill River area, showing various lakes, rivers, and geographical features. The map includes labels for Snake Lake, Sandfly L., Morning L., Trout L., Clam L., Redsucker L., Cof Eng Mission, Egg Lake, PO, Lac La Ronge, Mouse L., Bow L., Montreal River, Height of Land, Sandy L., Bag L., Little Trout L., and Montreal Lake. A dashed line indicates a '2 1/2 mile portage (River falls 105 ft)' and a dotted line shows a 'Winter Road to Stanley'. The word 'CHURCHILL' is written in large letters across the top right.

SNAKE LAKE SECTION
Scale 20 miles-1 in.

There has not been any attempt at agriculture whatever in this section. Along the Churchill River a few Chipewyans are located, but inland there is no settlement whatever. This section is particularly well stocked with game and fur bearing animals and is popularly supposed to be infested by wolves. I travelled through it and always kept about two miles ahead of the dogs but I did not see any wolves.

The height of land dividing the water sheds of Ile a la Crosse and Sandy River is not very high but is clearly marked by a clay ridge. This ridge has been burnt off in recent years and is covered with fallen timber and *brulé*. A poplar growth is springing up now.

This part of the Section should make good agricultural country. There is, however, a vast area of swamp in this section; I cannot say if it could be drained. Sandy River flows through vast hay meadows. These are not too wet and are by no means swamps. Of course most of the meadows would be improved by clearing of scrub bush. About 60 miles east of Snake Lake the first rock outcrop is met with. Here the country becomes somewhat broken. There are some fringes of good spruce along the Churchill River in this section. I did not estimate the amount but I do not think that it would be sufficient to supply any large industry.

At the mouth of Sandy River on Snake Lake there are two or three families of Indians. They have no gardens; one Indian had killed eighteen moose that fall which he remarked would keep his family for the winter. Beaver were plentiful here. I saw several beaver houses but the Indians had made arrangements to kill all the beaver as soon as the weather was colder.

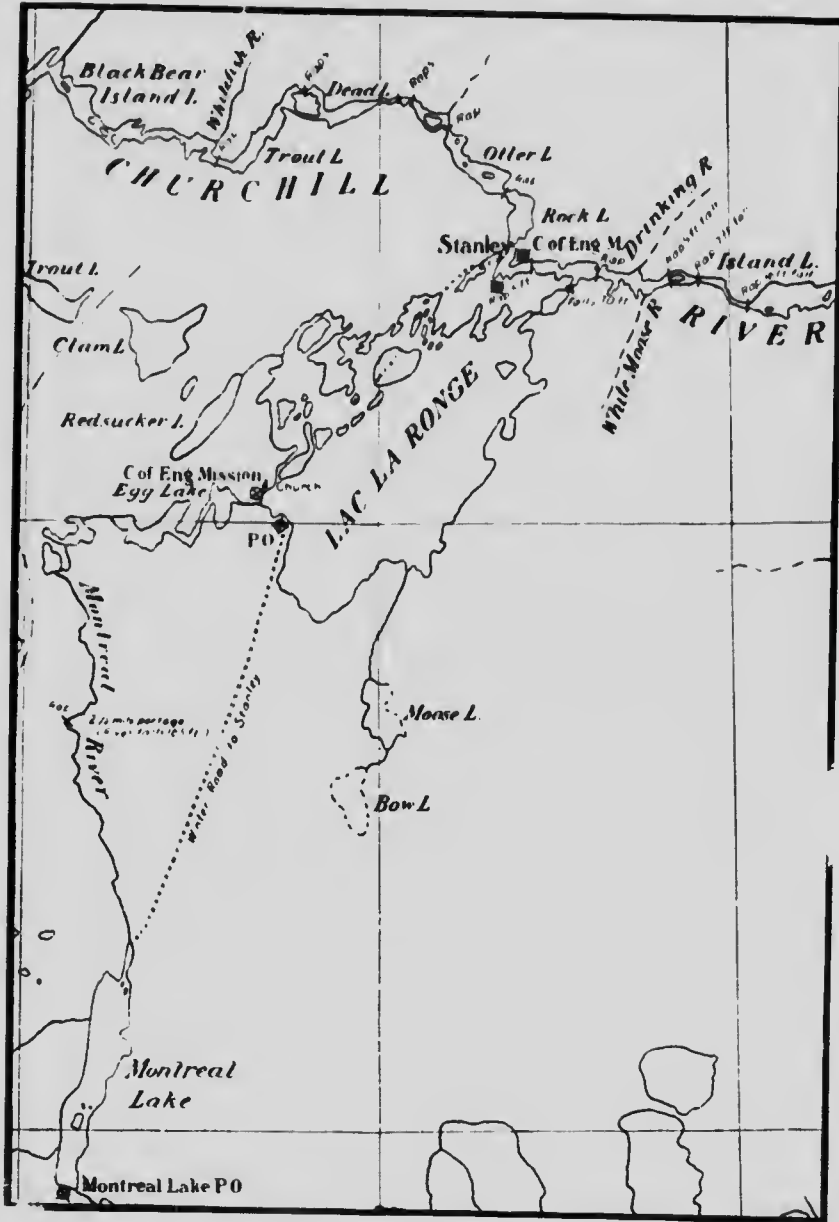
There are several rapids on Sandy River. Another river also flows into Snake Lake from the south; the Indians call it Two Fork River. This section is difficult to get at as the canoe routes are not good from any direction. Coming from Ile a la Crosse via the Churchill several bad rapids occur and via La Plonge Lake the La Plonge River is practically all rapids, perhaps the easiest route is from Lac la Ronge, even then there are numerous long portages.

LAC LA RONGE AND STANLEY SECTION.

Attached hereunder is a plan marked "F" shewing the approximate boundaries of what I term the "Lac la Ronge and Stanley Section."

Lac la Ronge District is claimed to have great possibilities as a mineral district. The Laurentian range of rock crops out here and is easily traced to the north-west. Whether this outcrop really contains mineral of economic value is still unsettled. Numerous claims have been staked at Nickel Island in Lac la Ronge and on the mainland close by also on the Churchill River above Stanley. I had not time to prospect the country but from casual observation, I should think that it would repay a closer investigation. The vein on Nickel Island is very distinct and about 18 inches wide on the outcrop. Several small companies have been formed and development work in a limited way is progressing. Besides the mineral wealth supposed to be available there is also considerable land to be found capable of being tilled. It is no experiment to endeavour to raise wheat in this section. It has already been done. Stanley, or as it is sometimes called Stanley Mission, is worthy of special description. It appears that Stanley is one of the best known spots in the north. The village or settlement is situated on a most picturesque point jutting into the Churchill River. The country surrounding it is rolling and this adds considerably to the beauty of the locality. From an agricultural standpoint the land is good. The soil is a rich loam and the subsoil is sandy clay. The loam, however, attains a great depth. I put one hole down almost four feet and had not then struck a sub-soil. This, however, was exceptional. Stanley's fame rests altogether on the energy and initiative of Rev. Mr. Hunt, a Church of England clergyman, and the founder of a church of England Mission there about 1851. Mr. Hunt, as far as I could ascertain, not only built

PLAN "F"



LAC LA RONGE SECTION.
Scale 20 miles = 1 in.

the celebrated and beautiful church, but also planted some wheat and barley. This he found would grow successfully and he established a small mill to grind the wheat. At first he used a hand mill which is still standing at the Mission House;

later on however, he built a small water power mill and for a number of years this was in operation, used not only by the Mission but also by the Hudson's Bay Company. In a diary kept by the Hudson's Bay manager at Stanley, I saw an entry, 27th of September, 1879, or thereabout: "Myself and William Rat went to the mill with six bushels of barley, but there was no one there." Archdeacon McKay was at that time in charge of the Mission. I looked over the diary of that year to find entries of seeding or harvesting, but without avail.



CHURCH OF ENGLAND AT STANLEY MISSION.

In April, or the beginning of May (the diary was not always dated, entries being made without them) he speaks of ploughing, also in the fall, but no mention of sowing, except of sowing potatoes, of which he says: "William Rat planted six bushels of potatoes to-day;" again, "Donald McKenzie spent the day sowing seed on the south field." Undoubtedly farming was carried on here, but the extent, seems lost history. Archdeacon McKay in his evidence in Ottawa, before the Senate Committee, said he grew wheat for seven years without loss, but apparently gave no details of when, or how much.

At Lac la Ronge, on the north shore of the bay at the south-west end of the lake, the Church of England Mission have a large school not yet completed, and

also an open air saw mill. The Rev. Mr. Brown is in charge of the Mission and is endeavouring to establish a farm in order to teach the natives to work. He has some cattle, pigs, and poultry. Rev. Mr. Brown has a good garden, nothing in it suffering from frost. At Little Hills, just at the mouth of Montreal River, wheat has been grown successfully and Mr. Brown intends putting in a crop this year. I might here be permitted to say that the Rev. Mr. Brown, who is materially assisted by his wife in his Mission work, is deserving of the most unstinted praise for his zeal and his industry in the building up of the Mission. Under somewhat disadvantageous circumstances he fills the several positions of Minister of the Gospel, farm instructor and mechanic to his flock, cheerfully and with good effect.

The Hudson's Bay Company had a good garden last year, but most of the ground here is stony. Revillon Frères have a post here and they, too, raise all the vegetables they require. All the residents of this section expect that it will develop into a great mineral country. I heard that coal has been found close to here but I could not find where. This rumour of coal is persistent and may be true. At Stanley I was struck by the freshness of the paint on the church and was surprised to hear that it has only been painted once, sometime about 1861. This paint is in two colours, red and yellow, and is made from some pigment found here mixed with fish oil. I had not time to search for the pigment as no one seemed to know whereabouts it was, but I was certainly astonished at its weather resisting properties.

Fur at Stanley was perhaps a little more plentiful than elsewhere, but fur appears scarce everywhere just now. Quite a few beaver were killed here as in other places. Moose are plentiful around Stanley, but not so at the south end of Lac la Rouge. White fish in Lac la Rouge are not good but very large trout are to be found. They are caught up to thirty-four lbs., twenty lbs. is a common size.

MONTREAL LAKE SECTION.

Attached hereunder is a plan marked "G" showing the approximate boundaries of what I term the "Montreal Lake Section."

As we enter this section we approach a better known, although sparsely settled section. The road from Montreal Lake to Prince Albert is travelled considerably and is, I understand, fairly good in winter though almost impassable in summer. There is a considerable body of timber at the south end of Montreal Lake, but it is on the Indian Reserve. The land on the east and west shores is swampy. To the north there is considerable good land, but no farming has been done there so far. On Deer Lake just east of the narrows a white man lives and he has a first class garden. Around Deer Lake the land is good and I see no difficulty in its development. Fish in this locality are not generally good, but some lakes yield fine fish. Considerable fishing is carried on by Prince Albert firms. Both the Hudson's Bay and Revillon Bros. have posts at the south end of Montreal Lake and some fur, notably rat, is obtained. Fine furs are scarce. I did not travel to the east of Montreal Lake, but from information obtained there is not any great difference in the country or soil from the west side.

The soil at Deer Lake is a good light loam, inclined to be sandy with a blue clay sub-soil. Muskegs occur, but they are generally small. There is no game anywhere. I fancy this country might profitably be surveyed and developed for settlement.

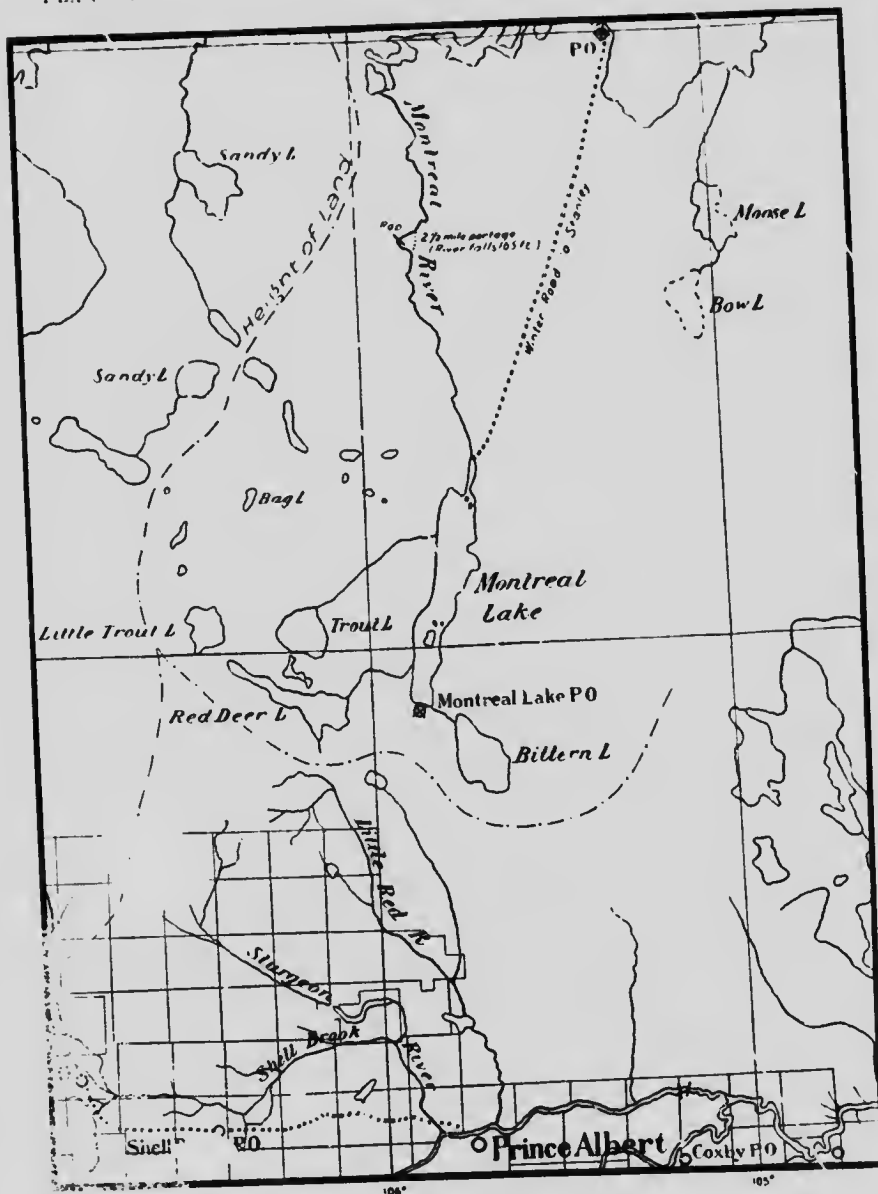
I have the honour to be,

Sir,

Your obedient servant,

FRANK J. P. CREAN, C.E.

PLAN "G"



MONTREAL LAKE SECTION

Scale 20 miles-1 in.

NORTHLAND EXPLORATION

11

Table referred to near beginning of this report, showing temperatures taken at certain points.

Date	Place of Observation	Weather	Max.	Min.	Remarks
Aug. 27	South end of Green Lake	Showery.		43	Observed by myself
Aug. 28	North end of Green Lake	Fine.		43	"
Aug. 29	North end of Green Lake	Rain.		40	"
Aug. 30	North end of Green Lake	Rain.		42	"
Aug. 31	North end of Green Lake	Showery.		40	"
Sept. 1	North end of Green Lake	Fine.		42	"
Sept. 2	Beaver River	Fine.		37	"
Sept. 3	Beaver River near La Plonge	Showery.		38	"
Sept. 4	Beaver River near He a la Crosse Lake	Fine.		40	"
Sept. 5	He a la Crosse	Windy.		43	"
Sept. 6	He a la Crosse	Fine.		40	"
Sept. 7	He a la Crosse	Fine.		39	"
Sept. 8	He a la Crosse	Windy.		37	"
Sept. 9	Deep River	Fine.		40	"
Sept. 10	Buffalo Narrows	Fine.		42	"
Sept. 11	Buffalo Lake	Windy.		36	"
Sept. 12	Buffalo Lake near La Loche River	Fine.		37	"
Sept. 13	At head of Rapids La Loche River	Fine.		42	"
Sept. 14	La Loche Lake	Fine.		40	"
Sept. 15	H.B. Post, La Loche	Rain.		38	"
Sept. 16	H.B. Post, La Loche	Rain.		36	"
Sept. 17	H.B. Co. Post, La Loche	Fine.		40	"
Sept. 18	La Loche Lake	Fine.		34	"
Sept. 19	Buffalo Lake	Windy.		42	"
Sept. 20	Buffalo Lake	Windy.		34	"
Sept. 21	Buffalo Lake	Windy.		40	"
Sept. 22	Deep River	Windy.		35	"
Sept. 23	He a la Crosse	Fine.		34	"
Sept. 24	He a la Crosse	Fine.		40	"
Sept. 25	He a la Crosse	Fine.		42	"
Sept. 26	He a la Crosse	Fine.		40	"
Sept. 27	He a la Crosse	Cloudy.		36	"
Sept. 28	He a la Crosse	Rain.		35	"
Sept. 29	He a la Crosse	Fine.		40	"
Sept. 30	He a la Crosse	Fine.		40	"
Oct. 1	He a la Crosse	Cold wind.		34	"
Oct. 2	He a la Crosse	Cloudy.		24	"
Oct. 3	He a la Crosse	Windy.		30	"
Oct. 4	He a la Crosse	Fine.		36	"
Oct. 5	He a la Crosse	Windy.		38	"
Oct. 6	He a la Crosse	Cloudy.		28	"
Oct. 7	Canoe River	Fine.		30	"
Oct. 8	Canoe River	Fine.		27	"
Oct. 9	Muskeg River	Fine.		26	"
Oct. 10	Muskeg Lake	Fine.		14	"
Oct. 11	Muskeg River	Fine.		24	"
Oct. 12	He a la Crosse	Fine.		18	"
Oct. 13	He a la Crosse	Windy.		28	"
Oct. 14	He a la Crosse	Cloudy.		25	"
Oct. 15	He a la Crosse	Cloudy.		27	"
Oct. 16	He a la Crosse	Rain.		24	"
Oct. 17	Buffalo Narrows	Fine.		20	"
Oct. 18	Buffalo Lake	Windy.		20	"
Oct. 19	Marten River	Fine.		11	"
Oct. 20	Marten Lake	Snowing.		6	"
Oct. 21	Marten Lake	Storming.		4	"
Oct. 22	Deep River	Storming.		8	"
Oct. 23	He a la Crosse	Fine.		16	"
Oct. 24	" "	Fine.		20	"
Oct. 25	" "	Fine.		20	"
Oct. 26	" "	Fine.		15	"
Oct. 27	" "	Fine.		18	"

NORTHLAND EXPLORATION

Date		Place of Observation	Weather	Max.	Min.	Remarks
Oct.	28	He a la Crosse	Storming		14	Observed by myself.
Oct.	29	" "	Storming		25	"
Oct.	30	" "	Storming		12	"
Oct.	31	" "	Storming		11	"
Nov.	1	" "		29	9	Observed by
Nov.	2	" "		31	9	A. H. Peirce, Esq.
Nov.	3	" "		31	7	H. B. Co
Nov.	4	" "		32	12	"
Nov.	5	" "		19	25	"
Nov.	6	" "		17	21	"
Nov.	7	" "		41	21	"
Nov.	8	" "		30	12	"
Nov.	9	" "		29	12	"
Nov.	10	" "		29	10	"
Nov.	12	" "		29	13	"
Nov.	13	" "		29	13	"
Nov.	14	" "		30	13	"
Nov.	15	" "		29	6	"
Nov.	16	" "		29	12	"
Nov.	17	" "		29	10	"
Nov.	18	" "		10	20	"
Nov.	19	" "		32	21	"
Nov.	20	" "		21	19	"
Nov.	21	" "		21	12	"
Nov.	22	" "		21	11	"
Nov.	23	" "		25	20	"
Nov.	24	" "		29	11	"
Nov.	25	" "		23	13	"
Nov.	26	" "		29	10	"
Nov.	27	" "		30	18	"
Nov.	28	" "		19	9	"
Nov.	29	" "		19	23	"
Nov.	30	" "		16	23	"
Dec.	1	" "		15	20	"
Dec.	2	" "		17	21	"
Dec.	3	" "		18	23	"
Dec.	4	" "		19	17	"
Dec.	5	" "		12	17	"
Dec.	6	" "		17	12	"
Dec.	7	" "		21	11	"
Dec.	8	" "		20	1	"
Dec.	9	" "		10	2	"
Dec.	10	" "		26	3	"
Dec.	11	" "		44	20	"
Dec.	12	" "		47	17	"
Dec.	13	" "		10		"
Dec.	14	" "		13	19	"
Dec.	15	" "		11	15	"
Dec.	16	" "		9	11	"
Dec.	17	" "		30	15	"
Dec.	18	" "		25	9	"
Dec.	19	" "		26	10	"
Dec.	20	" "		29	9	"
Dec.	21	" "		20	11	"
Dec.	22	" "		20	9	"
Dec.	23	" "		28	13	"
Dec.	24	" "		18	3	"
Dec.	25	" "		13	10	"
Dec.	26	" "		15	5	"
Dec.	27	" "		18	10	"
Dec.	28	" "		11	10	"
Dec.	29	" "		5	22	"
Dec.	30	" "		1	21	"
Jan.	1	" "		10	3	"
Jan.	2	" "		15		"

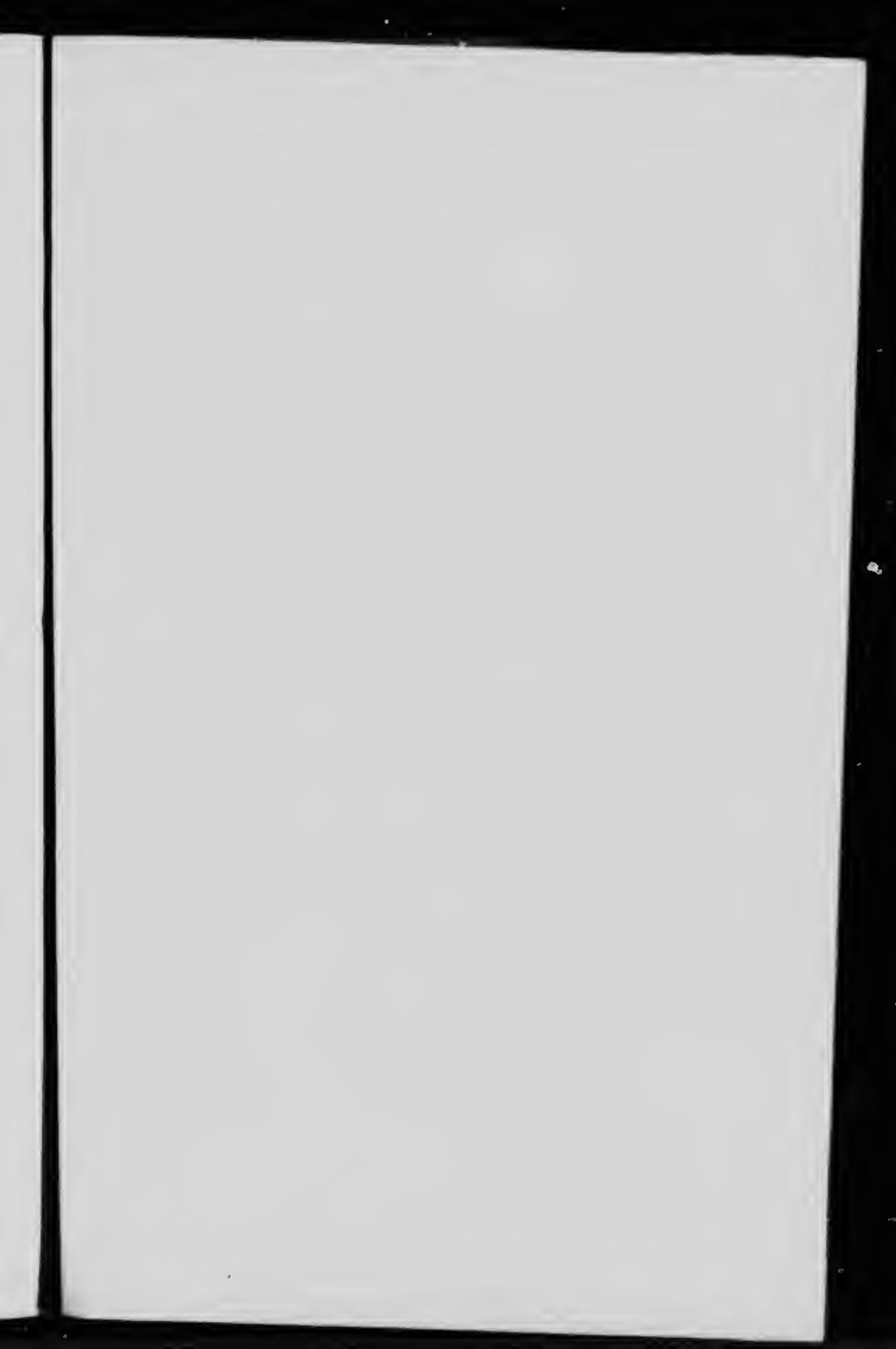
NORTHLAND EXPLORATION

13

Date	Place of Observation	Weather	Max.	Min.	Remarks
Jan. 3	He a la Cross		-5	27	Observed by
Jan. 4	" "		10	36	A. H. Peirce, Esq
Jan. 5	" "		13	12	H. B. Co
Jan. 6	" "		10	10	"
Jan. 7	" "		15	16	"
Jan. 8	" "		11	38	"
Jan. 9	" "		-12	36	"
Jan. 10	" "		5	-10	"
Jan. 11	" "		2	36	"
Jan. 12	" "		5	26	"
Jan. 13	" "		0	30	"
Jan. 14	" "		15	13	"
Jan. 15	" "		-11	-10	"
Jan. 16	" "		19	23	"
Jan. 17	" "		5	26	"
Jan. 18	" "		2	12	"
Jan. 19	" "		5	23	"
Jan. 20	" "		6	20	"
Jan. 21	" "		5	20	"
Jan. 22	" "		7	10	"
Jan. 23	" "		8	10	"
Jan. 24	" "		6	17	"
Jan. 25	" "		13	13	"
Jan. 26	" "		8	20	"
Jan. 27	" "		20	+10	"
Jan. 28	" "		10	-17	"
Jan. 29	" "		12	12	"
Jan. 30	" "		3	17	"
Jan. 31	" "		8	5	"
Feb. 1	" "		2	15	"
Feb. 2	" "		1	15	"
Feb. 3	" "		12		"
Feb. 4	" "		8	15	"
Feb. 5	" "		3	20	"
Feb. 6	" "		10	39	"
Feb. 7	" "		-14	12	"
Feb. 8	" "		7	37	"
Feb. 9	" "		5	33	"
Feb. 10	" "		3	30	"
Feb. 11	" "		11	38	"
Feb. 12	" "		4	33	"
Feb. 13	" "		3	33	"
Feb. 14	" "		10	37	"
Feb. 15	" "		-1	10	"
Feb. 16	" "		3	10	"
Feb. 17	" "		+5	20	"
Feb. 18	" "		+13	10	"
Feb. 19	" "		29	10	"
Feb. 20	" "		23	4	"
Feb. 21	" "		20	-5	"
Feb. 22	" "		15		"
Feb. 23	" "		1	31	"
Feb. 24	" "		8	-15	"
Feb. 25	" "		15	5	"
Feb. 26	" "		13	10	"
Feb. 27	" "		10		"
Feb. 28	" "		18		"
Mar. 1	" "		10	5	"
Mar. 2	" "		30	-10	"
Mar. 3	" "		34	10	"
Mar. 4	" "		32	10	"
Mar. 5	" "		34	10	"
Mar. 6	" "		30	10	"
Mar. 7	" "		20	10	"
Mar. 8	" "		20	-2	"
Mar. 9	" "		15	-3	"

NORTHLAND EXPLORATION

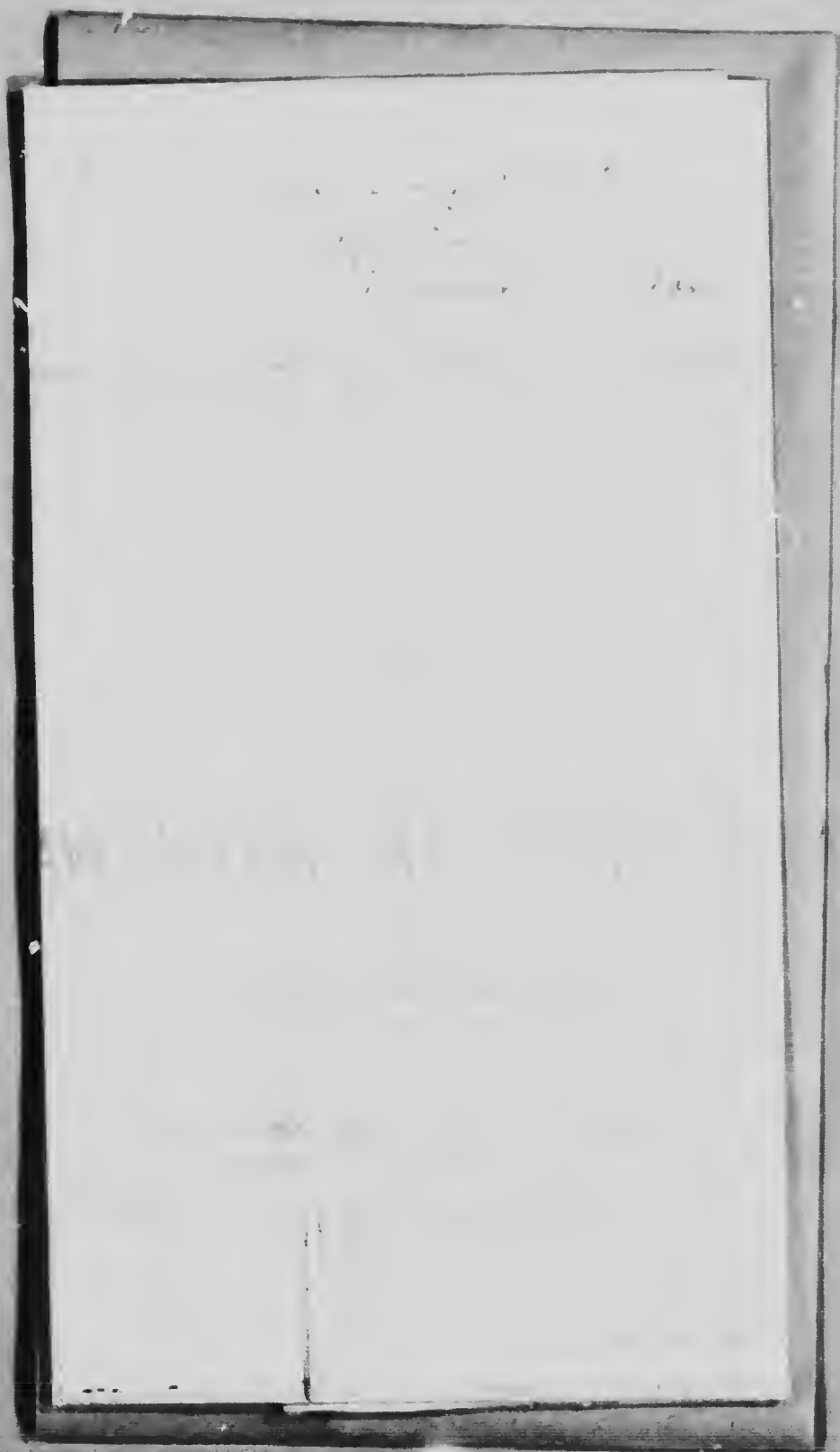
Date		Place of Observation	Weather	Max	Min	Remarks
Mar.	10	He a la Crosse		16	4	Observed by
Mar.	11	" "		12	-2	A. H. Peirce, Esq.
Mar.	12	" "		11	10	H. B. Co.
Mar.	13	" "		17	10	"
Mar.	14	" "		25	3	"
Mar.	15	" "		20	15	"











PLAN A.

MAP OF PART OF NORTHERN SASKATCHEWAN

SCALE



15 miles to one inch.

To accompany REPORT OF EXPLORATION, Season 1908
by Frank J. P. Green C. E.

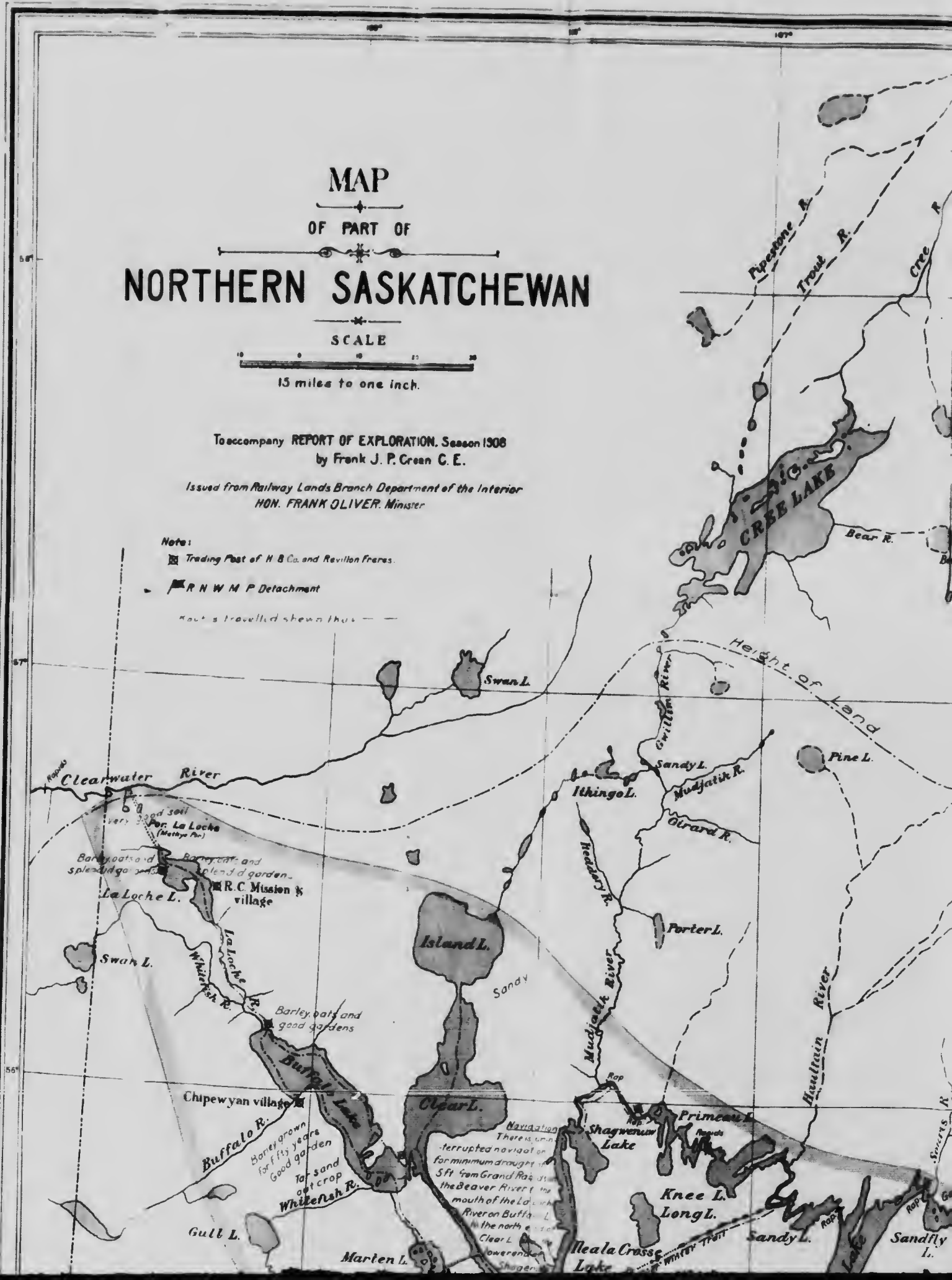
Issued from Railway Lands Branch Department of the Interior
HON. FRANK OLIVER, Minister

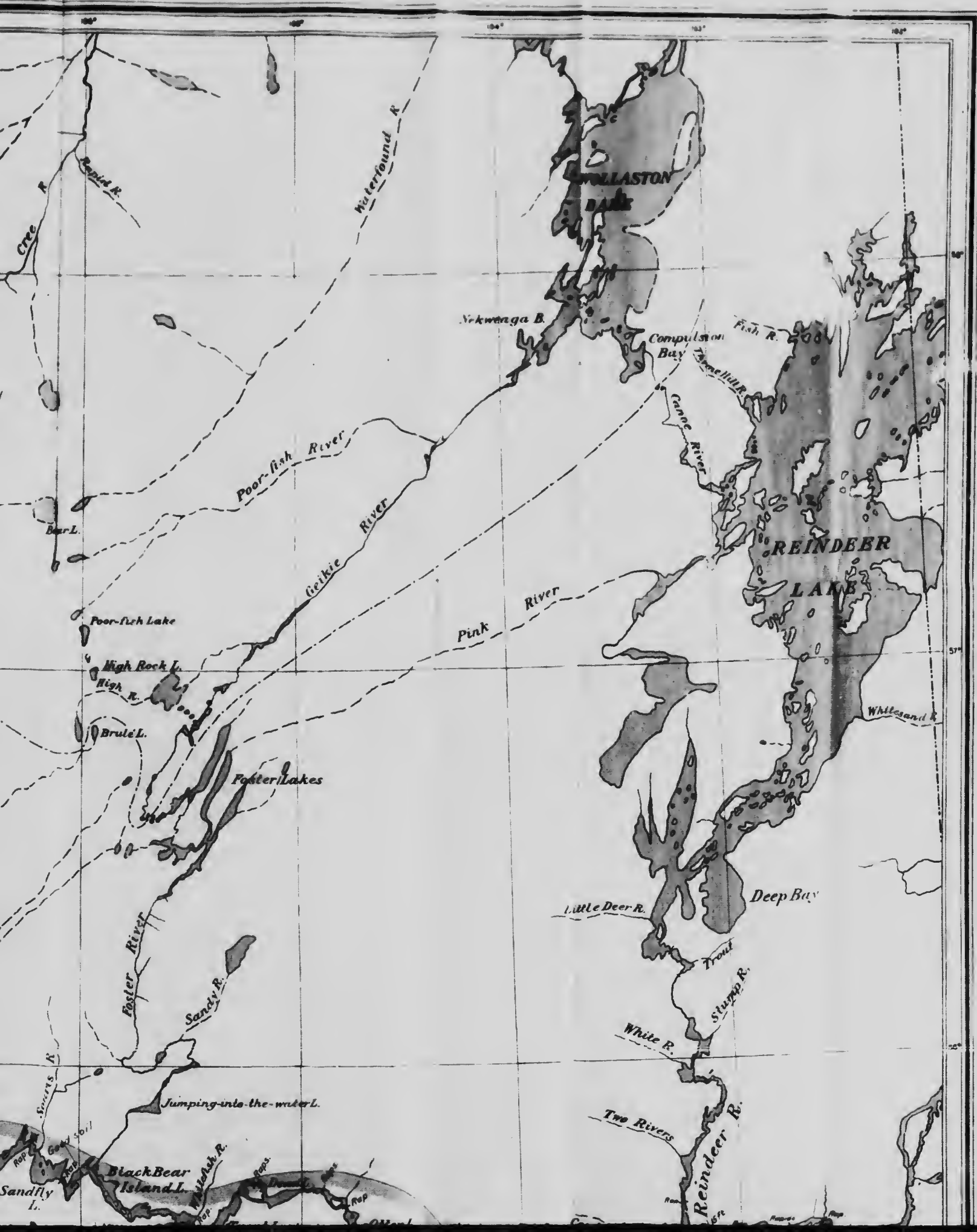
Note:

Trading Post of H. B. Co. and Revillon Freres.

R. N. W. M. P. Detachment

Route travelled shown thus ———







Area covered by Mr. Green's exploration of 1908 embraced by hatched red line thus.



