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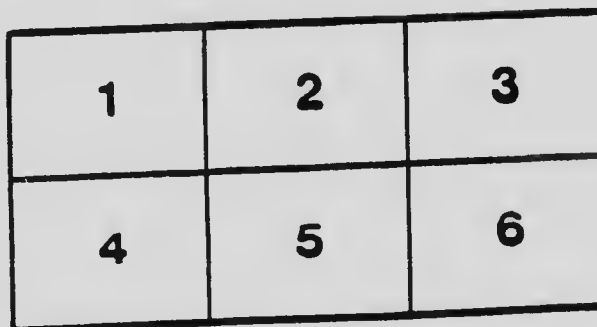
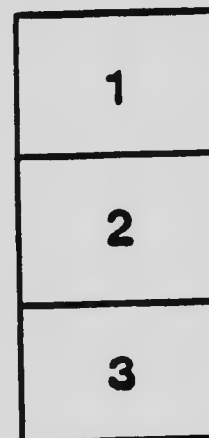
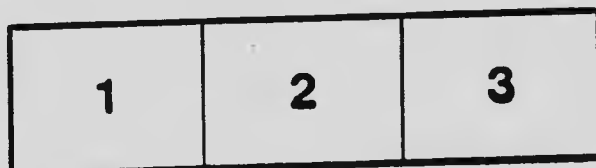
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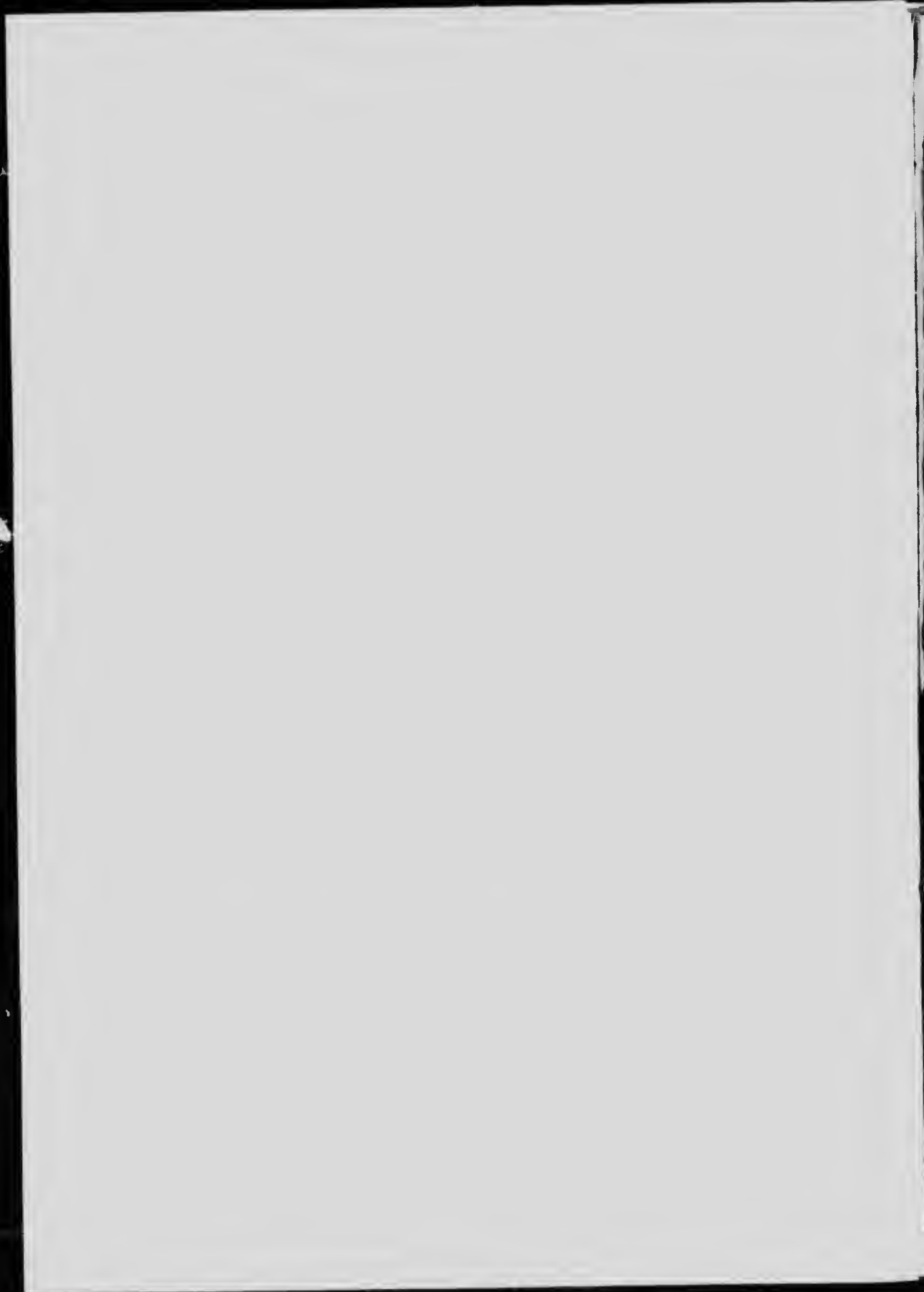
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The Trans-Canada Railway.

By an Act of the Parliament of the Dominion of Canada passed in the year 1895, chapter 68, a charter was granted for the construction of this railway from a point at or near Quebec to the Pacific Ocean at Port Simpson or Port Essington. This Charter was amended in 1897, chapter 65, so as to provide for the commencement of the works not later than 29th June, 1901, and for their completion within ten years from the passing of the Act, and granting power for the construction of a branch line to Montreal.

As the Quebec and Lake St. John Railway runs north-westward from the City of Quebec in a direction suitable for the shortest location of this railway, and as the rivers flowing into Lake St. John on the one side and James Bay on the other offer a route which will give the easiest gradients crossing the height of land between the waters flowing into the St. Lawrence and those flowing into James Bay, and as this route will give the railway the advantage of two eastern seaports, namely, Quebec and Chicoutimi, it has been decided to make use of that line between Quebec and its north-western terminus at Roberval, Lake St. John.

Work was accordingly commenced at Roberval on the 28th June, 1901, in the presence of an immense concourse of people, the clergy of the district giving the enterprise evidence of their sympathy and support by an impressive religious ceremonial on that occasion. Sixty miles of the railway have also been located from Roberval westward towards James Bay, and the plans and profiles have been deposited with the Dominion and Provincial Governments according to law.

The first division of the railway from Roberval to James Bay, 350 miles in length, will pass through the centre of the new territory recently acquired by the Province of Quebec from the Dominion, so that it would be in the interest of the Province to develop this new territory, 70,000 square miles in area, by this route, in preference to any other. Application has been made to the Province for a land grant, and the question is now under consideration.

Three different explorations of the James Bay territory have been made by Mr. Henry O'Sullivan, C.E., F.R.G.S., director of Provincial surveys, and his opinion of the country and its resources is given in a short report from him, annexed hereto.

The Hon. Lomer Gouin, Minister of Colonization and Public Works of the Province of Quebec, made an inspection of the country to be traversed by a portion of the first division of the railway in September last, and expressed himself as being very much surprised and impressed with the fertility of the soil and the resources of the country.

• On the 16th February, 1901, the President and other representatives of the Quebec Board of Trade and of the Company had an interview with the Right Hon. Sir Wilfrid Laurier at Ottawa, and submitted a memorial, a copy of which is annexed, setting forth the advantages of the railway at considerable length.

After due consideration the Government recognized the merits of the project and submitted to Parliament a subsidy bill, which was duly ratified, granting a subsidy of \$3,200 per mile—or \$192,000—in aid of the first sixty miles of the railway from Roberval westward, to be increased to \$6,400 per mile, should the cost be in excess of \$15,000 per mile to that extent.

The mileage of the proposed railway, allowing the usual percentage for loss in curvature will compare as follows with other existing routes :

Quebec to Vancouver (C. P. R.)	3,078 miles
Quebec to Port Simpson (Trans-Canada Railway).....	2,820 "
Chicoutimi to Port Simpson " " "	2,705 "
Quebec to Yokohama (via Vancouver).....	7,367 "
Chicoutimi to Yokohama (via Port Simpson).....	6,645 "
Vancouver to Yokohama	4,290 miles.
Port Simpson to Yokohama.....	3,940 "
Quebec to Nottaway.....	570 miles.
Roberval to Nottaway	380 "
Roberval to Chicoutimi	64 "
Winnipeg to Quebec (via C. P. R.).....	1,572 miles.
" " " (via projected T. C. R.).....	1,410 "
" " Chicoutimi " " "	1,284 "
" " Nottaway " " "	850 "
" " Churchill (projected)	840 "
Moose Factory to Toronto.....	550 miles.
Head Waters St. Maurice to Montreal.....	290 "

AVERAGE SUMMER TEMPERATURE

	5 years.	In 1895 *
Moose Factory, James Bay.....	58 degrees.	61
Quebec	50 "	63
Kimouski.....	55 "	55
Chicoutimi.....	57 "	60
Winnipeg.....	59 "	—
Norway House.....		59
Oonikup.....		60
Edmonton		60
Athabasca Landing.....		55
Dunvegan.....		57
Port Simpson		55

SNOW-FALL.

Moose Factory.....	80 inches	85
Montreal.....	177 "	

SUMMITS.

Trans-Canada (Pine River Pass)	2,800 feet
" (Peace River Pass).....	2,000 "
Canadian Pacific (Kicking Horse Pass).....	5,400 "

The soil, climate, minerals and other resources of the country between James Bay and the north end of Lake Winnipeg, and between the last named point and Port Simpson via the Peace River Valley, are fairly well known from the reports of the Geological Survey Department at Ottawa. As these reports do not give such ample information as to the country between Lake St. John and James Bay, reports are annexed from missionaries who have lived in the country, from Professor Bell of the Geological Survey, and from Mr. Henry O'Sullivan, C.E., F.R.G.S., director of surveys of the Province of Quebec.

Quebec, January, 1902.

* Form returns kindly furnished by Mr. R. F. Stupart, Director of Meteorological Service at Toronto.



Party of Emigrants from Finland, leaving Quebec for Lake St. John, to settle on the line of the First Division of the Trans-Canada Railway.



The Trans-Canada Railway.

QUEBEC, 16th February, 1901.

The Right Hon. SIR WILFRID LAURIER, G.C.M.G.,

PREMIER,

OTTAWA.

SIR

The Quebec Board of Trade and the promoters of the Trans-Canada Railway Company, represented by the delegates now present at this interview, beg respectfully to submit to the Government a very important project, probably the most important which has been brought before the Government of Canada since the inception of the Canadian Pacific Railway.

By an act of the Dominion Parliament passed in 1895 and amended in 1897, a charter was granted for a railway from the City of Quebec, passing north of Lake Winnipeg, to Port Simpson on the Pacific coast, with a branch to Montreal, and this charter is now being amended to provide for branches to Winnipeg and Toronto, and to give the Company the option to start from Lake St. John instead of Quebec.

The annexed map shows the proposed line from Quebec and from the head of navigation of the River Saguenay to James Bay, and thence touching the north end of Lake Winnipeg, passing through the Peace River district and the Peace or Pine River pass, to Port Simpson on the Pacific coast, with branches to Toronto and Winnipeg.

The advantages of such a line would be, briefly, these:—

1. DISTANCE—The distance from Quebec to Port Simpson would be 250 miles shorter than that from Quebec to Vancouver by the C. P. R., and from Chicoutimi to Port Simpson 370 miles shorter. The distance from Chicoutimi to Winnipeg would be 280 miles shorter than from Quebec (C. P. R.) to Winnipeg. The distance from Chicoutimi to Yokohama would be 720 miles shorter than from Quebec to Yokohama by C. P. R.

2. GRADIENTS—The summit of this line, in the Pine or Peace River pass, would be about 2,000 or 2,800 feet above tide—The C. P. R. summit, further south, is 5,400, and one of the American Pacific roads reaches an elevation of 11,000 feet. The summit between the St. Lawrence and James Bay is less than 1,200 feet, and the approaches to both summits are so gradual that there should be no difficulty in obtaining a maximum gradient of one per cent., from ocean to ocean, and possibly the maximum of 6-10ths of 1%, which is now so eagerly sought for by American Trunk lines.

3. SEAPORTS.—The harbor of Port Simpson is said to be the finest on the Pacific coast north of San Francisco. Nottaway is the only deep water harbor on James Bay, and with some dredging can be entered by vessels drawing thirty feet. The coast line of James and Hudson Bays tributary to this railway, will be about 4,000 miles. Chicoutimi (six miles below the town) can be reached by vessels of any draught, and Quebec has magnificent docks, which have cost the Government \$3,000,000, with deep-water berths and elevator facilities for steamships drawing (should such draught be necessary hereafter) forty feet of water. It

is firmly believed that Quebec can be made a winter port for ocean vessels of suitable construction. The Baltic until a few years ago was closed, like the St. Lawrence, all winter. Now, it is regularly and safely navigated all winter by many steamers carrying from 5,000 to 8,000 tons of freight, and with no difficulty as to insurance. In any case, there can be no difficulty in making a winter port at Chicoutimi. The ice in the Saguenay is mostly salt-water ice, easily broken, the Saguenay offers perfect safety for ships, being all deep-water and protected from snow-storms by wall-like banks; and the St. Lawrence from the Saguenay to the sea has none of the shoals and other obstacles which exist to some extent between Tadousac and Quebec. Should these ports be temporarily inaccessible at any time in winter, the bridge now being built at Quebec will give this railway short and easy access to the winter ports of Halifax and St. John.

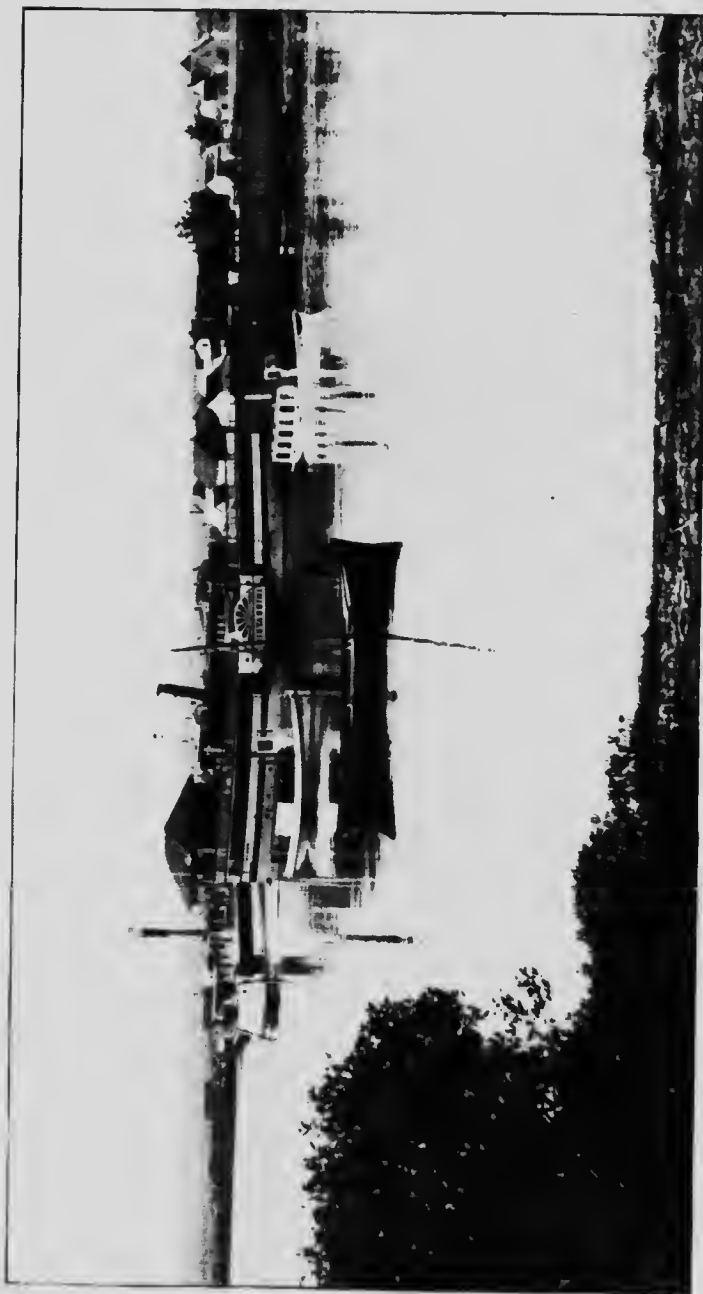
4. CLIMATE.—The worst climate to be met with on the proposed line will be that of the country between Lake St. John and James Bay. Recent information goes to show that this has been entirely misrepresented. Observations taken at Moose Factory, on James Bay, prove that the average summer temperature during five years was somewhat warmer than Chicoutimi, and three degrees warmer than Rimouski, and that the average snow-fall was half that of Montreal. So that from a climatic point of view, anything which can be grown at Rimouski, Chicoutimi or Winnipeg, can be grown in the James Bay territory.

5. SOIL.—Recent explorations prove that the soil in the James Bay territory is equal to that of the St. Lawrence valley. That of the immense Peace River valley is well known for its fertility, and present information goes to show that the country between James Bay and Lake Winnipeg, and between Lake Winnipeg and Peace River, is also excellent. So that it may be said that the whole country from the Saguenay to the Rockies is fit for settlement and for the raising of cereals, and could support a population of many millions, sufficient in fact, if the zone between this line and the C.P.R. were settled, to raise breadstuffs for the British Isles, and make them independent of all foreign countries.

6. MINERALS AND TIMBER.—The reports of the Geological Department indicate that this country is rich in minerals. The best of iron is found in the James Bay country, together with lignite coal and copper. The district north of Peace River abounds in petroleum, and the country between the Rockies and the Pacific coast in bituminous and anthracite coal, gold and copper, and a branch from this line would offer the shortest route on Canadian soil to the Yukon gold fields should a railway ever be needed to that country. The James Bay district and the country east and west of Lake Winnipeg are timbered with the best of spruce, and the rivers abound in water-powers to convert this timber into pulp and paper.

7. MILITARY AND NAVAL.—In the event of hostilities with our neighbors, which it is sincerely to be hoped may never occur, the present C.P.R. line could be broken in twenty places in a week, and communication would never be restored. The proposed line being from 300 to 600 miles from the frontier, protected by fleets at Quebec, Saguenay, Nottaway and Port Simpson, would be impregnable, and for this reason should receive the support of the British Government. This support need not be costly, as the price of a battleship per annum would pay the interest on the cost of the whole undertaking.

8. MANITOBA.—The branch to Winnipeg would give the Province of Manitoba its shortest and cheapest outlet to the seaboard. The saving in distance, the level character of the road and the consequent easy gradients, would, it is estimated, make it profitable to haul wheat to the seaboard at seven cents per bushel less than it now costs the farmer of Manitoba. This saving, even on the present crop, would nearly pay the interest on the cost of the road. Should the navigation of Hudson Straits ever prove practicable, the distance from Winnipeg to the Straits via Nottaway would be no greater than via Churchill, and through a much better country.



Roberval, the Wharf and Part of the Town — First Section of Trans-Canada Railway, and its Eastern Terminus at Lake St. John.



For all these reasons we think that the line indicated on the enclosed map would be the best that could be built, from an Imperial as well as Canadian point of view, and it should not be forgotten that for its entire length it will pass through a country between latitudes 47 and 54, or in the same geographical position as Paris, Berlin and Warsaw in Europe.

The great financial success achieved by the Canadian Pacific has rendered it much easier to secure capital for such an undertaking as this than it was twenty years ago, and the project should not have the antagonism of the capital interested in the Canadian Pacific, as it must be beneficial to that road by putting population into the zone of country between the two lines.

The Trans-Canada might readily be amalgamated with Messrs. McKenzie & Mann's Canadian Northern, as its location from the Saskatchewan to Port Simpson, and from Manitoba to Quebec, would be the best that could be selected for outlets to both oceans for that road.

We have reason to expect that the Province of Quebec will grant a subsidy of land, probably 20,000 acres per mile, for the first section of this railway from Lake St. John to James Bay, about 380 miles, and it is hoped that the Province of Ontario may grant a similar subsidy from James Bay to the western boundary of the Province near Lake Winnipeg.

If the Dominion Government would grant the usual double subsidy of \$6,400 per mile, it is believed that a financial basis would be established which would secure the necessary capital to carry out this most important undertaking which will make Canada a solid country with breadth and great agricultural resources, instead of a fringe of settlement subject, as it now is, to the good will—from day to day—of our powerful neighbors to the South.

Where the line passes through Dominion lands it would of course be expected that the Dominion will grant the same land subsidy as the Provincial Governments.

On this financial basis the promoters of this enterprise would be prepared to suggest the following advantages to Canada, advantages which have never yet been offered to the country by any other railway corporation:—

1.—To construct the entire road with steel rails and steel bridges of Canadian manufacture, thus offering to the new steel and iron works at Sydney, Midland, Sault Ste. Marie and Hamilton an immediate market for an immense quantity of steel.

2.—To give free transportation from Quebec to any point on its line for all immigrants and *bona fide* new settlers and their effects.

3.—To carry wheat from all points on its line in the Province of Manitoba to the ocean steamer at Chicoutimi or Quebec for nine cents per bushel, thus saving the farmer of Manitoba about seven cents per bushel on present freight rates to the seaboard.

We have the honor to be,

Sir,

Your obedient servants,

(Sig.) J. G. SCOTT,

Acting Secretary

Trans-Canada Railway.

(Sig.) GEO. TANGUAY,

President

Quebec Board of Trade

Translation of a letter from the Rev. Father Nedelec, late Missionary at James Bay

Mattawa, 15th November, 1887.

J. G. SCOTT, Esq.,
Quebec.

DEAR SIR,—

I beg to acknowledge receipt of your letter of the 8th inst., in which you ask me for information about the vast Hudson's Bay territory:—the Siberia of Canada. In order to answer your questions satisfactorily one would have to be an explorer, a geologist, a mineralogist and even a farmer, in a word an expert in every branch of knowledge. I confess that I am only a missionary to the Indians and the shanty men of the Ottawa. Nevertheless, I shall always esteem it a pleasure and a duty to oblige you to the utmost of my capacity, to the depth of my knowledge and extent of my observations. Beyond this, I can but refer you to good authorities on each subject. But to answer your questions:—

- 1st.—The country is generally habitable, excepting a few places, chiefly along the coast. Along the East coast the fishing is good.
- 2nd.—All kinds of grain, except wheat and buckwheat, also fruit and vegetables, are, as a rule, grown with success, except in a few scattered places on the coast.
- 3rd.—I find it difficult to say what population might be supported in this territory. There is room for millions, with improved agriculture and the development of industries.
- 4th.—The extreme heat is 100° and extreme cold on the coast—55°. Average in January 3°.
- 5th.—In some places the climate is better than that of the north of Germany, Poland, Norway, north of Scotland, Lake St. John, Newfoundland. In some parts the natural resources are magnificent, in others not so good. As a general rule it resembles Quebec and the district of Lake St. John. All that I can say is that the country is larger and more habitable than can be imagined.
- 6th.—The soil is in general of clayey nature. See "Les Relations des Jésuites;" Journey from Lake St. John to Hudson's Bay—Proulx. See also reports of Bowen, Stipendiary Magistrate, of Manitoulin Islands, Ontario—favorable.
- 7th.—Between Lake Temiscamingue and height of land, white and red pine, spruce and soft birch abound; on the other side of the height of land, spruce, soft birch and cedar.
- 8th.—See the report of Dr. Bell, geologist, as to minerals.
- 9th.—Any amount of fur, birds and fish; whales also abound. See the report of Captain Gordon, 1885, 1886-7.
- 10th.—The snow-fall is not excessive.

SUCH IS HUDSON'S BAY.

What was Canada 200 years ago? What were the United States? In my opinion it would be a good thing for the Province of Quebec to take possession of that part of Hudson's Bay that belongs to it. Your Company ought to establish Acadian settlements in the Bay. They are the very people for the country, and when the resources of the country are developed and wealth amassed, a steamboat should be sent from Quebec to further develop and explore the country, while waiting for the railway through the valley of St. Maurice.

Yours truly,

(Signed,) J. M. NEDELEC, O. M. I.
Indian Missionary.



Moose Factory, James Bay -- Some of the Bishop's Cattle.



Moose Factory, James Bay -- Bishop's Residence.



EXTRACTS FROM A LETTER FROM REV. FATHER PARADIS, FORMERLY MISSIONARY
AT MOOSE FACTORY.

" This territory is very suitable for settlement and the land is first-class. From Lake Temiscamingue, which is 650 feet above the sea, to Moose Factory, a distance of 300 miles is one black clay plain, very suitable for grain, and well wooded with maple and other hardwoods. At the height of land, 920 feet above the sea, pine is found in abundance, also some very large poplar. From Lake Abittibi to James Bay the finest spruce in America is to be found, and on the south side of the mountains some red pine.

TEMPERATURE :—The thermometer has been as low as 50 below zero at Moose Factory—in summer as high as 100 above : at the height of land the summers are colder ; average snow-fall three feet, which is much less than at Quebec.

PRODUCTS :—The best possible potatoes and all root crops, are grown here. Grain has not been tested to any great extent. I think wheat would succeed as well as in Manitoba. Oats, hay and barley would certainly succeed. Natural hay, excellent for cattle-raising, is very plentiful. Excellent beef is raised here.

GAME :—Wild geese and duck are abundant at Fort Albany, north of Moose Factory ; 36,000 geese are killed there annually for provisions for the Hudson's Bay Company by the Indians, that being the number they are expected to furnish.

MINERALS :—See Dr. Bell's report. I find him very conscientious in his reports. Gypsum abounds at the mouth of the Abittibi River. I think there is coal and petroleum on the river. Iron is plentiful. Mineral springs abound.

Sturgeon abound in the rivers ; and on the east coast, 30 miles from shore, porpoises and all fish found in the Gulf of St. Lawrence, are found in great abundance

I have no hesitation in recommending the construction of a railway from Quebec to James Bay. Indians say that the land towards Lake Mistassini is also very level with a clay soil. Towards the height of land it is sandy and rocky. Some prairies, 4 to 6 miles wide, without trees, extend to the west of James Bay, according to the Indians some 1200 miles.

I think this country might be compared to Germany in Europe, and the Fort Albany district with Russia.

The climate resembles that of Kamouraska, with the same flowers, wild fruits, such as gooseberries, strawberries, juniper berries and cranberries.

At Moose Factory there are some splendid gardens, containing currants, gooseberries and all kinds of vegetables. In one of them there is an ash tree, planted ten years ago, that now measures 13 inches diameter.

Ice leaves the rivers about end of April, and the Bay is navigable from 5th to 13th May. Closes from 1st to 20th November. The highest tide is 10 feet."

LETTER FROM PROFESSOR BELL,

HEAD OF THE GEOLOGICAL SURVEY DEPARTMENT.

OTTAWA, 7th March, 1887.

J. G. SCOTT, Esq.,
Quebec.

DEAR SIR,—

Your favor of the 4th reached me this morning, and I beg to answer your questions *seriatim* as follows:—

1.—A considerable proportion of the territory southward of James Bay is fit for settlement.

2.—My own explorations have not extended eastward of the Basin of Moose River. In that Basin a great deal of good land is found between the water shed of the great lakes and the commencement of the low level country to the south westward of James Bay. This would comprise about one-third of the region between Lake Superior and James Bay. The soil is mostly brownish gravelly loam and light colored clay, with sand in some parts. In the coniferous forests, when the ground is level, the surface is apt to be covered with deep moss, but when this timber has been burnt off and replaced by deciduous trees, the ground is dry.

3.—The summer and winter temperatures resemble those of the County of Rimouski. The summers not so hot, nor the winters so cold as at Winnipeg.

4.—The average snow-fall is about three feet, or a little more, still not quite so great as about the City of Quebec.

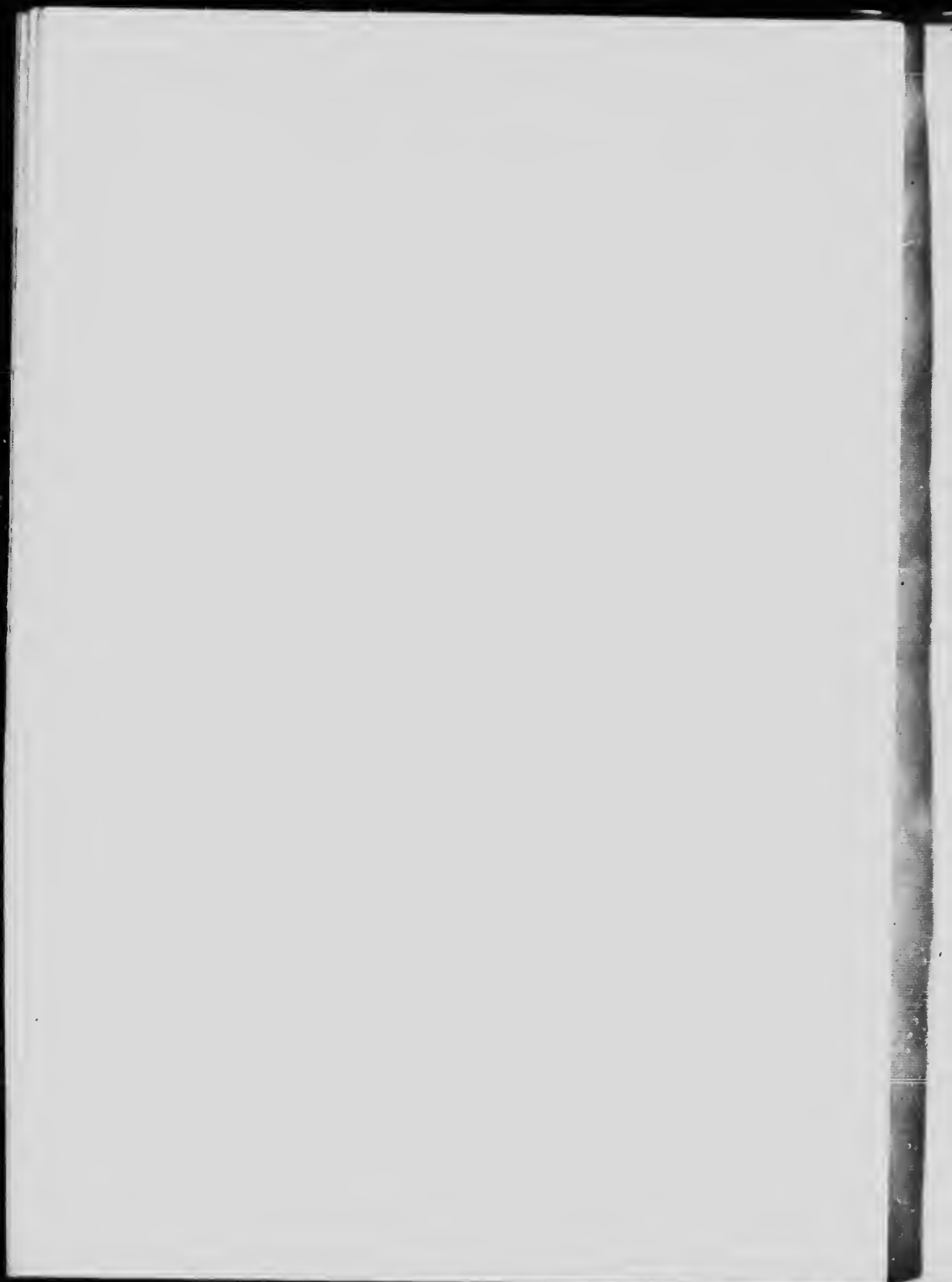
5.—Potatoes and all other kinds of root crops have been found to do remarkably well. Hay also grows luxuriantly. Barley would, I think, be a sure crop every year, and rye could also be grown with advantage. Barley is sown every year at Moose Factory and Rupert's House, and it has ripened well every year that I have visited these parts. Still it is said to fail some years. However, these places are much further north than the region I have indicated, and what is worse for them, they are near the sea, which is said to have an unfavorable influence in the autumn. Mr. John McIntyre (now of Fort William) says he has ripened wheat at Missinibi and New Brunswick House, within the above area. I have had experiments made at New Brunswick House and at Norfolk, on the Abitibi River, with a great variety of field and garden seeds, and the results proved that this region is capable of growing anything which can be raised, say in the County of Rimouski. I regard the region as well suited for stock raising and dairy farming, and it is not unlikely to prove fit for grain also.

The soil at Moose Factory is heavy and cold, still vegetables, &c., grow successfully here. Among the kinds may be mentioned potatoes, beans, peas, turnips, beets, carrots, cabbages, onions, &c., &c. As showing the absence of summer frost at Moose Factory in 1877, I mention at page 27 c of my report for that year, that, on our return to Moose Factory (from the North), in the end of September, we found that there had been no frost there all summer, and the most tender plants, such as melons and cucumbers, beans, balsams, tobacco, the castor oil bean, &c., growing in the open air, were still quite green and flourishing. That summer was, however, probably a finer one than usual.

It has been objected to this statement by some Hudson Bay Co.'s men, that I should have mentioned that some of the above plants had been started in the house. But all I wanted to show, was the absence of summer frosts that year. These plants are generally started under glass in other parts of Canada as well.



Field of Wheat, St. Félicien — First Section of Trans-Canada Railway, West of Roberval.



6.—White and red pine grow in the southern part of the basin of Moose River, but the timber most abundant throughout the whole country, consists of white and black spruce, tamarac, white cedar (as far north as Moose Factory), white birch, aspen, rough-barked poplar, "Jack" pine and bouleau. There is a little elm, and black ash, in the southern part, but it is not worth counting commercially. Some of the above woods are worth exporting.

7.—Minerals are to be found in this region; nearly all the metals are to be looked for in the Huronian formation, a belt of which is believed to run all the way from near Lake Abittibi, to the south of Lake Mistassini, and this would be crossed by any railway from Quebec to James Bay. Iron and gypsum are abundant to the north-west of Moose Factory.

The shores of Hudson's Bay, that would be tributary to the projected railway, afford a variety of useful minerals in paying quantities.

8.—Coal cannot be said to have been found in the region under consideration. I found lignite in various places on the Missinabi and Moose Rivers; also indications of it on the Mattagami and Albany Rivers, but the quality was mostly inferior, and in a well wooded country like this, would not be in demand for fuel. I also found anthracite on a long island on the east coast of Hudson's Bay, but I do not think the quantity likely to prove great, although the quality was first-class. As far as we are yet aware, there is a chance, geologically speaking, of finding coal in the islands on James Bay, but we have no evidence, as yet, of its actual existence there.

9.—Among the fish found in James Bay and Hudson's Bay, may be mentioned a fine white fish, lake trout of Lake Superior, and some smaller species, sea trout, salmon, rock cod, capling, &c., besides strictly fresh water fishes in the rivers and lakes, such as speckled trout, Backs' grayling and pickerel, pike, &c. The fisheries of the bay will probably be found to be valuable. The oil producing animals, such as seals and porpoises, may be included under "*the fisheries*."

10.—I have not considered the subject sufficiently, as yet, to say whether I would recommend the construction of a railway from Quebec to James Bay, or not; but if it should be decided to go on with such a line, the objective point might be the mouth of the Rupert River, the southern extremity of Rupert Bay, or Hannah Bay. Deep enough water can, I think, be found at these points and a leading out from them, although the south end of James Bay is shallow. If a railway were built to the south end of James Bay, steamers might run up the East main coast, which I believe (from experience) will prove attractive as a summer resort for the people of the United States and Canada.

For further information, I would refer you to some of my reports under page 27c, with general survey reports for 1879-80, and page 7c, on ditto for 1877-78.

I am, Dear Sir,

Yours truly,

(Signed,) ROBERT BELL, C.E., M.D.

LETTER FROM PROFESSOR BELL,
HEAD OF THE GEOLOGICAL SURVEY DEPARTMENT.

OTTAWA, 30th Augt., 1902.

DEAR MR. SCOTT,

I thank you for your letter of 27th inst., and the copy of the new edition of the prospectus of the Trans-Canada Railway. It is very well gotten up and contains much valuable information. Your line on the map showing the northern limit of the growth of cereals is not too far north. In fact it almost corresponds with the north limit of possible wheat culture. I have had wheat ripened for two years at Waswanipi, S.E. of Rupert's House.

As the existing railways will probably be unable to move the phenomenal grain crop of Manitoba and the N. W. Territories this year, the present ought to be a favorable opportunity for promoting your Trans-Canada Railway.

Very truly yours,

ROBERT BELL.

J. G. SCOTT, Esq.,
Acting Secretary,
Trans-Canada Railway,
Quebec.

LETTER FROM MR. HENRY O'SULLIVAN, F.R.G.S.,
DIRECTOR OF PROVINCIAL SURVEYS.

LORETTE, 29th DECEMBER, 1901.

J. G. SCOTT, Esq.,
General Manager,
Trans-Canada Railway Co.,
Quebec.

DEAR SIR :

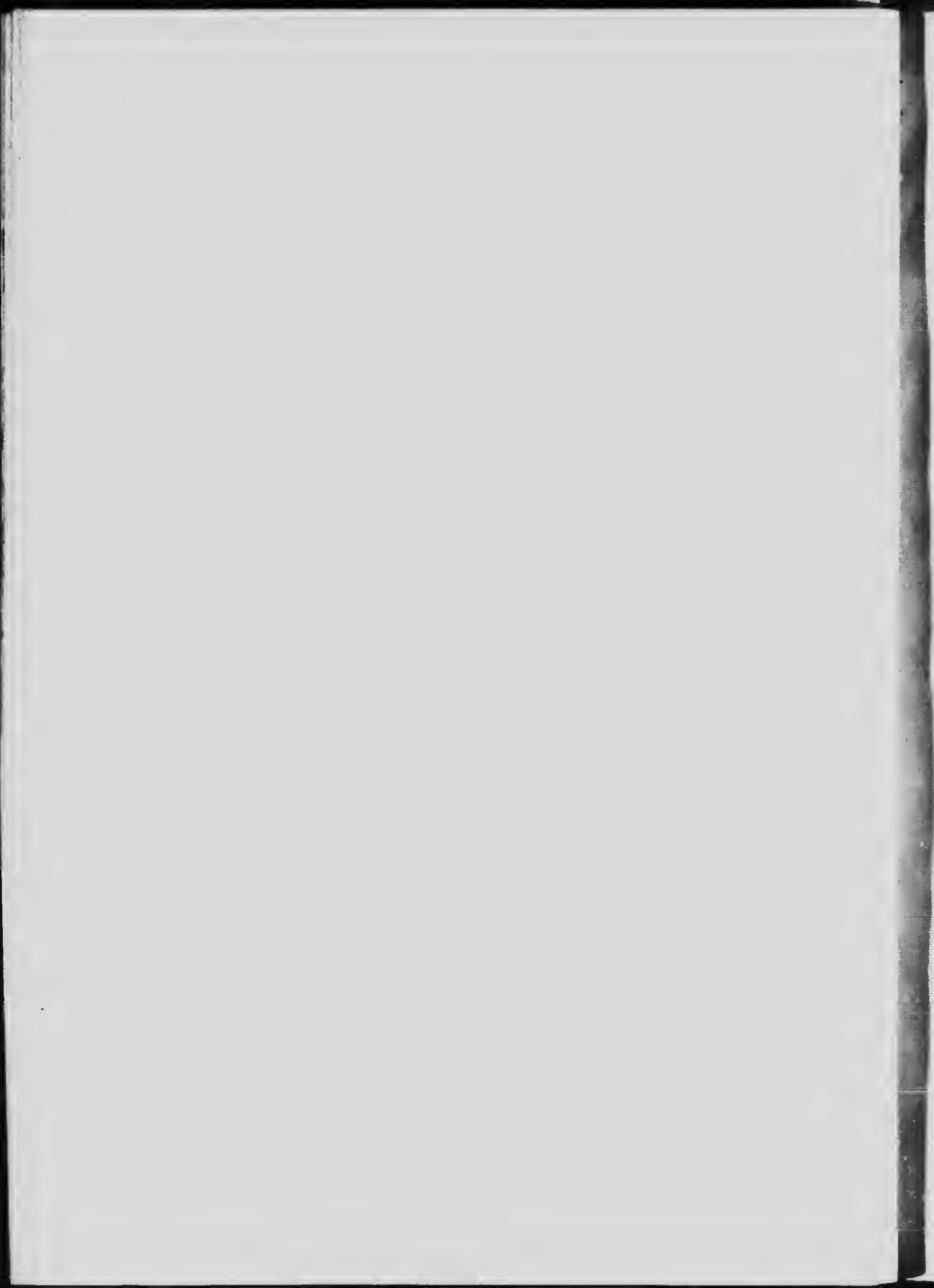
Your letter of the 26th inst., asking for information regarding the northern portion of our province between the height of land and James Bay recently acquired from the Dominion Government, duly received, and in response I will endeavor to answer your questions in the order given :—

1st.—“What proportion, approximately, of the territory in question, south of East Main River and west of Lake Mistassini, would you consider to be fit for settlement?”

Ans.—From what can be seen by following the principal water-courses and occasional runs inland I may say that over two-thirds of the land area should be fit for cultivation, for there are no mountains of any great extent, and the land generally rises in easy swells from the lower levels of the river beds, and unless that extensive



Portage à l'Ours Falls, Ashuapmouchouan River — First Section of Trans-Canada Railway.



swamps may exist in the level plains between the main water-ways, there is no reason why the greater part of the country would not be fit for settlement should climatic conditions prove favorable.

2nd.—“What is the nature of the soil?”

Ans.—The soil is chiefly clay or clayey or sandy loam, with here and there knolls of pure sand thickly covered with jack pine wherever the country has been burnt.

There are also some patches paved with boulders, generally in the neighborhood of chutes and rapids, but the proportion of rocky land is far less to the north of the St. Lawrence watershed than to the south. I can speak of this from my own personal knowledge of the country, for I have ascended all the rivers that drain the St. Lawrence slope to the height of land from the meridian of Lake Mistassini westward to the Ontario boundary, and I can safely say that, as regards the nature of the soil, the northern slope is far superior to the southern.

3rd.—“What is the nature of this climate? and what about the snowfall?”

Ans.—My explorations in that region were chiefly made during the summer months, from June until October inclusive, and I did not experience any marked difference between the climate there and on the St. Lawrence slope in equal altitudes. The rainfall in my opinion is greater; but my assistants, who wintered in the neighborhood of Rupert House in 1897-8 and traversed the country from there to Lake Abittibi in March and April, report that the snowfall is less than in the regions bordering the River St. Lawrence.

Taking a mean of the observations of my party, and from what I could learn from the natives and the Hudson Bay Company's men, I should say that the average depth of snow in mid-winter would be between 3 and 4 feet.

As you will see by the tables in my last report of progress kindly furnished me by Mr. Stupart, director of the Meteorological Bureau, Toronto, taking the mean of the six months of summer, May to October inclusive, for three years, gives the climate of Moose Factory several degrees warmer than that of Rimouski.

I enclose you under another cover a copy of said report of progress with accompanying plans and profiles.

4th.—“What description of grain and root crops do you consider could be profitably raised if there were railway communication through the center of this territory? and is the country suitable for raising live stock?”

Ans.—Oats, barley, peas and buckwheat. Wheat has been raised at Waswanipy, about the center of the region in question, and the grain grown from seed raised there succeeded as well as from the seed sent there by Dr. R. Bell, Director of the Geological Survey, from the experimental farms.—See Dr. Bell's reports 1895-6. Potatoes, cabbage, turnips and nearly all kinds of vegetables grown in Canada, are successfully raised at Waswanipy, Rupert House and Moose Factory, and even as far north as East Main Fort.

It appears that sheep are more successfully raised at the latter post than at Rupert House.

Splendid horned cattle are raised at all these posts: the only drawback to stock raising there may be in the length of the winters.

5th.—“Is the country well timbered, and with what kinds of timber?”

Ans.—The country is in general well covered with spruce, the chief marketable timber; poplar and bouleau (white birch) are also found in abundance, wherever forest fires have made their mark. Banksian or jack pine is seen in the poorer districts, but there is no white or yellow pine beyond the height of land, with the exception of a few straggling groves in the neighborhood of Lake Abittibi.

A species of large poplar called *Liard* or balm of Gilead, grows very extensively in the Mekiscan Valley, some large enough to give four or five saw-logs of from one to 2½ feet diameter without limb or knot

This kind of timber is said to be earnestly sought for by cabinet-makers. Tanarac for railway construction is found throughout the entire region, but a goodly portion of it has been recently killed by the saw fly.

6th.—“What minerals are likely to be found?”

Ans.—Iron in abundance, copper, gold; in fact all the minerals may be looked for in the Huronian belt that traverses this region from Lake Mistassini westward. See Geological Reports.

7th.—“What are the fisheries, and are they likely to prove valuable?”

Ans.—The whitefish, trout, sturgeon, pike and doré of the interior lakes and rivers of the Nottaway basin will certainly become valuable if railway communication is had there.

There are no sturgeon in the Rupert waters, but all the other kinds of fish mentioned above are taken there in abundance.

I am not sufficiently informed to say what the fisheries of James and Hudson Bay may be; all I can say is that while surveying the coast in the neighborhood of the mouth of the East Main River, I saw several porpoises playing around, and I have seen an abundance of trout and whitefish taken by the Indians between there and Rupert House.

8th.—“Can a good seaport be obtained on James Bay, and with what depth of water?”

Ans.—James Bay is in general very shallow. The H. B. Co. ships cannot go within seven miles of Moose Factory.

At the mouths of the Rupert and Little Nottaway Rivers, safe harbors may be had for vessels of from ten to fourteen feet draught, but they can only enter at high tide.

At the mouth of the Great Nottaway sufficient water is found for the largest vessels afloat, but a considerable amount of dredging would have to be done before they can enter there.

9th.—“Are there any good water-powers, and what are the largest?”

Ans.—An abundance of water-power is found at convenient intervals all over the country.

I measured one on the Great Nottaway,—a river as large as the Ottawa and in places a mile in width,—that gave about 400,000 horse-power, and three on the Rupert,—another immense River,—that gave over 300,000 each; one of them gave 350,000 horse-power.

My information as to this country is derived from three different explorations made by me for the Provincial Government in 1894, 1897 and 1899, one from Temiscamingue and Lake Victoria, one from the headwaters of the St. Maurice, and one from Lake St. Jean, returning in 1897 by the Moose River and Lake Superior. I have followed the Nottaway and its three branches from their source to the mouth of that immense river at James Bay.

A large portion of this country forms a great clay plain which may be compared as to soil with the valley of the St. Lawrence between Montreal and Quebec.

Sincerely yours,

HENRY O'SULLIVAN,
D. L. S. & C. E.,
Mem. Can. Soc. C. E.

EXTRACT OF SPEECH MADE BY MR. T. O. DAVIS, M.P., FOR SASKATCHEWAN,
 IN THE HOUSE OF COMMONS AT OTTAWA IN MARCH 1902, ON THE QUESTION
 OF TRANSPORTATION OF GRAIN.

—◆—

“What we want is a continuous line of railway, which can be operated twelve months in the year and double track if necessary. Last year four hundred thousand people in the West produced 100,000,000 bushels of grain. We are going to get people in there at the rate of 100,000 per year, and in eight or ten years, the production of that country will be increased to 400,000,000 or 500,000,000 bushels. Wheat will have to be carried to the seaboard, and that cannot be done over our canals when they are frozen up six months in the year. What we want is to be able to put our wheat on the car and run it through to the seaboard. There has been too much money spent trying to create an artificial port—trying to make an ocean port out of something that was never intended to be so by nature. If half that money had been spent on the port of Quebec in providing proper facilities there—where we have a port that can float the largest ship that will be built in the next twenty years—and if we had a railway running from the centre of the Territories right into the port of Quebec, from where our produce could be shipped twelve months in the year, you would not hear anything about the car shortage we hear so much about at present.

Then we have to take into account the depreciation in the value of wheat and the charges for interest and insurance if it has to be stored over during the winter, which must amount to at least six cents per bushel. There is also this further point to be considered. If we have to depend wholly on our canals, we will have to store an immense quantity of wheat in the elevators at the head of Lake Superior, and when navigation opens in the spring and we throw that on the markets of the world, down goes the price, so that our farmers will be out, not only the loss in storage and insurance, but also the depreciation in value on account of such an immense quantity being thrown on the market.

What we want is a continuous line of railway from the West to some ocean port, and Quebec is the proper place. This would enable us to send our commodities to a port, which would be kept open twelve months in the year, and in this way we would stimulate the production of grain and other products in the North-West, and thus not only increase the trade of that part of the country, but the trade and wealth of the whole Dominion. The Government has still a large domain of public lands at its disposal notwithstanding the 7,000,000 acres which our honorable friends opposite gave away to railways. Notwithstanding their extravagance in this respect, we have still left millions of acres of fertile land, the property of the people of this country, and by providing proper transportation facilities, by opening up and developing the country, by getting immigrants in there, we will increase the value of our own public domain to such an extent that we would have sufficient in ten years to pay the whole public debt of the country.”

THE RIGHT REV. W. CARPENTER BOMPAS, D.D., BISHOP OF SELKIRK, WHO HAS

LIVED NEARLY ALL HIS LIFE IN THE TERRITORY IN QUESTION, SAYS:—

“The line you propose for your railway is exactly that which I would have desired to open up the vast territories in which I have been most interested and partly resident for the greater part of my life. The huge so-called wastes, formerly known as the Hudson’s Bay territories, are, I trust, now destined by your railway to be opened up to civilization. I cannot imagine any plan so well adapted to enlarge widely the boundaries of the habitable earth.

The approach of your railway to Hudson’s Bay I think most valuable in every way, both in the way of commerce and in defence of the Dominion if needed. Your further course by way of Norway House, Green Lake, Athabasca Landing and Lesser Slave Lake, I deem very advantageous in the way of commerce and partly for settlement of the country, and especially as a route of communication with the far north country of Mackenzie River and the Great Northern Lakes, Great Slave Lake and Great Bear Lake, with their fine fur countries and the rich timber and oil country of Athabaska.

Then you come to Peace River, which I deem one of the chief gems of the whole Dominion. I think it certain to be settled up as soon as your railway reaches it. It has been a shame that so fine a country should remain unsettled only for want of means of communication with it.

You then pass the Ominica gold mines, which are now again successfully worked, and when I descended the Skeena River, I learned that the whole country from Peace River to Port Simpson was a level tract admirably suited for carrying a railway through it.

The route of your railway is just what I could have wished. I cannot be otherwise than interested in your success, because your railway offers ground for expecting the realization of a long-cherished hope that those vast northern regions would yet emerge from solitude and desolation into life and activity.

I deem your project admirable and bound to succeed.”

SOME FIGURES as to the probable effect which the construction of the Trans-Canada Railway would have in reducing the freight on grain from Manitoba and the Northwest, and in bringing it direct to the ocean vessels at Canadian seaports, instead of allowing it to drift to Buffalo and New York via the great lakes, thus putting an end to the grain congestion now existing in the Northwest.

The Trans-Canada Railway will not only be the shortest possible route from the Northwest to the seaboard, but will be a flat line throughout, and will have the choice of two seaports, Chicoutimi and Quebec. The former—the ice in the Saguenay being salt water ice—can without doubt be made a winter port, and Quebec is probably good for 12 and certainly for 10 months in the year,* and in case of any temporary interruption the new bridge at Quebec will give a short route to St. John or Halifax.

The distance from Manitoba to Chicoutimi by the Trans-Canada will be 1284 miles, and the route so level and the summit so low, that the new standard grades of 6-10ths of 1 per cent will be easily had.

A modern freight engine will haul from 30 to 35 car loads (1000 bushels per car) of wheat over these grades.

Put the rate as low as 9 cents per bushel, and the result would be as follows:

EARNINGS.	
30 cars at 9c. per bushel, or \$90	\$2,700
COST.	
The total cost of operating (including maintenance and all other expenses), based upon the experience of similar roads in Canada would be 78 cents per train mile, but let us say 80 cents, 1,284 miles at 80c	
Add one-fourth for empty cars to be brought back.....	257
	1,284
And there will be a profit of	\$1,416

or 52 per cent.
The same rate of freight could be made to Quebec, or by the branch to Montreal, authorized by the charter, and still leave a handsome margin of profit.

It now costs the farmer of Manitoba to get his wheat to the seaboard:	
RR. freight, Manitoba points to Fort William, per bushel.....	10 c
Water freight, Fort William to Montreal.....	06 $\frac{3}{4}$ c
	16 $\frac{3}{4}$ c
Or	
Manitoba to Fort William.....	10 c
Fort William to Buffalo and New York	06 $\frac{3}{4}$ c
Elevating.....	00 $\frac{5}{8}$ c
	17 $\frac{3}{8}$ c

This cost will be somewhat reduced when the Canadian Northern reduces its rate from Manitoba to Port Arthur, but not to any appreciable extent as compared with the above figures.

So that if the above figures are correct, the new route would save the farmer of Manitoba, or increase the value of his grain where grown, 7 to 8 cents per bushel.

This, on the 100 million bushel crop of last year, which will probably be greatly increased every year hereafter, would mean a saving or increased value of at least seven millions of dollars.

* Schooners are now (20th March, 1902,) running between Quebec and the Lower St. Lawrence, and 1 ferry steamers running between Quebec and Levis every few minutes, night and day, without the slightest difficulty.

TRANS-CANADA RAILWAY COMPANY.

Names of Promoters and Shareholders.

Col. George Earl Church.....	London, England.
Richard Biddulph Martin.....	do
Frank Crisp.....	do
Hon. Francis Clemow.....	Ottawa.
J. A. Gemmill.....	do
Thos. L. Willson.....	do
George Tanguay, M.P.P.....	Quebec.
John T. Ross.....	do
Gaspard LeMoine.....	do
Victor Chateauvert.....	do
J. G. Scott.....	do
William Price.....	do
W. A. Marsh.....	do
Estate Hon. J. Arthur Paquet...	do
T. A. Piddington.....	do
Hon. P. Garneau.....	do
Vesey Boswell.....	do
Estate Hon. R. R. Dobell.....	do
William Shaw.....	do
Hon. N. Garneau.....	do
L. A. Robitaille.....	do
N. Rionx.....	do
E. Beaudet.....	do
E. E. Luig.....	do
E. J. Hale.....	do
Cy. Tessier.....	do
Lorenzo Evans.....	do
J. Burstall & Co.....	do
N. Flood.....	do
Frank W. Ross.....	do
Jas. MacNider.....	do
A. E. Vallerand.....	do
G. G. Stuart.....	do
W. M. Macpherson.....	do
Henry O'Sullivan.....	do
A. E. Doucet.....	do
Hon. Jules Tessier.....	do
Lorne Webster.....	do
Guy Tombs.....	do
Alex. Hardy.....	do
S. S. Oliver.....	do
A. Robitaille, M.P.P.....	do
J. D. Guay.....	Chicoutimi
J. E. A. Dube.....	do
O. Côté.....	St. Alphonse, Chicoutimi.
Lt.-Col. B. A. Scott.....	Roberval.
Jos. Girard, M.P.....	St. Gédéon.
George T. Davie.....	Levis, Q.
William Hanson.....	Montreal.
W. Reeves.....	do
Col. James McNaught.....	New York.
H. H. Melville.....	Boston.
John Farson.....	Chicago.
W. J. Hildands.....	do



58-59 VICTORIA.

CHAP. 68.

An Act to incorporate the Trans-Canadian Railway Company.

[Assented to 22nd July, 1895.]

WHEREAS a petition has been presented praying for the incorporation of a company to construct and operate a railway and for other purposes as hereinafter set forth, and it is expedient to grant the prayer of the said petition : Therefore, Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, declares and enacts as follows :

1. George Earl Church, Richard Biddulph Martin and Frank Crisp, all of London, England ; the Hon. Francis Clemow and J. A. Gemmill, of Ottawa, together with such persons as become shareholders in the Company hereby incorporated, are hereby constituted a body corporate under the name of "The Trans-Canadian Railway Company," hereinafter called "the Company."

2. The head office of the Company shall be in the city of London, England, or in such place in Canada as the directors from time to time determine by by-law.

3. The Company may lay out, construct and operate a railway of the gauge of four feet eight and one-half inches from a point at or near the city of Quebec ; thence westerly and as nearly as practicable in a straight line to a point north of Lake Winnipeg ; thence westerly by way of the Yellow Head or other convenient and practicable pass in the Rocky Mountains ; and thence by the Skeena River to Port Simpson or Port Essington, with the option of adopting any other more feasible route west of the Rocky Mountains to reach a point on the Pacific coast between fifty-two and fifty-five degrees north latitude ; and the Company may, for the purpose of building its line of railway, divide it into three sections : the first section to extend from Quebec to a point at or near the northern end of Lake Winnipeg, the second section from the last mentioned point to the eastern limit of the Rocky Mountains, and third section from thence to the Pacific coast.

4. The Company may,—

(a) for the purposes of its business and in connection with its railway, construct, purchase or otherwise acquire, charter, obtain, control, navigate and keep in repair steamers and other vessels to ply between ports in Canada and between ports in Canada and ports outside of Canada, and carry and convey passengers and freight and carry on a general transportation service in connection with the said railway, and may sell and dispose of such vessels ;

(b.) construct, purchase, lease or otherwise acquire and hold wharfs, docks, elevators and warehouses on the line of the said railway as from time to time constructed ;

(c.) acquire and utilize water and steam-power for the purpose of generating electricity for lighting and motor purposes in connection with its railway or any branch or part thereof, and may operate the said railway or any branch or part thereof by electricity ;

(d.) construct, equip, acquire and operate telegraph and telephone lines beyond the said railway to any point on James' Bay, Hudson's Bay and Hudson's Straits, and may lay submarine lines for telegraph and telephone connection between such points.

Preamble.

Incorporation.

Corporate name.

Head office.

Line of railway described.

Line divided into three sections.

General Powers. Power to build steamers, &c.

Wharfs, &c.

Electricity

Telegraph and telephone lines.

Company may enter upon public roads

5. With the consent of the municipal council having jurisdiction over the roads and streets of any city, town, or municipality, the Company may, by its servants, agents or workmen, enter upon any public road, highway, street, bridge, water-course, navigable or non-navigable water or other such places in any city, incorporated town, village, county, municipality, or other place, for the purpose of constructing, erecting, equipping, working and maintaining its line or lines of telegraph and telephone upon, along, across, over and under the same; and may erect, equip and maintain such and so many poles or other works and devices as the Company deems necessary for making, completing and supporting, using, working and maintaining the system of communication by telegraph and telephone, and may stretch wires and other telegraphic and telephonic contrivances thereon; and, as often as the Company, its agents, officers or workmen think proper, may break up and open any part whatsoever of the said public roads, highways, streets, bridges, water-courses, navigable and non-navigable waters and other like places, subject, however, to the following provisions, that is to say:—

May erect poles.

And open public roads

Travel, &c. not to be obstructed

(a) The Company shall not interfere with the public right of travelling on or using such public roads, highways, streets, bridges, or water-courses, and other like places, and shall not do any unnecessary damage, nor in any way obstruct the entrance to any door or gateway or free access to any building erected in the vicinity;

Height of wires, &c.

(b) The Company shall not affix any wire less than twenty-two feet above the surface of the street or road, nor without the consent of the municipal council having jurisdiction over the roads or streets of the municipality, erect more than one line of poles along any street or road.

Kind of poles

(c) In all municipalities the poles shall be as nearly as possible straight and perpendicular, and shall, in cities, be painted, if so required, by any by-law of the Council;

Cutting poles or wires in case of fire

(d) Whenever, in case of fire, it becomes necessary for its extinction or the preservation of property, that the poles or wires should be cut, the cutting under such circumstances of the poles or any of the wires of the Company, under the direction of the Chief Engineer or other officer in charge of the fire brigade, shall not entitle the Company to demand or to claim compensation for any damage thereby incurred;

Indemnity damage

(e) The Company shall be responsible for all damage which its agents, servants or workmen cause to individuals or property in carrying out or maintaining any of its said works;

Trees

(f) The Company shall not cut down or mutilate any shade, fruit or ornamental tree;

Approval necessary

(g) In all municipalities the opening up of streets for the erection of poles, or for carrying the wires under ground, shall be subject to the direction and approval of such engineer or other official as the Council appoints, and shall be done in such manner as the Council directs; the Council may also direct and designate the places where the poles are to be erected in such municipality; and the surface of the streets shall in all cases be restored as far as possible to its former condition by and at the expense of the Company;

Carrying wires under ground

(h) No Act of Parliament requiring the Company in case efficient means are devised for carrying telegraph or telephone wires under ground, to adopt such means, and abrogating the right given by this section to continue carrying lines on poles through cities, towns or incorporated villages, shall be deemed an infringement of the privileges granted by this Act.

Workmen wear badges

(i) No person shall labour upon the work of erecting or repairing any line or instrument of the Company, without having conspicuously attached to his dress a medal or badge on which shall be legibly inscribed the name of the Company and a number by which he can be readily identified;

Private rights

(j) Nothing herein contained shall be deemed to authorize the Company, its servants, workmen or agents to enter upon any private property for the purpose of erecting, maintaining or repairing any of its works, without the previous assent of the owner or occupant of the property for the time being.

(k.) If in the removal of buildings, or if in the exercise of the public right of travelling on or using any public road, highway or street, it becomes necessary that the said wires or poles be temporarily removed, by cutting or otherwise, it shall be the duty of the Company, at its own expense, upon reasonable notice in writing from any person requiring the same, to remove such wires or poles; and in default of the Company so doing, it shall be lawful for any such person to remove the same at the expense of the Company, doing no unnecessary damage thereby; and such notice may be given either at the office of the Company, or to any agent or officer of the Company in the municipality wherein such wires or poles are required to be removed, or in the case of a municipality wherein there is no such agent or officer of the Company, then either at the head office or to any agent or officer of the Company in the nearest or any adjoining municipality to that in which such wires or poles require to be removed.

Temporary
removal of
wires

6. The persons mentioned by name in the first section of this Act are hereby constituted provisional directors of the Company

Provisional
Directors.

7. The capital stock of the Company shall be twenty million dollars, and may be called up by the directors from time to time as they deem necessary, but no one call shall exceed ten per cent on the shares subscribed.

Capital stock.

8. The annual general meeting of the shareholders shall be held on the first Monday in September in each year.

Annual general
meeting

9. At such annual meeting the subscribers for the capital stock assembled, who have paid all calls due on their shares shall choose not less than seven nor more than eleven persons to be directors of the Company, one or more of whom may be paid directors of the Company.

Number of
directors

10. The Company may issue bonds, debentures or other securities to the extent of twenty-five thousand dollars per mile of the railway and branches, and eight thousand dollars per mile additional debentures for each mile double tracked and such bonds, debentures or other securities may only be issued in proportion to the length of railway constructed or under contract to be constructed, or double tracked.

Issue of bonds,
&c. limited

11. The Company, being first authorized by a resolution passed at a special meeting of its shareholders duly called for the purpose, may from time to time issue additional bonds in aid of the acquisition or construction of any steam or other vessel which by this Act it is authorized to acquire or construct, not exceeding in amount the cost of such vessel; and the proceeds of such bonds shall be applied exclusively in aid of the acquisition by purchase or construction of such vessels, according to the terms and intention of such resolution; and each such resolution shall indicate by some general description the vessel or vessels with respect to which it authorizes bonds to be so issued as aforesaid and whether the same are then acquired or are to be thereafter acquired by the Company.

Issue of addi-
tional bonds.

12. For the purpose of securing each issue of such bonds the Company shall execute a deed of mortgage not inconsistent with the law or with the provisions of this Act, in such form and containing such provisions as are approved by a resolution of such general meeting of shareholders as aforesaid, each of which deeds shall be made to trustees, to be appointed at such special general meeting for that purpose, and may contain provisions establishing the amount secured upon the vessel, or class of vessels to which it relates, the rank and privilege to appertain to the bonds intended to be secured by it, the rights and remedies to be enjoyed by the respective holders of such bonds, the mode of assuring the application of the proceeds of such bonds to the purposes for which they are to be issued, the rate of interest payable upon them, and the place and

Security
for the bonds.

time of payment of such interest and of the capital thereof, the creation of a sinking fund for the redemption of such bonds, and all the conditions, provisions, and restrictions requisite for the effectual carrying out of the terms thereof, and for the protection of the holders of such bonds; and it may charge and bind the tolls and revenues of the vessel or vessels or class of vessels to which it relates, and the whole or any part of any subsidy to be earned in connection therewith (but not the railway or the tolls and revenues thereof), in the manner and to the extent therein specified; and each such deed of mortgage shall create absolutely and exclusively a first lien and encumbrance on the vessel, or class of vessels therein described, as well as on their tolls, revenues and subsidy therein by, allocated, the whole for the benefit of the holders of the bonds with respect to which it is made.

Rank of bond-holders

13. Each issue of bonds intended to be secured by any one of the deeds of mortgage referred to in the next preceding section, shall entitle the respective holders thereof to rank with each other *pari passu*, and a duplicate of such deed shall be deposited and kept in the office of the Secretary of State of Canada.

Erection of warehouses, &c.

14. The Company may grant or lease to any person the right to erect on the grounds belonging to the Company, warehouses, elevators or other buildings or works, for the purpose of giving greater facilities to the public in doing business with the Company; and the buildings or works so erected shall not be bound by or subject to any mortgage or lien on the property of the Company, without the consent of the owner of such buildings or works.

60-61 VICTORIA.

CHAP. 65.

An Act respecting the Trans-Canadian Railway Company, and to change the name of the Company to the Trans-Canada Railway Company.

[Assented to 29th June, 1897.]

Preamble, 1897, c. 65

BEAS the Trans-Canadian Railway Company, incorporated by chapter _____ of the Statutes of 1895, has, by its petition, prayed that the name of the said Company may be amended as hereinafter set forth, and that the said Company may be amended as hereinafter set forth, and that the said Company may be amended as hereinafter set forth, and that the said Company may be amended as hereinafter set forth, and that the said Company may be amended as hereinafter set forth: Therefore, Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

Name changed

1. The name of the Trans-Canadian Railway Company, hereinafter called "the Company," is hereby changed from "The Trans-Canadian Railway Company" to "The Trans-Canada Railway Company;" but such change in name shall not in any way impair, alter or affect the rights or liabilities of the Company, nor in any wise affect any suit or proceeding now pending or judgment existing either by, or in favour of, or against the Company, which, notwithstanding such change in the name of the Company, may be prosecuted or continued completed and enforced as if this Act had not been passed.

Existing rights and liabilities not affected.

2. The Company may, in addition to the powers contained in its Act of incorporation, construct a branch from a point near where the proposed main line of the Company will cross the St. Maurice River in the province of Quebec, thence southerly to the village of Montcalm in the parish of St. Liguori, and thence in a direct line to the city of Montreal; but the construction of such branch shall not be commenced until after two hundred miles of its main line, beginning at the city of Quebec, have been constructed and put into operation.

Power to construct branch line.

3. Notwithstanding anything contained in *The Railway Act*, the construction of the said railway shall be commenced and fifteen per cent on the amount of the capital stock of the Company expended thereon within four years and completed within ten years from the passing of this Act, otherwise the powers granted to the Company shall cease and be null and void as respects so much of the railway as then remains uncompleted.

Time extended for construction and completion of railway.

4. Any Act hereafter passed for the purpose of controlling railway companies incorporated by or subject to Parliament as to the issuing of stock or bonds, and as to rates or tolls and the regulation thereof, and as to running powers over or other rights in connection with the railway of any company by any other company, and the exercise of powers conferred upon railway companies, shall apply to the Company from the time such Act goes into effect; but this section shall not be construed to imply that such Act would not apply to the Company without the enactment of this section.

Power of Parliament as to future legislation.

2. EDWARD VII.

CHAP. 108

An Act respecting the Trans-Canada Railway Company.

[Assented to 15th May, 1902.]

WHEREAS the provisional directors of the Trans-Canada Railway Company have, by their petition, prayed that it be enacted as hereinafter set forth, and it is expedient to grant the prayer of the said petition: Therefore, His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, declares and enacts as follows:—

Preamble.

1. Notwithstanding anything contained in *The Railway Act* or in the Acts relating to the Trans-Canada Railway Company, hereinafter called "the Company," it is hereby declared that the Company shall have ten years from the passing of this Act within which to complete the railway authorized by the said Acts: and if the said railway is not completed within the said period, the powers of construction conferred upon the Company by Parliament shall cease and be null and void with respect to so much of the said railway as then remains uncompleted.

Time for completion of railway extended.
1888, c. 29;
1895, c. 68;
1897, c. 65.

2. Section 2 of chapter 68 of the Statutes of 1895 is repealed, and the following is substituted therefor:—

1895, c. 68,
New s. 2.

"2. The head office of the Company shall be in the city of Quebec or in such other place in Canada as the Company from time to time determines by by-law."

Head office.

Section 6
repealed.

7. Section 6 of the said Act is repealed, and in lieu thereof it is enacted that George Earl Church, Richard Biddulph Martin and Frank Crisp, all of London, England, the Honourable Francis Clemow and J. A. Gemmill, of the city of Ottawa, George Tanguay, John T. Ross, Gaspard LeMoine, Victor Charbonnet, J. G. Scott, William Puce, W. A. Marsh, T. A. Piddington, the Honourable P. Garneau, Vesey Boswell, William Shaw, the Honourable N. Garneau, L. A. Robitaille, N. Rioux, E. Beaudet, E. E. Ling, A. E. Doucet, the Honourable Jules Tessier, Guy Tombé, Alexandre Hardy and S. S. Oliver, all of the city of Quebec, B. A. Scott, of Roberval, George T. Davie, of Levis, J. D. Guay and J. E. A. Dubne, of Chicoutimi, Joseph Girard, of St. Gédéon, Onésime Côté, of St. Alphonse, William Hanson, of Montreal, W. Reeves of Montreal, James McNaught, of New York, H. H. Melville, of Boston, Massachusetts, A. Robitaille, of Quebec, John Farson, of Chicago, and Thomas L. Willson, of St. Catherines, Ontario, shall be the provisional directors of the Company, of whom seven shall form a quorum.

Point of com-
men- cement of
main line.
Branch Lines.

1. The Company may continue the construction of its main line, which was commenced at Roberval on the Quebec and Lake St. John Railway, from that point in a westerly or north-westerly direction, and may build a branch line from the nearest point on its main line to deep water near the mouth of the Nottaway River, and also a branch line from Chicoutimi to the mouth of the Saguenay River at or near St. Catherines Bay.

Running
powers over
Quebec and
Lake St. John
Railway.

2. The Company may, subject to agreement with the Quebec and Lake St. John Railway Company, exercise running powers over the said railway to Quebec and Chicoutimi.

Agreements
with other
companies.

5. The Company may enter into an agreement with the Great Northern Railway of Canada, the Quebec and Lake St. John Railway Company, or the Canadian Northern Railway Company, for conveying or leasing to such company the railway of the Company, in whole or in part, or any rights or powers required under this Act, as also the franchises, surveys, plans, works, plant, material, machinery and other property to it belonging or for an amalgamation with such company, on such terms and conditions as are agreed upon, and subject to such restrictions as to the directors seem fit: provided that such agreement has been first approved by two-thirds of the votes at a special general meeting of the shareholders duly called for the purpose of considering it, at which meeting shareholders representing at least two thirds in value of the stock are present or represented by proxy, and that such agreement has also received the sanction of the Governor in Council.

Approval
shall be
required
in Council.

Notice
appertaining
to publication.

2. Such sanction shall not be signified until after notice of the proposed application therefor has been published in the manner and for the time set forth in section 233 of *The Railway Act*, and also for a like period in one newspaper in each of the counties or electoral districts through which the railway of the Company runs, and in which a newspaper is published.

Agreement to
be filed with
Secretary of
State.

3. A duplicate of the agreement referred to in subsection 1 of this section shall, within thirty days after its execution, be filed in the office of the Secretary of State of Canada, and notice thereof shall be given by the Company in *The Canada Gazette*, and the production of *The Canada Gazette* containing such notice shall be *prima facie* evidence of the requirements of this Act having been complied with.

SIR SANDFORD FLEMING, the most celebrated Engineer in Canada, or perhaps in America, who has just completed the great project of a Pacific telegraph cable from Canada to Australia, and who has an intimate knowledge of the whole of the country to be traversed by the Trans-Canada, was interviewed by a reporter when it was announced that the Grand Trunk Railway contemplated building a transcontinental road.

His opinion, which follows, is a remarkable confirmation, by the greatest known authority, of the wisdom of the selection of the route provided for in the Trans-Canada charter.

"It gives me much pleasure to see what has appeared in the press respecting the aims and designs of the Grand Trunk Railway. It was with great interest I read what the Minister of Railways and Canals had said when recently in British Columbia. I am inclined to think Mr. Blair is in the right track in proposing to extend the Intercolonial Railway to the Pacific. It seems to me, however, that it would be a mistake to try to run a new transcontinental line in a haphazard way by connecting various fragments of railway which have been located without any general plan. The object would be to lengthen the whole line and unduly lower its engineering character, and almost certainly give features which would be for ever regarded as blemishing to a great transcontinental line. To realize Mr. Blair's conception of a new national railway, it should, in my judgment, begin at the Quebec Bridge, now building, where it would form a direct connection with the Intercolonial and it should extend from Quebec by the most direct route to Port Simpson on the Pacific. From what I know of the general character of the greater part of the intervening distance, I believe a line with splendid engineering features could, with ordinary care be secured. It would pass away to the north of the rugged shore of Lakes Huron, Superior, Nipigon, and Winipeg, through a vast region reported generally of alluvial soil, with abundance of wood and water.

Since I read the newspaper last night I have looked up some of my reports on the location of the Canadian Pacific Railway. In that held in the Parliament, in 1878, I find one which bears on the question now asked, and I refer you to page 96 of the following pages, and also to the report to which they refer, on which I suggested the line now proposed, to be followed. The conditions have greatly changed for the better since the date of that report, now close on a century of a century back. Yes, they are immensely improved since then.

"First. The Quebec Bridge is in progress, and its structure I have always favored, but it would have been a bold man to have proposed such a work a quarter of a century ago. You will find a modest reference to it in a little sketch published in 1881, of a journey made by me the previous year from 'Old to New Westminster.' The Quebec Bridge will give the needed connection with the Intercolonial as well as the Grand Trunk Railway and along with a junction with these railways access and egress to and from Atlantic points at all seasons.

"Second.—The greater part of the vast region through which the new line might pass between Quebec and Port Simpson is woodland, and we have to-day a new value given to the timber which was unburned 25 years ago. The territory to be traversed is the natural home of pulpwood, and in this vegetable substance the unoccupied regions of Quebec and Ontario have an inexhaustible crop ready for harvesting. A crop of a perennial character, which, in extent, I venture to say, is unsurpassed in the North American Continent—perhaps in the whole world.

"Third.—Since 1878 the Dominion has greatly advanced and prospered, far beyond the sanguine speculations of the greatest optimist among us.

QUEBEC TO PORT SIMPSON.

"I have already expressed my doubts as to the wisdom or expediency of proceeding in a haphazard way to establish a new transcontinental railway. I regard the shortest line obtainable between the tide-waters of the two oceans as quite long enough. For that and other cogent reasons I would advocate the most favorable route which can be had between the port of Quebec and Port Simpson for a new Dominion Grand Trunk line, and at the same time to have in view the establishment of railway service with all desirable points by branches judiciously laid out. By having re-

gard to these leading principles, great advantages would, in my judgment, result. It seems to me there is ample room for the new railway. It would in no way interfere with any other line, and it may be regarded as a natural development of the railway system of Canada. On that point, however, I would invite attention to the pages of my report of 1878, to which I have made reference. I am satisfied that it is possible to establish a splendid national railway on the route proposed with the best ocean ports at its termini. With a Rocky Mountain passage very much lower than that of any railway yet constructed across the North American Continent, and with general engineering features even more favorable than those planned on the Intercolonial Railway, such a line would give breadth to Canada and admit of settlements and profitable industries where such are not now possible. In the Far North West it would open up for ranching the rich plains of the Peace River and Northern British Columbia, and render the more distant gold fields more easily accessible at all seasons.

THE SHORTEST ROUTES.

"When the day arrives to open the railway as a through route it will be found to possess advantages, in respect to distances, as compared with the route via San Francisco and New York. From Yokohama to Liverpool the passage across the Pacific Ocean would be 605 and across the Atlantic 195 nautical miles less. While the land distance would be 502 statute miles less, making a total saving on the whole distance of about 1,123 statute miles.

"Regarded simply from a Canadian standpoint, I cannot conceive any public undertaking which would better meet the wants of the New Dominion, throughout its whole extent. I rejoice to know that it has so soon in Canadian history been brought up for serious consideration."

EXTRACT FROM SIR WM. VAN HORNE'S interview to the New York *Evening Post* upon being asked his opinion as to the Trans-Canada Railway.

"Canada," he said, "has been adding sides to her hopper for a long time, but has neglected to enlarge the spout. She has for years been spending millions generously in the development of the interior and her railways, but has neglected her outlet to the Atlantic. Her crops and industries have grown and the hopper is simply full to overflowing, and the outlet at Montreal is not large enough. Her exports take the easy routes by the great lakes and the Erie Canal to Boston and New York, simply because Canada sits comfortably by and does not see what she is losing.

"Our folks have not come to the point yet of realization of the fact that 70 per cent of the gross earnings of a people's railway or ship lines are paid back within a month as earned, for labor and materials, in the community in which they operate; or that the other 30 per cent, which goes for interest and dividends, establishes credit so that the company may borrow more money and establish great industries by branching out and enlarging. They do not realize that every dollar paid for transportation or elevator facilities in the States is that much taken from themselves, and

their loss. In time the Montreal outlet will be developed, and while I don't know how much wheat and flour England uses, it seems very probable that Canada may supply her whole needs within a few years as has been suggested in the *Evening Post's* Canadian correspondence. Eventually, she may export wheat to the States, also, though that is a question which we need hardly consider now, as it will not have to be met for twenty-five years or more.

"The position of the Canadian Pacific Railway is absolutely unassailable. For that reason, it is our policy never to oppose anything. *The Trans-Canada road has started with better prospects than the Canadian Pacific had once.* When the Northern Pacific road was built, everybody thought it was way up north beyond nowhere. Then the Great Northern was built, and people promptly forgot thinking of the Northern Pacific as far north. Then came the Canadian Pacific, and that seemed to run through the Arctic regions. We would hail with delight a parallel route from Atlantic to Pacific to help us develop the country. There is enough of it up there for us all."

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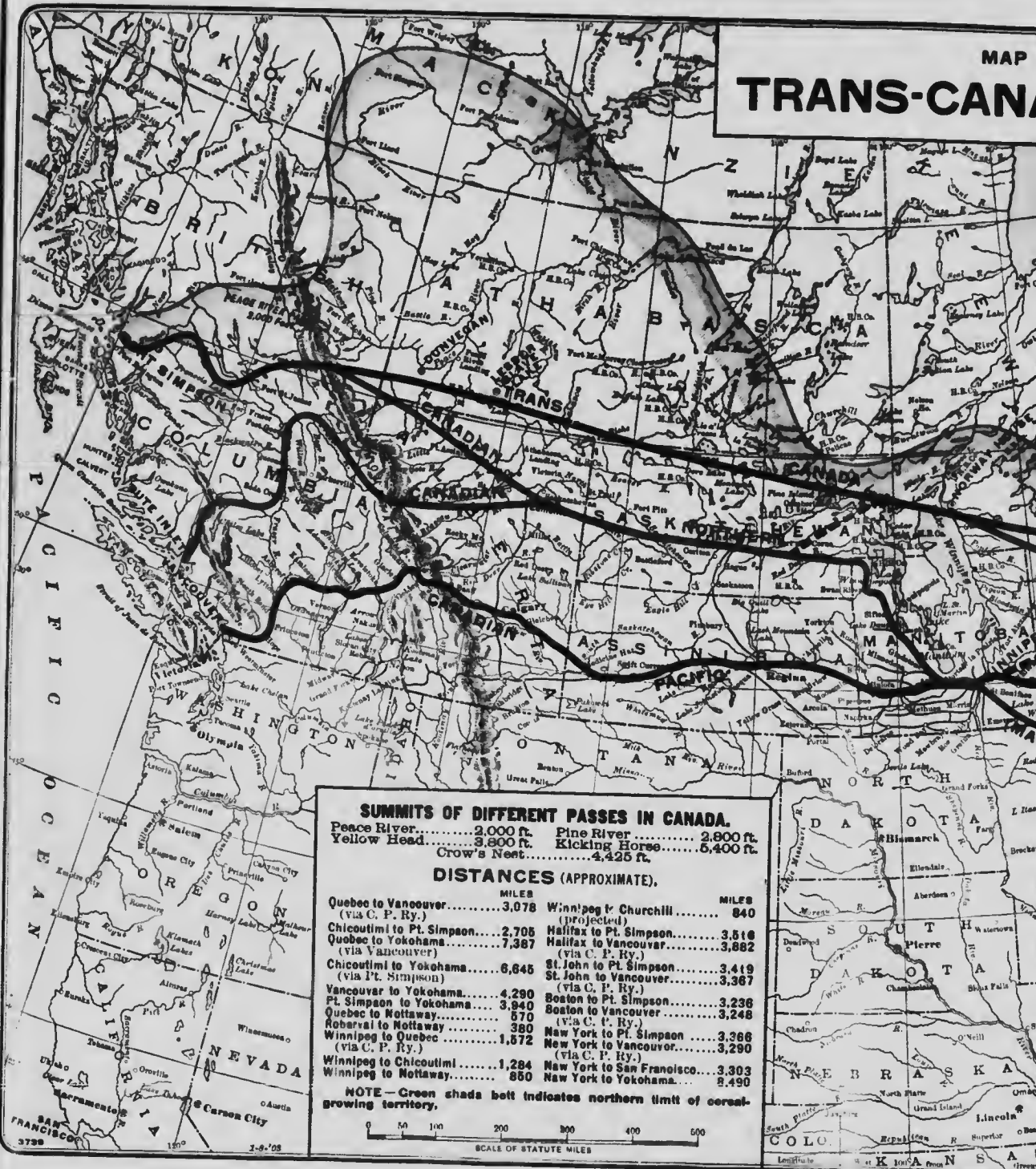
COMPARISONS of the Temperature, Rain and Snowfall for each month, the year, the Winter at MOOSE FACTORY, JAMES BAY, with Stations in other parts of Canada. MOOSE FACTORY exclusively from observations noted in the reports of the Government Meteorological

	TEMPERATURE.									RAI			
	Moose Factory	Rimouski.	Dalhousie	Chicoutimi.	Winnipeg.	Port Arthur.	Ottawa.	Montreal.	Quebec.	Moose Factory	Rimouski.	Dalhousie.	Chicoutimi.
	°	°	°	°	°	°	°	°	°	In.	In.	In.	In.
JANUARY.....	-3.4	9.7	8.7	-1.7	-13.2	-3.7	12.0	12.1	7.8	0.00	0.03	...	0.00
FEBRUARY.....	1.8	14.9	15.0	2.2	6.1	0.9	4.4	5.9	6.6	0.06	0.21	0.06	0.00
MARCH.....	11.9	22.6	22.0	3.6	8.8	8.0	12.3	13.2	11.8	0.19	0.75	1.25	0.60
APRIL.....	25.2	32.7	33.1	31.7	35.6	32.5	36.2	37.7	35.9	0.36	1.37	1.89	0.50
MAY.....	43.9	43.5	45.0	48.3	50.6	44.3	55.3	55.4	51.9	1.01	2.59	3.67	0.75
JUNE.....	52.4	53.1	55.9	53.8	69.5	54.4	63.1	62.1	59.8	3.13	2.95	3.54	9.10
JULY.....	62.5	57.4	62.8	66.0	64.9	61.2	69.4	69.2	66.5	3.22	3.49	3.36	4.22
AUGUST.....	59.2	56.0	59.8	56.9	52.8	56.1	62.4	63.0	61.6	3.84	3.34	4.66	3.22
SEPTEMBER.....	51.0	51.0	54.4	48.3	52.8	59.6	54.9	55.4	52.9	4.27	2.84	3.99	3.32
OCTOBER.....	39.1	41.0	42.0	39.0	37.5	37.3	43.9	44.1	42.3	1.79	3.07	3.34	3.03
NOVEMBER.....	21.3	29.1	27.5	25.2	26.3	28.9	32.8	32.8	31.0	0.52	1.18	2.15	0.98
DECEMBER.....	9.9	17.0	15.6	8.1	8.6	16.2	17.5	19.4	16.2	0.16	0.73	1.13	0.15
YEAR.....	31.2	35.7	36.8	31.8	32.1	32.2	38.7	39.2	37.0	19.44	22.55	29.04	25.27
WINTER.....	3.4	15.7	15.2	1.4	3.5	1.7	9.6	10.4	8.7	0.34	0.99	1.31	0.00
SUMMER.....	57.6	54.8	59.0	57.1	58.8	56.0	62.2	62.5	60.3	11.33	9.67	12.01	10.76

his map was published the Grand Trunk Pacific have changed their route, and their proposed route now runs from Quebec to Winnipeg, via Port Huron or North Bay, thence via Battleford, Edmonton and Dunvegan to the Simpson or Bute Inlet.



MAP TRANS-CANADA



SUMMITS OF DIFFERENT PASSES IN CANADA.

Peace River.....	2,000 ft.	Pine River.....	2,800 ft.
Yellow Head.....	3,800 ft.	Kicking Horse.....	5,400 ft.
Crow's Nest.....	4,425 ft.		

DISTANCES (APPROXIMATE).

MILES		MILES	
Quebec to Vancouver.....	3,078	Winnipeg to Churchill.....	840
(via C. P. Ry.)		(Projected)	
Chicoutimi to Pt. Simpson.....	2,705	Halifax to Vancouver.....	3,816
(via Vancouver)		(via C. P. Ry.)	
Quebec to Yokohama.....	7,367	St. John to Pt. Simpson.....	3,419
(via Vancouver)		(via C. P. Ry.)	
Chicoutimi to Yokohama.....	6,645	St. John to Vancouver.....	3,367
(via Pt. Simpson)		(via C. P. Ry.)	
Vancouver to Yokohama.....	4,290	Boston to Pt. Simpson.....	3,236
Pt. Simpson to Yokohama.....	3,940	Boston to Vancouver.....	3,248
Quebec to Nottaway.....	570	(via C. P. Ry.)	
Roberval to Nottaway.....	380	New York to Pt. Simpson.....	3,266
(via C. P. Ry.)		New York to Vancouver.....	3,290
Winnipeg to Quebec.....	1,572	(via C. P. Ry.)	
Winnipeg to Chicoutimi.....	1,284	New York to San Francisco.....	3,303
Winnipeg to Nottaway.....	850	New York to Yokohama.....	2,490

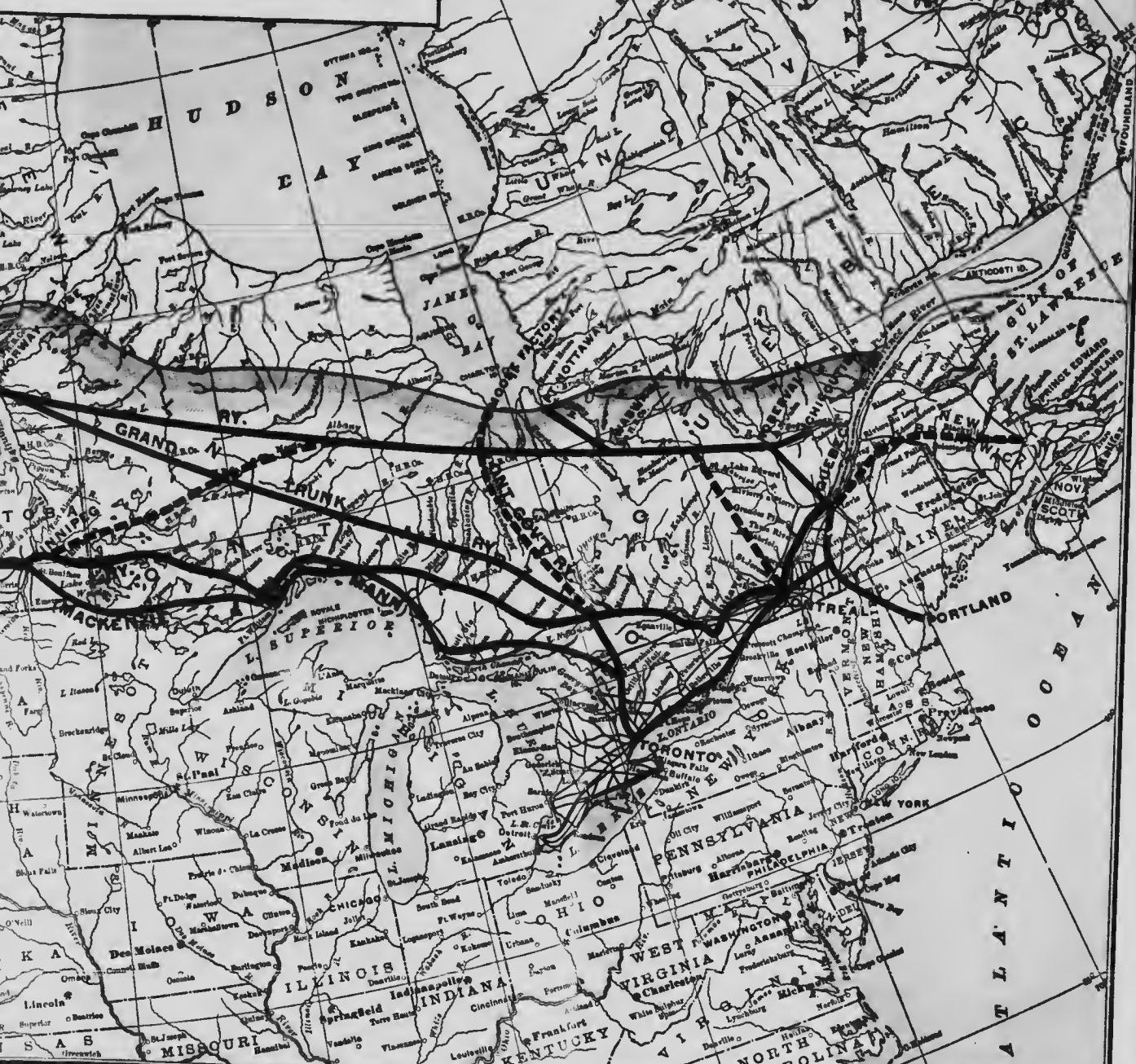
NOTE—Green shaded belt indicates northern limit of coal-growing territory.



DISTANCES:

QUEBEC TO PORT SIMPSON VIA TRANS-CANADA RY. 2,831 M.
 QUEBEC TO PORT SIMPSON VIA GRAND TRUNK RY. 3,407 M.
 PORTLAND TO PORT SIMPSON VIA GRAND TRUNK RY. 3,603 M.

MAP OF THE CANADA RAILWAY



A RY. 2,831 MILES.
 RY. 3,407 MILES.
 K RY 3,603 MILES.

LIVERPOOL TO YOKOHAMA VIA NEW YORK. 12,088 MILES.
 LIVERPOOL TO YOKOHAMA VIA TRANS-CANADA RY. 9,831 MILES.
 LIVERPOOL TO YOKOHAMA VIA GRAND TRUNK RY. (PORTLAND.) 10,944 MILES.

Since this map was published the Grand Trunk Pacific have changed their location, and their proposed route now runs from Quebec to Winnipeg, via Gravenhurst or North Bay, thence via Battleford, Edmonton and Dunvegan to Port Simpson or Bute Inlet.

94443

Trans-Canada Ry.

Trans-Canada Railway.

Engineer's Report of the Physical Features of the Line and of the resources of the Territory tributary to the Railway.

The following is a report of the country from Roberval, Province of Quebec, to Port Simpson, B. C., through which will be located the Trans-Canada Railway. This information is compiled from actual surveys made by the different Provincial Governments, by the Geological Survey of Canada, and by the Engineering parties sent out at various times by the Dominion Government. In each case the source of information is mentioned in the report, so that its accuracy may be easily verified. It will be at once apparent that no difficulties of a serious nature, from a topographical point of view, exist on the location chosen for the main line of the Trans-Canada Railway, and that with branch lines judiciously laid out at various points a great portion of the northern part of the Dominion will be tapped and developed, and the riches of its soil and forests be brought within easy reach of the large population which it is confidently expected the construction of the Trans-Canada Railway will cause to flow into this rich heritage of the Canadian people.

All the resources which tend to make a country rich and prosperous are to be found along the line of the Trans-Canada Railway, and, leaving out the minerals, indications of which are to be seen at various points along the line, the land and forests alone will support millions of people in a prosperous and comfortable state.

Engineering parties of the Trans-Canada Railway are at present in the field, and information as to the short gap of some 200 miles in the territory of Keewatin, which has not yet been thoroughly explored, will soon be known. No difficulty, from a construction point of view, is anticipated on this short distance, as the Geological Survey reports a level country with soil of the same quality as that on the south side of the Albany River.

PROVINCE OF QUEBEC.

From information compiled from Geological Survey reports and explorations made for the Crown Lands Department by H. O'Sullivan, D.L.S., F.R.G.S.

From Roberval to the western limit of the Province of Quebec, a distance of some 375 miles, the line runs through a good farming country, the soil being chiefly clay. The first thirty miles are already settled. At one hundred and thirty miles the summit of 1200 feet between Roberval and James Bay is reached, and from actual surveys taken the maximum west gradient of 1 p.c. can easily be had. From the summit at Lake Chigobiche, the country is a gentle rolling plain in the direction of James Bay, so much so that in places there is not a difference of 100 feet in a distance of 100 miles. The height of land between the St. Lawrence and James Bay waters is scarcely perceptible; the waters interlock and some of the lakes discharge both ways during spring freshets. On the lower part of the Chamouchouan River the country has been overrun by fire, and is now covered with second growth timber, but on the upper part of the river the primitive forest still remains, the timber being chiefly spruce.

The soil in the valley of the Mekiscan is of excellent quality, being chiefly grayish blue clay covered with rich vegetable mould and well covered with mixed timber, mostly soft wood. There is an abundance of large poplar, which grow like large elms, with clear trunks from 50 to 60 feet high without branches, and from which half a dozen saw-logs may be had from one tree. At Notta-

way River near the discharge of Lake Matagami, all the timber of the Upper Nottaway basin, some ten or fifteen thousand square miles, can be concentrated and manufactured on the spot. There is an abundance of pulpwood all through the country, and immense water power to be had on the Nottaway and Rupert Rivers.



SAMPLE OF SPRUCE 12 IN. TO 24 IN. IN DIAM., A FEW MILES INTERIOR FROM MOUTH OF MOOSE RIVER.

In the vicinity of James Bay the only mountain to be seen is Mount Sherrell, the highest summit being scarcely 500 feet above sea level, about mid-way between Rupert House and East Main River. In every other direction the

land, which is generally of a clay formation, rises gently from the Bay towards the interior on all sides. The temperature varies very little from that of the St. Lawrence Valley below Quebec. The Meteorological Department report the average temperature for the last three years to be about 6 degrees warmer than that of Rimouski.

MINERALS.

Dr. Bell estimates that the Huronian formation of this region is most promising, as regards minerals, especially gold, copper, iron and nickel. Veins have been found in several localities showing traces of copper and others of gold. Mr. A. P. Low says that at Lake Chibougamu copper has been found and that the granites of Lake Chibougamu must contain gold.

Lignite coal has also been found by Dr. Bell in considerable quantities on several of the islands in Hudson Bay.



COTTAGE HOSPITAL FOR SICK AND AGED INDIANS, MOOSE FACTORY.

PROVINCE OF ONTARIO.

From information derived from surveys made by the Provincial Government in 1900.

From Mile 375 to Mile 117, or from the western boundary of the Province of Quebec to 72 miles westward.

A large portion of this region is of the same general character and equally well suited for agricultural settlement as the townships around the head of Lake Temiscaming. The land is clay and clay loam. In general the land back from the rivers is low lying and marshy, and the impervious nature of the soil prevents filtration and promotes the growth of moss, with which most of the country is covered. Nevertheless the soil is rich and capable of cultivation with proper drainage. The land tributary to the Trans-Canada Railway on this portion, which is, or could be made suitable for farming, is estimated at one million acres. The country along the Blanche River above Lake Temiscaming and extending to Lake Abitibi, is a fine rolling area of clay loam. There are extensive deposits of moss peat, some of the bogs reaching to a depth of ten feet. The peat taken from these bogs, on analysis, shows a high percentage of volatile combustible matter and fixed carbon, no sulphur and only a trace of phosphorus, with a low percentage of moisture and ash, which render it a valuable fuel.

There are two water powers of considerable magnitude on Abitibi River. Conchichang Falls, with about 1,000 H.P. and Proton Falls, with about half that amount. Upper Abitibi Lake covers an area of 190 square miles, of which about 55 square miles lie in the Province of Quebec. Lower Abitibi Lake has a surface of 145 square miles. A comparatively small expenditure in lowering the level of Conchichang Falls would reduce those lakes to about one half their present area and improve the drainage of an immense tract of country.

There is little pine timber north of the height of land, the trees being scattered and inferior in quality. There are some small areas of red pine and some jack pine, but nearly all the varieties found are south of Lake Abitibi. The best areas for pulp wood are on Low Bush and Circle Rivers between the Upper and Lower Abitibi Lakes. There are also considerable pulp wood areas to the west and north of Lower Abitibi Lake.

From Mile 117 to Mile 557, a distance of 440 miles.

75 per cent of the land in this distance is found to be choice farming land, the surface, in places, rolling, and the soil a rich friable clay and clay loam. The good land alternates with marshy land not more than four feet deep with clay at the bottom. If the country were cleared up a large proportion of this low wet land could be made productive as pasturage.

The prevailing timber is spruce and poplar, there being no pine or hard wood. The spruce, especially along the river banks, attains a size which renders it valuable for square timber, and the poplar is large and abundant, particularly on the Mattagami River. Special acres examined would yield 20 cords of spruce, other acres would cut 15 cords of spruce and ten of poplar. Some of them, if all the timber growing on them were made into cord wood, would show 60 to 70 cords to the acre. Much of the tamarac is dead, as this tree appears to frequently die after having obtained a growth of about twenty inches, and owing to the slight hold of its roots on the clay soil it is liable to be blown down. The district is generally flat with a gradual slope towards Hudson Bay.

Rock exposures are few and of limited area, the prevailing formation being the Laurentian with isolated outcrops of the Huronian formation. In some localities iron pyrites are found which may be utilized in the manufacture of chemical pulp. The country presents excellent facilities for railway construction. On the north side of the height of land no rock cutting is, necessarily very little cutting and filling would be required and, owing to the level nature of most of the country, the gradient would be easy. Tamarac for ties and sand ballast are to be had in abundance. The rivers and streams, more especially the Mattagami and Kapuskasing Rivers furnish numerous valuable water powers with falls from ten to twenty five feet, which can be utilized in the development of mechanical industry.

Generally speaking the climate is similar to that of Manitoba, the weather in mid-summer being equally hot. No destructive frosts are experienced until the end of September, and rains are frequent, but not excessive.

Between the Missinibi and Kaboukagami Rivers, from Mile 557 to Mile 637, a distance of 80 miles, the land, as a whole, is level, rising slightly along the water courses, where it is rolling. The soil is clay and sandy loam, covered in the lower levels with boggy peat and moss, varying from two to four feet in depth. The country can be easily cleared, and for farming purposes the soil will be equal to the best in the older portions of the Province. Much of the area which is at present swampy, will secure natural drainage when the country is cleared

owing to the incline of the land. The mixture of the clay forming the prevailing sub-soil, with the surface soil will prove rich and productive. This district is well watered by numerous rivers and streams, some of which are well stocked with fish. This district is heavily timbered with spruce and tamarac interspersed with other varieties. Owing to their density of growth, the spruce and tamarac are for the most part too small for any other commercial use than pulp wood, not being proportioned to the height they frequently attain. In some places, however, they are of larger dimensions. The spruce will yield in some places 40, 50 or even 60 cords to the acre, especially in the country along the Kabinakagami River. There is also a heavy growth of spruce along the Mattawishgwan River, which will produce from 20 to 35 cords to the acre. The dense spruce and tamarac forests of the Moose River basin are of great value and cover an immense area.

The rock formations are for the most part Laurentian with some Huronian exposures. Near the Missinabi River are found boulders of fine gray slate which cleave readily.

The peat found in the lower levels below the moss on the surface is inferior as fuel, owing to the shallowness of the beds and the amount of moisture it contains. Similar soil to these peaty tracts, at Binswick House and on Missinabi Lake has been found capable of raising good crops.

From Katinokagami River to the Albany River, a distance of about 50 miles from Mile 657 to Mile 687.

About half of the territory comprised within this distance is good arable soil, not found in large continuous areas, but principally in the neighborhood of streams. In the northern part of this district there is a good deal of muskog and the flatness of the surface will be unsuitable in the way of drainage. Most of the district has been burned over, so that the timber generally is not of large size. The trees growing along the river banks have usually attained a fair size. The best timber district is between the Kanakasha River and Lake Eskyanagn, where extensive groves of spruce and tamarac up to 36 inches in diameter are found. The poplar which grows everywhere along the river is singularly free from "black heart" which renders it of value for pulp wood. At Pine Lake on the Kenongami River, iron pyrites occur in considerable quantities, though it carries only small traces of gold, nickel and copper. The climate is similar to that of a part of the North West, being in the same latitude. Frost is unusual during the summer season and all the ordinary garden vegetables are raised with difficulty. Barley and oats can also be matured successfully.

The valley of the Ogoki River is a wide level tract of good clay soil interspersed with smaller areas of sand. The upper portion of this valley is the most extensive and promising stretch of agricultural land met with. The lower section down to the Albany River is wet and contains numerous peat bogs, but, as the land lies considerably higher than the river bed, it could be easily drained and rendered suitable for cultivation. The total area of arable land ten miles inland on each side of the Ogoki River, for a distance of 140 miles, is estimated at 1,500,000 acres. There are great quantities of excellent pulp wood throughout the district, the principal varieties being spruce and rock pine. From the mouth of the Ombabika River to the Albany River, the land, exclusive of bauls, will yield 38 cords to the acre, or a total of 56,346,000 cords. The Ogoki River country will average 41 cords to the acre making a total estimated output of 78,846,000 cords, being 135,191,000 cords in all from the territory tributary to these two water courses.

Silurian limestone overlaid with beds of drift prevails in the Albany River between the Ogoki and Kenongami Rivers. Traces of gold are found in the quartz veins in the Huronian rocks about Cross and Summit Lakes, the samples taken yielding sufficient gold to encourage further prospecting.



VIEW AT YORK FACTORY, LOOKING OUT TO SEA

Extensive water powers exist on the leading rivers and streams, and lakes abound with fish. The climate is much the same as that of the Temiscaming townships. All kinds of vegetables produced in temperate climates flourish at Hudson Bay posts.

We now cross the Albany River at an elevation of about 700 feet above sea level, and pass from the Province of Ontario into the territory of Keewatin. The explorations of this territory have not been so complete as on the remaining portions of the line. The geological maps of the Dominion show the land to be under 1,000 feet in elevation, and the soil is of a rich clay or clayey formation.

There remains a gap of 250 miles between Martin's Falls on the Albany River, and the Snow River about which nothing very definite is known, though the highest level which the Trans-Canada Railway will be called upon to cross is but 900 feet above sea level at Lake Lausdowne. The probability is that the characteristics of this portion will be found similar to those of the territories to the east and west.

From Mile 937, opposite the Severn River, to Mile 1112, opposite Gimisno Lake, the following description is taken from a report made by Dr. Bell in 1879, on the country around God's and Island Lakes:

The land about Island Lake is level and has an average elevation above the water of apparently less than fifty feet. The level of Island Lake itself is 900 feet above the sea. The woods in the neighborhood are mostly green. The proportion of soil to rock is also much greater than in the neighborhood of God's Lake. Large areas of low sandy land occur on Oxford and Hare Lakes, especially on their northern sides. The higher grounds, when not rocky, present usually a stiff light colored clay, and soil of this description, with more or less humus, is found along the valley of the Trout River. Oxford House is situated on a stiff clayey soil which now produces barley and all kinds of garden vegetables in perfection. This locality is remarkable for its abundance of wild gooseberries, acres of ground in some places being covered with gooseberry bushes. Around Island Lake, although the action of the water has, in the course of time, washed away the loose materials, and earth, leaving the underlying rocks exposed along a great part of the immediate banks, yet on going back a short distance a covering of good soil is generally met with. The soil is very good indeed, being generally clay of a light brownish color, mixed in most places with a little fine gravel. In nearly every case where explorations were carried on inland from Island Lake the rock seen along the Lake shore disappeared or was covered with soil, and the trees were of a larger and better

growth than near the water. There is a very good garden at Island Lake Post, and certainly I have never seen potatoes look better than they do here.



GARDEN AT CROSS LAKE, NELSON RIVER.

The other varieties of soil noticed in the district include clay, sand, vegetable loam and sandy and gravelly loam. Spruce is the most abundant wood everywhere in this region. Next in order comes aspen, white birch, tamarac, balsam, poplar and Banksian pine. In many places the spruce attains a very good size and is used in the form of logs and beams for building purposes. It is also sawn into planks and boards for all sorts of carpenter work. The tamarac and Banksian pine sometimes have a diameter of twenty inches. Balsam fir is common and of good size around Island Lake, some of the trees measuring nearly four feet in circumference. The rowan and mountain ash is to be found at Island Lake, as well as ground maple.

From Mile 1112 to Mile 1237, or fifty miles west of the crossing of Lake Winnipeg, the information is derived from a report of Dr. Bell's on the country between Lake Winnipeg and Hudson Bay, in 1878.

"The outlet of Lake Winnipeg is situated about fifty miles south-eastward from the northern extremity of the Lake. After flowing for four miles through a channel averaging over a mile in width, its waters enter Great Playgon Lake, the main body of which is four miles in length, and is separated from Lake Winnipeg by a level peninsula of clay and sand, four miles in width, called Mossey Point (this is where the Trans-Canada Railway will cross Lake Winnipeg).



OXFORD HOUSE - LOOKING SOUTH-EAST.

Lake Winnipeg is 710 feet above the sea. The banks of the rivers about Norway House, and in fact the surrounding country, consist of a light colored clay. The

timber in this district is generally spruce, tamarac, Banksian pine, white birch, aspen, Bulm of Gilead and willow with a little balsam fir.

The forests and the flora generally of the Nelson River region indicate a milder climate than that of the corresponding tract on the opposite side of Hudson Bay. This appears to be at least partly due to the southerly winds which prevail in summer, bringing the warm air probably from the valley of the Mississippi down that of the Red River and over the whole length of Lake Winnipeg, which has a high and even temperature during the summer months. This condition of things also prevents the occurrence of summer frosts in the Norway House region, which appears to enjoy a climate fully as good as that of the Province of Manitoba. Small fruits, cucumbers, musk, melons and vegetables of all kinds come to maturity at Norway House. Barley is a sure crop. Hitherto, as there has been no object to be gained in attempting the cultivation of wheat, the experiment does not appear to have been tried in this region, but there is every probability that it would succeed, as this cereal is known to come to great perfection in the Athabaska and Pine River region, in localities more than a thousand miles to the north-westward. Nelson River carries with it towards the sea the high temperature of Lake Winnipeg, derived partly from the rivers of the south and west. The effect of this is to induce a rank growth of reeds, rushes and a variety of water plants in the clayey soil along its banks. The climate of this region is pleasant in summer without an excess of rain, and in winter the weather, although cold, is said to be bright and uniform with only a moderate amount of snow. The land would be easy to clear of timber, and considering the unlimited supply of wood for building purposes, fuel, etc., the prevalence of good water in which a variety of food fishes abound, as well as the greater proximity of this region to Europe, it offers some inducements to immigrants which are not to be met with in the greater part of the prairie country to the westward. At Oxford House, barley, peas, root crops vegetables and hay thrive well, and the surrounding district might make a good dairy and stock farming country; even as far as York Factory potatoes and some kinds of vegetables may be successfully cultivated.

From a geological point of view the east coast of Lake Winnipeg from the outlet southward does not present much of interest or importance. The shore is low and sandy. A light gray clay like that of the Nelson River region was frequently noticed and is said to occupy a good deal of the surface from the Lake shore inland.

I am informed that towards the height of land a good deal of clayey land of fair quality extends southwards along the Burnis River. But for some miles inland the country east of Lake Winnipeg from the extremity to the other as far as it has been explored, is reported to consist mainly of rock and swamps. It is, however, very imperfectly known."

The Trans-Canada Railway Engineers are now surveying east and west of Lake Winnipeg and definite information of this portion will soon be available.)

From Lake Winnipeg to Leech or Slave Lake, Mile 1237 to Mile 1899 the information is derived from reports made by Government Surveyors to the Chief Engineer and Director of the Geological Surveys, and are to be found in the Government reports of 1879 and 1896.

The country, as a whole, is of a level character and is cut up by a great many lakes and streams. The granite and gneiss rocks which form the western coast of Lake Winnipeg widen out at the northern extremity of the Lake passing to the mouth of Spider Lake in the direction of Beaver Lake. A short distance west of the general trend of these rocks, the Saskatchewan River passes through a level country cut up by numerous lakes, in the Sturgeon

River the lower levels are sandy and a considerable deposit of light soil covers the chalky formation of the river bed, and the vegetation is very vigorous.

At Pine Island Lake at 1362 miles an expansion of the Saskatchewan River (elevation 870 feet above the sea) the chalk cliffs are in places thirty feet above the surrounding waters. The soil is clayey and very compact and the vegetation is similar to that of Kaminitstiquia, where the same formation occurs. The timber is pine, aspen and balsam poplar.

The country adjoining the Beaver River at the 1587 Mile is most favourable to colonization. The banks of the river are covered with willows, poplar and alder bushes. The soil is of excellent quality. Along Green Lake which flows into the Beaver River the soil is of first class quality and altogether dry. Excellent potatoes are grown and barley and wheat mature well. Along the Churchill River to the north of this portion of the Trans-Canada, the country is rather hilly, and at a few miles back from the river the summits attain 400 to 500 feet above the surrounding plain. Proceeding up the Churchill River and opposite Mile 1487 the character of the country changes and series of plateaus occur. The trees along the river are almost exclusively poplar and Banksian Pine, while spruce grows on the adjoining heights.

At Isle a la Crosse Lake, opposite Mile 1587, whose elevation is 1330 feet above sea level, and on Deep River the Aspen tree predominates, which proves conclusively that the soil is of good quality. The rain fall here is more considerable than on the Peace River, and the summer heat less. Consequently the crops are later than on the Peace River, but vegetables grow very well and are of good size. Wheat, barley and oats succeed very well, though the first named is not a sure crop. Winter wheat should prove successful for the snow covers the ground well on into the April thaws.

At Clear Lake north of La Crosse Lake, elevation 1330 feet above sea level, the country is much better and the surrounding forests are mostly composed of Aspen trees. Potatoes grow very well. Between the Athabasca River and the Lesser Slave Lake the country is completely wooded, rather swampy and in some places hilly.

Lac la Biche is about fifteen miles in length and from four to five in breadth. There is a Roman Catholic Mission there, and patches of land are fenced in, amounting to a considerable area in the aggregate. From the stable seen Dr. Dawson judged that the crops must have been very good. The land, though not equal to that of Edmonton, is estimated by Dr. Dawson to be very good, and he states that it will, no doubt, some day be largely settled.

Of Waskwatin Lake, forming part of Burntwood River and situated about 104 miles to the north-west of Lake Winnipeg, J. Burr, Esq., M.A.B.S., repeating to the Geological Survey in 1902, says —

"Waskwatin is a very pretty sheet of slightly milky water seven miles long and three miles wide, surrounded by sloping clay covered hills wooded with white spruce and poplar. Its surface is varied by a few islands, composed of clay overlying a floor of gneiss. The two falls at or near its outlet would furnish a large amount of power for driving mills and machinery of any kind, while a supply of timber for fueling and fuel could be obtained from the surrounding country, and the soil would grow any of the ordinary roots or more hardy cereals, so that it is not improbable that before long when this fertile country is made accessible by the advent of a railroad from the south, one of the most prosperous towns of the district may grow up on the shores of this now secluded lake.

As Lesser Slave Lake is neared the soil becomes much richer. The land, surrounding the Lake is covered with forests of fine, white spruce and poplar. Coal similar to that of Edmonton has been found on Swan River,

a small stream emptying into Lesser Slave Lake. The soil is of good quality. All kinds of vegetables grow well and the pasture lands for miles around are remarkable, though the soil is rather wet. Between Lesser Slave Lake and Lac la Biche to the south-east, the country is wooded and not hilly. Lesser Slave Lake (elevation 1890 feet above sea level) is about seventy-five miles long and six miles wide. The south-east side of the Lake is low and level and is covered with a remarkable growth of grass, principally "blue joint" higher than a man's waist. Dr. Dawson in 1879 reported as follows, as to a railway route between Slave Lake and Athabasca Landing:



LAC LA BICHE, ATHABASCA RIVER, SHOWING DEPOSIT FROM MINERAL SPRING.

"The Lesser Slave Lake appears to present every facility for the passage of a railway along either shore. The best line would pass not in the immediate valley but on the edge of the plateau bordering it. At the mouth of the river the Athabasca might be crossed by a bridge 760 feet long and about forty feet high with excellent approaches. From this point it would probably be best to follow the right side of the Athabasca valley notwithstanding its somewhat sinuous course to the Landing where the summit of the plateau could be gained without difficulty by the valley of the Towinow-sipi which enters there. The bank of the Athabasca is favourable and no heavy slides occur on this portion of its length. A line taking the north bank of the river would have to cross the Lesser Slave River near its mouth with a bridge of 150 feet to 200 feet long, and might cross to the south side of the Athabasca at the Landing with a bridge of 912 feet with good approaches. Owing to the uniform character of the banks of the valley it would also be possible to gain the level of the plateau without necessitating very heavy work at several intermediate points. The character of the plateau being immediately south of the Athabasca is probably favourable and there are few streams of any size joining the river in this part of its course. An extensive view from the highest point of the plateau above the Landing shows a nearly level horizon in every direction, its uniformity being broken only by a few low ridges many miles distant." The Trans-Canada Railway, would, however, follow a line more to the north of Athabasca Landing, crossing the Athabasca River above the junction of Calling River and follow north to River to Moose Lake. The intervening country is all comparatively low and the Moose River, which is a sluggish stream about 80 feet wide, could be easily crossed.

From Lesser Slave Lake to Hudson Hope, or Mile 1899 to Mile 2129, a distance of two hundred and thirty miles, the information is derived from reports made by the Geological Survey and the Government Railway Engineers.



SUMMIT LAKE, PINE PASS, LOOKING SOUTH DOWN ATLNATCHE VALLEY

The country between these points is generally level, the soil of excellent quality and partly wooded with conifer and white and red fir. The valley of the Peace River is at least two miles in width and about 750 feet in depth. There are slight undulations on the plateau but no hills. Vegetation is similar to that around Edmonton. Looking south and southeast from the Peace River opposite the Hudson Bay Post at the junction of the Smoky and Peace Rivers the country does not differ in contour and elevation from that to the north of Peace River, but instead of grazing plains and of valleys slightly timbered, the level is uniform, heavily timbered and that as far as the eye can reach.

Of Fort Vermillion, on the Peace River, Mr. R. G. McConnell says in 1893 in his report to the Geological Survey:—

"Fort Vermillion, one of the establishments of the Hudson Bay Company, is 152 miles below Battle River, and 160 miles north of Peace River Landing. The country surrounding it consists of partially wooded and fertile prairie. Vermillion Falls are caused by the River falling over a low limestone ledge. The height of the Falls varies according to the volume of water. At low water they are from 15 to 20 feet, while at high water they become greatly reduced. Peace River at this point is nearly a mile wide. Buffalo Lake, a small sheet of water from two to three miles long and about a mile wide, is bordered by extensive meadow lands covered with luxuriant grass. Between Vermillion Falls and Buffalo Head Hills, the greater part of the land is well fitted for settlement. (In 1901 several thousand dollars worth of mill machinery for grinding wheat was carried on to Vermillion Falls and the Settlement is now lighted by electricity derived from the Falls.)



VERMILION FALLS, PEACE RIVER.

At the above mentioned Falls the principal channel of the river has a width of from 100 feet to 500 feet, and

the elevation above sea level is 1524 feet. In August the thermometer reached 92 to 94 deg. F. in the shade. Ascending Smoky River from the Falls the plateau is about 600 feet above the River and on all sides the country is perfectly level and wooded. Smoky River is not deep at low water and its valley is about two miles in width. Between Smoky River and Dunvegan the country is level and prairie like, extending to a great distance northward and cut up by numerous streams. On little Smoky River opposite Dunvegan the country is similar in appearance, but to the west of this point the country becomes wooded and somewhat rougher. Dunvegan is situated on the northern side of Peace River on a terrace thirty feet higher than the main elevation of the river, and is 1305 feet above sea level. The surrounding country is generally about 700 feet above the river, which is itself about 900 feet above sea level.

From the Rocky Mountain Portage to Smoky River, a distance of 250 miles, the Peace River flows through a depression varying in depth from 700 to 900 feet. The underlying formation is chalk and the whole country seems to be an immense layer of clay deposit and alluvial soil. Sandstone is found in large quantities, and excellent graptolites are often met with in the river bed. The climate of this region resembles that of the Red River, but the extremes of heat and cold are not so pronounced. The climate is dry and salubrious and is tempered by the warm western winds. The snow fall rarely exceeds two feet and there are no drifts.

At Fort St. John, whose elevation is 1162 feet above sea level, the soil is rich and vegetation is early and far advanced in July. The wild grasses grow to a height of three feet and the pasturage is excellent. On the north side of Fort St. John the plateau is level or gently sloping. As far as the eye can see the country is covered with most luxuriant vegetation. Potatoes of large size come to maturity in August as well as barley and oats. At Hudson's Hope the general aspect of the valley is uniform, and the elevation above sea level is 1522 feet. To the south the slopes are well timbered, and to the north the country is alternate prairie and forest. On the north of Pine River the country offers beautiful pasturage and the land is of exceeding richness, far exceeding anything in the Saskatchewan Valley. The soil and climate are better, the former consisting of rich marl overlying gravel and sand. The same character of country extends for miles along the river. At Hudson's Hope the valley is about 700 feet below the plateau level. The northern slopes are covered with rich forests of white fir of great height, which as a higher elevation is roughed, are replaced by forests of Aspen trees and which in time give way to prairie lands. The vegetable growth is extremely rapid due partly to the length of the days, and to the high temperature during the twenty-four hours.

From a report made by R. G. McConnell, B.A., of the Geological Survey in 1893, we take the following:

The agricultural capabilities of portions of the Peace-Athabasca district are promising, but have not yet been thoroughly tested. Vegetables of various kinds are grown yearly without difficulty, at Fort Vermillion, Lesser Slave Lake, Whitefish Lake and Trout Lake, while potatoes are grown by the Indians even on the summit of Birch Mountain, at a height of 2,300 feet above the sea. Wheat and other cereals have been fairly successful at Lesser Slave Lake and at Fort Vermillion, the only places where they have been tried. The prairie country around Fort Vermillion equals in fertility the famous Edmonton district and appears to enjoy an equally good climate, its higher latitude being compensated by its more western situation, and by its lower elevation. This district is about 1,000 feet above the sea. In the interior, narrow strips of open covered, but excellent land are usually found along the main rivers, and surrounding many of the lakes; and

numerous areas, often equal in size to eastern counties, might be selected which appear well adapted for cultivation, but the numerous swamps, muskegs and marshes, which separate these areas, detract greatly from their value. The western and especially the north-western portion of this district contains the most promising of agricultural lands.



LOOKING UP PEACE RIVER VALLEY FROM HILL BEHIND DE NAVIGAN.

The Engineers sent out by the Dominion Government in 1893 to locate a line from Edmonton to the Yukon, report on this stretch of country as follows:

On the south side of Lesser Slave Lake there is a wild meadow 30 to 40 miles in extent, that would cut 2 1/2 tons to the acre, while the land on the opposite side is adapted for mixed farming, consisting of open prairie interspersed with small tracts of cotton wood timber. In fact poplar and cotton wood grow on the best land in this country and see this growth is to be sure of good land. The land generally rises to a high table land which keeps up until the Peace River is reached. This river up to Hudson's Hope is in a deep narrow valley with a high table land on both sides. Between these two places the country consists of magnificent grazing lands for at least nine-tenths of the distance. Dr. Dawson estimates the Peace River country to contain 15,140,000 acres of good fertile soil.

After joining the Peace River, the line may follow it to the Junction of the Finlay and Parsnip Rivers. From this point (elevation 2,000 feet) there

to its junction with the Skeena River, and thence down the Skeena to the head of Wark Inlet, following the shore of this inlet to Port Simpson. The alternative route would follow the Omicenia River to its junction with the Fall River, thence follow this river to Hogen Pass (elevation 3,138 feet.) From this point the line will fall to Buckley House at the north end of Tacla Lake, and join the Babine River, following down this River to its junction with the Skeena River. The line would then be the same as that above described. Another route would follow the Pine River, crossing Pine River Pass at an elevation of 2,800 feet, thence descending to McLeod's Lake and Stewart's Lake, and following Watsonquah River to the Skeena River. The fact that good lines can be had by following either the Peace or Pine Rivers is fully established, and the only decision to arrive at, is as to which line presents the most advantages.

The valleys of all the rivers emptying into the Peace and Pine Rivers offer good pasturage and the hills are covered with valuable timber. The Omicenia gold fields would be tapped by the Trans-Canada Railway, as well as the Cassiar coal fields and immediate traffic returns would thus be assured which would facilitate the beginning of construction work from the Pacific terminus of the line.



SUMMIT LAKE AND LIMESTONE MOUNTAINS, PINE PASS.

A line of railway has been located along the Skeena River from Wark Inlet to near Hazelton, and our Engineers are now at work locating from Port Simpson to Wark Inlet. From the reports of this line, the work will be fairly heavy in places, but not as much so as along the Canadian Pacific Railway location on the Fraser. The climate on the Skeena River is in general much like that of Quebec or Manitoba, with the exception of the winter which, though rather shorter, is more severe. In the valley of the Babine and Sestoot Lakes the summer season is sufficiently long and the amount of heat great enough to bring all ordinary crops, including wheat, to maturity.

The grades in the mountains will in no place exceed 1 per cent, and the cost of operation will thus compare most favourably with that of the Canadian Pacific Railway, where 4 per cent. grades are used. There will be no trouble experienced from snow slides which are a source of such great expense on the latter line.



LOOKING DOWN UPPER PINE RIVER VALLEY FROM "THE PRECIPICE."

are two alternative routes to the Skeena River; one by way of the Omicenia and Oselina Rivers to Sestoot Lake, (elevation 2,900 feet) thence following the Sestoot River

Port Simpson has been described as the best port north of San Francisco. This harbour has been accurately surveyed. It is over three miles in length with an aver-

age breadth exceeding one mile, and is well sheltered and is easy of access, lying at the eastern end of Dixon entrance. There is a considerable area of level and gentle sloping ground, well adapted for the erection of buildings.

From this report it will be seen that the country through which the Trans-Canada Railway will be located, is sufficiently well known to state definitely:

1. That no obstacles of a serious nature, as regards construction, exist throughout the whole route.
2. That the amount of rock work is inconsiderable.
3. That the gradients will be easy as the country is so level.

4. That the soil, composed mostly of clay or of clay formation, is fit for agriculture for the greater part of the distance.

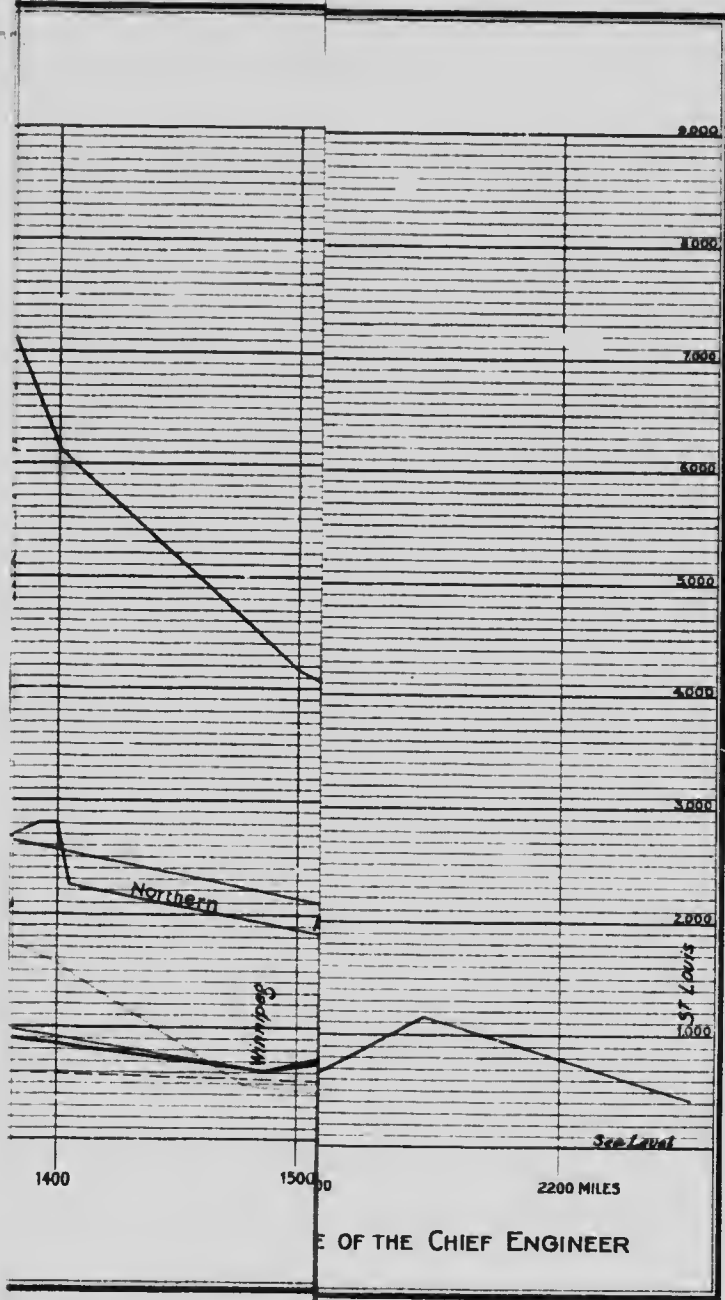
5. That there are valuable areas of timber lands on the route.

6. That the lands and the timber will assure to the railway an immediate return in produce - lumber and minerals.

A. E. DOUCET,
Chief Engineer.

Quebec, 28th February, 1903.

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PACIFIC COAST TERMINI. Line shown thus

Port Simpson	Trans-Canada Ry.	Line shown thus
Bute Inlet	Canadian Northern Ry.	" "
Vancouver	Canadian Pacific Ry.	" "
Astoria	Northern Pacific Ry.	" "
San Francisco	U. & C. Pacific Rd.	" "
do	Atlantic & Pacific Rd.	" "
San Diego	Texas Pacific Rd.	" "

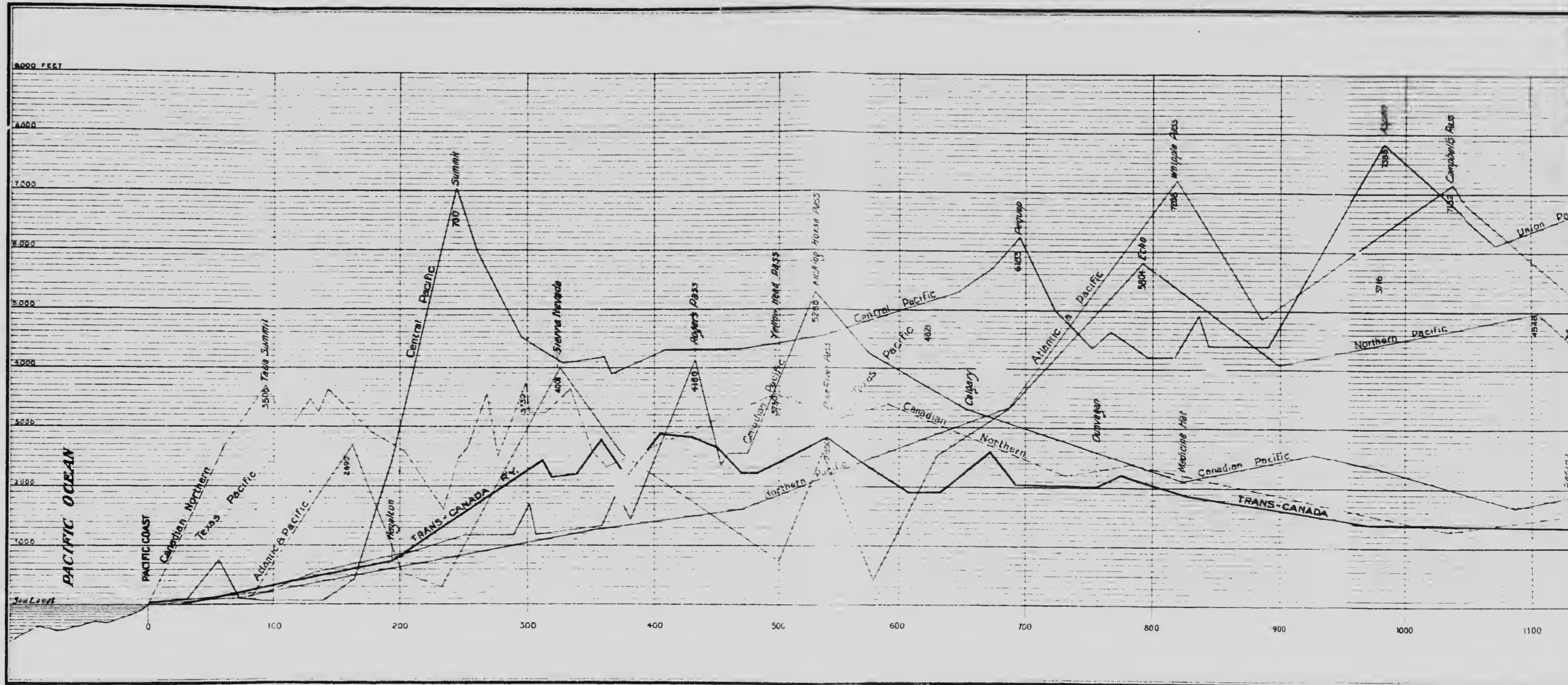
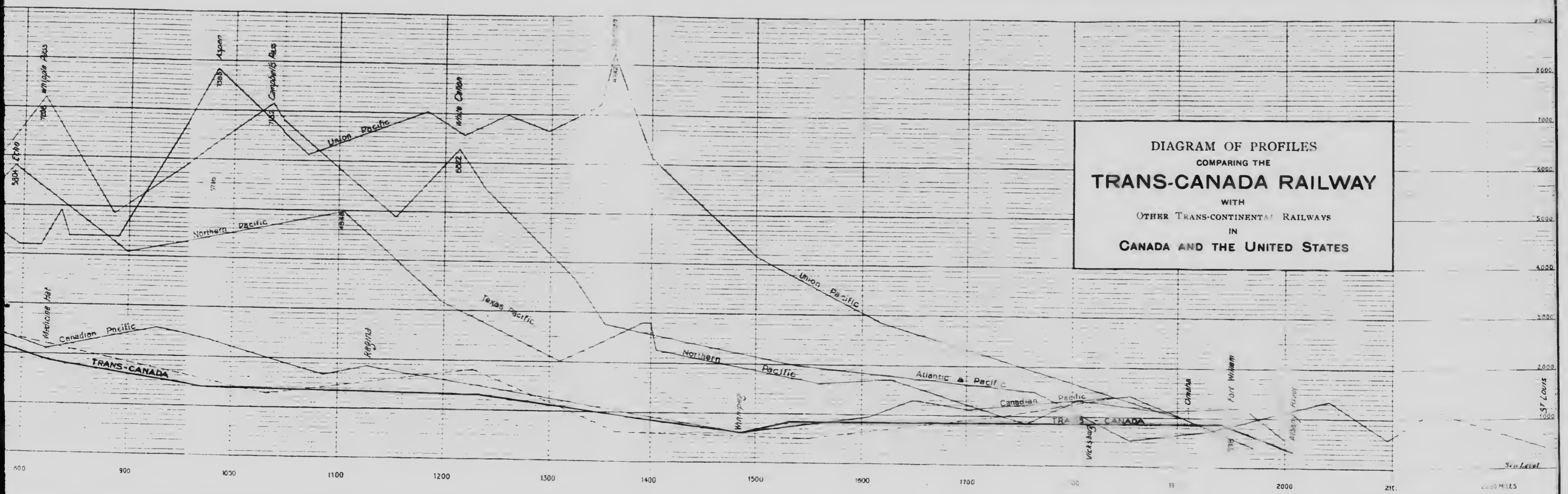


DIAGRAM OF PROFILES
 COMPARING THE
TRANS-CANADA RAILWAY
 WITH
 OTHER TRANS-CONTINENTAL RAILWAYS
 IN
 CANADA AND THE UNITED STATES



OFFICE OF THE CHIEF ENGINEER

