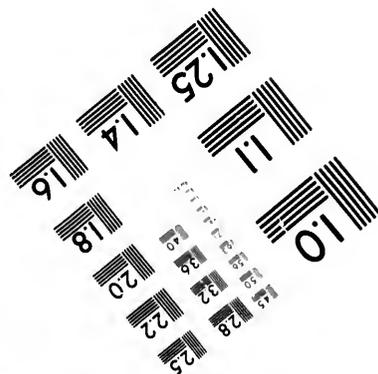
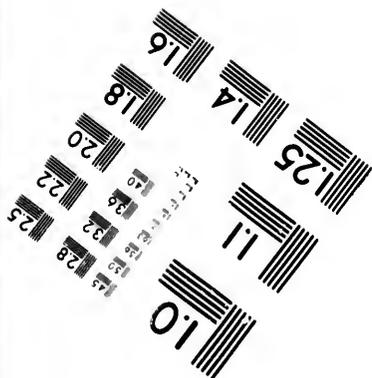
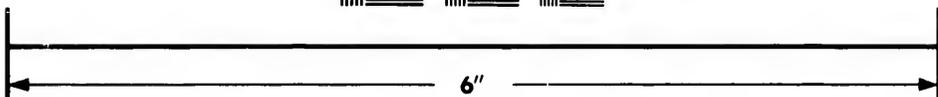
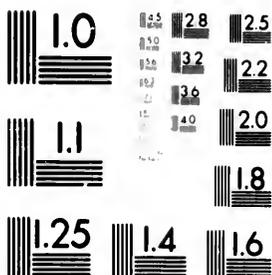


**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

23 WEST MAIN STRE.
WEBSTER, N.Y. 14580
(716) 872-4503



Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion
along interior margin/
La reliure serrée peut causer de l'ombre ou de la
distortion le long de la marge intérieure
- Blank leaves added during restoration may
appear within the text. Whenever possible, these
have been omitted from filming/
Il se peut que certaines pages blanches ajoutées
lors d'une restauration apparaissent dans le texte,
mais, lorsque cela était possible, ces pages n'ont
pas été filmées.
- Additional comments:/
Commentaires supplémentaires:

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Includes supplementary material/
Comprend du matériel supplémentaire
- Only edition available/
Seule édition disponible
- Pages wholly or partially obscured by errata
slips, tissues, etc., have been refilmed to
ensure the best possible image/
Les pages totalement ou partiellement
obscurcies par un feuillet d'errata, une pelure,
etc., ont été filmées à nouveau de façon à
obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

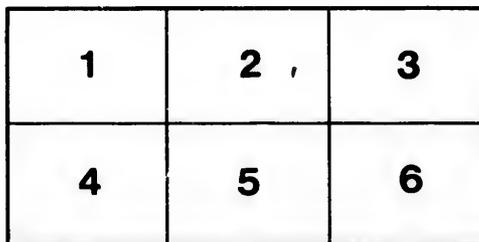
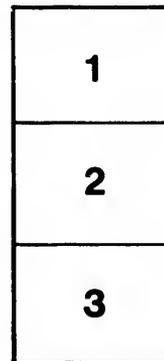
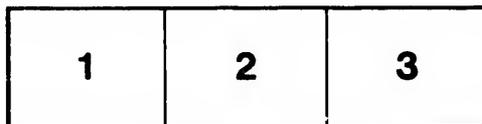
National Library of Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

rrata
o

pelure,
n à

~~Can~~
Pam
N

Nipissing + James' Bay
Bay Railway

NIPISSING & JAMES' BAY RAILWAY.

A DESCRIPTION OF THE COUNTRY TRAVERSED BY THIS
RAILWAY BETWEEN

LAKE NIPISSING & JAMES' BAY,

GIVING THE RESOURCES OF THE SAME,

AS WELL AS THE DISTRICTS ADJACENT THERETO, TOGETHER
WITH OTHER USEFUL INFORMATION RELATING TO

HUDSON'S BAY AND STRAIT.

"Omne solum forti patria est."

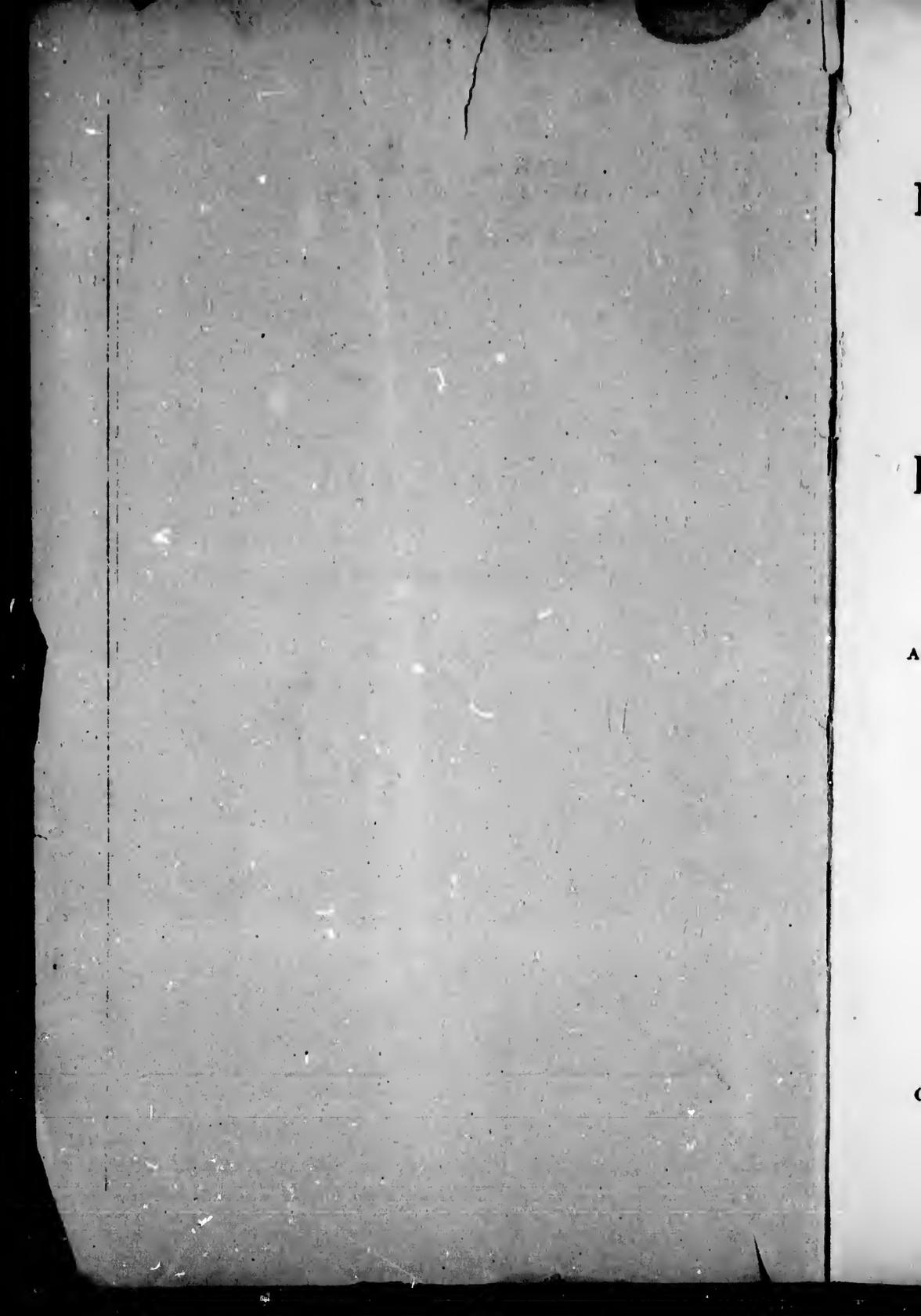


TORONTO:

COPP, CLARK & CO., PRINTERS, 67 & 69 COLBORNE STREET.

1884.

34



T

NIPISSING & JAMES' BAY RAILWAY.

A DESCRIPTION OF THE COUNTRY TRAVERSED BY THIS
RAILWAY BETWEEN

LAKE NIPISSING & JAMES' BAY

GIVING THE RESOURCES OF THE SAME,

AS WELL AS THE DISTRICTS ADJACENT THERETO, TOGETHER
WITH OTHER USEFUL INFORMATION RELATING TO

HUDSON'S BAY AND STRAIT.

Omne solum forti patria est.



TORONTO:

COPP, CLARK & CO., PRINTERS, 67 & 69 COLBORNE STREET.

1884.

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

NIPISSING AND JAMES' BAY RAILWAY.

HEAD OFFICE TORONTO.

Directors.

WILLIAM HENDRIE,	W. B. McMURRICH,
WILLIAM THOMSON,	JOHN C. BAILEY,
JAMES WATSON,	PETER A. SCOTT,
JOHN MACNAB,	ALEXANDER KIRKWOOD,
ALEXANDER NAIRN.	

Officers.

W. B. McMURRICH.....	PRESIDENT.
ALEXANDER NAIRN.....	VICE-PRESIDENT.
JOHN C. BAILEY ..	CHIEF ENGINEER.
JULIUS MILES.....	SECRETARY.

o
l
P
n
w
e
o
ti
ca
w

sa

an
the
to
the
Ma
cro

NIPISSING AND JAMES BAY RAILWAY.

This Railway which was granted its Charter in April, 1884, by the Dominion Legislature, is designed to be built between Lake Nipissing and James Bay (the southern prolongation of Hudson's Bay), and will be in length about three hundred and fifty miles. It will start from a point on the Canadian Pacific Railway at or near the intersection or crossing of the Gravenhurst and Callender Railway (Ontario Pacific Junction R.) now under construction—not far from Callender Station—thence northerly, skirting Lakes Temiscaming and Abbittibbe, thence following as closely as possible the Valley of the Abbittibbe River, until Moose Factory, on James' Bay is reached. Moose Factory is an old Hudson's Bay Station or trading place and is situated upon an island six or seven miles above the open bay or mouth of river, or twenty-five miles from the open sea, the channel on the east side of the Factory is one mile in width, the average difference between high and low water marks in the Moose River and its branches is not more than ten feet.

From Lake Nipissing to within thirty miles of James' Bay there is land of excellent quality, this is particularly noticeable in the neighbourhood of Lake Temiscaming, and is well adapted for farming, grazing and dairy purposes, also splendid forests of red and white pine, black birch, jack pine, maple, ash and other marketable timber, all of which will, when this railway is in operation, prove a mine of wealth, not only to the active and enterprising lumberman, but to the Province at large; and the land now occupied by this primeval forest will be brought under cultivation as the timber is taken away, and make place for those who with small capital cannot afford to purchase farms in the more settled districts. Stock raising will be a special feature and no doubt will be carried on extensively.

Besides the land and timber—are the mineral resources—Professor Bell says:—

Around James Bay and up the eastern side of Hudson Bay lie great deposits of iron and coal, so close together that, with the cheap water freights which the region may afford, the district along James Bay may yet become another Pennsylvania. And after referring to the soil, climate and forests, says: "Minerals may, however, become in the future the greatest of the resources of Hudson Bay; large deposits of rich iron-stone on the Mattagami River, in 1877, have been found; inexhaustible supplies of good manganiferous iron ore were discovered on the islands near the east main coast of James Bay, and

promising quantities of galena, and also near Whale River, traces of gold, silver and copper. On the east main coast lignite was found," etc., etc.

Another explorer, referring to the great deposits of iron, coal and other minerals of the neighbourhood of James Bay, says: "I have no hesitation in pronouncing this district the richest mineral region in the Dominion, perhaps on the continent." Anthracite and iron are found along the rivers south of James Bay. Again Mr. Borron, Stipendiary Magistrate of Lake Nipissing District, who has made a great many trips between Lake Nipissing and James Bay, reports to the Ontario Government: "There are also in the neighbourhood of James Bay, north of the Heights of Land, enormous peat beds, perhaps the largest in the world, and which will average from eight to twenty feet in thickness; and in view of this prodigious quantity, the question of its economic uses and value will naturally suggest itself. Besides lignite or brown coal, kaolin or china clay and iron."

"Lignite has been found in large quantities, three feet thick, both sides of the Abbitibe River, north of the Height of Land. We are therefore assured not only of the existence, in large and workable quantities, of lignite, iron ore, gypsum, etc., etc., but of inexhaustible beds of peat, and deposits of porcelain or china clay, of superior quality." There are other reports made by several surveyors who have been employed in that district, and who corroborate all that is said by those quoted above.

All this, with the large business to be anticipated from the fish and oil products of Hudson's Bay should convince the most obstinate and indifferent as regards Ontario's future welfare, that this work—in fact a National work—should no longer be delayed, as it will be *par excellence*, a Colonization Road in every sense of the word, and will do more for Ontario than any railway yet built within the last fifteen years, to the contrary, notwithstanding—the promoters of such a scheme therefore hope and expect the coöperation of all those immediately interested in Ontario's trade, together with the liberal subsidies expected from the Dominion and Local Legislatures—the very word railway is now synonymous with progress and wealth, and the want of railway facilities is acknowledged by all, and the only valid reason why any locality is without such is simply a financial question. In Norway, Sweden and Russia, where only a few lines exist but with no complete system, the Governments have turned their serious attention to the business, seeing they were being outstripped by much younger countries, and appointed Boards of Commissioners who have thoroughly investigated the railways of the world, to report on the cheapest and best methods of building the same, so anxious are they to have their several countries opened up and fully developed, and strange to say, countries almost similar in every respect to the one we propose penetrating and for the same purposes, to bring forward the timber, fish, oil, minerals, etc., etc.

With such varied and bountiful gifts then from nature, and so lavishly bestowed upon our own country, the projectors of this Enterprise have undertaken to construct this "Thoroughfare" in the shape of a railway, which will be the means of bringing within the reach of all, those, now hidden treasures, for without this channel of communication, the country

to all intents and purposes is nothing better than a primitive wilderness—but when brought to light, will contribute in no small degree to the wealth and prosperity of the Province and no effort should be spared to secure for Toronto—the chief city of the Province of Ontario her just share of the trade north of Lake Nipissing, and by the completion of the Ontario Pacific Junction Railway—now under construction, and with which line we immediately connect, we shall have direct communication between Toronto and Hudson's Bay, Toronto being the terminus, as it should be, for such an important railway.

The distance from Toronto to Gravenhurst via Northern Railway is 115 miles, thence to our starting point near Callander as per surveyed route 110 miles, thence to James' Bay 350 miles making the total distance between Toronto and James' Bay 575 miles.

As already mentioned, the district traversed by the railway contains everything that tends to create a traffic for the same—in land, timber, minerals and magnificent water powers and taking only sixty miles on each side of the line which will be tributary to it, this alone amounts to thirty-six thousand square miles—but there will be twice this area, the products of which in the form of traffic must and will find its way to our railway—the stone flagging with other economic minerals found in the immediate vicinity of Lake Temescaming will amount to no small item as freights—these flags range in thickness from six inches up to eighteen inches and from six by eight to ten by twenty feet area.

It is also well known to all those conversant with the *internal economy* of railway building and railway management, that railways create a traffic and springs up very often where least expected—not alone in freight but with passengers as well.

Looking at this territory again as a field for emigration—we might say that no emigrant or indeed Canadian farmer, but would recoil from the idea of pushing his fortune in such an apparently outlandish country—in fact could not be induced to take the land as a free gift unless convinced in his own mind or actually assured that some means of ingress and egress would be provided for him in the shape of a railway no matter how cheaply built, for notwithstanding how fertile the land may be or how propitious the seasons or whatever other inducements are brought to bear, the farmer or settler can make no profits for his labour unless he has a ready and reliable market, in fact, the disadvantages sustained by a man fifty or sixty miles back from any railway or market town will suggest itself at once, who, ill supplied with the actual necessaries for himself and family, has to labour

in clearing his farm from three to five years before he is fairly independent of extraneous assistance, contrasts strongly with the man who settles on, or takes up land in the vicinity of some railway, where he is comparatively independent and is at all times within easy reach of work.

The railway is the great agent and pioneer of civilization, the locomotive must precede the plough and the farm the town, the building of this railway will at once tend to settle the whole district north and south and on each side of the track, and so foster the rapid growth of a new population, and it will be readily understood that these great lumbering and mining enterprises which will commence immediately on the completion of the railway, will be of paramount importance to the settlers or farmers; the millions of dollars invested in these add much to the taxable property, but their chief value lies in the fact that thousands of persons and domestic animals employed by, and connected with these operations become consumers of the very products and articles the farmers have to sell or dispose of.

Taking a commercial view of the whole project as here submitted for the first time in its present shape to the public—and weighing the facts carefully and calmly—it gives great promise of an important future.

In winter the climate between Lakes Nipissing and Temiscaming is colder than it is at Toronto, almost similar to the weather in Montreal, but the cold is accompanied by a drier and brighter atmosphere which causes a much less disagreeable feeling of cold than a warmer temperature accompanied by a dampness and it is well known that, owing to this drier cold in winter, people suffer much less than they would in Southern Ontario. During the winter too, in the north, the snow which falls, remains on the ground and packing under foot makes it very favourable for teaming and lumbering operations; both in summer and winter the climate is pleasant and healthy—a healthful climate and country imply good water and this is found in abundance all over, in the shape of lakes, rivers and streams—many of the lakes possessing great natural beauty, the water in all cases being pure, clear and cold throughout the year, teeming with valuable fish of a superior quality, such as salmon trout, white fish, maskinonge, speckled trout, bass, pike, pickerel, sturgeon and other kinds—the flesh of which is sweet and firm, the scenery is beautiful and without any doubt whatever this country will be a noted resort for tourists, invalids and others and will possess many other advantages to those inclined to seek homes in a new and fertile country, and hundreds of people from all parts of Canada and the United States, will gather here every summer to enjoy the scenery, to renew their health and strength in its invigorating atmosphere, and indulge

in
th
N
so
of

La
pe
“
fo

lan
bar
ing
rou
ada
on
Lak
ext
whi
It is
Blak
with
unk
Can

B
gen
limb
Exp
good
west
ash,
and
west
Sout
arab
Asce
the i
and

F

Th

Its
shore
thenc

* On
The

in the sports in the way of fishing and hunting which the greatest part of this country affords, no doubt summer hotels will be erected at Lakes Nipissing, Temiscaming and other places—north and south, the air being so dry and cool malaria or ague is unknown, a disease so prevalent in some of the low lying lands of Southern Ontario.

The following is taken from a pamphlet lately published by the Crown Lands Department written by Messrs. Kirkwood and Murphy, who from personal observations can testify to some of the facts already stated on the "Undeveloped Lands of Northern and Western Ontario," from which the following facts are condensed :—

North and west of Lake Nipissing the land is good, and there is more fertile arable land in the country on the west bank of the Ottawa above the Mattawan, than on the banks below it. A line drawn from Lake Nipissing to the lower end of Lake Temiscaming with the Ottawa to north and west, and the Mattawan to the south would form a rough triangle, enclosing an extensive area of good hardwood land, in every way well adapted for settlement, touching on one side a great navigable reach of the Ottawa, and on the other a large lake which at small cost could be rendered easily accessible from Lake Huron, and on the very route which must be used for the timber trade now extending to Lake Temiscaming. Lake Temiscaming with its tributary the Blanche, which enters at its northern end, presents more than 120 miles of unbroken navigation. It is the great basin of the Ottawa and drains an area of over 19,000,000 acres. The Blanche is navigable 60 miles above the lake and for that distance the country is level with very good land as far inland as has been explored. It is a valley extending to an unknown distance with a rock foundation the same as the most productive lands in Canada, and a climate fully equal to any on the north shore on the St. Lawrence.

Between Lakes Temiscaming and Abbittibe (80 miles in a straight line), the soil is generally a level alluvial over a limestone formation with a heavy growth of hardwood timber and within the latitude of 49°. Mr. Marcus Smith, says in his Report of Exploration 1876 :—"Near the west end of Lake Nipissing, there are extensive flats of good land. Up the River Beuve which flows into the north side of the lake near the west end, he travelled two days, and found very fine land covered with soft maple, birch, ash, &c. The land in the valley of the stream appeared very rich, covered with maple and other hardwoods." South of Lake Nipissing from the head waters of the Mattawan, westward, there is tract of land of good wheat growing quality, extending 60 miles. South-east from Lake Nipissing to Lake Opinong—the first twenty miles is all good arable land, and about two-thirds of the remainder is good with hardwood timber. Ascending the South River of Lake Nipissing, land of excellent quality is found far into the interior. All of the interior country is well watered, with valuable water powers and interspread with groves of white pine of the best description.

EXTRACTS

FROM A PAMPHLET JUST PUBLISHED BY THE CROWN LANDS:
DEPARTMENT OF ONTARIO—MARCH, 1884.

The Algoma District is one of the most important divisions of the Province of Ontario.*

Its boundaries, as originally defined, were as follows :—"Commencing on the north shore of the Georgian Bay of Lake Huron at the most westerly mouth of French River, thence due north to the northerly limit of the Province, thence along the said northerly

* Ontario—A poetic Indian name, signifying a beautiful prospect of hills and waters.

The word "Algoma" means "Lake and Land of Algoma," or Algonquian tribe of Indians.

limit of the Province westerly to the westerly limit thereof, thence along the said westerly limit of the Province southerly to the southerly limit thereof, thence along the said southerly limit of the Province to a point in Lake Huron opposite to the southern extremity of the Great Manitoulin Island, thence easterly and north-easterly so as to include all the Islands in Lake Huron not within the settled limits of any county or district, to the place of beginning."

By Proclamation of 13th May, 1871, the Territorial District of Thunder Bay was defined as "All that part of the District of Algoma lying west of the meridian of 87° of west longitude." This meridian is a little to the east of the Slate Islands in Lake Superior, and near the mouth of Steel River.

NORTHERLY AND WESTERLY BOUNDARIES OF ONTARIO—AWARD OF THE ARBITRATORS.

To all to whom these Presents shall come :

The undersigned have been appointed by the Governments of Canada and Ontario as arbitrators to determine the northerly and westerly boundaries of the Province of Ontario, do hereby determine and decide that the following are and shall be such boundaries ; that is to say :—

Commencing at a point on the southern shore of Hudson's Bay, commonly called James' Bay, where a line produced due north from the head of Lake Temiscaming would strike the said south shore ; thence along the said south shore westerly to the mouth of the Albany River ; thence up the middle of the said Albany River, and of the lakes thereon, to the source of the said river at the head of Lake St. Joseph ; thence by the line to the easterly end of Lac Seul, being the head waters of the English River ; thence westerly through the middle of Lac Seul and the said English River to a point where the same will be intersected by a true meridional line drawn northerly from the international monument placed to mark the most north-westerly angle of the Lake of the Woods by the recent Boundary Commission ; and thence due south, following the said meridional line to the said international monument ; thence southerly and easterly following upon the international boundary line between the British possessions and the United States of America, into Lake Superior.

But if a true meridional line drawn northerly from the said international boundary at the said most north-westerly angle of the Lake of the Woods, shall be found to pass to the west of where the English River empties into the Winnipeg River, then, and in such case, the northerly boundary of Ontario shall continue down the middle of the said English River to where the same empties into the Winnipeg River, and shall continue thence on a line drawn due west from the confluence of the said English River with the said Winnipeg River, until the same will intersect the meridian above described ; and thence due south, following the said meridional line to the said international monument ; thence southerly and easterly, following upon the international boundary line, between the British possessions and the United States of America, into Lake Superior.

Given under our hands, at Ottawa, in the Province of Ontario, this third day of August, 1878.

Signed and published in the presence of
E. C. MONK.
THOMAS HODGINS.

ROBT. A. HARRISON.
EDWD. THORNTON.
F. HINCKS.

This vast territory is about 760 miles in length, with a breadth of 370 miles, and is situated principally between the 46th and 51st parallels of north latitude, and the 76th and 95th of longitude west from Greenwich.

It contains about 200,000 square miles, or 130,000,000 of acres of land and water.

Its endless variety of hill and valley, river and lake, rapid cascade and waterfall, is unrivalled in the world.

But not only is it great in respect to its area. Its soil furnishes unparalleled diversity of wealth. The miner is invited to the development of its mineral riches, hidden for ages; its plains and fertile valleys bid the husbandman welcome; and industries, in their manifold branches, stand waiting the command of intelligence and energy, without respect to nationality or social condition.

It is only of late years that attention has been directed to this new field for enterprise and development. In a very short time it will be traversed throughout its length from Lake Nipissing to Rat Portage, by the main line of the Canada Pacific Railway, with a branch from Sudbury Junction to Algoma Mills on Lake Huron; and other lines are projected from Michipicoten and Lake Nipissing to James' Bay.

This region is drained by two grand water systems having their source in what is known as the Height of Land, which extends from Lake Abbittibe on the east, to Lake St. Joseph on the west, and varies from 1,000 to 1,500 feet above the level of the sea. Those rivers running southward flow into the Great Lakes and the River St. Lawrence, and those running northward empty their waters into Hudson's Bay.

To intending settlers this country possesses many important advantages over the more distant prairies of the west—proximity to leading markets; the abundance and purity of its waters; the ample supply and cheapness of timber for building, fencing and fuel; and the greater cheapness of implements, clothing, etc.

SURFACE OF THE COUNTRY.

The whole of the territory south of the Height of Land is watered by numerous large and small rivers, and innumerable lakes and lakelets.

The characteristics of these rivers are much modified by the nature of the geological formations through which they pass, and the different powers of resistance of these formations to the transporting and eroding effect of the water.

In a formation composed of the harder crystalline rocks which obtrude themselves above the surface, the waters have not the same power to form for themselves channels as in a country based upon sedimentary deposits.

The irregular depressions and clefts in the surface of the Huronian formation become filled with water, and form lakes, whose overflow tumbles in cascades and rapids, and finds its way into other lakes lying at a lower level, until it is received into Lake Huron or Superior. In this district the country is dotted with lakes, and the connecting rivers are generally short. The navigation, in this northern river system, consists of stretches of deep and still water, interrupted by rapids and falls, around which the light canoes of the voyageurs are portaged by hand.

This river system, fortunately for us, is thus furnished with a series of reservoirs, which cannot be destroyed, in the lakes themselves. These lakes receive the waters from rain and the melting of the snows in the spring, and hold them stored up against the summer heat.

Through the rocks of this region run numerous bands of crystalline limestone or marble, which from their softness give rise to valleys with a fertile soil. The hill-sides are generally covered with vegetable mould which sustains a growth of trees, giving them an aspect

of luxuriant vegetation. But when fire has passed over these hills, the soil is in great part destroyed, and the rock is soon laid bare. In the valleys and lower parts, however, there are large areas of good land, having a deep soil and bearing heavy timber. These are the chief lumbering districts of the country, and constitute a great source of wealth to the Province. In these regions the occupations of the lumberer and the farmer are a great encouragement to one another, as the wants of the lumberman afford to the farmer a ready market for his produce at high prices.

There are many reasons why the forest-region of the hills should be protected by the settler. The vegetation and the soil which now cover the hillsides play a most important part in retaining the waters which here fall in the shape of rain or snow. But for this covering of the soil, the rivers and mill-streams which here take their rise, would, like the streams of Southern France, and of the North of Italy, be destructive torrents at certain seasons, and almost dried-up channels at others. The effect of this great wooded area in tempering the winds and moderating the extremes of climate, must not be overlooked by the settler in estimating the value of his homestead.

COUNTRY NORTH OF THE MATTAWA RIVER AND LAKE NIPISSING.

Geological Features—Sequence of the Formations.

That part of the Ottawa River which lies between its tributary the Mattawa, and a point about three miles south of the mouths of the Montreal and Metabechuan Rivers, appears to cross the axis of an anticlinal arch, which separates the rim of the great Southern trough of fossiliferous formations of which the western geological area of Ontario has been described as forming but a part, from a northern trough, whose strata probably run under the waters of Hudson's Bay.

The lowest rocks which this undulation brings to the surface are of a highly crystalline quality, belonging to the order which, in the nomenclature of Lyell is called metamorphic instead of primary, as possessing an aspect inducing a theoretic belief that they may be ancient sedimentary formations in an altered condition. Their general character is that of a syenitic gneiss. Their general colour is reddish, and it arises from the presence of reddish feldspar, which is the prevailing constituent mineral. The feldspar, however, is often white, and frequently of a bluish grey. The rock is in no case without quartz. Hornblende is seldom absent, and mica very often present. The prevailing colour of the quartz is white, but it is often transparent or translucent. The hornblende is usually black and sometimes green. The mica is often black, frequently brown, and generally of a dark tinge. The rock (carefully distinguished from dykes), is almost universally small grained, and though the constituent minerals are arranged in parallel layers, no one constituent so monopolises any layer as to exclude the presence of others; but even in their subordinate arrangement there is an observable tendency to parallelism. A thick bed of reddish feldspathic rock, for example, will in section present a number of short dashes of black hornblende or black mica, all drawn in one direction, destitute of arrangement, apparently, except in regard to their parallelism; or it will be marked by parallel dotted lines composed of these minerals. The continuation of these lines will be interrupted irregularly, and before one ends another will commence above or below it, the lines interlocking among one another. Sometime thin continuous parallel black belts will run in the rock for considerable distances; or it will be barred by parallel streaks of white quartz or white feldspar, in which, as well as the red part, these dark and dotted lines will occur. The same description of arrangement will be found where the whole ground of the rock is white instead of red, and then the red feldspar will occasionally constitute streaks. There is no end to the diversity of arrangement in which the minerals and the colours will be observed.

While the subordinate contents of beds will be thus arranged, masses will be divided into beds shewing nearly as great a diversity. The beds will be sometimes very thick, and these usually are of the red variety of rock; at others they will be thin, and the

hornblende or the mica, or both, will be the dominant minerals, or equal the others in quantity. In this case the mass will present a light or dark grey colour, and the mica, rendering the rock fissile, will cause it to yield good flagging or tile stones. The reddish feldspathic masses are stronger and more solid than the others, yielding less to the influence of the weather, and when their bulk is considerable they rise into hills, and largely prevail in all the ranges met with. The thin bedded rocks often constitute the valleys.

The dip of the strata is usually at high angles, and towards the Mattawa it appears to point more generally southward. But there evidently exist many undulations, often accompanied by contortions. Some of the undulations give northern and sometimes eastern dips. It is not supposed, however, that these undulations have any dependent connection with the anticlinal axis, or, that its position will be peculiarly marked by any of them. The arch is of too gentle a nature to have produced any palpable change in the slope of the highly tilted strata, and it is probable that these had assumed their twists and undulations before the existence of the arch, and that the forces producing it operated on the wrinkled mass merely as a whole, without, in any very perceptible degree, affecting the relation of its parts.

Ascending Lake Temiscaming, the slates come in upon the gneiss about three miles below the mouths of the Montreal and Metabetchuan rivers on the west bank, and about three miles above them on the east; and they occupy both sides to within two and a-half miles of the Hudson Bay Company's post. In this distance they may have a direct breadth of about seven miles, in which they are affected by at least one undulation, and constitute hills of 300 to 400 feet. These slates run in a westerly direction forty miles, in a line about S. 40° W. from Lake Temiscaming to Bass Lake, on the Sturgeon River, which discharges into Lake Nipissing on the north side, and it is probable they come out on some part of the north shore of Lake Huron. On Lake Temiscaming they are followed by the sandstones, which cross the lake with a strike of N. 60° E., and dipping northward at a very small angle, after having been piled up into a range of about the same elevation as the slate hills, they reach the Company's post, where, nearly flat, they run under a narrow gravel hill 130 feet in height: emerging beyond, they continue to a distance of about half a mile above the post, and are then interrupted on both sides of the lake by a mass of syenite. This syenite does not possess the gneissoid arrangement of the rock lower down the river, but it appears to be nearly similar in other respects, being composed of reddish feldspar, white or colourless quartz, and a sparing quantity of green hornblende. The breadth of this syenitic band is pretty nearly three miles on both sides of the lake. On the west it is succeeded by the sandstones, which run along the coast for a distance of four miles, nearly on the strike of the measures, dipping towards the water at a small angle, and are followed by the slates which come from behind them, and continue in a straight line for nine miles to the western bay at the head of the lake, forming high perpendicular cliffs for part of the way and rounded hills for the remainder.

The limestones constitute the two large islands near the head of the lake, the two smaller ones between them, the island at the entrance of the eastern bay and a very small one on the west coast, as well as the promontory which separates the east bay from the west. The strata lie in the form of a shallow trough, based sometimes on the sandstones and sometimes on the slates, occupying the breadth of the lake—from five to six miles—and extending from the south side of the southern great island to some unknown distance northward, being either a projecting point or an outlier of some more extended calcareous area.

The largest and best quality of flagging slabs is found on the east side of Lake Temiscaming, about seven miles above the Galere, where five miles of the coast present a succession of cliffs which would yield a great abundance of almost any dimensions. Roofing slates exist about five miles up the Montreal River.

Lakes, Rivers and Agricultural Capabilities.

On the north bank of the Mattawa a range of hills, of no great elevation, runs nearly the whole way from Trout Lake to the mouth, and between their base and the margin of the water there are good mixed wood flats, with elm, ash, maple, and a few oaks; but the slopes produce soft woods chiefly, the prevailing species being red pine.

To the north of Upper Trout Lake there is an extensive spread of flat hard-wood country running in an east and west direction, possessing a good soil, consisting of loam

in some places and clay in others, and the timber, in a great measure, composed of black birch, maple and basswood.

Associated with this tract is another, at the distance of five miles on the west side of Seven League Lake, on the Ottawa between the Mattawa River and Lake Temiscaming, running in a south-westerly course to the vicinity of the Mattawa, and reaching as high as the Galere on Lake Temiscaming, though it is not there much nearer the lake than it approaches the river lower down.

Lake Temiscaming, a magnificent stretch of navigable water, the largest and deepest on the whole course of the Ottawa, extends seventy-five miles without any obstruction to vessels of the largest tonnage. It consists of three lakes, the lower, middle and upper, connected by narrow straits.

The Upper Lake extends from Fort Temiscaming to the "Head." This beautiful sheet of water has all the characteristics of a true lake. It is from six to eight miles wide, indented with deep bays, bold promontories, steep cliffs and low banks, and is studded with picturesque islands, two of which are of considerable size.

The Montreal River, its largest tributary as regards both extent and volume, takes its source at the northern Height of Land, flows for about sixty miles in an easterly direction, and sixty miles more south-easterly, discharges into Middle Lake by several mouths.

The River Blanche, which derives its name from the white or turbid colour of its water, discharges into Lake Temiscaming at its "Head," and is navigable for twenty-five miles. The area of the clay land drained by this river has been estimated to be between 500 and 600 square miles, equivalent to twelve townships of fifty square miles, or 32,000 acres each. This is the largest area of land fit for settlement, in one unbroken clay block, in the unsettled portion of Ontario.

The limit southward of this tract of good level country is associated with a change occurring in the quality of the rock formations of the district in the vicinity of the mouth of the Montreal River on the right side of the lake, and a few miles higher up on the left. The unbroken monotony of the hard syenitic gneiss, constituting so much of the banks of the lake and main river further down, here ceases; a more distinctly stratified set of rock, of a less crystalline and more easily disintegrating character, presents itself. The ranges of the hills become more determinate, the valleys wider, and many of them are occupied by clay lands. At its very extremity both sides of the lake present a favourable aspect; good stratified limestone there makes its appearance, constituting the large islands already mentioned, and the promontory separating the east and west bays. Its escarpment does not exceed 100 feet, and it runs northward into the interior with an even continuity of height, which can be followed by the eye for miles.

The marshes, arising from the sediment deposited by the Blanche and other rivers at their mouths, are extensive, and produce an abundant supply of good meadow hay.

The general character of the country south and east of Lake Tamagamingue is undulating but not very broken. This lake is a fine sheet of very clear water, abounding with bass, pickerel, pike, and salmon trout, and filled with islands. The scenery is beautiful, resembling that of the Thousand Islands of the St. Lawrence. The lake has two outlets, one flowing south into the Sturgeon River, which empties into Lake Nipissing, and the other flowing north into the Montreal River, which discharges into Lake Temiscaming. Numerous lakes, of various sizes, are dotted at intervals over this country. Otter Tail Creek is the principal stream falling into the Ottawa.

Throughout the whole of this region there is good clay soil along the flats of the rivers and creeks; generally, however, a sandy loam prevails.

After traversing the township of Widdfield, on the north-east shore of Lake Nipissing, the land descends gradually to the north, showing a level country of hard-wood timber, with here and there some rock, and generally a good loamy soil.

Turning east, between townships 17 and 13,* on the nineteenth mile from the boundary of Springer, the country is flat in some places, but generally undulating with fair soil. From the twenty-first to the forty-fourth mile on this line, there is a good tract of country with rolling land and good soil, fit for farming purposes, the timber being chiefly maple and black birch of large growth and good quality, with some good scattering pine.

The Township of Widdifield (No. 17) is nearly all good hard-wood land and is by far the best township in this section of the country. Finer hard-wood bush is rarely seen. There are a few bass-wood trees, iron-wood in some places, and a grove of beech on the east boundary a few miles north of Trout Lake. The fall from the height of land to the River Vase at the end of the portage is 22 feet 11 inches, and from this point to Lake Nipissing, the fall is 26 feet 6 inches, which makes the height of Lake Nipissing above the waters of the St. Lawrence at Three Rivers, 665 feet.

The ascertained height of the surface of Lake Huron above the sea, according to the Michigan surveyors, is 578 feet.

Townships 22, 23, 27 and 28 contain a large percentage of good land, with considerable pine.

Townships 1, 5, 9, 13 and 18 also contain a fair percentage of good land, with very little pine. The timber is chiefly balsam, spruce, birch, with occasional patches of hardwood.

The Jocko River runs eastward through a fine tract of country to the River Ottawa.

Sturgeon River, emptying into Lake Nipissing, is a fine deep stream, having an average breadth of six chains to the first fall, about six miles from its mouth.

The Veuve or Widow River, empties into Lake Nipissing about four miles west of Sturgeon River.

Lake Nipissing lies immediately above the 46th parallel of latitude, and across the 80th of longitude. In form it is very irregular, but has an extreme length, east and west, of about forty miles, and a maximum breadth, north and south, of about twenty miles. Its area in round numbers is about 300 square miles.

The northerly shores of the lake are low, generally of flat rock and sand, and the water shoal upon a sandy bottom. Its waters pass out into French River by three distinct outlets through myriads of islands.

The French River, though sometimes merging into one vast lake, is, throughout the greater part of its length, divided into two main channels. From its entrance on Georgian Bay to its outlet on Lake Nipissing the distance is about forty miles, and the navigation is obstructed by falls and rapids. The scenery of the Thousand Isles of the St. Lawrence is tame and uninteresting as compared with the endless variety of island and bay, granite cliff, and deep sombre defile, which mark the character of the beautiful, solitary French River.

HEIGHTS ABOVE THE SEA.

The height of the surface of Lake Temiscaming at its head above the waters of the St. Lawrence at Three Rivers, which is about the highest point affected by the action of the tides, is 612 feet. The level of the Mattawa, at its junction with the Ottawa, is 519 feet 5 inches.

* These numbers have reference to an exploration made by the Department of Crown Lands in 1882, and are applied to townships lying east of the Township of Springer and the Indian Reserve, which with the exception of Widdifield, have been outlined, but not surveyed or named.

The height of the surface of Upper Trout Lake, the source of the Mattawa, is 690 feet, and of the Height of Land between it and the Vase River on the canoe portage, is 714 feet 5 inches.

Lake Ontario.....	235 ft.
Lake Simcoe.....	710
Lake Muskoka.....	735
Lake Nipissing.....	642
Lake Huron.....	585
Lake Superior.....	627
Lake Nipigon.....	879
Lake Winnipeg.....	710
Lake Erie.....	561
Lake Abbittibe.....	857
Height of Land, where we propose crossing.....	1,100
Height of Land, between Lake Winnipeg and Lake Superior.....	1,400
Lake Michigan.....	587

LAKE ABBITTIBBE AND THE COUNTRY SOUTH OF IT.

White and red pine are found scattered over the whole region between Lake Temiscaming and Lake Abbittibe. They are quite abundant and of excellent quality on the slopes of the hills along both sides of the Height of Land. On the hill rising to the height of 700 feet above Lake Matawagogig on the north side of the Height of Land, several trees have been measured and found to be from eight to nine feet in circumference, at a height of four or five feet from the ground; and from the summit of the hill groves of white pine are observed in all directions. White spruce, yellow birch and cedar are also tolerably abundant and of good size. Fine specimens of the latter tree, tall and straight, are observed, chiefly in hollows among the hills, on the south side of Lake Abbittibe.

Sugar maple is tolerably plentiful round the head of Lake Temiscaming, but is not seen further north. The same remark applies to swamp maple and white oak. Large numbers of these grow on low level land near the mouth of the Blanche, and also in smaller quantities at the mouths of other rivers falling into the same lake.

The most abundant tree in this region, north of the limit of sugar maple, is aspen, after which come canoe birch, spruce, Banksian pine, and Canada balsam. Elm and ash occur occasionally on low flats as far north as Lake Abbittibe.

The whole region, extending northward from the mouth of the Montreal River, which is about thirty miles south of the head of Lake Temiscaming, may be correctly described as a level clay plain, with a great number of rocky hills and ridges protruding through it.

The height of the clay appears to be pretty uniform throughout the whole region. Around Lake Abbittibe it is about thirty feet above the level of the lake, which is estimated to be 245 feet higher than Lake Temiscaming. On the Blanche, the highest clay plains, about thirty-five miles up the river, are about 275 feet above Lake Temiscaming. The Height of Land Portage is about 60 feet above Lake Abbittibe, or 305 above Temiscaming. Taking the mean of these heights, and adding it to 612 feet, height of Lake Temiscaming above the sea, we find that the height of this clay plain above the sea is about 900 feet.

The largest areas of arable land are on the Blanche, and around Lake Abbittibe. This lake is surrounded on all sides by level clay land. At a good many points, however,

the rock rises above the level of the clay. To the north, and especially to the north-westward, the clay level seems almost unbroken, and it is well known that it extends in this direction to the shores of James' Bay.

Several acres of this clay soil are cultivated at the Hudson's Bay Company's Post at Abbittibe with satisfactory results, and some of the residents are inclined to insist that all the ordinary cereals can be cultivated as successfully there as on the St. Lawrence.

Indian corn is grown at more than one locality near the head of Lake Temiscaming, and is said to ripen well.

THE TERRITORY NORTH OF THE HEIGHT OF LAND.

Between the Great Lakes and James' Bay the country is of a very different character in each of the two geological areas which it embraces, namely, the Laurentian and Huronian plateau; and palæozoic and tertiary basin of James' Bay. The former is somewhat elevated, undulating, and dotted with great numbers of lakes; while the latter is low, level, swampy, and, as far as known, generally free from lakes, constituting a well-marked geographical as well as geological basin, bounded by a distinct rim of hard ancient rocks for five-sixths of its circumference, since it contracts to a width of only about 200 miles where it opens into Hudson's Bay on a line between Capes Jones and Henrietta Maria. This rim is high, and has a steep slope to the centre all round.

Owing to the unyielding nature of the rocks, all the rivers running into James' Bay meet with a great and very rapid descent on reaching the edge of this basin. As a consequence, "the long portages" on all of them occur where they pour down this slope. The Long Portage of Rupert's River is close to the bay, while those of Abbittibe, the Mattagami, and the Missinibi are met with at a short distance southward of the margin of the palæozoic rocks. The Kakeami, or principal fall of the Albany, occupies a corresponding position. The Kenogami River, flowing from Long Lake to the Albany, offers a more uniform and gentle descent into this basin than any of the other rivers which have been examined.

Although the Laurentian and Huronian Plateau between the Great Lakes and James' Bay may be styled a rocky country, still, the proportion of its whole area in which the bare rocks are exposed is much less than is commonly supposed. This opinion is formed after an examination of it in hundreds of places, at a distance from the shores of lakes and rivers, throughout an area of nearly 200,000 square miles between the Ottawa River and Lake Winnipeg. The high and rocky points are naturally more conspicuous in proportion to their horizontal extent than the rest of the country, while the portages, which are almost the only parts seen by ordinary travellers, are nearly always at the most rocky places in the valleys or lower levels. As a matter of experience, in this sort of a country, in the District of Algoma and elsewhere, the quantity of cultivatable land on the establishments of settlements, always proves to be much greater than it appeared while in a state of nature.

The banks of the Mattagami and Moose Rivers from the Long Portage to Moose Factory usually consists of brown gravelly earth, underlayed by bluish bouldery clay, and gradually diminish in height, in descending the river, from fifty feet, above high water mark at the foot of the Long Portage, to only about ten at the junction of the Missinibi.

The solid rock is not often seen, except under the water in the bed of the stream. Leaving the foot of the Long Portage, the first exposure of solid rock, which is also the principal one on the river, begins at 17 miles, or, at the head of the Grand Rapid, which is about a mile and a quarter long, and has a fall of about twenty feet. The blue clay at the Grand Rapid contains the first marine shells observed on the river. The height above the sea level is in the neighborhood of 300 feet. Lignite, having a bright glossy fracture, is found on the shore at the foot of the rapids.

This locality is also remarkable for the occurrence of a large deposit of iron ore. Its position is on the north-west side of the river, at the foot of the rapids.

Leaving the Grand Rapids, no rock *in situ* is observed until arriving at the "White, or Gypsum Banks," on the Main Moose River. They occur on both sides of the river, and begin at thirty-eight miles above Moose Factory. The gypsum bank on the south-east side runs for about two miles; that on the opposite side, about half that distance.

The Moose River divides into the Mattagami and Missinibi branches. Fragments of lignite are strewn, often in abundance, along the bed of the river to Coal Brook, where it is seen *in situ*, during very low water. Similar lignite is found on the Albany River.

CLIMATE, AGRICULTURAL RESOURCES, STOCK-RAISING, &c.

Throughout the whole of the region from Lake Nipissing to the Lake of the Woods, the depth of snow is generally less on an average than it is at the City of Ottawa. Only in one locality between these two points is the snow found generally so deep as at this city, namely, in the immediate neighbourhood of Lake Superior, where the lake appears to have a local influence on the humidity of the atmosphere, and, in consequence, on the amount of snow-fall.

In going northward, from the Height of Land towards James' Bay, the climate does not appear to get worse, but rather better. This may be due to the constant diminution in the elevation, more than counter balancing for the increased latitude, since in these northern regions a change in altitude affects the climate much more than the same amount of change would affect it in places further south. The water of James' Bay may also exert a favourable influence, the bulk of it being made up in the summer time, of warm river water, which accumulates in the head of the bay, and pushes the cold sea-water further north. The greater proportion of day to night during the summer months may be another cause of the comparative warmth of this region.

The rain-fall at Moose Factory forms no criterion as to what it is on the southern highlands, where, without being too wet, there is sufficient rain and dew to support the most luxuriant vegetation. The snow fall at Moose Factory is not nearly as heavy as it is south of Lake Nipissing and French River.

The following tables of temperature and rain-fall at Prince Arthur's Landing and Moose Factory are taken from the Report of the Meteorological service of Canada, for the year ending 31st December, 1881.

PRINCE ARTHUR'S LANDING.

1881.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.
Mean temperature of the several months..	0·5	10·7	25·8	34·2	50·4	56·5	67·1	64·4	53·7	40·6	22·9	21·2
Highest temperature in each month.....	29·8	38·4	45·5	71·8	70·8	80·7	88·6	65·6	72·3	69·8	49·8	42·8
Lowest temperature in each month.....	36·6	25·4	12·0	3·1	20·2	29·5	43·2	38·0	33·0	15·3	13·3	19·4
Rainfall in inches in each month... ..	0·00	0·00	0·00	0·76	3·23	1·74	2·71	2·97	7·38	2·66	1·00	0·00
Number of days on which rain fell in each month.....	0	0	0	3	10	8	8	6	15	5	2	0

MOOSE FACTORY.

1881.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.
Mean temperature of the several months..	10·6	6·9	16·1	22·6	48·2	47·4	64·0	60·8	51·5	32·6	12·3	8·0
Highest temperature in each month.....	20·1	36·1	44·2	56·8	79·0	83·0	90·5	88·5	76·8	71·2	52·0	37·1
Lowest temperature in each month.....	39·6	34·5	14·3	17·9	14·0	26·8	41·5	38·2	35·0	12·5	29·1	22·2
Rainfall in inches in each month.....	00·0	0·20	0·10	0·16	0·52	3·53	2·35	2·82	4·80	1·52	0·90	0·00
Number of days on which rain fell in each month.....	0	1	2	5	11	14	16	13	17	5	1	0

RESULTS OF METEOROLOGICAL OBSERVATIONS AT MOOSE

	1877.						
	NOVEMBER.	DECEMBER.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.
Mean temperature	29°.0	20°.7	1°.1	13°.3	20°.4	35°.6	47°.3
Highest temperature ...	44°.0	38°.4	32°.7	42°.5	48°.1	66°.1	76°.5
Lowest temperature	8°.0	9°.8	35°.9	21°.7	22°.4	8°.9	19°.1
Monthly range	36°.0	48°.2	68°.6	64°.2	70°.5	57°.2	56°.4
Mean daily range	11°.1	13°.3	19°.8	20°.9	21°.0	16°.6	16°.4
Mean temperature of warmest day	40°.0	36°.1	30°.0	36°.8	37°.6	61°.2	73°.5
Mean temperature of coldest day	16°.3	1°.3	26°.7	7°.7	1°.0	23°.7	23°.1
Amount of rain in inches	0.85	0.29	R	0.00	0.04	1.22	1.95
Greatest fall in one day	0.35	0.29	....	....	0.04	0.37	0.41
Number of days' rain	5	1	1	0	1	6	11
Amount of snow	0.8	0.5	0.3	0.2	0.8	0.1	0.8
Greatest fall in one day	0.3	0.2	0.2	0.2	0.2	0.1	0.7
Number of days' snow	6	9	9	5	15	2	4
Number of fair days	19	21	22	23	16	22	17
Percentage of cloud	73	80	53	47	61	65	76

FACTORY, COMPILED AT THE METEOROLOGICAL OFFICE, TORONTO.

		1878.						1879.							
APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	JANUARY.	FEBRUARY.	MARCH.	APRIL.	MAY.	JUNE.	JULY.
6	47°·3	57°·0	66°·9	63°·0	51°·7	40°·9	26°·5	7°·6	—	—	—	—	—	—	—
5	76°5	92°1	91°6	81°3	73°9	66°8	40°8	32°9	3°·9	6°·7	12°·1	24°·2	39°·9	50°·2	60°·3
3	19°1	26°9	41°8	34°9	31°1	7°6	2°3	18°4	—	—	—	—	—	—	—
2	56°4	65°2	49°8	46°4	42°8	59°2	36°5	51°3	40°3	41°3	33°4	7°0	22°2	27°0	35°7
6	16°4	20°3	21°2	16°8	17°6	15°6	11°0	13°2	19°4	21°2	26°0	14°6	19°9	19°0	21°6
2	73°5	88°1	84°2	74°9	68°0	63°4	38°1	28°4	20°6	16°5	39°5	44°2	59°9	70°8	76°2
7	23°1	32°4	52°4	50°8	40°2	21°2	11°8	11°5	—	—	—	—	—	—	—
									28°2	30°6	10°7	1°0	28°5	34°2	42°6
22	1°95	1°64	2°79	6°11	5°46	1°74	R	R	0°0	0°0	0°60	1°00	2°08	3°47	5°42
37	0°41	0°56	1°33	1°23	1°06	0°51	....	....	....	....	0°30	0°75	1°10	0°87	2°12
6	11	9	12	17	19	14	3	1	0	0	3	5	7	16	18
1	0°8	S	....	....	....	3°0	25°5	27°4	9°6	8°1	9°8	15°8	2°0	5°0	....
1	0°7	....	....	....	....	3°0	7°0	4°0	2°0	2°0	4°0	7°0	1°0	4°7	....
2	4	1	....	....	....	5	19	23	16	10	13	12	5	3	....
2	17	21	18	14	11	12	9	7	15	18	15	13	20	12	13
5	76	63	59	70	75	71	79	78	61	55	63	69	67	68	56

TABLES

Shewing the Monthly Mean Temperature (Farnh. Therm.) for two years, at the Hudson Bay Company's Post on Lake Temiscaming, Lat. 47° 19' North; Long. 79° 31' West; 650 feet above the level of the sea.—From a Register kept by Mr. Severight.

1843-4.

MONTH.	SUNRISE.	NOON.	SUNSET.	MEAN FOR EACH MONTH.	CLEAR SUNSHINE.	CLEAR & CLOUDY.	CLOUDY.	CLOUDY & RAIN.	CLOUDY & SNOW.
1843.									
November ..	24 5/30	29 6/30	27	26 2/3	3	10	5	2	10
December ..	18 26/31	26 5/31	22 25/31	22 1/2	2	10	13	1	5
1844.									
January	—1 12/31	12 24/31	10 2/31	7 1/6	13	5	6	....	7
February	8 24/29	28 6/29	19 22/29	19	7	9	6	....	7
March	13 18/31	33	25 10/31	23 1/3	14	8	5	....	4
April	33 17/30	53 23/30	45 2/30	44	23	1	2	4	....
May	42 4/31	57 14/31	50 14/31	50	12	8	....	11	....
June	56 2/30	70 22/30	61 6/30	62 2/3	11	4	3	12	....
July	58 5/31	72 11/31	66 15/31	65 2/3	9	6	3	11	....
August	56 26/31	71 9/31	63 25/31	64	10	6	....	15	....
September ..	48	63 15/30	56 15/30	56	13	7	1	9	....
October	34 6/31	46	42 9/31	40 5/6	1	8	1	5	6

1844-5.

MONTH.	SUNRISE.	NOON.	SUNSET.	MEAN FOR EACH MONTH.	CLEAR SUNSHINE.	CLEAR & CLOUDY.	CLOUDY.	CLOUDY & RAIN.	CLOUDY & SNOW.
1844.									
November ..	24 16/30	31 4/30	28 4/30	28	4	7	8	3	8
December ..	11 23/31	19 14/31	16 8/31	15 5/6	9	8	8	....	6
1845.									
January	8 19/31	17 23/31	13 18/31	13 1/3	6	15	3	1	6
February	11 15/28	24 25/28	20 4/28	18 5/6	7	8	5	3	5
March	19	34 25/31	28 20/31	27 1/2	9	10	3	2	7
April	26 19/30	43 16/30	36	35 1/3	5	11	....	8	6
May	38 16/31	56	49	47 5/6	13	7	5	6	....
June	51 18/30	69 25/30	62 6/30	61 1/6	12	7	5	6	....
July	58	75 7/31	67 27/31	67	8	12	....	11	....
August	58	76 16/31	67 9/31	67 1/3	15	10	....	6	....
September ..	48 7/30	58 5/30	53 14/30	53 1/3	1	8	2	19	....
October	38	50	46	44 2/3	11	10	3	7	....

the Hudson
ong. 79° 31'
r. Severight.

Farming and gardening have been successfully carried on by the officers of the Company at their posts on Lakes Mattagami and Missinibi. At the latter, spring wheat has been found to ripen well. At Moose Factory, although the soil is a cold, wet clay, with a level, undrained surface, farm and garden produce, in considerable variety, are raised every year. Oats, barley, beans, peas, turnips, beets, carrots, cabbage, onions, tomatoes, &c., are grown without any more care than is required in other parts of Canada.

Wheat may be successfully grown where the soil is suitable in all that part of this territory lying to the south of the fiftieth parallel of latitude. The mean temperature of the summer south of that parallel is sufficient to ripen this cereal. Indeed wheat has been grown at Abbittibe House, Flying Post, and New Brunswick, on or about the forty-ninth parallel, and at Lac Seul, between the fiftieth and fifty-first parallel. Indian corn, a more delicate plant than wheat, has come to maturity at Osnaburgh House on Lake St. Joseph, north of the fifty-first parallel.

Barley, oats, rye, peas and beans succeed well. The invariable excellence of the crops of the Windsor bean and the kidney-bean at Moose Factory is surprising.

The vetch grows wild everywhere, but nowhere is it so abundant as on the coast of James' Bay.

There is probably no food plant that is likely to be of more importance to the inhabitants of this territory than the potato. There is none the cultivation of which has been so successful in every part. The fitness both of soil and climate for its growth has been established beyond dispute. Whether viewed in reference to size, quantity or quality, the crops at Moose Factory and Matawagamingue (260 miles further south), will compare favourably with those in the best potato-growing districts in Ontario. Peaty soil is particularly well suited to the growth of potatoes. There are millions of acres of peat mosses in this territory, very extensive areas of which can be easily reclaimed, and when the country is settled and means of transport provided, hundreds of thousands of tons of potatoes may be grown and sent away to supply the wants of other countries.

The fitness of the soil and climate for the growth of root crops will make the breeding of cattle and dairy husbandry important resources of this territory. Among these crops the turnip is entitled to a place in the front rank. The carrot, beet, and parsnip can also be grown.

Cabbages, spinach, lettuce, mustard, cress, and radishes are grown without any difficulty. Rhubarb also grows well. The cauliflower appears to be one of the surest crops at Moose Factory, and is sometimes ready for the table as early as the first of August.

Whatever doubts exist as to the agricultural value of the country north of the Height of Land in respect to its grain-growing capabilities, there can be none in regard to its fitness to produce the more important roots and grasses. From the Height of Land northward to the coast of James' Bay, nothing on the north shores of Lake Huron or Superior can exceed the luxuriance of the native grasses. Cows and oxen are kept at all the principal Posts, and they are invariably found to be healthy and in fine condition; a good evidence of the salubrity of the climate, and excellence of the pasture. At Moose Factory where some sixty head are constantly kept, a certain number are slaughtered every Fall, and are quite fat, although then taken straight from the grass.

The only fruits that appear to be cultivated in the garden are the red and black currant and raspberry. The red currant is remarkably prolific. The strawberry and gooseberry might be raised with little trouble, for they are found growing wild in many places, and nowhere more plentifully or of finer quality than on the coast. The huckleberry or blueberry is found in great profusion from the long portages to the Height of Land. Indeed it may be said to abound from the coast of Hudson's Bay to the shores of Lakes Huron and Superior. It is nowhere in greater profusion or of finer quality than on the Height of Land itself.

	CLOUDY & RAIN.	CLOUDY & SNOW.
5	2	10
3	1	5
5	....	7
5	....	7
5	....	4
5	4	....
3	11	....
3	12	....
3	11	....
5	15	....
5	9	....
5	5	6

	CLOUDY & RAIN.	CLOUDY & SNOW.
3	8	
....	6	
1	6	
3	5	
2	7	
8	6	
6	....
6	....
11	....
6	....
19	....
7	....

There is another wild fruit which may be noticed. This is a bush or tree not unlike the wild cherry in appearance.* North of the Height of Land, it attains a height in some places of ten to twelve feet, but is generally about six feet. The fruit grows singly, not in bunches or clusters on the tree. It is an oblong or pear shape, larger than the blueberry, but smaller than the grape. When ripe it is of a purple or blue color. It is sweeter and has more flavor than the huckleberry, and is preferred by the natives to it. It is to be found all the way from James' Bay to Lake Huron, but nowhere in greater perfection than on the Mattagami River. The fruit is not only pleasant and wholesome, but the juice would make an excellent wine, and the tree is worthy of cultivation and a place in our orchards and gardens.

GENERAL ACCOUNT OF HUDSON'S AND JAMES' BAY.

In the popular mind Hudson's Bay is apt to be associated with the polar regions; yet no part of it comes within the Arctic Circle, and the latitude of its southern extremity is south of London. Few people have any adequate conception of the extent of this great Canadian Sea. Including its southern prolongation, James' Bay, it measures about one thousand miles in length, and is more than six hundred miles in width in its northern part. Its total area is in the neighborhood of 500,000 square miles, or upwards of half that of the Mediterranean.

The resources of Hudson's Bay and the country immediately around it are varied and numerous, although, as yet, few of them are at all developed. The fur trade is the principal and best known business which has hitherto been carried on in these regions; but a considerable amount of oil, derived from the larger whales, the porpoises, walruses, white bears and various species of seals which frequent the northern part of the bay, has been carried to New England, and small quantities, principally of porpoise and seal oil, have from time to time been taken to London by the Hudson's Bay Company. The trade in oil might be greatly extended in these quarters. Other articles have been exported from the bay, but hitherto only in trifling quantities. They embrace whalebone, feathers, quills, castoreum, lead ore, sawn lumber, ivory, tallow, isinglass, and skins of seals and porpoises. The fisheries, properly speaking, of Hudson's Bay, have not been investigated. Both the Indians and Eskimo find a variety of fish for their own use, and fine salmon abound in the rivers of Hudson's Strait. Water fowl are very numerous on both sides of the bay.

But perhaps the most important of the undeveloped resources of the country around the bay are its soil, timber and minerals. To the south and south-west of James' Bay, in the latitude of Devonshire and Cornwall, there is a large tract in which much of the land is good, and the climate sufficiently favourable for the successful prosecution of stock and dairy farming.

Some of the timber found in the country which sends its waters into James' Bay may prove to be of value for export. Among the kinds which it produces may be mentioned white, red and pitch pine, black and white spruce, balsam, larch, white cedar, and white birch. The numerous rivers which converge towards the head of James' Bay offer facilities for "driving" timber to points at which it may be shipped by sea-going vessels.

In view of the completion of the railway from Lake Nipissing to James' Bay, minerals may become in future the greatest of the resources of Hudson's Bay. Little direct search has been made for the valuable minerals of these regions. A large deposit of rich ironstone has been found on the Mattagami River. In 1877 inexhaustible supplies of good manganiferous iron ore were discovered on the islands near the Eastmain coast, and promising quantities of Galena around Richmond Gulf, and also near Little Whale River. Traces of gold, silver, molybdenum, and copper have also been found on the Eastmain coast. Lignite is met with on the Missinibi, gypsum on the Moose, and petroleum-bearing limestone on the Abbittibbe River. Soapstone is abundant not far from Musquito Bay on the east side, and iron pyrites between Churchill and Marble Island on the West. Good building stones, clay and limestones exist on both sides of the bay. A cargo of mica is said to have been taken from Chesterfield Inlet to New York, and valuable deposits of plumbago are reported to occur on the north side of Hudson's Strait.

* This is probably *Amelanchier sanguinea*, a variety of the Canadian Medlar.

EXTRACTS FROM MR. DAWSON, M.P. FOR ALGOMA DISTRICT.

HANSARD, March, 1884.

REGION NORTH OF LAKE SUPERIOR.

Mr. Dawson, in moving for a return of all reports not hitherto published, relating to the character and probable resources in agricultural lands, forests, minerals and otherwise of the country through which the Canadian Pacific Railway is being constructed to the north of Lakes Huron and Superior, embracing all information in possession of the Government in respect to the whole of the region intervening between the Great Lakes and the southern coast of Hudson's Bay, said. In making this motion, it is not my intention to press for very voluminous return of papers. Last year I made a motion for certain papers, and explained that what I wanted was a synopsis of the information. Well, that synopsis came down, it was not at all voluminous, and it contained all the actual information required and all in the possession of the Government; whereas, if they had sent down all the papers, they would have filled a volume. I want something of the same kind now. I do not wish to have a voluminous return brought down, but the pith and substance of the reports that have been sent in. The country to which this motion relates embraces a third part of the entire distance across the continent. It has been represented very often as a sterile and barren country, and, if such is the case, if all this is true, then the Pacific Railway would be a most unfortunate undertaking; but I have information, and I am satisfied from what I have seen myself and from the reports of others, that that country is very far from being a barren country, that throughout its entire extent of 1,000 miles from the Ottawa through to Rat Portage, to the verge of the prairies, there are immense tracts of very good land, that the whole country is covered with forests and nutritious grasses, cattle that range through it get fat in summer, and the forests of lumber are practically inexhaustible.

An Hon. Member. Timber limits.

Mr. Dawson. For my part, I possess no limits, but there is room for the lumber trade to be carried on there in regions which have not yet been touched by the lumbermen. There are many parts of that country more especially in the valleys among the hills, where the soil is exceptionally rich, and to form an idea of that country I would only ask hon. members to look across the Ottawa, to look to the valley of the Gatineau. The Gatineau runs through a country of the same kind. A country entirely composed, or nearly so, of different forms of Laurentian rock, and the hon. member for Ottawa tells me that he has a population in his constituency of over 50,000, 30,000 of whom are in the valley of the Gatineau. The county of Pontiac is precisely the same, the same sort of rock, the same sort of country as that north of Lakes Huron and Superior, and in that county there is a very large and thriving population. With regard to the country immediately north of Lakes Huron and Superior and extending back to the Pacific Railway, as a proof that it is not unfit for settlement, I may say that we have now 20,000 settlers along the Georgian Bay and up to Sault Ste. Marie, all living comfortably, cultivating the soil to the north, and they grow most beautiful wheat. It is an admirable country for growing wheat where the land is good. I do not mean to describe it as a paradise, but I do say there are large tracts of excellent land in it, and the settlements now extend along the Thessalon and back to the Bruce Mines—which, looking from the shore, seems to be the most dreary part of the whole country—40 miles already, and the settlers all express themselves highly pleased with the land. In the valleys of the Mississagua and Thessalon to the east and Goulais River to the west of Sault Ste. Marie there are also large tracts of good land, tens of thousands of acres, in many places, room for a dozen townships, with sufficiently level land equal to that of the prairies of the west, and with a climate far milder in winter, and I think, just as good in summer. Now, Sir, as you proceed west of Lake Superior you find an equally good country in the valleys of the rivers. Along the coast of the lakes the country is very rough and broken, but when you get inland to these river valleys you find excellent soil. Then as regards the Pays Plat River which flows into Nipigon Bay, a gentleman connected with the Pacific Railway, and a most intelligent man, told me he had been through it and that there was room enough for at least half-a-dozen townships, of the most magnificent land, all level, or nearly so, between the ranges of mountain on each side. The same may be said of the Black Sturgeon River which flows into Black Bay, a large river with very extensive flats

at the mouth where there is room for several townships. In the valley of the Kaminitiquia, again there is quite a large extent of good land. A thriving settlement has already sprung up there where they grow wheat and cereals of all kinds, and the people are highly pleased and satisfied with their lands. Going further back, away from the immediate coast of the lake, and westward from Lake Nipissing there is a considerable tract of fair land between Lake Nipissing and the west branch of the Great French River. There is some very good land in that section. In the valley of the Spanish River again, according to the surveyors' reports, from the point where the line crosses that river to Lake Huron, there is a considerable tract of good land; and to show that people appreciate the land there I am told that a company is now being organized to form an extensive cattle ranch on the Spanish River where they think the conditions are as favourable as in the North-West. Large sections of the land have been burned over and are almost like prairies. In the valleys of the rivers the soil is very rich and produces all that is required for the support of cattle ranches. As you proceed still further west and still further to the north, the country becomes more level; as to that country not being valuable there never was a greater mistake. Mr. Dymond, who was formerly a member of this House, a highly accomplished gentleman, and whose statement would not be called in question, a gentleman well qualified to describe the country, visited that region and collected a large amount of information for the Government of Ontario; and I may say that that Government values the timber in that country as worth \$150,000,000. Now, Sir, if I may be permitted, I wish to read a few extracts describing the country between the Height of Land which runs from the neighbourhood of Lake Temiscaming and the Ottawa River westward, all the way to the vicinity of Thunder Bay and beyond that. Now, in that country, after you pass the Height of Land, according to the description I have of it, there is an immense tract of level country where the soil is good. It extends westward from Abbittibi along the slopes of the Moose for 350 miles, and then on the slopes of the Albany River and along nearly its whole extent, the country is very little broken by hilly ground. Last year Dr. Bell, describing this country before the Emigration Committee, said:

"To the southward of James' Bay, the southern prolongation of Hudson's Bay, and to the south-westward, there is a long tract of land which, sooner or later, will be, I believe, of value for agricultural purposes. It extends for a distance of nearly 200 miles in a southerly and south-westerly direction. The immediate shore of James' Bay, towards the south end, is very low and level, and the country for some distance back is covered with sphagnum moss, but this does not exist far inland. The greatest extent is between the lower parts of the Albany and Moose Rivers, but beyond that, there is a level tract of excellent land, well wooded; and southward and south-westward of that again, the country rises pretty rapidly for a short distance and we come upon a plateau which extends inland for another 100 miles, and over the greater part of that the land is excellent as far as I could judge. I have surveyed all the principal rivers and lakes and canoe routes of that country, and made excursions inland to see the rocks and the soil, and it would be what we should consider, in Western Canada, good land. On the eastern side of James' Bay, there is a narrow strip extending about 100 miles from the southern extremity, which would be useful for cattle raising. It is already used by the Hudson's Bay Company for that purpose, and they have shown that sheep and cattle can be reared there successfully."

Again he says in respect to the timber:

"On the head waters of the Moose River, white pine is abundant and of good size. Red pine also exists and extends rather further north than the white. Then there is 'Jack pine' or 'cypress,' or more properly the Banksian pine, which, though not a timber tree in its southern extension, becomes so in the northern region, which is its home. In the Albany region I have seen large groves of this tree, quite different from the ordinary scrubby variety."

As to climate he says:

"In regard to the climate for agriculture, the country that I have spoken of, south and south-west of James' Bay, lies in the latitude of Cornwall and Devonshire, in England, and southward of that, it is in the same latitude as the northerly parts of

France; and while these countries enjoy exceptionally favourable conditions, there is no peculiarity of climate that would make the district I have referred to, worse than the average of the face of the earth in those latitudes, and, therefore, I think it is likely to be of value for agriculture, as far as climate is concerned."

As to the dates of the opening of the river he remarks as follows:

"When I was at Martin's Falls, on the Albany, I collected the dates of the opening and closing of the Albany River for about forty years preceding my visit, and since that I have obtained the dates for over ten years, so I have an exact record of the opening and closing of the Albany for fifty years, and the average time that it is open is fully six months."

In respect to the fishery resources of the Hudson's Bay he says:

"In regard to the whale fishery, the large whales are confined principally to the north-west part of the bay. The Americans from New Bedford and New London have resorted to the north-west part of the bay to fish whales for twenty years or upwards, and have generally been very successful. From one to three or four or five vessels go every year, and according to the Report of the United States Commissioner of Fisheries, the returns have been very large."

Then, in answer to the question. "What is the liability to summer frosts in the country around Hudson's Bay?" he says:

"In the larger area of agricultural land south and south-west of James' Bay, I think not very great. In 1877, on my homeward journey, I left Moose Factory on the 1st October, and at that time all the tender plants—the tobacco plant, castor oil, bean, common beans, cucumbers, balsams and other tender plants, were perfectly green, standing in the open air, and probably remained so for some time after I left, as we had no frost. And at the posts of the Hudson Bay Company, inland, they are not often troubled with early autumn frosts. I think the sowing is done on an average at the same time as in corresponding latitudes in Lower Canada."

Again, speaking of iron ore, he says:

"Iron ore is very abundant on the east coast of Hudson's Bay and on the islands northward from Cape Jones. At the commencement of Hudson's Bay proper, there is an inexhaustible quantity of rich and valuable ore—valuable from the fact, that it contains a great amount of carbonate of manganese, making it available for the manufacture of Bessemer steel."

A country with all these resources, with forests and iron ore and lying alongside a great highway, easy of access, surely cannot be called a barren country; and yet not many years ago, not a hundred years ago, an hon member of this House said:

"That railway north of Lake Superior runs for 700 or 800 or 1,000 miles through the most inhospitable country on the face of the globe—I do not speak now of Manitoba, but north of Lake Superior, from Callender even to Winnipeg. It is questionable in my mind whether there are 10,000 acres adapted for settlement along the whole line of the route, and, if you carry on a railway through a country not adapted for settlement, it strikes me forcibly it will be carried on with a very large expense to the country, and will not be remunerative to the contractors. Unless there is some way-freight for a railway, it is utterly impossible for it to be a paying concern."

This wholesale denunciation of an immense region like that described, has a very bad effect when it comes from such a high authority as this did. Sometimes hon. gentlemen in their argument, to carry out a particular view, express themselves without reflection as to the character of a country. I do not know whether that hon. gentleman did so or not, but he spoke as if he did, because I believe he is very much better informed. It is a great pity that such reports should go abroad about a very

extensive portion of the country. From the ascertained sources of the Moose at Lake Abbittibi to the source of its westerly branch north of Lake Superior, the distance is 350 miles, giving over 30,000 square miles of territory on the waters of the Moose where the soil is in great part very good—that is a country as large as Scotland or Ireland—and containing, according to the estimate which I have obtained, upwards of 20,000,000 acres of very fair land. I may be permitted to read from a paper which I have obtained from an officer of the Government appointed to explore that country—some information furnished by Professor Bell. He says :

“As to the position and extent of this basin (of the Moose) which is one of the largest and most important drainage areas in the Dominion. It lies between the parallels of 47° and 51° north latitude and 78° and 85½° west longitude. Its outline is approximately circular, measuring 330 miles from east to west, or as far as from Toronto to Montreal, by 300 miles from north to south. As much misapprehension exists in regard to its climate, etc., I may here compare its general position as to latitude with European countries with which we are more familiar. Its most northern parts correspond with the extreme south of England, while the bulk of it is in the latitudes of the northern parts of France, the southern parts of Germany, the central parts of Austria and the great wheat districts of Southern Russia. It is far removed from the cooling influence of the Arctic current of the Atlantic coast and may be considered to enjoy an average climate for its latitude as compared with the rest of the world. As might have been expected, wheat ripens well in this district as we know from the testimony of those who have tried it, while Indian corn comes to maturity in the southern parts of it. Timothy and all other kinds of hay as well as root crops and vegetables thrive remarkably well. The region seems to be admirably adapted for stock raising and dairy produce. The abundance of wood and the purest of water are important considerations.

“As to soil, elevation, etc., the greater part of the region may be described as a tolerably level plateau with an elevation of less than 1,000 feet above the sea. The southern part is more broken than the northern, and the whole area has a gentle slope towards the north.

“The Moose River has upwards of a dozen principal branches, rising near the Height of Land, flowing often for long distances parallel to each other, but gradually converging towards the head of James' Bay. The western branches unite to form the Moose River proper, which is only about forty miles in length, and this receives the eastern branches on its way to the sea.”

Dr. Bell goes on to say :

“The late Walter McOnat—a thoroughly reliable authority—in speaking of the south-eastern part of the region in question, says in his Geological Report for 1872 : ‘The whole region, extending northward from the mouth of the Montreal River, which is about thirty miles south of the head of Lake Temiscaming, may be pretty correctly described as a level clay plain, with a great number of rocky hills and ridges protruding through it. * * * The height of the clay appears to be pretty uniform throughout the whole region. * * * Taking the mean of all the heights * * * we find that the height of the clay plain above the sea level is about 900 feet. * * * Lake Abbittibi is surrounded on all sides by level clay land. * * * To the north and south of the north-westward, the clay level seems almost unbroken and it is well known that it extends in this direction to the shores of Hudson Bay. Several acres of this soil are cultivated at the Hudson's Bay Company's post at Abbittibi, with satisfactory results. The only crop grown at present is potatoes ; but I was told by the man who has charge of the farming operations (a French Canadian, who has been more than thirty years in Abbittibi, but was brought up as a farmer near Sorel, in the Province of Quebec), that several other crops, including wheat, had been tried in former years, and with such results that he is inclined to insist that all the ordinary cereals can be cultivated as successfully at Abbittibi as on the St. Lawrence. Such an opinion from a man who has been for so many years practically engaged in the cultivation of the soil, is worth recording and ought to be

reliable. Indian corn is grown at more than one locality near the head of Lake Temiscaming, and is said to ripen well. I am able, personally, to testify to this, as I was shown some good ripe ears which had been grown during the summer of 1872, on the farm of Mr. Angus McBride, at the head of the Lake.' Similar testimony might be quoted from the reports of Mr. E. B. Borron, who has travelled much through the country drained by the various branches of the Moose River.

"In various parts of the district there is a prospect for the discovery of several of the more valuable metals. It is especially the case towards the south-east side; while in the northern part, I have found large deposits of iron ore, gypsum and lignite. So little intelligent exploration for mines has yet been done in the vast region northward of the great lakes, that we can hardly form any idea of the rich mineral resources which lie dormant in this part of the Dominion. I am convinced from what I have seen, that there is nothing in the climate of this region which would prevent it being successfully farmed."

A country with all these resources cannot be called a barren country. In the forests at Lake Abitibi there are pines three feet in diameter, and towards the head of the Albany River, and near Lake St. Joseph, there are forests of pitch pine, which is a valuable wood in that country, with trees averaging nearly two feet in diameter, according to the authority of Prof. Bell, who has explored that region. I believe the value of the country is equal to that of any part of the North-West. I believe that the vast region north of the Height of Land and along the waters of the Moose and Albany is in a great measure valuable for agriculture, and will yet sustain a very large population. It is not alone this great country which will give traffic to railways, but through that country this Parliament has already granted four charters to railways leading down to Hudson's Bay. I believe that great inland sea, with which the Canadian Pacific Railway will be connected, and with which this country will be connected, possesses resources which are not yet dreamt of. I believe the region to be opened will prove very rich in fisheries of every description, and in minerals. I believe we will have a great traffic arising from that bay, and I should not be at all surprised if it were found before long that the section of the line north of Lakes Huron and Superior was the best paying portion of the Canadian Pacific Railway, considering the mineral wealth and the resources of that immense region. We know that in a country farther westward, 200 miles north of Lake Superior, wheat grows well; we know that there are rivers there which are navigable for miles, with magnificent forests and excellent land on their banks; we know that cattle thrive throughout that whole region, and why then should it be called a barren country? With regard to its mineral wealth, I should think that the testimony of such a man as Professor Agassiz should have very great weight, and he declared long ago that one of the most important regions of the world—and he had travelled over the whole world, and was considered one of the first scientists of his day—was that country north of Lake Superior, and that it would eventually prove to be one of the richest mineral regions on the face of the earth. The results so far obtained have demonstrated the accuracy of that statement. A few days ago there were no less than \$400,000 paid in New York for a mine, covering a few acres in Thunder Bay, within fifteen miles of Prince Arthur's Landing. That gives some idea of the resources of this country, and as it is opened up, no doubt its mineral interests will be of very great importance.

Mr. Trow—I have only a few words to say, and I would not have risen but for a remark which has been made by the hon. member for Algoma. Whether inadvertently or not, but certainly not intentionally, in my remarks the other day on the Canadian Pacific Railway Resolutions, I stated that I had travelled over a portion of the intended route of the Canadian Pacific Railway, and that I considered that the portion which came under my observation was inhospitable and not adapted to successful settlement. Furthermore, during my travels I fell in with parties whom I presumed were familiar with that portion of the country, and the information which I gathered from them was that the land was not adapted to cultivation; that the climate was not suitable, and from the inaccessible mountains and ravines which were described as abounding in that country, I naturally came to the conclusion that that information was correct, and I wrote to a local paper in my riding at the time to that effect. However, since I made that statement I have taken the precaution to read

some reports on the subject, and more particularly the reports of Mr. Borron, a former member of this House, who is employed by the Ontario Government. In that gentlemen I have very great confidence, and believing every word he states to be correct, to the best of his knowledge, I have come to a different conclusion with reference to the adaptability of many portions of that section of the country to settlement. He has made observations on the country, from Lake Superior to James' Bay, and also to Hudson Bay, and down the various rivers and ravines, and he has travelled there very extensively for several summers. I yield to his judgment, and I believe there are large tracts of land upon and adjoining these rivers which are adapted to settlement. There are very large limits of excellent timber, and there is no doubt there are very valuable minerals. I merely make this statement because the hon. gentleman mentioned my name, and in order to contradict the statement I made the other day. I have no desire to misrepresent or deery the country and would not do it under any circumstances. My object is to see the country settled and aid in its settlement and progress to the best of my ability.

Mr. White (Reufrew)—I am glad the hon. member for Algoma (Mr. Dawson) has drawn the attention of the House to the question now under consideration and I think after the speech which has been delivered by my hon. friend from South Perth (Mr. Trow) the House must admit the value of the motion which has been submitted by the hon. member for Algoma. I was, I confess, considerably surprised on reading the statement made by the hon. member for South Perth in the discussion which took place on the Canadian Pacific Railway Resolutions. I was greatly surprised to learn that that hon. gentlemen had stated that there were not, in his opinion, 10,000 acres of cultivatable land, between Callander and Winnipeg; because I had known, of my own knowledge, long previous to that time, that in the immediate vicinity of Callander, and between that place and Sudbury Junction, a larger portion of land than the quantity mentioned by the hon. member for Perth was cultivatable and was actually in occupation by settlers at the present moment. I think it is to be regretted that statements such as those which fell from the lips of the hon member for Perth, in the discussion to which I referred, should have been sent to the world on the authority which statements made by hon. members in this House must naturally have in the country, and I am glad to know that the hon. gentlemen has to-day admitted that the information on which he made that statement was incorrect. I have a statement made by a gentleman on whose opinion, I think I can thoroughly rely, that large portions of the country between Callander and Winnipeg are cultivatable and are admirably adapted to settlement. I hold in my hand a letter which was written to me some years ago by Mr. Wm. Bell, D. L. S., who was occupied for some years in surveying limits under the authority of the Ontario Government, on the north shore of Lake Huron, and between that section of country and the Ottawa River. He said :

"Along the Amable Dufond River, and several miles west of it, there are extensive flats of rich, loamy soil, thence westward a beautiful undulating country extends to Lake Nipissing and South River and a considerable distance west of that river. The soil is generally a sandy loam on the higher lands and clay loam on the flats. In some parts the timber is pine, mixed with hardwood, and in many places, hemlock, hardwood and balsam. From Lake Nipissing, the country ascends gradually to the south, and at a distance of fifteen miles from the Lake in that direction extensive ridges of maple, birch and beech occur, mixed occasionally with hemlock, balsam and pine. The soil is a sandy loam. The whole country described above is fit for settlement.

"On the north side of Lake Nipissing and Mattawa River a large tract of country extending northerly to Lake Temiscaming is covered chiefly with hardwood, balsam and spruce. Pine is most abundant near the Ottawa, but a few miles west of that river it becomes scarce. Over a large proportion of this tract, the soil is a clay loam of good quality and nearly all of it is suitable for settlement."

He concludes his letter in these words :

"In my opinion, there is no part of the unoccupied land of the Crown which affords so large an unbroken tract of country suitable for settlement as the territory described therein."

I know, that as a matter of fact, that on the shores of Lake Temiscaming, both in the Province of Ontario and the Province of Quebec, wheat of the very best quality has been grown; and there is at present a grist mill in the vicinity of that lake which is used for the grinding of wheat grown by the settlers. It is also a well known fact that at the head of Lake Temiscaming there are great clay flats covered with splendid oak timber. I might go on reading extracts at great length to show the fertility of the soil in the section of country referred to; but I will content myself with reading one statement made by a gentleman who is now a member of this House; I refer to the hon. member for Selkirk (Mr. Sutherland). In 1878 he appeared before the Committee on Immigration and Colonization, and in the course of an examination as to the character of the country lying between the head of Lake Superior and Rat Portage, he was asked the following question:—

“By Mr. McNab—I wish to ask the character of the Land along Rainy River, and whether it is likely to be settled? Is that outlay of money likely to be of benefit to the country, assuming our all-rail route is completed?”

The outlay of money here referred to was for the construction of a system of tram ways proposed to connect the waters of Lake Superior with those of the Lake of the Woods. The answer was as follows:—

“I contend that if the railway is not built for four or five years—and I don't think it is possible to build it in less time than four years—if this route is not opened up, there is no chance of settling the fertile belt here on Rainy River, as there would be no opportunity of settlers seeing the country, and they would not go. There are seventeen townships surveyed there, with about 23,000 acres in each township. I have talked the matter over with Col. Dennis, and from the field notes of the surveyors he estimates that there are at least 150,000 or 200,000 acres of excellent land there. There are about 400,000 acres altogether. I am satisfied he is under the mark, and I have seen a good part of the territory along Rainy River, and have heard a good deal about it from others.”

In view of all the statements which have been made as to the fertility of a large portion of that country lying between the eastern terminus of the Canadian Pacific Railway, at Callender and Winnipeg, and in view of the great mineral and timber resources in that large extent of territory, I think that my hon. friend from South Perth (Mr. Trow) must admit that the Government were wise in deciding to push through the road north of Lake Superior as rapidly as possible, and I think it is an advantage to this House and to the country that the hon. member for Algoma has submitted this motion, which I have very much pleasure in seconding.

Mr. Cockburn.—I have been very much interested in the discussion which has taken place on this subject. Some of my remarks have been anticipated by the hon. member for North Renfrew (Mr. Haggart). I cannot speak from personal experience, in such glowing terms as the hon. member for Algoma has done, of that portion of country north of Lake Huron and Lake Superior; but I have some personal knowledge of a portion of the country, within 200 or 300 miles of where we now stand, and I know from personal observation that considerable belts of land fit for settlement do exist in the northern part of Ontario, and I suppose the same thing is true of Quebec, though I cannot speak of that from personal knowledge. The great North-West has received so much attention during the last few years that the settlement of the newer portions of the older Provinces is entirely neglected. I cannot claim that the soil in our free grant districts will compare in fertility with the soil of the North-West; but there are other advantages in favour of these free grant districts. The hon. member for North Renfrew (Mr. White) has already described the country around Lake Temiscaming better than I can; and hon. gentlemen from Ontario have recently received from the Provincial Commissioner of Crown Lands reports of the country around Lake Nipissing. I hold in my hand a report lately issued, which shows that, though some of the lands surveyed are almost valueless, others are very good indeed. Mr. Niven, a surveyor, who was sent out by the Ontario Government to explore that district, reports regarding one section, as follows:—

"Township No. 17 north of Lake Nipissing is nearly all good hardwood land, and is by far the best township in the entire area explored. I never saw finer hardwood bush than many parts of it—a few basswood here and there, ironwood in many places, and a grove of beech on the east boundary, a few miles north of Trout Lake."

Mr. Niven also speaks of the township of Widdifield, in which I have been myself. It is in the very next division from here. Mr. Niven says of it :

"Township of Widdifield is immediately on the north shore of Lake Nipissing and traversed by the Canadian Pacific Railway. About two-thirds of the entire township is fit for settlement."

With a railway running through that township, and a roundhouse there to accommodate sixteen engines, I should think it would offer very good inducements to people who cannot go to the North-West, because there they would find fuel and fencing, as well as the land, for nothing. I cannot say that this is a land flowing with milk and honey, but there are belts of good land, with the advantage of being within easy access, and the expense of reaching there being small, I therefore think it very important that this discussion should have taken place to-day, in order to call the attention of intending settlers to this part of the country. The Canadian Pacific Railway has already been built along the entire length of Lake Nipissing, and with the construction of the proposed railway from Lake Nipissing to Lake Temiscaming, there is no doubt that a very rich country will be opened up. It is a matter of very great satisfaction to find, on closer examination, that the northern portions of the Province of Ontario are proving to be so valuable.

Mr. Sproule. I think the hon. member for Algoma ought to be congratulated on taking this opportunity of bringing such an important subject before this House and the country. When we remember the statements made from time to time in reference to that country and the impressions created upon the public mind, I think we must acknowledge that a great deal of information regarding it that would be profitable to the public is yet hidden from our observation. If we consider the extent of country, a distance of nearly 1,000 miles long in one direction and from 200 to 500 miles wide in another, and if we remember that in Ontario, where there is not perhaps one-third as large a territory settled, we have to-day a contented population of 2,000,000, I think we must admit the importance of this question. Again, if we compare the geographical position of the country with other parts of the world, with reference to its latitude and longitude and its altitude from the sea, we find that it compares favourably with other parts of the world that are thickly populated to-day, that sustain a contented and happy people ranging from three to forty people to every square mile. If we think again of its rivers, the length and number of which are, comparatively speaking, equal to those found in any other part of British North America, if we remember the clearness and pureness of the waters that flow down its fields, we cannot fail to properly estimate its importance. If we look at its mineral resources, we find the deposits there are similar to those found in other parts of the country that have been partially explored, and are yielding as a return for those explorations some of the greatest sources of wealth to be found in the Dominion, we may, from that direction too, estimate its importance. If we look at its soils, we find they also compare very favourably with the soils in the richest parts of Ontario, which have been cultivated for years. If we look at its timber, the want of which is being felt very largely at present, both in this part of the country and the North-West—if we look along its navigable streams, extending hundreds of miles, useful for navigation and transportation, and see the large forests of valuable timber that extend along those streams, which must be very useful at no distant date to this country, we cannot fail to be impressed with its importance. If we remember its lakes, teeming with as fine fish as can be found in any part of the country, from that point of view also we must be struck with its importance. Then look at its climate. Hon. gentlemen have been pleased to say in this House that it has a very inhospitable climate, but measuring its climate from the depth of the snow, from the length of the summer and the length of the fall, or from the number of months during which its rivers are navigable, we find that it compares very favourably with the climate of many other

parts of the country largely populated and wealthy to-day. If we look at its grasses and its plants and vegetables, we find that they are the same as those found in other parts of the country about which we know a great deal more to-day. I saw only a year ago a single potato that was brought down from Port York which lacked only one ounce of two pounds weight, and which being cut through, appeared to be of the very best quality; and the carrots brought down from there, both as regards size and the quality of the root itself, are decidedly much superior to what we find in the best parts of Ontario and Quebec. I say, considering the importance of the subject, no matter in what light you view it, it must be a matter of considerable interest to the people of the Dominion, and the people of Ontario especially, because a large extent of this territory belongs to Ontario, and when we remember that in a short time we will have opened up a large portion of the country, some 400 or 500 miles in length, with a railway, we will see the necessity of bringing in some way prominently before the eyes of the world the resources of the territory that will be opened up for settlement there. The hon. member for Muskoka said, that, from his knowledge of the country, he was inclined to believe there was a great deal of broken land in it, but only a few years ago I heard a gentleman, who apparently had opportunities of being conversant with the country, say there was not 10,000 good acres in the Manitoulin Island; that it was a place that could not be settled; that no large number could reside there and support themselves on its products; yet, in travelling through that country, although we must confess there is a large amount of broken soil, that is not an unmixed evil; because it cannot be used directly in the raising of grain, it is very useful for the purpose of grazing, and some of the finest cattle of this country that cost the smallest amount of money has been raised in Manitoulin. From the meagre information that we have, we learn that in every part of it there is found some of the best arable land known in the Dominion. If the soil and climate, if its waters, if its altitude from the sea, if its depth of snow, the length of its winters, the mildness of its summers, are the same as in other parts of the world, well known and amply tested, and found suitable for agricultural purposes, we must admit that it compares favourably with other known parts of this country. It is important that the information asked for should be laid before the country through this House, because any information we have had heretofore has been extremely meagre. I was pleased to find that the hon. member for South Perth was ready to accept the information, coming from a source which he would, perhaps, look upon as more valuable than that coming from any other source—the information given by a representative from the Ontario Government. I am pleased to find that there seems to be every chance of our receiving information which will satisfy those that are skeptical, as the investigation proceeds, as pioneers reach different parts of the country and send back reports, which will only be found to corroborate the reports we have as to the richness of the country. I am glad the hon. member for Algoma has put this notice on the paper. I hope it is only the opening up of a great question which will be ventilated year by year and be brought home prominently before the attention of the people of this and other countries, and I doubt not that at no distant time this region will be found to be one of the richest sources of wealth to Ontario and the Dominion.

Mr. O'Brien.—I do not propose to add anything to what has already been said, in regard to the value of this country for the purposes of settlement, but what I wish to say is, that that value is, so far, merely theoretical, and will be of no avail to the wealth of the Dominion until more extended railway communication is given to it. Not a day passes on which I do not receive letters from those I represent, asking, in almost despairing terms, when are they to have the benefit of railway communication. There are settlers in some parts of the country who are raising large crops of grain, who are entirely dependent upon the lumber interest for their market, who are 50 miles away from any source of obtaining supplies, and who are every day looking most anxiously to see whether the long promised railway is likely to reach them. If ever there was a case in which the interests of the poorer class of settlers deserve consideration, it is the cases of those men who, at a time when the North-West was not entering into competition with it and under circumstances of the greatest possible hardship, made homes for themselves in what was then almost an unknown wilderness. I do trust that the Government will, at the very earliest possible moment, take the claims of these people into consideration and carry out the promises made long ago—promises made only, I might almost say to be broken—to give them the means of obtaining what has become to them a matter of necessity. I only say

this, not that I have any fear but that the expectations held out will ere long be realized; but, on their behalf, I would take this one opportunity, the last that will probably occur, of impressing upon the Government the great necessity there is, not for action, but for speedy action; and I venture to say that next summer, if the opening of next season does not show that steps have actually been taken for the completion of this work, my place in this House will be a very useless one, for there will be such an emigration from that country that I shall have very few people left to represent. Some have already gone. In many townships there are less people now than when the census was taken in 1881, and if speedy steps are not taken for the construction of the railway, the population will diminish in a still greater ratio; and I think it is hardly worth while for us, when we are building up Provinces so far from ourselves, to do it at the expense of depopulating a country which will, in many respects, compare favourably with the most fertile portions of the North-West.

Motion agreed to.

Quoting again from the concluding remarks made by Mr. Barron in his report of 1883, to the Ontario Government, with reference to the country north of the Height of Land, he says:

"That the climate is remarkably healthy, the cold in winter being not quite as severe as in most parts of the North-West, and the mean summer temperature sufficiently high to bring to maturity, in two-thirds at least of the territory, all the more important grain and root crops, if not flax, hemp, hops, and other crops of a like nature which are as yet untried.

"As the breeding of cattle in the Highlands and Islands of Scotland, to be afterwards sold and fattened in the south for English markets, has long been found profitable both to the breeders in the north and feeders in the south; so likewise may we anticipate that the breeding of cattle in this territory, to be afterwards fattened in Southern Ontario, will be extensively followed, with great advantage to the people of both sections of our Province.

"My explorations also enable me to say with confidence that the mineral resources of this territory promise to become of very great value and importance. Iron, lead, and copper ores, china clay, gypsum, and fine yellow and brown ochres, have been already found, and this for the most part in great abundance. Lignite, or brown coal, has been discovered in seven or eight different places, and beds of this coarse but useful fuel are believed to underlie large tracts of country.

"The peat beds are so extensive as to be practically inexhaustible, and these together with the lignite will in all probability prove, sooner or later of inestimable value as fuel, rendering the people of Ontario to a considerable extent independent of foreign service for their supply of this indispensable necessary of life." * * *

With reference to the timber he says:

"That irrespective altogether of the value of the pine now on the ground, the prospective value of the timber which seven million acres of good forest land may be capable of producing by the unaided efforts of nature alone, should be fairly taken into account, for if not to ourselves such a forest, more than royal in its dimensions, will surely prove a valuable legacy to posterity."

EXTRACTS FROM "THE GLOBE," APRIL, 29th, 1884.

Mr. H. J. Hubertus, of Ottawa, who recently passed over the Pacific Railway to the end of the track near Sudbury, gives the Ottawa *Citizen* the following description of the district through which he passed:—Along the shores of Lake Nipissing, commencing at Calender, the soil is generally clay—always clay bottom. In exceptional cases it is sandy. I noticed exceptionally fine land on the Indian Reserve, which I believe extends fifteen miles along the lake. I saw large birch trees, and was told there was maple. There had evidently been terribly destructive fires through this country even near Sudbury, the timber having been completely destroyed, and the soil having been burnt down to the clay bottom. The young timber is often not more than 25 years old. I fully believe that the clay country extends from the east end of Lake Nipissing to a point on Lake Superior at the east end to Goulais Bay or Bachewaning Bay and southward to the shore of Lake Huron. This will probably cover a distance on the main Pacific line of over two hundred miles. Taking the distance from Sudbury to Sault Ste. Marie by Algoma branch it would be 180 miles. At the Sault I have seen this clay country. It is probable that it averages a depth to the north of Lake Huron of fully 300 miles. A gentleman who crossed from the Montreal River to the head waters of the Wahnapiite and Sturgeon Rivers tells me there is equally good land there, and all travellers and explorers tell us that there is a good clay country on the Abbittibi and Moose Rivers on the Hudson Bay slope.

There is a stretch of very inferior sandy and rocky land commencing at a point east of Lake Nipigon and extending about 200 miles to a point east of Michipicoten River on Superior. But this only to the south of the crest between Lake Superior and Hudson Bay. I believe that not under 50 per cent. of the land in the clay country is fit for settlement. As to the nature of the climate west and north of Lake Nipissing, I was a good deal discouraged about the future of the district when I was told that there had been frost every month last summer. I was told that potatoes and oats had frozen and failed. But I was reassured when Mr. Duchesnay, the resident engineer at Sudbury, told me that potatoes had ripened well, and I was also told that Mr. Yeikling, late of this city, had successfully raised all kinds of vegetables at Sturgeon Falls. All clay lands in new districts require drainage, as they are wet and cold and liable to frosts. Frosts were quite common in Wellington and Grey counties in the period of early settlement. No fears are entertained by settlers. Sudbury is only 850 feet over sea level. Lake Huron is 575 feet, and Lake Nipissing 65 feet higher, or 640 feet, therefore Sudbury is only 210 feet higher. West of Sudbury the line passes along the height of land between the Hudson Bay and St. Lawrence waters at a height of 1,400 feet. Lake Superior is 598 feet above sea level. Mr. Duchesnay, who is a native of Quebec, and who was last year near Sudbury, tells me the snow was about three feet deep, and was all off by the 1st of May.

The climate he thinks about like that of Montreal or Ottawa. The longitude is about five degrees west of Ottawa. I was told that asbestos, mica, copper, and iron had been found. These are to be expected from the formation, which is Laurentian and Huronian. There is no limestone to be found along the line. The company are using gneiss rock in the construction of abutments. They own limestone islands in Lake Nipissing, but appear to find gneiss cheaper. The same difficulty occurs on the Algoma branch. They get limestone on islands north of the Manitoulin Islands.

There being no limestone, of course the water is soft, good for washing, and very agreeable to drink. I have suffered from malaria in limestone districts. I was particular in enquiring, and found no fever prevailing, the diseases being all inflammatory from exposure. As to the extent of the timber it must be enormous, as the head waters of the streams emptying into the Ottawa and Lakes Nipissing and Huron are not yet encroached on. Mr. Klock is making a raft of square timber near Veuve Station, and Mr. James Worthington is making two rafts of square timber at Sudbury Junction for shipment by rail.

I think the advantages to the settlers are very great. I saw patches of land from 50 to 200 acres and upwards near stations where the land was a clay loam and the timber easy to clear, where a squatter, with a supply of flour, pork, and tea, could readily build a shanty, and soon make a home for himself. If he did not wish to stay he could quickly transfer his improvements. See how valuable his products will be where all provisions have to be brought in now, and the prices the very highest, and with how little a man can make a start here. Perhaps \$50 or a \$100, and in a few months an express train on the Pacific will pass each way near his door every day. Taking Calender as a point near where good land is open to the settler, it is only 225 miles from Ottawa and 345 from Montreal.

Mr. W. B. McMurrich, President of the Lake Nipissing & James' Bay Company, chartered during the last session of the Dominion Parliament, was interviewed a day or two ago with reference to the objects of the Company in building the road, and the benefits expected to arise after the road is constructed and equipped. "We propose to construct a road," said Mr. McMurrich, "from some point at or near the junction of the Calender Branch Railway with the Canadian Pacific Railway along the valley of the Sturgeon and Abbittibi Rivers to Moose Factory. The proposed road will be a continuation of the Northern Railway from Gravenhurst, or rather from Calender. The distance from Toronto to Moose Harbour by the new road will be about the same as from Toronto to Quebec. The distance from Calender to Moose Factory by the projected route is about 350 miles. Mr. J. C. Bailey, formerly of the Credit Valley Railway, the Chief Engineer of the new road, has estimated that it will cost about \$18,891 per mile to construct the line. The country north of Calender around Lake Temiscaming is suitable for settlement, and the branch road to Lake Temiscaming will make the valuable timber lands in that vicinity tributary to Toronto, and at this lake there is stone suitable for paving purposes. On the shores of James' Bay large deposits of iron and gold have been found. The products of the whale fisheries will likely be sent from Hudson Bay to the States by way of this road. The subscribed capital of the company is \$200,000."

NAVIGATION AT MOOSE FACTORY.

The following table, handed to the reporter by Mr. McMurrich, was compiled by Mr. Woods, a Hudson Bay official. It shows the dates of the opening and closing of navigation at that point for the last fifty-four years :-

	Date of Opening.	Date of Closing.
1828	June 1	Nov. 15
1829	May 10	" 11
1830	" 17	Dec. 2
1831	" 22	Nov. 28
1832	" 25	" 26
1833	" 13	" 22
1834	" 27	" 20
1835	" 24	" 18
1836	" 16	" 29
1837	" 11	" 25
1838	" 23	" 22
1839	" 22	" 19
1840	" 12	" 16
1841	" 10	" 13
1842	" 17	" 11
1843	" 29	" 16
1844	" 13 to 20	" 26
1845	" 22	" 24
1846	" 7 or 9	" 25
1847	" 9	" 15
1848	" 21	" 28
1849	" 18 to 24	" 27
1850	" 31	" 28
1851	" 31	Dec. 9
1852	" 16	Nov. 8
1853	" 26 to 30	" 9
1854	" 23	" 16
1855	" 21 to 25	" 24
1856	" 20 to 22	" 19
1857	" 14 to 19	" 17
1858	" 24	" 24
1859	" 13	" 16
1860	" 1	" 19
1861	" 22 to 28	" 16
1862	" 24 to 29	" 24
1863	" 22	" 30
1864	" 19	" 26
1865	" 16	" 20
1866	" 14	" 28
1867	" 23 to 28	" 24
1868	" 24 to 31	" 29
1869	" 25	" 6
1870	" 11	" 27
1871	" 12	" 23
1872	" 16	" 20
1873	" 14	" 18
1874	" 16	" 20
1875	" 19	" 15
1876	" 10	" 24
1877	" 20	" 15 to 20
1878	" 15	" 3
1879	" 11	" 23
1880	" 26	" 20

EXTRACT FROM OTTAWA "CITIZEN."

THE UPPER OTTAWA.

Rev. C. A. M. Paradis, missionary from Temiscaming, who has spent many years up in this wilderness of the Ottawa region, has given far more than a passing glance at the situation of matters in general. He has carefully prepared a memorandum setting forth the wants and requirements necessary for the improvement and opening up of the valuable tracts of soil to actual settlers, the better facility that will be afforded our lumber kings, and lastly, a point that is of the most vital importance to the city of Ottawa, the forming of a grand chain of communication that will divert the vast trade, daily growing in importance, from that section of our province bordering on Lake Ontario, and compel it to follow the natural channel down the valley direct to this city, and hence to the seaboard. To remedy the existing evils he suggests the building of a dam, about 48 to 49 feet wide, at the head of the Mountain rapid, which winds up the Sept. Lievres lake, distant eleven miles from the Mattawa. The effect of this would be to lower the waters in Lake Temiscaming 21 feet 6 inches. This would have no injurious effect on the lake, as it is one of deep water, having an average of over 100 feet, and at some point is several thousand feet. On the other hand, it will give to the Government several thousands of acres of most salubrious soil, unsurpassed for its productive qualities by even the famed prairie farms of the North-West. The sale of this alone, not to take any notice of the great benefit and advantages for carrying on the lumber trade, and the immense traffic brought direct into the Ottawa market, would far more than pay the Government for the outlay that would be incurred in the erection of the dam, at the point named, and the construction of two or three very short canals, connecting our great chain of lakes.

Passing over the various benefits that would naturally flow through this section of country and the vast aid given in the further developing of our timber resource, the matter of colonization is carefully considered. After referring to the many colonization schemes, he shows that Temiscaming at a far less expense would prove a greater source of wealth than even Lake St. John, and that in this region there are vast tracts of territory capable of furnishing good homes to thousands of our Canadians, who to-day are seeking them in other lands.

The document shows a deep, thoughtful study, and that the writer has not in a flippant manner gone over the ground. He has canoed it every mile; penetrated into the solemn depths of the forests, where the foot of the white man has never before trod; examined the soil, wandered for miles along the banks of the Temiscaming and its many tributaries, he has gazed upon the rapids, as the water dashes in its seething, foaming torrent, over its rock rent bed, and knows to a positive certainty the correctness of every assertion made.

A petition is now in the hands of Messrs. Frank McDougal and P. H. Chabot, two gentlemen who take great interest in developing our resources, and building up the capital as a seat of commerce, and is already signed by nearly all our leading lumber merchants. It is presumed that the petition will be presented to Sir Hector Langevin, Minister of Public Works, to-morrow.

The following are extracts taken from an interesting pamphlet just published by Charles Napier Bell, Esq., of Winnipeg, entitled "Our Northern Waters," (written for the Winnipeg Board of Trade and presented to the Minister of Public Works, Manitoba,) containing a great deal of valuable information regarding Hudson's Bay and Strait, climate, resources, &c., &c.

DISCOVERY OF THE BAY.

The early discovery and occupation of the country in and about Hudson's Bay are, as in many other cases, shrouded in a good deal of obscurity. The British claim as the first discoverers of the whole coast of this part of North America, in the persons of John and Sebastian Cabot, about the year 1497; but it is contended on the other hand that their discoveries did not extend to the north of Newfoundland, which still retains the name they gave it. There appears to be only hearsay evidence of what they did, or where they went, told afterwards at second-hand to third parties.

The French claim discovery, in 1504, through fishermen of Brittany, and a British geographical work, published in 1671, with a map attached, fixes the scene of their operations at Hudson's Strait, but this claim does not seem to be well founded.

The first authentic account we have of the exploration of the Straits and Bay is that of Henry Hudson, who, on April 10th, 1610, sailed in the little *Discoverie*. He ventured through the long straits, discovered the great bay that bears his name, at once his monument and his grave. He and his men wintered in its southern extremity, and in coming north during the next summer, near the east coast, half way back to the Strait, he, his son, and seven of his men, in a mutiny, were put into a shallop and cut adrift, on Midsummer-day, 1611. He was never again seen.

It has been claimed that in 1656 the first exclusively commercial sea voyage was made into Hudson's Bay by a Frenchman named Jean Bourlon, but this has been disproved.

The Englishmen, trading as above stated, in 1668, were induced to do so by two French Canadians, De Grozelier, and Radisson, who having been already engaged in the trade of the Bay, and having failed in procuring from their own government certain privileges they desired, went to England, and induced some Englishmen to join them in the trading voyage of 1668, under command of Capt. Z. Gillam. This was the origin of the Hudson's Bay Company, and they immediately commenced to build forts and establish themselves in the trade, which occasioned a desultory warfare between the English and French traders for a number of years.

Hostilities continued until the Peace of Ryswick, in 1697, put a stop to the fighting, and at that date Fort Albany only was in the possession of the British and this position remained unchanged to the time of the treaty of Utrecht in 1713, by which treaty the whole of the Hudson's Bay was ceded to the British.

For fifty years more the Hudson's Bay Company occupied only the posts on the coast in the bay, and as in 1763, by the Treaty of Paris, the rest of Canada was ceded to Great Britain, the Company began to enter into the country towards the Red River, but it was not until 1774 that their first establishment was erected at Lake Winnipeg.

It is very easy to follow the business of the Company since 1735, and I have possession of the names of the vessels, with the dates of the arriving at and sailing from Moose Factory since then and up to 1883.

The same information is also published, covering like data at York Factory between 1789 and 1883, and which furnishes an excellent account of how trade has been carried on with perfect regularity.

With the exception of one occasion (1779), Moose Factory has been visited by a ship in every year since 1735.

This shows a very surprising state of regular navigation, and the truth of it cannot be gainsaid, for the list was kindly furnished by the Hudson's Bay Company's officials in London.

HUDSON'S BAY.

The Hudson's Bay is a great inland sea extending between the 51st and 63rd degrees of north latitude, and is about 1,000 miles in length by 600 in width, having an area of about 500,000 square miles. It drains an extent of country about 2,100 miles from east to west, and 1,500 miles from north to south, or an area of 3,000,000 square miles, its western feeders issue from the Rocky Mountains, its eastern from Labrador, and its southern from a point far within the boundaries of the United States, where, indeed, from the same lake source, water flows south to the Gulf of Mexico. Even Lake Superior is nearly tapped to supply material for this great body of water, for the south-eastern watershed is close to Thunder Bay.

The southern end of James' Bay is in the same latitude as the south of England, so that seven degrees length, at least, of the bay is in like latitude as from the English Channel to the north of Scotland.

The average depth of the bay is about seventy fathoms according to Chappelle, who made extensive soundings; this depth is evenly distributed, and there is a singular freedom from shoals or dangerous reefs, and the approach to the west shore shows a level sandy bottom.

On the east side of the Bay, and extending nearly the whole way along the coast at a distance of a hundred miles from it, is a string of islands, The Sleepers, which, however, present an easy approach, the Moose Factory ship track being to the immediate west of these. The east coast has bold high shores, while the west and south shores are low, with nearly level land gradually rising as they extend inland.

The tides on the west side decrease from twelve or fifteen feet at York to nine or ten at Moose Factory, at the southern extremity of James' Bay. On the east coast the tides are still lower.

Several large islands lie in the northern part of the Bay, amongst which are Marble, Mansfield (or Mansel, as the old works have it), and Southampton.

On Charlton Island, in James' Bay, several ships' crews have wintered, from the days of Capt. James, in 1632, to 1833 and 1873, the latter dates being those on which the ships of the Company remained there. The vessel which wintered there in 1873, arrived at Moose Factory, from London, on the 21st August.

Other islands are: The Sleepers, Nastapoka, Hopewell, Long Island, Belanger's Island and Flint Island, which are about the lower and eastern side of the Bay.

 JAMES' BAY.

James' Bay begins at Cape Jones on the east side, and Cape Henrietta Maria on the west, and runs south about 360 miles, with an average breadth of about 150 miles. The Bay is named after Capt. James, who wintered there in 1632.

The trading schooner starts on her trips along the coast on June 1st, and is generally laid up by the middle of November; shore ice forming after that time prevents her running later, though James' Bay does not close at that time. (This is supplied by a gentleman who resided at Moose for seven years.)

The south end of James' Bay is distant from Michipicoton, Lake Superior, in a straight line, only 281 miles, and from Nepigon, via the Albany, 468 miles, of which 270 miles of the Albany River is said by Dr. Bell, who has surveyed it, to be, except in very low water, navigable by powerful steamers of light draught, leaving only 198 miles of land carriage to connect the waters of Lake Superior and James' Bay.

There are several Hudson's Bay Company posts or forts on the east, south and west shores of the Bay, amongst which are Albany, in 52°12' N. lat., 82°15' W. long.; Moose, 51°16' N. lat., 80°56' W. long. Rupert's House is on the east side.

Fort Albany has also been named Fort St. Anne and Fort Chechouan at different times. It was established in 1864. Fort Moose is also the site of the old French posts, La Monsoni and Fort St. Louis. It was built before 1686. Rupert House was at different times called Fort St. Charles and Fort St. Jacques, and was built by Capt. Z. Gillam, in 1668.

HUDSON'S STRAIT AND ITS NAVIGATION.

Hudson's Strait is about 500 miles in length, and varies from 45 miles to 150 miles in breadth, having an average of about 100 miles. The two narrowest points in the Strait are between Cape Best of Resolution Island, and the Button Islands, at the eastern entrance; and opposite North Bluff, near the Savage Islands. Between Resolution Island and the mainland, and on the north side of the Strait, there is a wide passage of some 10 miles, called Gabriel Strait. Button Islands, on the south of the entrance, are at least 10 miles from the mainland of Labrador. There are, therefore, no less than three eastern entrances into Hudson's Strait, the first 10 miles in breadth between Resolution and the north shore; the second or main entrance, between Cape Best and the Button Islands, 45 miles in breadth; and lastly, the several channels lying between the islands on the coast of Labrador, of which four are marked on Captain Becher's chart, within a breadth of 10 miles. The steamers of the Company bound for Ungava Bay pass between the Button Islands and the mainland of Labrador. I will show that it is the general opinion of sailors that the entrance of the Strait once passed, the navigation becomes comparatively easy.

HUDSON'S BAY OPEN.

Regarding the season of open water in the Bay, it is important to know that all the evidence advanced proves that it is, as might be expected, from its great size and position, open the whole year, and is in that respect so much superior to the lower part of the St. Lawrence River.

We have very satisfactory statements on this point, and as a sample of the number, I quote in full what was brought out by the Committee of the House of Commons, at Ottawa, in April, 1893.

In answer to the question, "Have you the dates of the opening and closing of navigation of Hudson's Bay?" Dr. Bell, of the Geological survey of Canada, who has spent six seasons about the Hudson's Bay, testified as follows:—"In regard to the Bay itself there is no date for the opening or closing of navigation, because the Bay is open all the year round, like the ocean in corresponding latitudes. It is strictly correct to say that the Bay is open during the winter, because, although in the shallow water at the head of James' Bay, a narrow margin of ice forms, it does not extend outwards, and is due to the land-locked nature of the Bay and the shallowness and freshness of the water. Further north there is a margin of ice along the shallow water, but it never extends so far but a man *on the beach* can see the fog on

the open water on a clear morning. On parts of the eastern coast, I am told, the sea washes against the rocks all winter, just the same as on the coast of Nova Scotia or Newfoundland."

Dr. Bell also says that the fact that the ice forms along the shores would only interfere with the navigation of the Bay, in that vessels could not get into the harbors, longer than in the Gulf of St. Lawrence.

The rivers falling into the Bay are open for an average of six months. This is amply proved by the records kept at the various posts of the Hudson's Bay Company, on the Bay, and which, being kept by the officials for over fifty years, have been presented to the Canadian Government. We have, therefore, undeniable data to substantiate this fact, and even further that the Nelson River is open still longer. Dobbs, writing in 1744, gives a number of dates of the opening of James' Bay, and I may mention one given on page 13. There was no frost on the 24th October to freeze the fish they caught, and they had to stop fishing on that account. On the 28th October ice showed in the river and the *geese* began to leave. November 13th the river (Albany) was full of heavy ice, and on the 18th November it froze over but the weather was "still moderate." In the following spring (1731) the ice was gone to sea May 12th. November 10th, 1731, the Albany River was frozen over. Dobbs here closes with the remark, "So far goes this journal."

Dr. Bell informed the House of Commons Committee, in 1883, in answer to a question, that the temperature of Lake Superior, below the immediate surface, is 39° Fahr.; along the east shore of Hudson's Bay, it averaged 53° in the summer months, according to the observations he made in 1877. He spoke of the summer alone, and it was so warm that they bathed in it with more comfort than they could in the water of the Gulf of St. Lawrence. Owing to the fact that it is land-locked and the summer warm, the water becomes heated, and at the same time is not carried off by cold ocean currents, as on the Atlantic coast. The Bay is very tranquil in the summer, and the sun shines longer there each day than in the more southern latitudes in the summer months, and that has the effect of heating the water. The harbors are not closed by ice till the middle of November, and sometimes not till near Christmas. There is no difficulty in a vessel leaving the coast of the Bay up to the latter part of October or the middle of November. Shore ice would not interfere with navigation for over six months of the year. The floating ice in James' Bay in the spring is from the shores and rivers, and would offer little obstruction to a steamship, being light and rotten after it floats.

Captain E. B. Fisher, who made eight whaling voyages to the Bay, covering some 16 years time, writes as follows:—"The Bay is open all winter, except a little ice that makes near the shore, and that breaks up in every gale of wind. It was never very cold where I wintered, in a small harbour to the northwest. Whalesmen never have any trouble in coming out, as they leave as soon as their summer whaling is over, and are always out by November 1st."

It will be seen, therefore, that practical whalers say they do work between the 15th of May and the 1st November, or during a period of five-and-a-half months if it is necessary, so that the opinion of Dr. Rae on this matter would seem to be very far wide of the actual fact. Only one captain of a whaling vessel, Captain Spicer, seemed to think that a whaling ship could not depend with certainty on getting out after October. The log books show that the vessels have, as a rule, begun to get ready for wintering about the end of September.

Captain Tabor, of New Bedford, who whaled in the Bay in 1862, and again in 1863, remarks:—"Hudson's Bay is open all winter, and what little ice makes on the shore breaks up with every gale of wind. About thirty feet rise and fall of the tide in the Strait and northern part of the Bay, and the currents are swift."

The whalemens seem to winter at Marble Island and other places in the northern and northwestern part of the Bay, and as they agree in the main with the extracts I have given, it is useless to quote the remarks of more of them, but there are many more to refer to if they are called for.

Mr. W. A. Archibald, who lived at Moose Factory, on James' Bay, writes under date of January 19th, 1884:—"The ice in Moose River breaks up in May from the 10th to the 20th as a rule, and the river remains open till the middle of November. The Bay is open for navigation from 1st June to 1st December. On 1st June the trading schooner starts on her trips along the coast to gather up the winter's catch of furs. If the English vessel is not too late in arriving, the schooner's work is done and she is laid up by the middle of November. Shore ice may begin to form any time after that date. I saw but one storm of any violence while I was there, and the little coasting schooner, which happened to be caught out in it, came safely through that. From what I know of Hudson's Bay and its connections with the Atlantic, and I have coasted about in those regions for many years, I should judge that steam vessels can navigate those waters from June to December in ordinary years without any danger or difficulty.

The lower St. Lawrence (notwithstanding its comparative narrowness) is partly open, even in the middle of winter. But the difficulty, as in the case of the Hudson's Bay, is the apparent impossibility of getting into harbors. Harbors such as Churchill or York, on Hudson's Bay, would have the advantage over Quebec or Montreal of connecting directly with the open sea, and hence in autumn vessels would not be liable to be frozen in, as occasionally happens in the St. Lawrence, as, for example, in the autumn of 1880, also in the autumn of 1870, when the outward-bound shipping got frozen in below Quebec, occasioning a loss, it was said, of over a million of dollars. Again, in the spring, there might be no more uncertainty about entering from sea than in the Gulf of St. Lawrence, where vexatious delays are not uncommon after the open season is supposed to have arrived.*

The Montreal harbor master, according to the United States report on commercial relations for 1878 (page 657), furnished a table showing the average opening and closing of that port for ocean-going vessels for twenty years to be:—Average opening 1858 to 1877, 1 May; average closing 25th November.

Summary of the opening and closing of Hayes' River, opposite York Factory, for various years from 1830 to 1880, according to report of Mr. Wood, Government Meteorological Observer at York Factory:—

	DATE OF OPENING.	DATE OF CLOSING.
1830	May 17	December 2
1835	" 4	November 18
1840	" 12	" 16
1845	" 22	" 24
1850	" 31	" 28
1855	" 21	" 24
1860	" 18	" 19
1865	" 16	" 20
1870	" 11	" 27
1875	" 19	" 15
1880	" 26	" 20

The records of the Hudson's Bay Company, as presented to the Government in 1880, show that the Hayes' River, at York Factory, for an average of 53 years was open on the 15th May. Only once in the 53 years did it remain closed till the end of May or first of June. Once (in 1878) the river closed as early as the 3rd of November, but the average closing for 53 years was about the 20th of November. It must be

* Dr. Bell.

borne in mind that the Hayes' is but a small river in comparison with its neighbor, the Nelson, which is distant from it at York about six miles. The Nelson closes much later than does the Hayes', if indeed it can be said to close at all.

It is interesting, then, to note the comparison between the opening of the harbors of York and Montreal, though a fortnight is here given against York to clear the river and again in the fall when ice first forms :—

	MONTREAL.	YORK.
Opening of harbor	1st May.	1st June.
Closing of harbor	25th of November.	10th November.

This proves conclusively that the harbor at York is open and clear of ice for five-and-a-half-months of the year, and that vessels could approach docks between those dates. At a port on Nelson River these dates would be extended.

SAILING SHIPS vs. STEAMERS.

It must be thoroughly understood that all the vessels spoken of in these pages are sailing ships, and that so far steamers have never gone into the Bay. The importance and value of many points brought out by my quotations will be appreciated when the additional advantages that steamers would have had in the same situation are kept in view. The vessels which were in use 274 years ago, when the Hudson's Bay was discovered, and first navigated, may be better imagined than described, and a glance at a model, or sketch of one of them, which gives their dimensions, will afford some idea of what they might be expected to do in our northern waters.

It is surprising to one who reads the books of two hundred years ago, and compares them with works of recent date, which bear on this subject, to find that in the earlier days there was scarcely any mention made of danger in the navigation of the route into Hudson's Bay. It seems as if some forty or fifty years ago, it suddenly afflicted people as with a nightmare to hear the matter spoken of, and yet facts seem wanting to prove that any losses had occurred to alarm people in this manner. It is evident to anyone, who looks for the cause, that as people had been shut out of any trade in that direction, it was highly desirable to keep any adventurous persons from trying to gain a foothold in the future, and the best means to be adopted were those of magnifying the dangers of the navigation.

I believe it is about thirty years since the American whalers with their vessels began to seek their cargoes of oil in the north of the Bay, and the trade has been carried on very quietly ever since.

It is a fact that the first vessel that ever floated on the waters of the Bay, after pushing through the Strait, was a little ship of 55 tons burden.

Davis, the discoverer of the Strait that bears his name, made his discoveries in 1585, with the *Sunshine*, of fifty tons, and the *Moonshine*, of thirty-five tons, and the following year he took with him in addition to these two vessels, the *North Star*, of ten tons.

Captain Bylot, in 1615, sailed into the Bay with a vessel of 55 tons, and Ellis is careful to note that this was the fifth voyage of discovery into these northern waters, made by this little vessel.

Capt. Fox, the discoverer of Fox Channel, sailed from London on the 8th of May, 1631, in the *Charles*, a pinnace of only 20 tons burden, and entered Hudson's Strait on the 22nd of June, and pushed through what ice he saw without difficulty.

All the vessels, it is seen, were small, and they must have been rudely constructed.

It seems almost absurd to point out the difficulties encountered by sailing vessels as compared with steamers, but so many cases of ships becalmed in ice are met with throughout the authorities that I herein quote from, that it may be well to show some of them.

CLIMATE OF HUDSON'S BAY.

"The countries about the Bay are capable of great improvement, the lands southward and westward of the Bay are in good climates, equal in their several latitudes to those in Asia and Europe, and the climate improves farther within land."*

"It is vastly colder at Fort Churchill than a few leagues up the river among the woods, where the factory's men lived comfortably in huts or tents all the winter, hunting, shooting and fishing the whole season."†

Robson, Dobbs, Ellis, Hearne and other writers state that when Europeans have once lived in the country about the Bay, that they are never content to live out of it again, and this fact is proved in our own Province every day, and the climate during the winter months at York is but very little colder than at Winnipeg, and during the summer it is warmer there than in this Province.

ARCHANGEL.

The City of Archangel, in Russia, is situated at the head of the delta of the Divina, in lat. 64°. 32' N., and long. 40°. 33' E. It may be said to date its existence from a visit paid it by the English voyager Chancelor, in 1553, and indeed, an English factory was established there by consent of the Russian Czar in 1584.

The total value of exports, in 1874, amounted to £1,234,390 in 472 ships, of which 62 were steamers and 220 coasting vessels—a large proportion being carried to England.

The harbor is open only from June to October. The best season, however, is from the middle of June to the middle of August. After that period the nights become cold, and in September it is often stormy.

Population in 1867, 19,936.

The exports are flax, flax-tow and cordilla, oats, linseed, wheat, deals, tar, pitch, resin, mats, beef and pork, calf and seal skins, train oil, cordage, feathers and linseed cakes.

A ship starting from Archangel, at the south end of the White Sea, for England, must sail north full seven degrees to round North Cape, the most northerly cape in

* Robson, page 62.

† Dobbs, page 55.

Norway, and this for five-and-a-half degrees within the Arctic Circle, or to a distance of over 500 miles farther north than the track followed by vessels sailing out of Hudson's Straits for English ports.

It can be seen on the inspection of a chart which shows the bend of the Gulf Stream, that the influence of that great current of warm water does not set east of Cape North, along the Lapland shore, between 25th and 45th degrees of east longitude, and vessels sailing along that coast, going to or coming back from the White Sea, are subject to the full effect and influence of the great Arctic Ocean.

The Meteorological Department, at Toronto, have kindly given me many statistics of their stations at York and Moose, and a few extracts from them are given herewith, though it is impossible to make many comparisons, as the returns for some months of either summer or winter have not been made to the head office.

Lowest temperature on any day during the year.

	Manitoba.	Moose.	York.
1876.....	-44		-53
1877.....	-47		-45
1878.....	-36	-35	-33
1879.....	-50	-45	
1880.....	-44	-39	-40
1881.....	-40	-39	-39

Highest temperature on any day during the year.

	Manitoba.	Moose.	York.
1876.....	97		99
1878.....	93	92	106
1879.....	93	84	
1880.....	90	87	
1881.....	93	91	

The mean average temperature for several months at Moose.

	1878.	1879.	1880.	1881.
May.....	47	40	40	48
June.....	57	50	55	47
July.....	61	60	59	64
August.....	63	58	55	61
September.....	52	49	52	52
October.....	41	45	38	33

The mean average temperature for several months at York.

	1876.	1878.	1882.
May.....	38	33	35
June.....	49	65	52
July.....	57	74	68
August.....	56	59	55
September.....	46	38	49
October.....	26	22	28

The mean average temperature for several months at Winnipeg.

	1876.	1877.	1878.	1879.	1880.	1881.
May.....	53	55	48	53	55	57
June.....	60	57	65	64	53	62
July.....	67	68	70	68	66	69
August.....	64	64	67	64	62	66
September.....	53	56	52	51	52	51
October.....	37	39	36	44	38	34

* See Maury's charts.

From July to October, the temperature at Moose and Winnipeg is very much alike. In September and October, Moose has the best of it.

It will be understood that the readings for York and Moose are taken at the forts, which are on tide water, and have been described as most exposed, but they give us a fair idea of what the climate is about the Bay, as far north as York or Churchill.

The fact of the water in the rivers rushing down before the ice is broken up at lower levels proves that the climate inland is more genial, and this is the case with all the rivers flowing into the Bay.

According to Ballantyne, vegetation in the valley of Hayes' River, thirty miles from its mouth, on the 23rd June, was found by him to be in an advanced state, the trees being covered with foliage, and on the 25th June he described the Hill River, "Along its gentle sloping banks the country was teeming with vegetable and animal life."^{*}

E. S. Matheson, C.E., under date Feb. 4th, 1884, writes me in reply to my question as to how he stood the cold at the mouth of the Nelson River, when surveying it, during the winter of 1882-83, as follows:—"I found the climate much milder than I had expected. In November, we built our shanty in five or six days, and commenced work, and for nearly four months we slept out without tents, and there were not more than ten days, during that time, in which we had to remain in camp through inclemency of the weather. When you take into consideration the exposed place in which we were working, viz., on the Nelson River and the sea coast, you can rest assured that the cold would not prevent men or machinery from working farther inland."

"In summer, when the wind is about west-south-west, it becomes sultry, and if it happens to blow fresh, it comes in hot gusts, as if it blew from a fire, and the hardest gusts bring the greatest heats; but this is not the case when the wind blows from any other point."[†]

This was written in 1752 as a proof that a genial and hospitable region lay in that direction, for it must be explained that at that date nothing was known of the interior to the south-west of York Factory. It is most likely that the "chinook" or warm winds from the Pacific may reach even as far east as the Bay, and produces the "hot gusts" mentioned by Robson. We know that for a certainty a genial and hospitable region does exist in the position indicated by him.

LETTER OF CHARLES HORETZKY,

LATELY IN THE HUDSON'S BAY COMPANY'S SERVICE, TO COL. DENNIS, 4TH NOV., 1878.

In regard to the country for agriculture, the country that I have spoken of, south and south-west of James' Bay, lies in the latitude of Cornwall and Devonshire, in England, and southward of that, it is in the same latitude as the northerly parts of France; and while those countries enjoy exceptionally favorable conditions, there is no peculiarity of climate that would make the district I have referred to, worse than the average of the face of the earth in those latitudes, and, therefore, I think it is likely to be of value for agriculture, as far as climate is concerned.

The temperature below the immediate surface of Lake Superior is 39° Fah.; along the east shore of Hudson's Bay it averaged 53° in the summer months.

^{*} Ballantyne's *Hudson's Bay*.

[†] Robson, page 44.

What is the liability to summer frosts in the country around Hudson's Bay? In the larger area of agricultural land south and south-west of James' Bay, I think not very great. In 1877, on my homeward journey, I left Moose Factory on the 1st October, and at that time all the tender plants—the tobacco plant—castor oil bean, common beans, cucumbers, balsams and other tender plants—were perfectly green, standing in the open air; and probably remained so for some time after I left, as we had no frost. And at the posts of the Hudson's Bay Company, inland, they are not often troubled with early autumn frosts.*

How about late frosts in the spring? No late frosts in the spring. I think the sowing is done on an average at the same time as in corresponding latitudes in Lower Canada. I have spoken of the southern region. Further to the north-west, at Norway House, in 1879, they had a frost in the latter part of September, which blighted the tender plants, and it was remarked as the first that had occurred there in thirty-four years. Wheat ripens perfectly every year in that region.

Where is that? About twenty miles down the Nelson River from the north end of Lake Winnipeg. The climate, there, I think, is as good as in Manitoba, on account of certain favourable conditions.

Moose Factory enjoys the most favorable climate on the Bay. You are there away from the influence of the open sea. James' Bay is far south, and comparatively narrow, and the water is warmer than at York Factory.†

Ellis mentions that in the spring of 1747, "the ice in Hayes' River gave way on the 16th May, floating gently to sea. On the 5th June, nineteen bark canoes, laden with furs passed down on their way to York Factory, and on the next day, seventy more,"—a clear proof that the rivers inland, had been open at least a fortnight or three weeks previously.‡

SALMON FISHERIES.

It is not generally known that large quantities of salmon are taken in Hudson's Bay and Strait, and from one or two of the rivers of the Hudson's Strait, a considerable number of barrels, in salted condition, are exported every year by the Hudson's Bay Company.

Dr. Bell caught a species of salmon, attaining a weight of about 10 lbs., on the east coast of the Bay. He found the Indians fishing with gill nets, set in about two fathoms of water. They were taking them in considerable numbers, the fish having a strong resemblance to the common salmon (*S. Solar*) in outline, fins, head and mouth, and the flesh the same color and flavor. The average size is, however, smaller, the largest which they saw during the summer weighing only about 10 lbs., but many were nearly as heavy. They were caught all along the eastern coast. The Indians also killed them with spears (like those used by the Mic-Mac Indians), in the mouths of small rivers, and in shallow arms of the sea.

According to Hearne, the season for salmon in the neighbourhood of the Churchill River begins at the latter part of June, and ends about the middle or latter part of August. This writer states, that in some years, salmon are so plentiful near Churchill River, that he has known upwards of two hundred fine fish taken out of four small nets in one tide, within a quarter of a mile of the fort.

* See Table of mean averages at Moose, for September of various years, on page 49.

† Dr. Bell before House of Commons Colonization Committee.

‡ Ellis, page 209.

FURS.

The very name, Hudson's Bay, is so associated with the fur trade, that it is unnecessary to more than state that large quantities of furs are exported yearly by the Hudson's Bay Company in the two or three ships which go to the Bay for the purpose of taking out goods for the trade and carrying back the "fur catch" of the previous year. Besides York, Churchill, Moose, Albany, Martin's Falls, East Main, Rupert's House, and Fort Chimo, many small winter posts are established for the fur trade, and in the spring the coasting schooners sail from post to post and collect the fur for shipment from Moose, York and Churchill.

Steamer runs to Fort Chimo, at the foot of Ungava Bay, and takes out furs, fish, etc., etc.

Amongst the skins of animals exported are given moose, musk-ox, various kinds of deer, beaver, wolf, fox of various kinds, lynx, Polar bear, black and brown bear, otter, martin, fisher, ermine, wolverine, skunk, etc.

At one time the whole fur trade of the Northwest was conducted through the Hudson's Bay route, but of late years the districts lying adjacent to the rail routes have sent their furs through the United States, *via* New York or Montreal.

TRADE AND COMMERCE.

As long ago as 1748, this subject was dealt with so fully that I cannot do better than simply quote the words then written by a ship's captain, after his return from voyage to Hudson's Bay.

Discovery promotes trade more than anything, not only as it opens new branches, and thereby brings a clear accession to commerce, without adding in one shape what may be lost in another, but also of quickening, improving, and enlarging many old branches; since it is visible that there is a circulation in trade, and whatever creates an exportation on one side, must encourage manufactures, and heighten importations on the other. But, above all, it contributes most effectually to the extending navigation. A new trade immediately calls for an increase of shipping, and this exactly in proportion to the demands which this new trade creates, either for our own goods and manufactures, or for the produce of the new discovered country; so that the benefits received from thence, are clearly doubled to us in this respect.

"After this short explanation of the benefits that arise from discovery, we need not wonder, that the best friends to commerce, who at the same time are the best friends to their country, have always considered it in so favorable a light. It must be allowed, that they have sometimes met with opposition, as what truth is there, that has not been denied? what useful design, that has not been opposed? We may from hence conclude, that no arguments can be now offered against discovery, but what are built upon another foundation which, when examined, will be found as sandy as the former, viz., the doubting whether anything of consequence is left to discover."

CONCLUSION.

We have, in the very heart of our Dominion, an immense inland sea which never freezes, it is connected with the Atlantic Ocean by a wide passage which never freezes over, and is open for navigation for at least five or six months, if not during the whole year. This great body of salt water has emptying into it a large number

of rivers, many of them navigable for large river steamers for long distances inland, they are well-stocked with the finest edible fish, and in some places their banks are clothed with timber, much of which is valuable for export. The islands of the Bay, and many localities on the mainland are rich in mineral-bearing rocks and forms of coal. The northern waters are frequented by schools of whales which are already affording a bountiful harvest to the enterprising whalers. At all points in the great Bay, porpoises abound, which supply hides and oil. Furs are obtained from the full list of fur-bearing animals frequenting the adjacent country. Large game supports, in a great measure, the Indian population. Feathered game is so plentiful, that at a single post, 36,000 geese are killed in the autumn, as the year's supply. Vegetables are raised at all the forts in the southern part, and at some of those in the north. Horses, cattle, etc., are kept, and an abundance of fodder is found for them. At least three harbors are frequented by ships, and for 274 years sailing vessels of all descriptions, from the pinnacle of 20 tons to the 74-gun man-of-war, have anchored in them after passing through the Strait and across the Bay. British regular troops and immigrants have sailed through these waters and landed at these harbors.

Should we not, as Canadians, anxious for the full development of the great natural resources of our country, take what nature offers us so freely, and make use of her bountiful gifts.

The estimated cost of building the railway complete, exclusive of rolling stock, and equal in every respects to the Canada Pacific Railway, will be \$18,891 00 per mile. These figures are based on present prices of wages and materials. Wages for labor cannot possibly be higher than one dollar and a half per day, but in all probability may be lower. As will be seen by the detailed estimate, nothing has been omitted to make it a first-class road. Expensive station buildings will not be necessary for a great many years; at the same time my estimate provides for good, plain substantial structures.

I have allowed the full price and usual quantity for fencing, although fencing over one-half the ground should not be necessary for some time to come.

Ties should and will be delivered for a great deal less than I have allowed, as the timber is plentiful throughout; will be almost on the track, and hence long hauls will be saved. Although I have put down a price per acre for right of way, this will actually cost the Company nothing, as the Government always grant this free to railways going through Crown Lands. There is plenty of good ballast on the line, and materials for the construction, such as tools, plant and provisions can be taken over the C. P. Railway and laid down at the very spot where work has to be commenced.

Should the Gravenhurst Link be not finished in time, rails and fastenings can also be carried over this railway from either Montreal or Brockville, and delivered at the point of commencement.

Houses and shanties can be built at different and convenient points along the line for the accommodation of the laborers to live and board in, and which can be well and cheaply built, as timber for that purpose is plentiful and at all places convenient, and I consider this estimate now submitted ample, indeed very full, inasmuch as the country through which the road will pass encounters no serious engineering difficulties, either in earth work, rock work, or bridge work, one noticeable feature being with regard to the rivers is, that as a general thing the bottoms are all good, solid rock, hence easily and economically bridged.

With respect to this railway as a financial undertaking, and the anticipated traffic to be derived therefrom, sufficient testimony in these pages has already been adduced we think, to show the very great intrinsic value of this hitherto *terra incognita*—but which might, if necessary, be multiplied to an extent far exceeding the limits of this pamphlet did we wish to array long columns of figures and statistics to prove more fully, if possible, the utility and profits to be derived from a scheme which shall expose its treasures to the reach of enterprise; time will, however, demonstrate this.

The length of the railway is about 350 miles, but for the sake of argument and to keep within reasonable bounds with our present calculations, let us call the distance 300 miles by 120 miles (60 on each side of the line); this gives 36,000 square miles of area—equal in acres to twenty-three millions and forty thousand acres (23,040,000) from which traffic will immediately be derived, making use, however, of some of these noble rivers which will act as feeders in the way of bringing down timber either in logs or rafts, will extend this area. Suppose, for instance, that we only take half of this area as timbered land, the result will be freights sufficient from this alone, to keep an ordinary railway busy for a period of eighty years.

Practical lumbermen calculate the average yield of pine in a fairly good bush at 7,000 ft. B. M.; but we will take the average given in the State of Michigan at present, at 3,750 ft. B. M. per acre; and the hardwood lands, maple, birch and spruce at 12,000 ft. B. M. per acre; cordwood at 40 cords per acre; and hemlock bark at 5 cords per acre; and instead of taking the twenty-three million acres of land, we shall distribute this over, say one million acres; it will be seen from this the enormous amount of freight to be carried over the railway each year, estimating wood and ties to weigh one and a half tons per cord, and lumber one and a quarter tons per 1,000 ft. B. M.; cordwood, of course will not for some time to come pay to carry any very great distance, but a great deal of this will be consumed by the railway itself; as the locomotives should be all wood burning;

this will be the best and most economical fuel to use for many years ; ties however will form no unimportant part of the freights, as railway building is increasing every year, consequently the demand for these will be very large and continue to increase, and which must be supplied in the near future altogether from Northern Canada ; the forests of Southern Ontario and the United States are being denuded rapidly of this useful timber, hence attention must necessarily be directed "Northwards" for the supply. Iron ore, stone, stone-flagging, and various other economic minerals, together with the vast quantities of supplies required for the lumbermen and settlers; also cattle, with the ordinary passenger traffic, and the impulse given by the completion of this "avenue" to the North will extend through the whole region and stimulate its rapid settlement. It will be borne in mind that it was the timber trade alone that made our present Northern Railway what it is, and the revenue derived from this one source was enormous. The Nipissing and James' Bay Railway is not depending altogether on the products of the forest; other, more lasting, and not less remunerative, await us.

The subsidies expected to aid in building the road, will be a land grant from the Dominion Government of at least six thousand acres per mile, beginning at the "Height of Land" going northwards, equal in length to about one hundred and fifty miles, and a grant of money from both Legislatures of four thousand dollars per mile, extending the whole distance of 350 miles; these with the stock and bonds will prove sufficient to complete the whole scheme.

It is proposed to divide the road into three sections ; the first section will begin at the Calender end at a point on the Canada Pacific Railway, thence to Lake Tamiscaming, about 81 miles. Section No. 2, from this point to Lake Abbittibbi, about 91 miles, and from this to the mouth of the river at James' Bay will be section No. 3, about 178 miles.

**ESTIMATED COST OF NIPISSING AND JAMES' BAY
RAILWAY.**

QUANTITIES.	PER MILE,		
12	Acres Right of Way (100 feet wide)	@ \$ 2 00.....	\$ 24 00
12	“ Clearing and Chopping	20 00.....	240 00
3	“ Grubbing	100 00.....	300 00
4	“ Close Cutting.....	30 00.....	120 00
640	Rods of Fencing	0 60.....	384 00
18,000	Cubic yards Earth Excavation	0 25.....	4,500 00
2,000	“ “ Rock “	1 80.....	3,600 00
			\$9,168 00
	Iron Bridging and necessary Trestles	\$1,250 00	
	Masonry for Bridges and Culverts	300 00	
	Culverts and Cattle Guards	200 00	
2,640	Ties for Track, at 16 cents	423 00	
			2,173 00
	Track laying	\$200 00	
2,000	Cubic yards of Ballast, at 40 cents.....	800 00	
			1,000 00
	Buildings, Tanks and Turn-tables	750 00	
	Telegraph line complete	50 00	
	Freight on part of materials	80 00	
88	Tons of Steel Rails, 56 lbs. per yard, at \$36	\$3,168 00	
6½	“ Fastenings for same, at \$36	225 00	
	Frogs and Switches	60 00	
			3,453 00
	Engineering	300 00	
	Legal and Preliminary Expenses and Purchase of Right of Way..	200 00	
			\$17,174 00
	Contingencies, 10 per cent.		1,717 00
			\$18,891 00

TORONTO, May, 1884.

J. C. BAILEY,
Chief Engineer.

FINANCIAL.

NIPISSING AND JAMES' BAY RAILWAY.

Capital Stock, - - - - - \$2,000,000.00.
SHARES, \$100.00. EACH.

Total Length - - - - - 350 Miles.
 Total Cost - - - - - \$6,612,000.

Issue of \$1,200,000, of ordinary stock in shares of \$100 each.

Issue of £1,000,000 sterling of 5 per cent. first mortgage.

Bonds of £100 each.

6,000 acres per mile, over 150 miles.....\$ 900,000.
 \$4,000 per mile, over 350 miles 1,400,000.

