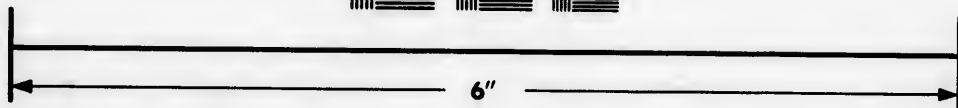
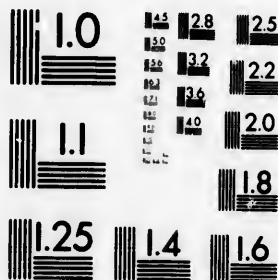


**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

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

24 28 25
30 32 22
20
8

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

10

© 1981

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

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

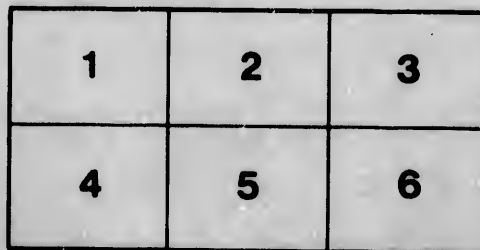
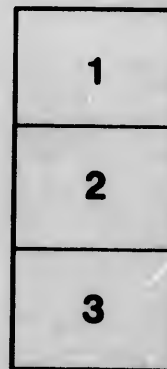
Library Division
Provincial Archives of British Columbia

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 \rightarrow (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:

Library Division
Provincial Archives of British Columbia

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 \rightarrow 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.

re
détails
es du
modifier
er une
'l'image

es

errata
to

pelure,
on à

32X

CA

No. 3.]

MIRACLES,
BROKEN, A
AN L
MEMORY
RUSSIAN P
SEPTEMBER

SINGLE N

THE

M. Alexander
30c

CANADIAN MONTHLY

AND

NATIONAL REVIEW.

No. 3.]

WHOLE NUMBER XXXIII.

[Vol. 6.

SEPTEMBER, 1874.

CONTENTS.

	PAGE		PAGE
MIRACLES, MODERN AND MEDIEVAL.	190	PRESENT CONDITION OF THE SURVEY OF THE CANADIAN PACIFIC RAILWAY. <i>By James Douglas, Jr.</i>	229
BROKEN. A Poem. (<i>From "College Rhymes."</i>)	197	THREE ANGELS. A Poem. (<i>From Fraser's Magazine</i>).	248
AN LOVE. (<i>Concluded.</i>) <i>By Max Müller.</i>	198	CURRENT EVENTS.	249
MEMORY. A Poem. <i>By E. J. C.</i>	215	SELECTION: Froude's English in Ireland. (<i>From Fortnightly Review</i>)	270
RUSSIAN REMINISCENCES. <i>By Anat. Iv.</i>	216	CURRENT LITERATURE.	28
SEPTEMBER AMONG THE THOUSAND ISLANDS.	228		

TORONTO:

ADAM, STEVENSON AND COMPANY.

PUBLISHERS AND BOOK IMPORTERS.

WHOLESALE AGENT: A. S. IRVING.

SINGLE NUMBER 30 CENTS.

YEARLY SUBSCRIPTION \$2.50.

CARRATRACA.

THE CELEBRATED

CARRATRACA MINERAL WATER

IS UNSURPASSED AS A PLEASANT AND COOLING APERIENT.

One or two glasses of CARRATRACA every morning before breakfast, or on an empty stomach during the hot weather, will keep the system cool and healthy.

CARRATRACA WATER stands unrivalled as a valuable remedial agent in cases of Habitual Constipation, Derangement of the Stomach and Bowels, Chronic Inflammation of the Kidneys, Gravel, Gout, Rheumatism (especially the chronic forms), Scrofula, Skin Affections of all kinds, Dyspepsia, Heartburn, Acidity, and as a Purgative it is unequalled.

CARRATRACA MINERAL WATER,

Fresh from the Springs at Plantagenet, Ont.,

IS KEPT ON SALE BY

HOTELS, DRUGGISTS, and others throughout the Dominion,

And may be had, in Barrels and Keys, of the Proprietors.

WINNING, HILL & WARE,

389 ST. PAUL STREET,

MONTREAL.

SPECIAL NOTICES.

Mr. ROBERT BENNETT, of Montreal, is authorized to receive Subscriptions and Advertisements on account of the CANADIAN MONTHLY. P. O. Box 868.

SUBSCRIBERS IN AHEAD for the MONTHLY will oblige the Publishers by remitting at their earliest convenience.

TO CORRESPONDENTS.

We promised in our last number to look into the question propounded by "A Subscriber," who supposed that he had detected the author of "Clarice" in plagiarism from "Euphrosyne," a tale which appeared in *Chambers' Journal* some twenty years ago. On inquiry, we find the fact to be that "Clarice" and "Euphrosyne" are by the same hand.

NEW BOOKS NOW READY.

24mo. Cloth. Price 60 cents.

MISUNDERSTOOD.

An exquisite story of Child Life.

BY FLORENCE MONTGOMERY.

ADAM, STEVENSON & CO.,

Publishers and Wholesale Booksellers.

16mo. Cloth. Price \$1.

THE LEGEND OF JUBAL

And other Poems.

BY GEORGE ELIOT.

ADAM, STEVENSON & CO.,

Publishers and Wholesale Booksellers.

Swiss Watches.

Gold Guards.

Opera Chains.

Albert Guards.

Gold Sets.

Brooches.

English Watches.

Earrings.

Lockets.

Cem Rings.

Signet Rings.

Bracelets.

Necklets.

WALTHAM
GOLD AND SILVER CASES.
WATCHES
THE COMPANY GUARANTEE WITH EACH WATCH
W. WHARIN
23 KING ST. WEST
TORONTO
ONT

Tea Sets.

Ice Pitchers.

Cake Baskets.

Cruets.

Pickle Frames.

Ice Bowls.

Revolving Bells.

Epergnes.

Salvers.

Berry Dishes.

Ink Stands.

Glocks.

Jet Jewellery.

PRE
T
north
South
the m
recess
these
a den
for tra
the co
centres
fertile
railway
which
have re
are now
Chilian
de deal
to the
side the
railway
Bolivia
of the P
one or
public i
world it
richest
tents an
North A
exact in

Canada
of the Ex
By Sande
1874.
Canada
treal, 187
The W
Montreal,
Geologi
72. Mon

MAP
9718
D734

PRESENT CONDITION OF THE SURVEY OF THE CANADIAN PACIFIC RAILWAY.

BY JAMES DOUGLAS, JR.

THE railroad is in our new world fulfilling a new function; for, from the north of North America to the south of South America, railroad companies are now the most active explorers of their unknown recesses. Heretofore, in the old world, these highways have been run only where a dense population needed their facilities for transport; on our side the Atlantic, on the contrary, either in connecting far distant centres of settlement, or in giving access to fertile districts—as yet unpopulated—the railway track is being laid through regions which would otherwise, for long or forever, have remained a solitude! Surveying parties are now looking for an easier route across the Chilian Andes than those by which the cattle dealers from the Pampas drive their flocks to the Pacific; and further north, from one side the Cordilleras, access is being sought by railway engineers to the rich table-lands of Bolivia; while, on the other side, every defile of the Peruvian Andes is being surveyed for one or other of the roads by which the Republic is endeavouring to throw open to the world its vast interior, teeming with Nature's richest products, but which are, to all intents and purposes, quite inaccessible. In North America we are expecting our first exact information as to the physical configura-

tion of that most southerly zone of the United States bordering on the Mexican frontier, from the engineers of the South Pacific; to the same Pacific Railroad the geographer owes his present intimate acquaintance with the Rocky Mountains, along the 41st parallel; and the northern section of the United States west of the Dakota, is undergoing the same thorough examination by the engineers of the North Pacific. But this useful office of the railway is now being performed by the engineering staff of our Pacific Railroad, for not only are they penetrating and describing parts of the Dominion concerning which we certainly would never otherwise have known much, but they are compelled, owing to their utter ignorance, especially of the British Columbian District, to extend their explorations over an area greater by far than the engineers of any other railroad in the world have ever had to do, in selecting the best road to reach their goal.

In locating a railroad, a mere general idea of the country through which it is to pass is not enough, as thousands of dollars may be saved in constructing, and thousands more in the diminished cost of running, by avoiding a very insignificant ravine or ridge, so low that we would lay out an ordinary road over it without looking for another course. The engineer requires to possess that intimate knowledge of the minutiae of a country such as most men have not acquired of even their own immediate neighbourhood. In the late Franco-Prussian war, as well as in that between the North and South, there were many accidents which proved how vague people's acquaintance generally is with

Canadian Pacific Railway. Report of Progress of the Exploration and Surveys up to January, 1874. By Sandford Fleming, Engineer-in-Chief. Ottawa, 1874.
Canada on the Pacific, by Charles Horetzky. Montreal, 1874.
The Wild North Land, by Captain W. F. Butler. Montreal, 1874.
Geological Surveys, Report of Progress for 1871-72. Montreal, 1872.

ATER

st, or on an

in cases of
inflammation
scrofula, Skin
unequalled.

ominion,

TREAL

vertisements on
by remitting at

proved that he had
their Journal some
same hand.

\$1.
FUBAL

LIOT.

N & CO.,
olesale Booksellers.

tofers
Basket
nets.
Pickle Frames.
Ice Bowls.
evolving Bells.
Epergnes.
Salvers.
erry Dishes.
Stands.

ellery.

the precise configuration of the locality in which they live. Hence, if it be a laborious and tedious task to decide on the line which offers fewest obstacles in a cleared and settled country, how much more so when the region to be traversed has never been trodden by the foot of civilized man, and is a mountainous wild, clad with dense forest. For three years the surveying parties of the Canadian Pacific Railroad have been in the field. Their duty is to find a practicable railroad route from the Ottawa to the Pacific, a distance of nearly three thousand miles, of which, in round numbers, one thousand miles may be said to be through forest alternating with lake and morass, where there is not generally even an Indian trail to follow; and another thousand through a labyrinth of mountain ranges dissected by river courses and narrow tortuous lakes, upon whose banks a white man has in many cases never stood. Under such circumstances the wonder is, not that a desirable route remains still to be decided on, but that so near an approach has been made in so short a time to the solution of so difficult a riddle. The terms British Columbia imposed on the Dominion on joining the Confederation were, that a railway should be completed from the Atlantic to the Pacific within ten years. More than three years have already elapsed, and despite every effort of a first-rate chief, and eight hundred assistants of all grades, an eligible line has not yet been found.

There has been lately issued the Report of Progress on the Explorations and Surveys, up to January, 1874, accompanied by sixteen maps and sections, by Sandford Fleming, Engineer-in-Chief. We had good reason to complain, in criticising the former report, of the printing and bad paper, which might, at least, have been good, however desultory the information the report conveyed. The same fault cannot be found with the present documents. They contain, as the results of another year's survey, a large augmentation to our knowledge. This, although not yet

complete enough to justify the formation of a decisive opinion as to the route, has lifted the subject out of the almost utter darkness in which it was enveloped.

The additional exploratory work has been concentrated on the east and west sections, the middle section, composing the plains between Fort Garry and Edmonton, having been found in the first cursory examination to present no engineering difficulties; but the volume contains the report of Mr. Horetzky, of an expedition to the Lesser Slave Lake and the Peace River, and a very valuable supplement to the same, by Mr. Macoun, who accompanied Mr. Horetzky, and whose botanical observations throw more light upon the climate of that far north zone than any memoir that has been yet published. Further details of this reconnaissance, and of his trip along the coast of British Columbia, were given by Mr. Horetzky in his book—"Canada on the Pacific."

In describing the present position of the survey, we shall follow the natural subdivisions of the route which have guided the Chief in laying out the work for his subordinates, viz, into—

1. The Eastern or Woodland Region, from the Ottawa or Lake Nipissing to Fort Garry.
2. The Central or Prairie Region, from Fort Garry to the base of the Rocky Mountains.
3. The Western or Mountain Region.

1. The Eastern Section, varying in length according to route, from 1048 miles to 1197 miles, is the least inviting, though not the most costly feature of the whole scheme, but it looks less repulsive than it did two years ago, and perseverance may succeed in yet making it even comely. In the report of 1872, little hope was held out that a route touching Lake Superior could be found, and the proposed line lay, therefore, 120 miles to the south, with a branch connecting it with navigation. Now, a feasible deviation from this objectionable course has been found possible, and a main line has been surveyed touching navigable water to the

south
tion r
labyri
shallo
north
way n
shorte
closer
Weste
contin
and m
later th
that de
a more
propos
The
an islan
apex th
Lawren
by the L
direction
Ottawa,
and Fre
nel with
direction
the trian
Clair, an
the Geo
the agri
these lin
populati
prise is r
distant p
ernment
which pr
courageo
beyond
Hudson's
Ottawa a
rivers and
disappear
birch, and
so rich n
tempt the
zones. C
enter at
which ski

south of Lake Nipigon. Further exploration may possibly unravel, from amidst the labyrinth of lakes and rivers that fill the shallow troughs of the Laurentian range to the north of Lakes Huron and Superior, a roadway near enough to the lakes to still further shorten the through-line, and bring it into closer relation at Sault St. Marie, with the Western States. To complete the transcontinental line this section is necessary, and must sooner or later be built, but better later than sooner if there be any possibility that delay and further exploration may reveal a more desirable route than even the last proposed.

The most fertile part of Ontario is almost an island of triangular shape. Taking as the apex the junction of the Ottawa and St. Lawrence, one side of the triangle is formed by the Lakes Ontario and Erie, whose general direction is S.W.; the other side by the River Ottawa, the River Mattawa, Lake Nipissing and French River, which make a water channel with but one short break, whose general direction is almost due west; and the base of the triangle by the Detroit River, Lake St. Clair, and the S.E. end of Lake Huron and the Georgian Bay. Within these limits lies the agricultural wealth of Ontario, and to these limits will probably be confined her population. Hence, private railway enterprise is rapidly rendering accessible its most distant point, Lake Nipissing, whence Government proposes to carry forward the work which private enterprise is not found rash or courageous enough to undertake. For, once beyond Lake Nipissing, we pass forward to Hudson's Bay amidst the tributaries of the Ottawa and the Abbitibi through a tangle of rivers and swamps where the white pine has disappeared before the spruce, red pine, birch, and poplar, and where the soil is not so rich nor the climate so salubrious as to tempt the settler away from more southerly zones. Going west from Lake Nipissing we enter at once the sterile mountain range which skirts the northern shore of Lake

Huron. No one who has sailed through the intricate channels and amidst the myriad islands of the Georgian Bay, and of the basin enclosed by the Manitoulin Islands and the mainland, or who has seen Killarney, the very skeleton of a settlement, and the arid hills behind the Bruce Mines—hardly less bare than the refuse ore-heaps themselves, and who has continued his voyage under the cliffs that abut on the shores of Lake Superior, refusing a span of level beach large enough to land upon, will hesitate to accept the decision that a feasible route does not exist along the Lake Shore for a railroad. This sterile region is, however, a mere strip, especially to the north of Lake Superior, where the Laurentian rocks, which give it its repellant physical and agricultural character, have but a narrow lateral development. The line of junction between these fundamental strata and the newer rocks which lie to the north and form the rim of the basin washed by the waters of Hudson's Bay, corresponds in a general way with the *height of land* between the adjacent fresh and salt water seas, and marks the transmission from the rugged, corrugated, thinly-timbered tract along the lake, to the level swampy ground, clad in dense forest, which descends with almost imperceptible slope to Hudson's Bay. The sinuosities of the *height of land* or water-shed so far as traced, follow the curves of the shores of the Georgian Bay and Lakes Superior and Nipigon at a distance of from 20 to 50 miles. This only once apparently undergoes a deflection that does not correspond with the coast line. This is where Lake Long, a spindle-shaped body of water, which is supplied by streams that rise within ten miles of Lake Superior, is interposed between the Pic River on the east, and Lake Nipigon and its feeders on the west. Lake Long discharges through the Albany into Hudson's Bay; the Pic rises in a lake not ten miles from the foot of Lake Long, and after running parallel to Lake Long, discharges into Lake Superior, where it meets

the waters that have flowed from as near the foot of Lake Long to the west, through the Nipigon River. The water-shed, therefore, whose general direction has been E. and W., on approaching Lake Long curves sharply to the South, approaches within ten miles of Lake Superior, then sweeps round the edge of Lake Long and returns north to enclose Lake Népigon. This deep indentation as it were in the area of the Laurentian hills, is found to afford passage for a railroad line to Lake Superior on either Nipigon or Thunder Bay, and thus one of the most objectionable features of the first survey is removed when the long Nipigon branch is expunged.

Three practicable routes have thus been discovered: (1) that originally surveyed, north of Nipigon; (2) another crossing the Nipigon, ten miles from its mouth and then regaining the *height of land* by following the S.W. shore of Lake Nipigon; and (3) a third which, after crossing the Nipigon at the same point as the last, skirting Nipigon Bay, Black Bay, and touching the lake at Thunder Bay, will ascend to the common track upon the *height of land*. But before discussing the merits of these rival routes and the respective claims of Népigon Bay or Thunder Bay to be the railroad port of Lake Superior, let us see what is known of the long stretch of 400 miles from Lake Nipissing to Lake Long, and the almost equally long reach from the western shore of Lake Nipissing to Fort Garry.

The line of 1871-72 took its departure from the mouth of the river Mattawa, followed the right bank of the Ottawa to the mouth of the Montreal river, and the left bank of that river to its very source, where its tributary streams at the *height of land* seem to flow from the same swamps as feed the Abbittibi, which discharges into Hudson's Bay. Further explorations, however, indicate that the valley of the Sturgeon River, which flows into Lake Nipissing, affords a shorter and easier route to the same point; and as the whole

section must be built merely for purposes of communication with the western section, and the country traversed by one projected route is likely to be as valueless as that penetrated by another, the object kept in view has been, and is, to discover the line which will be shortest and most level, and therefore least costly in construction, and most cheaply run. The shortest route would be one almost due W. from Lake Nipissing, touching Lake Superior at the mouth of the Pic River, but the country through which it would run is even more forbidding than that 50 miles to the north. The longer route therefore, with lighter work, must be chosen, and this seems to be up the Sturgeon River, which gives passage through the naked rocky country which cuts off progress to the west, over the *height of land* to the level heavily-wooded country on the Hudson's Bay slope. Along the rim of this basin it runs almost due west, crossing the innumerable tributaries of the Abbittibi—the south and north branches of the Moose River, and of the Albany. All these rivers have served as canoe routes between the Hudson's Bay posts on the lake, and on James' Bay—(Hudson's Bay)—all are comparatively sluggish, and run through a low, often swampy, country, clad in a dense forest of spruce, birch and poplar. The character of the ground and forest is, however, but little known; as, till the survey parties passed from east to west, that is across the direction of the river courses, no white man had ever seen more than the banks of some of the rivers, and these white men were Hudson's Bay officers, who, whether good observers or not, have left but scanty records of the localities they have visited. And the survey parties complain that their field of observation was much contracted by the difficulty of finding hills whereby they could command the view of a large extent of scenery. It seems, however, to be admitted on all sides, that the agricultural resources of this extensive region are scanty, and that the timber, though

abundant of the country, the population, other things may be considered unless the desolation when we pine of the Albany, the prospect is in building through is the few individuals these were road, the road poses of local en In 1871 a flying expedition in-Chief across the Abbittibi Factory northern down the On the boulders traces of says "is There are petroleum miles south locality a fish spring Bell, of the summer N. E. of waters of Albany from and if his rest the outlets, f

abundant, and in places of large size, is not of the most valuable kind. Nevertheless, the country is not so barren as not to repay tillage, should a local market be made by a population entering the region to pursue other branches of industry: and the day may come, and certainly will come speedily, unless effectual measures be taken to stop the destruction of North American forests, when worse timber than the spruce and red pine of the Upper Ottawa, the Moose, and the Albany, will be in demand. Such a prospect is a poor consolation to cheer one on in building a thousand miles of railroad, through a wilderness, and almost as scanty is the encouragement to be derived from the few indications of mineral wealth; but, while these would not be inducements to build the road, they afford us some reason to hope that the road when built, and if built for the purposes of through traffic, will serve a valuable local end.

In 1871 Mr. Alexander McKenzie made a flying expedition (by order of the Engineer-in-Chief) by canoe up the Ottawa, and across the portage to the head waters of the Abbittibi, which he descended to Moose Factory on James Bay, returning up the northern branch of the Moose river, and down the Michipicoten to Lake Superior. On the Moose river he found quartz in boulders in abundance, "containing apparent traces of gold, copper, etc., while galena," he says "is not to be found in its south branch." There are also, in his opinion, indications of petroleum on its western side, for about 130 miles southward from tide water, and the locality abounds with ferruginous and brackish springs. A better authority is Mr. Robert Bell, of the Geological Survey, who spent the summer of 1871, exploring the country N. E. of Lake Nipigon, and the head waters of the Albany. He reached the Albany from Lake Nipigon by the Ombabiki, and if his observation be correct, it sets at rest the vexed question of a lake with two outlets, for he describes his following the

Ombabiki against the current, from Lake Nipigon to its source in Shoal Lake, three and a half-miles long and one mile wide, lying at "a distance of twenty-five miles north-east of the mouth of the river. This lake lies due north and south, and discharges both ways; the stream flowing northward towards the Albany, called the Powétik River, being nearly as large as the southern outlet." It is a pity Mr. Bell did not follow the Powétik into one or other of the main unmistakable branches of the Albany, as until this is done a doubt may exist as to whether it is a confluent of the northern river system at all, and does not twist round and find its way into Lake Superior. Mr. Bell's description of the Ojoké is not what we would expect to be that of a river within a few miles of its source. He leaves the Ojoké to cross a narrow water-shed to another branch of the Albany, which he follows through alternating stretches of lakes and rapid rivers to Martin's Falls; and thence 120 miles further to the junction of the Kenogami. In his 522 miles of journeying, he speaks only once of seeing a vein of quartz carrying a little iron pyrites, and once of detecting specks of copper pyrites in some dioritic schist. "But in one place, just below the mouth of the Goose River, or three miles below the point where the river turns south-east, bright red marl occurs on the north bank, and on a small island a mile further down, some loose fragments of a bright bituminous coal were found. The Hudson Bay Company's officers informed me that coal had never been brought into the country; and considering that the conveyance of even light and valuable goods is so expensive in this region, this is only what might have been expected, so that I cannot suppose this coal to have been brought here by human agency." Should good coal in available quantities be found within 300 miles of the heart of Ontario, and less than 200 from Lake Superior, the Pacific Railroad will be the most fruitful work Canada has ever engaged in. But it

is unreasonable to expect that parties of geologists surveying over 500 miles of lakes and rivers in a few weeks, will make mineral discoveries which are generally the result of very patient search! And therefore the few accidentally made give us good reason to believe that were the country even thinly peopled, others of more importance would quickly be announced.

On the shore of Lake Superior there is every indication of great mineral wealth. Silver islet in Thunder Bay has become famous, and other silver locations give promise of a profitable yield. There is a large development on the islands and promontories of our shore of those same trap-rocks, which on the south shore are yielding such enormous quantities of native copper. Though on our side they have never been systematically explored, they are known to carry copper on Michipicoten Island in quantities that would be considered remunerative on Kewunah promontory. Gold also is known to exist on Lake Shebandowan and elsewhere. There is a fair presumption, therefore, from what has been found in the parts already visited, that the still larger area which will be rendered accessible by the railroad may undoubtedly still greater riches. At any rate the mining interest around Thunder Bay will be stimulated by the railroad.

Whatever route be taken round Lake Nipigon, there seems to be little alternative as to that from that lake to Fort Garry—as the same obstacles which exist in Nipissing and Moose river sections, here also indicate that the southern slope of the divide must be avoided, and the northern selected—the northern being rocky, bare of timber, and thinly covered with sandy soil—the northern flat heavily wooded, and, if there be any choice, more inviting to the agriculturist. The divide here, however, does not separate the waters flowing on one side into Lake Superior, and on the other into Hudson's Bay; as those flowing both south and north are carried by their respec-

tive chains of rivers and lakes to the junction of the Winnipeg and English Rivers, where they unite to flow together into Lake Winnipeg, and thence into Hudson's Bay. The area, therefore, between Lakes Nipigon, Superior, and Winnipeg, is almost as complete an island as the Province of Ontario, and has much the same triangular outline. The base is formed by Lake Nipigon, Nipigon River, and Nipigon Bay; the northern side by Sturgeon River, Lonely Lake, English River, and a chain of connecting lakes and rivers, whose waters flow from the northeast to the apex of the triangle, where they meet the discharge of the Lake of the Woods, Rainy Lake, and others which compose, at most, unbroken water communication with the base of our triangle on Lake Superior. The railroad is laid down almost from the centre of the base of this huge triangle, whose area is not less than two-thirds that of Ontario, to the apex. As the railroad will open up from end to end this tract, it will add a Province to the Dominion; and if its value be at all commensurate to its extent, a very rich one. Unfortunately size and value are often in inverse ratio to one another. At about 30 miles from Red River the road will issue on the Prairie. The only debatable division of this long section is, as already pointed out, that which unites the two extremes, and here three alternatives offer: either to run the main line north of Lake Nipigon, and connect it with Lake Superior by a branch 150 miles long, or else carry the main line to navigable water, on either Nipigon Bay, or Thunder Bay on Lake Superior.

As to distances, the advantage lies with the Nipigon route, for whereas the distance

	Miles.
From Fort Garry to Mattawa by Northern route, main line, is....	982
Branch from north of Lake Nipigon to Nipigon Bay.....	110—1,092
And that from Fort Garry to Mattawa by the Kaministiquia and Thunder Bay is.....	1,038

That
was
mill

Unless
against
argume
route n
the fir

Thun
Prince
ment o
it owes
Dawson
self. T
Nipigon
by the
Fort G
miles, w
the othe
Bay to
Rock, n
to the s
on Thun
breaks u
but as b
days of
canal, a
weeks ad
will answ
minus, f
navigatio
the cerea
sible rou

If the
gation o
must be
water m
Kaminis
The pros
all point
very imp
to leave
favour.

From
seem to b
Fleming

That which touches navigable waters on the Nipigon at ten miles from Lake Superior is only

Miles.
973

Unless therefore there be grave objections against Nipigon Bay as a port, or some strong argument in favour of Thunder Bay, the third route must be selected over the second; for the first may be ruled out of court.

Thunder Bay may claim to possess now at Prince Arthur's Landing the largest settlement on the north shore of the lake, but this it owes to being the starting-point of the Dawson route, not to any advantages in itself. Thunder Bay is more exposed than is Nipigon Bay, which is effectually closed in by the St. Ignace, and the distance from Fort Garry to Thunder Bay is only 398 miles, while that to Nipigon is 416; but on the other hand, the distance from Thunder Bay to the Sault exceeds that from Red Rock, near the mouth of the Nipigon river, to the same point by nine miles. The ice on Thunder Bay, from its exposed position, breaks up sooner than that on Nipigon Bay; but as both bays are navigable within fifteen days of the opening of the Sault Ste. Marie canal, and are generally free of ice for three weeks after the canal is closed, either harbour will answer in this respect as a railway terminus, for it will be in autumn that open navigation will be most important, as then the cereals will be seeking the cheapest possible route to Europe.

If the Nipigon route be selected, the navigation of the mouth of the Nipigon river must be improved; if Thunder Bay, a breakwater must be built or the mouth of the Kaministiquia converted into a harbour. The *pros* and *cons* are so evenly divided on all points but that of distance, and in this very important consideration the balance on the side of the Nipigon route is so great as to leave no hesitation in deciding in its favour.

From end to end of this section there seem to be no engineering difficulties. Mr. Fleming says that: "in passing from

Lake Nipissing to Lake Nipigon through the interior of the country, the ascent to the summit level will actually be less than that which is experienced in passing from Toronto across the peninsula of Western Ontario, by either the Great Western, the Grand Trunk, the Grey and Bruce, or the Northern Railways." And the ascent from the height of land from Winnipeg River, at the other end of the section, is so gradual that the total rise is only from 400 to 500 ft., and this is distributed over a distance of 230 miles.

The following particulars as to climate may be gleaned from the reports of the explorers. Mr. Rowan says:—"The question of snowfall is a subject of great importance when taken in connection with this work. Few, if any, reliable facts in connection with it, as regards the country now under consideration, have been hitherto known; the following, from observations made by our own parties, will throw some light on the subject:—Commencing at Ottawa, where the average depth in winter may be taken as about 3 ft. 6 in. to 4 ft., it decreases gradually as we proceed westerly; in the neighbourhood of the Great Bend of the Montreal River it is 3 ft. 6 in.; on the height of land north of Michipicoten, on Lake Superior, it is 2 ft. 8 in.; west of Lake Nipigon it is 2 ft. 3 in.; and at Red River from 2 ft. to 1 ft. 6 in. Near the shore of Lake Superior the depth will average between 3 ft. and 4 ft.

"There is a marked difference, however, between the character of the snow which falls throughout the whole of the country to the west of the Montreal River and that which falls east of that longitude. In the former country there are no thaws during the winter; the snow is consequently dry and light, and *never packs*; while in the latter, on the contrary, frequent thaws cause it to pack, as in the settled portions of the country to the south. This is one great source of difficulty experienced in removing it from the track of a railway.

"On the shore of Lake Superior the thermometer will indicate, once or twice during the winter, from 39° to 42° below zero; in the interior it seldom, if ever, falls as low as this. In summer, during the day time, in the months of July and August, the heat is as great as in this part of Canada, but the nights are always cool.

"When once spring commences vegetation is very rapid; the ice and snow have hardly disappeared before the trees are in full leaf.

"While on the subject of climate, I may mention that Mr. Crawford, the Hudson Bay Company's officer at Red Rock, (at the mouth of Nipigon River,) cleared about 15 acres of land last spring, on which he raised some very fine barley, oats, potatoes, and turnips. In his garden were peas, beans, carrots, cabbage, and a few heads of Indian corn. He informed me that when he lived

at Nipigon Lake he had raised tomatoes in the open air."

The fact that the climate is more severe on the lake shore than that in the interior, is corroborated by the observations of Mr. Macoun, the botanist, who remarks:—"An opinion has gone abroad that the lands round Thunder Bay and up the Kaministiquia are unfit for settlement, owing to the extreme cold, and summer frosts of that region. That this opinion is erroneous can be easily seen by a careful perusal of the following paragraphs:

"Early in the year 1869, G. F. Matthews, Esq., of St. John, New Brunswick, read a paper on the occurrence of Arctic and Western plants in Continental Acadia. Amongst other valuable information, he showed that the mean annual summer temperature of St. John, N. B., Thunder Bay, Halifax, and Toronto, was as follows:

	May.	June.	July.	Aug.	Sept.	Oct.	Mean Sum.
St. John.....	47.3	54.5	59.7	60.0	55.0	45.7	58.1.
Thunder Bay.....	48.9	58.7	62.2	53.8	48.2	41.9	59.9
Halifax.....	48.0	56.3	62.3	63.7	57.0	47.0	60.8
Toronto.....	51.5	61.0	66.3	65.7	57.4	45.0	64.3

"In July of the same year I made large collections round Thunder Bay and up the Kaministiquia, detecting many sub-arctic and boreal forms close to the waters of the lake, but none two miles up the river. The cause of this was evident; almost constant rain and fogs prevail around the bay during the hot months, lowering the temperature, and giving a climate almost analogous to that of Halifax or St. John, along the shore of the lake, but with a far higher temperature as we go inland from any point on it.

"The vegetation around Lake Superior is noted for its luxuriance. All herbaceous plants have a tendency to increase beyond their normal size along the west side of the lake, and Americans report the same on the south side. The only cause that can be assigned for this is the humid atmosphere, combined with a sufficiency of heat to deve-

lop at least the leaves and stems of the plants.

"Leaving the low marshy flats at the mouth of the Kaministiquia, and ascending the river, a botanist is soon struck with the change in the aspect of the plants he passes.

"All the sub-arctic species with which the shores of the lake are fringed, disappear; many of the boreal forms become very scarce, and by the time the Mission (1½ miles from Thunder Bay) is passed, almost a complete change has taken place in the vegetation."

Mr. McKenzie, who it may be remembered made a canoe journey from the Ottawa to Hudson's Bay and back to Lake Superior, is of opinion that were the country explored this season, under cultivation—a condition only precluded by its vast extent and absence of communication—its climate would,

unless i
differ li
tions of
of whic
the pres
the Hud
the gre
tory, t
- 40°
average
far as I
colder t
my figu
Smithson
country i
of summ
early fro
ing prop
where th
over luxu
Brunwic
very line
49° 8' N
specimen
Mr. Be
ing the p
climatic i
he says t
Albany (a
meridian
McKay,
Hudson's
afforded r
the journa
had been
these I as
this point
average, s
nips, and
cultivated
the cattle
If we n
Atlantic w
soil, this se
will be 97
will carry
navigable

unless in certain localities, from local causes, differ little from the lower cultivated portions of the Province of Quebec, an evidence of which exists in the crops raised, under the present unfavourable circumstances, at the Hudson's Bay Company Posts north of the great Watershed. At Moose Factory, the extremes of temperature are -40° in winter and $+89$ in summer, the average during the coldest month being, so far as I could learn, about $+11^{\circ}$, or a little colder than at Abbitibi, where I procured my figures from the register kept for the Smithsonian Institution. The climate of the country is very healthy, and even in the heat of summer the air highly invigorating; but early frosts frequently prevent grain ripening properly, especially at Moose Factory, where the soil is rich alluvial, and the crops over luxuriant for an early harvest. At new Brunswick House (on Moose River, on the very line of the railroad), "situated about $49^{\circ} 8' N.$ latitude, I procured a very fair specimen of ripe barley."

Mr. Bell's testimony agrees also in showing the prospect of settlement from adverse climatic influences not to be so hopeless, for he says that when at Martin's Falls, on the Albany (a point even farther north than the meridian of this part of the line,) "Mr. McKay, the gentleman in charge of the Hudson's Bay Company's post there, kindly afforded me an opportunity of looking over the journals of the last forty years, which had been kept by his predecessors. From these I ascertained that the river between this point and James' Bay is open, on an average, six months of the year. Hay, turnips, and potatoes have been successfully cultivated for a long time at this post, and the cattle kept here thrive well."

If we must have a railroad uniting the Atlantic with the Pacific through Canadian soil, this section must be built. The length will be 973 miles, but the division which will carry the freight of the West to the navigable waters of Lake Superior will be

416. The road must run from end to end through a country not actually unfit for settlement, yet so unfavourable for agriculture that it will be cultivated only to supply a local demand. Whether such a demand will ever exist must depend upon lumbering or mining. The quality of the lumber is such as to forbid the supposition that it will be soon marketable. It is impossible to estimate what the chances are of the road developing a mineral region, owing to the scantiness of our information.

If much is still to be done in the way of surveys before work can be commenced on the Eastern section, still more is this the case on the Western. In the preliminary report of 1872, Mr. Fleming expressed himself more unreservedly favourable to the route by Tête Jaune Cache to Burrard's Inlet than he does in his last report. Evidently a more familiar acquaintance with the Thompson and the Fraser valleys, as well as with the country across the loop made by the former of these with the latter, has revealed greater difficulties than at first presented themselves. Then again, such strong advocacy has been given to the Peace River Pass, far to the north of the Yellow Head Pass, that Mr. Horetzky was detailed to make a cursory survey of it, which he did with results such as entitle the route to more careful exploration before it be dismissed. Even the character of the plains is being discussed as a doubtful subject, and when we seek for information that would enable us to arrive at a conclusion between conflicting opinions, the information is not to be found. It is contended, not only that the Peace River Valley is the proper gate through the mountains, but that in reaching it from the East the real fertile belt will be followed from end to end; whereas in traversing the plains from Manitoba to Edmonton, the fertile zone which extends from S.E. to N.W. is only cut across diagonally. It is further contended that the climate is more favourable to agriculture in lat 56° than in lat. 53° ,

and that a lighter snowfall will diminish the cost of maintaining a railroad. But of this mild, wild north land, of which such glowing accounts reach us, we have but little precise information. Capt. Butler crossed part of it in the winter of 1872-73. Mr. Horetzky skirted it in the autumn of 1872, in running from Edmonton to Fort Dunvegan, on the Peace River; but while the accounts we possess are too ambiguous to carry conviction of the desirability of the route, the evidence both as to fertility and salubrity of the country east of the mountains, and as to the facility the Peace River offers of reaching the Pacific, is so strong that it would be folly in the face of it to decide on a southern route till the northern has received the amplest exploration. In fact, one cannot but be struck by the apathy—we will not say of the Government, for the Government only expresses the popular sentiment—but of the people with regard to the North-West. Either this immense territory is what it is described by its admirers as being, and what it was believed to be when acquired by Canada, or it is not. The first duty of Parliament is to take means for ascertaining this. When a thorough geographical exploration has been made which will determine the character of the soil and productions, not along certain beaten trails but over wide areas, we shall then know the value of what we possess, but not till then. The limited efforts now being put forth are worse than useless, for, being confined to so narrow a field and a single tract, they accustom the public mind to regard as a matter of course all territory beyond as admittedly valueless. No time should be lost and no expense spared in making the explanation thorough. If our North-West is the valuable acquisition we esteem it, exposing it to a thorough survey, and publishing the result in a style worthy of the subject, will enable us the more quickly to benefit by our treasures; if, on the contrary, its value be exaggerated, and it is not fitted to receive

the multitudes our Pacific Railroad is being prepared to transport thither, the sooner we know it the better; and any expense incurred in learning our mistake will be well laid out. In the surveys now being conducted for the United States Government, of their territories, we have models of what such exploration should be, and in the publications in which the results attained are given to the world, we have works which attest the value the Government attaches to the regions they describe. Our Government might learn a useful lesson from Clarence King's report on the 40th parallel, and Hayden's Geological Reports on the Territories, both the popular and scientific series. Such explorations and such books cost money; but if we can afford to spend \$100,000,000 in building a railway, we can spare \$1,000,000 towards first acquiring and disseminating knowledge of the salient geographical features and physical peculiarities of the region which the railroad is intended to open. As it is, we are tolerably acquainted with the zone from Fort Garry to Edmonton. Colonel Robertson Ross gives us the impressions he gathered during a forced march through the country lying along the eastern base of the mountains, from Edmonton almost to the American line; and Mr. Horetzky, in like manner, tells us what he saw and heard, when hurrying at all speed northward from the same point, in the month of September, to the Peace River. Mr. McLeod adds to our heap of hearsay evidence regarding the same region; and Captain Butler narrates a sledge journey through it in mid-winter. From these sources we gather that the route which the Pacific Railroad would follow from Fort Garry to Edmonton is through a country by no means fertile throughout, and in many places so deficient in water that it is doubtful whether deep borings can find it; that there are no doubt thousands of miles of cultivatable land in this zone, but that it is by no means as generally suitable for agricultural purposes as the country u

the no
say, th
is des
Fertile
the H
minion
be fou
land ly
for eve
Captain
dramati
style, is
velled o
and spe
North-V
as old a
prairie
as wide
more fer
country,
wan nor
half-a-do
more sal
watered,
for settle
which it
road sha
House.
due to
mountain
the great
over the
north, an
selected:
(1) In
ties or c
another o
(2) W
in a safe
To unc
survey of
we must
configur
the labour
are enabl
engineering
culminate

the north of the Saskatchewan. Strange to say, the north branch of the Saskatchewan is described as the Northern Limit, or the Fertile Belt, in the surrender made by the Hudson's Bay Company to the Dominion. Yet Captain Butler avers that it will be found that there are ten acres of fertile land lying north of the North Saskatchewan for every one acre lying south of it; and Captain Butler's opinion, despite the dramatic exaggeration he throws into his style, is worthy of respect; for he has travelled over the ground with a traveller's eye, and spent more than a few months in the North-West. These authorities, and others as old as Sir Alex. McKenzie, tell us of a prairie on the Smok, and Peace Rivers of as wide extent as the prairie of Manitoba, more fertile and as mild; and that the whole country, from the Forks of the Saskatchewan north-west to this point, out of which half-a-dozen Manitobas might be carved, is more salubrious, and better wooded and watered, and in other respects more fitted for settlement, than would be that through which it is proposed that the Pacific Railroad shall pass from Manitoba to Jasper House. If it be so, there is no preference due to the southern passes through the mountains over the northern, on the score of the greater value of the prairies of the south over the mixed prairie and woodland of the north, and the route to the Pacific may be selected:

- (1) In deference to the engineering facilities or difficulties presented by one over another of the passes; and,
- (2) With a view to the road terminating in a safe and accessible seaport.

To understand the present position of the survey of the western or mountain region, we must have a clear idea of the general configuration of British Columbia, and this the labours of the railway exploring parties are enabling us to form; for as here the engineering difficulties of the undertaking culminate, to this section has been devoted

most attention, and a marvellous amount of arduous work has been done. If much more should remain to be done ere the problem of a best route is settled, considering the great extent of country over which instrumental surveys have been made, and its mountainous character, we must not be surprised.

The Rocky Mountains from south to north present the same salient features. If a section of the continent from Omaha on the Missouri to San Francisco, along the line of the Union and Central Pacific Railways, be examined, it will be seen that the plains which commence at Omaha at 1,211 feet above the sea, rise, by a very gradual ascent, to Cheyenne, 6,062 feet. Here the Rocky Mountain range springs then from the plains. Its summit surmounted, the range descends westward to an elevated plateau whose mean elevation is about 5,500 feet, and its width about 1,000 miles. The plateau contains many lakes; in it takes its rise the Rio Colorado, and it is broken by many subsidiary ranges—some extending, as distinct chains, for great distances north and south, others forming isolated mountain masses, whose axes, however, always correspond with that of the main range. While the Rocky Mountains proper form the eastern rim of this elevated basin, the Nevada range forms the western. Its crest rises abruptly out of the plateau from the east, its western flank sweeps with a steep curve into the Sacramento Valley, almost to the level of the sea. To the west of the Sacramento Valley is a hilly region—the foot hills of the Nevada Range, cut off from their connection with the parent mountains and the San Jacinto River, which has grooved out of them a broad, deep valley. The Bay of San Francisco is a deep indentation in these foot-hills, but the only one, and therefore the only good harbour along the whole coast.

Let us now examine a section through the western half of the continent, ten degrees further north in Canadian territory. Here we

find the same elements as in the south, only some are developed into larger proportions—others are contracted, while the passage from a rainless into a humid climate is indicated by great rivers, whose restless flow has worn deep passes and precipitous cañons through the mountain ranges, and into the floor of the plateau.

Instead of the arid plains of Nebraska, rolling up to an elevation of 6,000 feet at Cheyenne, we have the fertile prairies of the Saskatchewan, which meet the mountains at an elevation of only 2,600 feet. Then, though here the Rocky Mountain Range attains, in its highest summits—Mounts Brown and Hooker—proportions even grander than it does in the Colorado Peaks, it is cleft so deeply by ravines—the beds in more than one instance of mighty rivers that rise within the range to the west—that the passage through the mountains may be made in several places without the traveller being aware by any steep alternation in level that he has even left the plains. One or other of these gaps will, of course, be chosen to give passage to the Railway. Within the Rocky Mountain Range is an elevated plateau such as we have described as inclosed between the same range and the Sierra Nevada in the south. This plateau has in British Columbia, however, an average elevation of only about 2,000 feet instead of 5,500 feet; its surface is likewise corrugated by secondary mountain ranges, such as the Selkirk and Gold, but it is much more deeply furrowed by water-courses than in its southern extension. In the latitude we are describing the Columbia and Fraser Rivers traverse the plateau diagonally from north-east to south-west, and with their tributaries, which generally join the main stream at right angles, cut it up in all directions with deep trenches, of which steep sides form precipitous escarpments, and whose bottoms are so narrow that the water often fills completely the gorge, not allowing, on either side, room to build a road. These river

valleys, with their regular descent to the sea, would form admirable railway routes were it not for their impassable character even on the plateau, and which becomes still more marked when the rivers cut their way through the Cascade or Coast Range, rushing impetuously through gloomy defiles in which to build a railroad would involve carving a shelf for miles out of a wall of rock.

The Cascade Range is the continuation northward of the Sierra Nevada, and forms like it the western rim of the basin. In California, as we have seen, the Sierra Nevada slopes rapidly into the San Jacinto Valley. In this part of British Columbia the Cascade Range drops, by precipices thousands of feet high, into the Straits of Georgia. With the Valley of San Jacinto depressed a few hundred feet, it would form an arm of the sea corresponding to the Straits of San Juan de Fuca and Georgia, and the high land which occupies the coast of California would be an island, the representative in the south of the highest zone of the submerged mountain chain whose extension northward is indicated by Vancouver Island and the Queen Charlotte Group.

It will be understood, therefore, that while the deep indentations in the Rocky Mountains, which have been cut in one instance at least beneath the level of the inclosed plateau, afford easy highways through them from the east; the deep furrows which the rivers have grooved into the surface of the table land, added to the undulations, rising sometimes into mountain chains, into which it is broken, present a labyrinth of obstacles through which it is not easy to thread a way; and the difficulties become more insuperable when the Cascade Range is reached, for its western slope is a precipice whose base is lashed by the sea—except where rapid rivers have cleft through its narrow gorges—terminating in long sinuous arms of the sea, so narrow as to be unnavigable generally by sailing ships and is enclosed by cliffs that tower almost

to the
into the
British
near the
north,
Cantim
said, of
There
harbour
Range
half a
Rocky
plateau,
able to
rim of the
Let
hold out
ing over
passage
at comp
already
range, w
flowing v
northward
1. At
frontier,
above the
flow into
the Wigw
2. Kan
miles furt
3. Ver
miles nor
discharge
as does a
4. The
above the
north,
5. Hou
its waters
one side,
Sixty mile
peaks risin
range again
the
6. Yellow
above the

to the same level, yet dip, sheer and deep, into the water. So rugged is the coast of British Columbia, that from Milleh Callah, near the mouth of the Skeena River in the north, for 300 miles southward to Cape Cantim, not a stretch of sandy beach, it is said, offers footing to the shipwrecked sailor. There are, therefore, few safe, accessible harbours, very few gaps through the Cascade Range by which to reach them, not more than half a dozen possible routes through the Rocky Mountains by which to reach the plateau, and obstacles serious and innumerable to be overcome in crossing from one rim of the basin to the other.

Let us see what prospects the surveys hold out of this complication of difficulties being overcome. The least of them is in the passage of the Rocky Mountain Range, for at comparatively short distances there are, as already pointed out, valleys indenting the range, where streams flowing east and others flowing west, rise side by side. Proceeding northward:

1. At twelve miles from the United States frontier, from the *Kootanie Pass*—6,000 feet above the sea—the waters of the Billy River flow into the Saskatchewan, and those of the Wigwam into the Columbia.

2. *Kanoskie Pass*, 5,700 feet, is 50 miles further north.

3. *Vermilion Pass*, 4,903 feet, is only 30 miles north of the preceding, and, like it, discharges streams in opposite directions, as does also,

4. *The Kicking Horn Pass*, 5,200 feet above the sea; and 20 miles further north,

5. *House Pass* is next in succession, but its waters feed the North Saskatchewan on one side, and the Columbia on the other. Sixty miles of mountain now follow, with peaks rising over 14,000 feet high, yet the range again opens to such a depth that from the

6. *Yellow Head Pass*, only 3,700 feet above the sea, issue the Arthabaska to one

side, and the tributaries of the Fraser River to the other.

7. Of the mountains and their passes to the north of this but little is known. Smoky River, a large feeder of the Peace River, issues from the range about 100 miles north of Yellow Head Pass, by what the Indians represent as a very low pass, through which an easy trail leads to the plateau.

8. One hundred miles still further north, the noble stream of the Peace River flows majestically through a grand chasm in the range at an altitude of only 1,580 feet, and therefore considerably below the average elevation of the plateau, a large area of which it drains.

Further north we need not look. To most it will seem we are already beyond the limit of possible agricultural prosperity when in the 56th parallel of latitude, but there is strong testimony to prove that we are not.

Mr. Macoun, whose memoir is the most valuable contribution yet made to our knowledge of this remote region, reports as follows of the climate and productions of the tract through which the Railroad would pass, were either the Smoky or Peace River passes chosen:

"Some farming is done near Slave Post, on the north-western end of the lake; but it is of the very rudest description, and year after year on the same spot both barley and potatoes are raised. The latter, instead of being an early variety, is a miserable winter one. It has been so long in the country that no one can tell when it was introduced. The same variety is raised at Dunvegan and St. John. At Dunvegan made inquiries about its introduction, and was told that it might have come in with *Noah*. I thought it might. Mr. McGillvery, whom I met at the Pembina, told me that their barley was never injured by frost, as it was always ahead of it. This year it was ripe by the 12th of August. Wheat has not been tried, but the Padre said it was just as warm as at Lac la Biche, where they raised great quantities of it. From my own observations I am satisfied that wheat would succeed, as I think there is a higher summer temperature here than at Edmonton. Not more than ten acres of land have ever been cultivated here, the people depending on the products of the chase and the fishery for subsistence.

Great quantities of white fish are taken in the lake, and the people have no dread of starvation.

"Made an excursion in the vicinity of the Post, and observed 184 species of plants. Not one of these indicate a cold climate. One hundred and thirty-two of this number grow in the vicinity of Belleville. Eighteen of the remainder were detected at Lake Superior. Thirty-four of the remainder were observed on the Saskatchewan.

"As far as I can judge, the whole of the land from Little Slave Lake to Smoky River, and on up to the base of the mountains, is of the very best quality. As I did not travel over the whole tract I cannot say from actual observation; but what I saw (at least 200 miles in length) of it was the best land I have seen anywhere. There was neither marsh nor swamp to any extent, but one wide extended expanse of rich soil, altogether devoid of stones. My observations bear out all that has been said of the fertility of the land along Peace River, though I was much disappointed to find scarcely any signs of farming at Dunvegan. Two small fields seem to be all that have ever been cultivated—the one for barley, the other for potatoes, and *vice versa*. This goes on from year to year. The same seed is probably used year after year, as it certainly is in the case of the potato. Game is much too plentiful for much attention to be paid to agriculture. What little is done is on a terrace about thirty feet above the river. One little field is cultivated on each side of the stream, which is over four hundred yards wide at this point. At Dunvegan, and between it and St. John, I particularly noted all the various species of plants, whether herbaceous or otherwise, and noticed a marked similarity between them and those found at Edmonton and Slave Post. The whole number observed was 212 species.

- 138 of these grow in the vicinity of Belleville.
- 19 were detected at Lake Superior.
- 52 were observed on the Saskatchewan.
- 3 had not been seen before.

"The three latter were cacti (*Opuntia Missouriensis*?) *Vaccinium myrtillus*, and *Rhodios*. It will be seen by this that the region of country along the Peace River has more of the prairie vegetation than the wooded country at Slave Lake. Its Flora indicates both a drier and warmer climate than they have at the latter place. The prairie vegetation is almost identical with that of Edmonton, except a few eastern species. This being so, can we not with justice say that what can be raised at Edmonton can likewise be raised on the plains bordering Peace River? Although summer frosts are not unknown at Dunvegan, they do little if any harm. It is very probable that no harm would be done by them on

the level country outside of the river valley, owing to the exemption of it from the producing cause. The Padre at Dunvegan furnished a written statement to the effect that there were no spring frosts; and when a summer frost did occur, it was caused by heavy rain, about the time of the full moon, in August, followed by clear still nights. Now this is precisely the cause of our summer frosts, which do considerable local damage every year. Whenever there is a circulation of air there is no frost, as was pointed out to me by Mr. Kennedy, the gentleman in charge of St. John. A corner of his potato patch was killed this year, but it was sheltered from the wind, while that exposed to the air was left untouched. Both Mr. Horetzky and myself noticed that the temperature during October was lower in the valleys of rivers than on the level country above, and very probably this is the case during the summer.

"That the Peace River country has exceptional climate, anyone seeing it must confess. While we were travelling through it, the constant record was "warm sunshine, west wind, balmy atmosphere, and the skies of the brightest blue." Even as late as the 15th of October the thermometer was 40° at daylight and 60° in the shade at noon. Within the foot-hills of the Rocky Mountains I picked up three species of plants in flower as late as the 26th of the same month. These facts, and many others that could be adduced, show conclusively that there is an open fall; and the united testimony of the residents makes it clear that spring commences before the first of May. There must likewise be a warm summer, as the service berries (*Amelanchier Canadensis*) were gathered fully ripe as early as the 15th of July, last year, by the miner we engaged at Edmonton, the same berries ripening at Belleville about the 10th of the same month. These berries are so sweet that we preferred them to currants in our pemican. From all the observations I made, both in respect of soil and vegetation, I am satisfied that the whole country between Slave Lake and the Rocky Mountains is a continuation of the prairie. The mountains we crossed between Fort Assiniboine and Slave Lake would therefore be a spur of the Rocky Mountains; and Sir John Richardson's remark, that there was a level country all the way from English River or Portage La Loche to Little Slave Lake would confirm this opinion. He even goes further, and on page 364 of his work says that:—"From Meathy Portage westward, though deeply furrowed by river-courses, and ravines more or less thickly wooded, partakes so much of a prairie character that horsemen may travel over it to Lesser Slave Lake and the Saskatchewan." If this opinion be correct, and I have no reason to doubt it, we can then assert with truth that the prairie country extends all the way from the Lower Saskatchewan by Lac

La Biche
mountain
600 miles
contains
has a climate
I know
fulness of
sal of
of the d
tions, I
that the
sceptical
The sun
the settle
lessening
always b
ceased as
this be t
country?

"Rega
entire reg
mony. I
and foun
clay loam
vale lands
depth, wh
but owing
haustible.
except in
known on

Any o
cess to th
compare
the road
ren zone
tier. Th
line from
after issu
would ha
Selkirk a
mounted,
be grate
the Yello
survey, w
of entranc
roads hav
less accur
to the T
the Pass.

This T
main bran

La Biche, across the Arthabasca, and thence to the mountains. Here, then, is a strip of country over 600 miles in length, and at least 100 in breadth, containing an area of 60,000 square miles, which has a climate no way inferior to that of Edmonton. I know that many doubts will be cast on the truthfulness of this statement, but from a careful perusal of many *published* tables of the climatology of the district in question, and my own observations, I can come to no other conclusion than this, that the day is not far distant when the most sceptical will believe even more than I now assert. The summer frosts are due to radiation, and whether the settlement of the country will have any effect in lessening them is a matter of speculation. It has always been so in Ontario that summer frosts have ceased as the country became opened up. May not this be the case in Rupert's Land and Peace River country?

"Regarding the quality of the soil throughout the entire region, my note book is unvarying in its testimony. I took every opportunity to examine the soil, and found it deep and fertile. It was principally clay loam, but had much the appearance of the *inter-vale* lands along streams in Ontario. Its average depth, where sections were exposed, was five feet, but owing to the clay subsoil it was practically inexhaustible. Days would elapse without seeing a stone except in the beds of streams, and swamps were unknown on the level country along Peace River."

Any one of these passes will give easy access to the plateau, but the first four are high compared with the others, and to reach them the road would have to run through the barren zone bordering on the American frontier. The Huron Pass is on the most direct line from Fort Garry to Westminster, but as after issuing from it, the Columbia River would have *twice* to be crossed, and the Selkirk and Columbia Ranges to be surmounted, the engineering difficulties would be greater and the route no shorter than by the Yellow Head Pass. This, early in the survey, was accepted as the probable gate of entrance. Therefore not less than six roads have been surveyed, with more or less accuracy, from three inlets on the coast to the Tête Jaune Cache—at the head of the Pass.

This Tête Jaune Cache is on one of the main branches of the Fraser, and the most

suitable Pacific Port is at the mouth of the Fraser. Why not follow the river? Because, in the first place, while in a straight line the distance from the Cache to New Westminster is not over 300 miles, the course of the branch on which the Cache is situated, northward to its junction with the main river, and of the main river thence southwestward towards its mouth, is at least 700 miles. But even were the Fraser not so tortuous, its valley is for miles together a narrow rocky defile in which a rail track could be laid only at enormous expense. This objection excludes not only this roundabout route, but militates against the two projected Fraser valley lines, as one of its wildest cañons is not far from its mouth. Both of these follow the north branch of the Thompson, which rises not far from the Cache south-westwardly to Kamloops. So far no difficulty is met, but from Kamloops one continues onward for 128 miles to Hope on the Fraser, in the same direction, across a tract of country so mountainous that grades as high as 122 feet per mile are inevitable, and a tunnel of $3\frac{1}{2}$ miles would be required. The other route, to avoid this rough country, adheres to the valley of the Thompson, curves round with it to its junction with the Fraser at Lytton, and reaches Hope after a course of 165 miles. Of this route also Mr. Fleming is obliged to admit:

"Although no high summit is to be passed over, this section is far from favourable. Long stretches along the cañons of the Fraser and the Lower Thompson, occupying about half the whole distance, are excessively rough. On these sections formidable difficulties present themselves; the work would be enormously heavy, and the cost proportionate.

"Had the rivers Lower Thompson and Fraser flowed through wide valleys to the sea, this route would unquestionably have been the natural and proper line of the railway. The gradients from the summit of the Rocky Mountains at Yellow Head Pass

would have been very light, and would have proved very generally uniform and continuous. The passage, however, for these united rivers, through the Cascade Range is so extremely contracted that it would be a matter of great difficulty to find sufficient space for a railway through the remarkably narrow and rock-bound gorge cleft through the mountain."

We may consider this opinion as sealing not only the fate of these routes, but the doom of New Westminster and Burrard Inlet as the Pacific terminus. In the Report of 1872 Mr. Fleming seemed to anticipate no such difficulties, for he said, "The next important consideration is the establishment of the Railway route from Tête Jaune Cache to the Pacific Coast.

"It has already been mentioned that there will be no difficulty in building a railway with very favourable grades from Tête Jaune Cache to Kamloops. From Kamloops a survey has been made to Burrard Inlet, (the harbour of New Westminster,) except about seventy miles on the extreme western end of the line, and on the latter section no serious difficulties are believed to exist. This survey shows that a practicable line with favourable grades may be had, although the cost, particularly along the cañons of the Lower Fraser River, will be considerably above an average."

It was on such suppositions, the reliability of which has been so early disproved, that a contract was made with the Canadian Pacific R. R. Co., and that England was asked to lend \$150,000,000. Fortunately England would not lend, and the road is not yet begun. Such experience may well teach that delays are not always dangerous.

The next harbor on the coast is at the bottom of Howe's Sound, and from it a route has been surveyed which would cross the Fraser about 30 miles above Lytton, and join the previous routes on the North Thompson; but all thought of the adoption of this has been abandoned on account of frequent and

great changes in level: and therefore the engineer's hopes seem to turn to Waddington Harbor, at the head of Bute Inlet, as the terminus.

Burrard and Howe's Inlets are good harbours, and near the San Juan de Fuca straits, by which vessels will enter the Straits of Georgia from the Pacific, and it is to be regretted, therefore, that they are not as accessible from landward. The mouth of Bute Inlet is 100 miles further north, and the Inlet itself 45 miles deep, which will add seriously to the sea voyage of ships making the railway terminus: but should it be ever deemed advisable to bridge the Straits of Georgia, and make the splendid harbour of Esquimaux or the Alberni canal on Vancouver Island the terminus, Bute Inlet must necessarily be reached; for between its mouth and Vancouver Island lies the Island of Valdes, which so nearly closes the channel that the longest gap to be spanned is only 1350 feet. Nevertheless, though practicable, the bridging of the straits would, as may be judged from the following extracts from Mr. Fleming's report, be so costly as not likely to be undertaken till our Pacific Railroad has monopolised the whole trade of Asia.

"For a distance of about 50 miles from Waddington Harbour, the only course for the line is to follow the base of the high rocky mountains which extend along Bute Inlet. On this section a great number of tunnels, varying from 100 to 3,000 feet in length, through bluff rocky points, would be indispensable and the work generally, even with unusually sharp curvature, would be very heavy.

Careful examination has established the fact that to reach Vancouver Island from the mainland the following clear span bridges will be required:

At Arran Rapids.....	clear span 1100 feet.
Carder's Channel,	
first opening.....	" 1350 "
second opening.....	" 1140 "
third opening.....	" 640 "
Middle Channel.....	" 1100 "
Seymour Narrows,	
first opening.....	clear span 1200 feet.
second opening.....	" 1350 "

of true
S. M. H. L. A.
know that
had to go
with the
region had
a terminus
considerable
very low
with fact
H. M. L. A.

The known land and channel tide flow. In probably a Taking construction a most. What along a description he failed inform expect th. "Bute and betw is nearly Cascade rocks, be 3,000 to ped peak by broke gloomy g other part "The encamp and a hal miles, it the distan Inlet it s through a granite ris "The bank of th covered w trees of la timber. Almost dis trees of er sure from bell-shape ground, th and clear t models for ments or li "The stream, var breadth, fr It dashes ac ing against cliffs rise in

therefore the Waddington Inlet, as the

are good harbours, the Fuca straits, the Straits of Juan de Fuca, it is to be remembered not as access-mouth of Bute Inlet, and the Inlet will add set-ups making the world it be ever the Straits of Juan de Fuca harbour of Bute Inlet must be between its lies the Island closes the channels, though practicable would, as following extracts will tell our Pacific the whole trade

les from Waddington the line is to follow chains which extend a great number of 100 feet in length, and be indispensable with unusually sharp

ished the fact that the mainland the following required :

ear span 1100 feet.

- " 1350 "
- " 1140 "
- " 640 "
- " 1100 "

ear span 1200 feet.

- " 1350 "

The length of the section across the group of islands known as the Valdes Islands, lying between the mainland and Vancouver Island, is about 50 miles. The channels to be bridged are of great depth, with the tide flowing at 9 knots an hour.

In crossing the Islands, heavy excavations and probably a few short tunnels would be required.

Taking everything into consideration, the work of construction on these 80 miles lying between Waddington Harbour and Vancouver Island, would be of a most formidable character."

What the inlet is, and what the scenery along a road issuing from it would be, is well described by Mr. Marcus Smith, who, though he failed to survey a practicable line, gathered information which leads Mr. Fleming to expect that such will yet be discovered.

"Bute Inlet is one of those arms about 45 miles long, and between two and three miles wide, its direction is nearly due north, and it pierces directly into the Cascade or Coast chain, between walls of granite rocks, bold and rugged in outline, rising into domes 3,000 to 4,000 feet in height, and solitary snow-capped peaks 5,000 to 9,000 feet high, connected by broken sierras, altogether forming a scene of gloomy grandeur probably not to be met with in any other part of the world."

"The Valley of the Homatheo, where we were now encamped, at the head of Bute Inlet, is about a mile and a half in width, with little variation for about 20 miles, it then narrows as we ascend the river, till at the distance of about 30 miles from the head of the Inlet it suddenly closes in, and the river rushes through a narrow gorge or cañon between walls of granite rising to several hundred feet in height.

"The Waddington Town site is on the left or east bank of the river on a flat near the head of the inlet, covered with spruce, hemlock, and cypress (or cedar) trees of large dimensions and a very fine quality of timber. A few miles up the hemlock and spruce almost disappear from the bottom lands, and cypress trees of enormous size take their place; these measure from five to fifteen feet in diameter at the butt, bell-shaped for twelve to twenty feet up from the ground, then gently tapering they shoot up straight and clear two or three hundred feet, forming perfect models for unconnected columns, such as monuments or light-houses.

"The Homatheo river is a turbid, glacier-fed stream, varying from one to three hundred yards in breadth, frequently divided by numerous small islets. It dashes across from side to side of the valley, striking against the granite cliffs which hem it in. These cliffs rise in places 300 to 500 feet in perpendicular

height, and in steps from 2,000 to 5,000 feet; over these streams tumble in cascades like ribbons of silver, broken into spray in their descent. From the foot of these cliffs, where not washed by the river, the slopes are covered with huge fragments of rock, some moss-covered, others with the fracture quite clear, as if recently detached."

"We traced the line of Mr. Waddington's first attempt at making a trail through the great cañon by the side of the river, to the point where it was stopped by a perpendicular wall of granite; we then ascended the cliffs by a circuitous line to explore a route by which we could find footing to make the survey through the cañon."

"From these heights the scene presented was singularly wild and sublime; from our feet, over cliffs of 400 feet in height, fell in sheets of silver a beautiful cascade, at the foot of which our tent was pitched on a moss-covered stone. A hundred feet below the camp the Homatheo river, then a high flood, rushed out of the cañon with deafening roar; in every direction were grey walls of rock, thousands of feet high, serrated and broken by dark chasms; above all rose peak after peak clothed in snow of dazzling brilliancy, and connected by curtains of glaciers out of which issued torrents that fell in cascades till lost as they descended the gloomy chasms by which they found their way to the river. Nor amongst this wildness were there wanting the softer elements of beauty—in every crevice to the base of the snow-clad peaks, were clumps of evergreens, and lower down wherever a handful of soil could rest, it was sprinkled with wild-flowers, among which bloomed the sweet lily of the valley."

As to whether Waddington Harbour can be united with Yellow Head Pass at a reasonable cost, is undoubtedly a matter of uncertainty. The adherents of the Smoky or Peace River route question it, but propose that Bute Inlet be the terminus of whichever of their favourites be found most desirable. But whether either of them is more practicable is a matter of still more vague speculation. It is certain that by the Peace River the plateau may be reached. Lieut. Palmer ascended the plateau in the same latitude from the Pacific, when he surveyed the Bella Conla for a road to the interior in 1862. From his description of the table land there would seem to be no difficulty in traversing it by a direct and easy line. If this be so, and the country on

Handwritten note:
The adherents of the Smoky or Peace River route question it, but propose that Bute Inlet be the terminus of whichever of their favourites be found most desirable.

the Peace and Smoky Rivers be as described, these northern routes may be less objectionable than they appear at first sight. On the score of length, the Smoky River route does not compare very unfavourably

with that by the Yellow Head Pass, taking Thunder Hill or the Plains as the starting point, and Bute Inlet as the terminus of both.

Mr. Horetzky gives the following table :—

CANADIAN PACIFIC RAILWAY ROUTE, *via* TETE JAUNE CACHE.

ROUTE.	REMARKS.	ELEVATION.	MILES.
From Portage la Prairie to Thunder Hill	Fine country for settlement		220
From Thunder Hill to the crossing of the South Saskatchewan	Much open country, salt lakes, little wood.....		192
From South Saskatchewan to the crossing near White Mud	Nearly all open country, salt lakes, hilly, and much exposed.....		350
From White Mud to south end of Lac Brule	Swampy, cold, unfitted for settlement....		170
From Lac Brule to Tête Jaune Cache	Unsuitable for agriculture.....	3,760ft.	110
From Tête Jaune Cache to Bute Inlet either by Lac la Hache, or the North Fraser River and Fort George and Chilcotin	The Chilcotin valley is the only available district for settlement in this section.....		450
			1492

CANADIAN PACIFIC RAILWAY ROUTE *via* PEACE RIVER.

ROUTE.	REMARKS.	MILES.
From Portage la Prairie to Thunder Hill	Fine country for settlement.....	220
From Thunder Hill to Fort a la Corne.....	Fine country ; for the most part wooded.....	150
From Fort a la Corne to Lac la Biche	Thick wooded country ; for the most part abounding in fish	350
From Lac la Biche to west end of Lesser Slave Lake.....	Wooded country ; not much known, but reported level	170
From west end of lesser Slave Lake to Smoky River	Fine country ; well wooded and watered.....	65
From Smoky to Pine River, Summit Lake.....	Beautiful country ; prairie, woods, coal	170
From Pine River, Summit Lake, to Lake McLeod	Not available for agriculture.....	60
From Lake McLeod to Quesnel	Very little of it available for agriculture	140
From Quesnel to Bute Inlet, <i>via</i> Chilcotin	(?)	220
		1545

How little was known of the coast further north, and the possibility of reaching the interior or descending to the coast by other inlets than those we have mentioned, Mr. Fleming himself points out, for he says :

"With regard to the practicability of reaching the Pacific coast at other points than those referred to, I have made every enquiry

on the subject, but I cannot learn that examinations of any consequence, other than Lieut. Palmer's, have been made along the coast between Bute Inlet and the River Skeena since the time of the discoveries of Vancouver and Mackenzie, in 1793. Our information, therefore, is but vague, and the possibility of crossing the Cascade mountains

from
Inlets
of all
more
"S
coast
latest
to pr
culars
by Ca
It w
were
Mr.
thy of
mits t
every
that a
covered
line we
remain

In submi
dice
in th
1. That
Roc
com
seve
whic
dabl
2. That
that
Colu
thro
taki
more
3. That
a fr
consi
from
perio
unfav
gardi
consi
const
4. That
from
prairi
of cor
bly li
traffic

Pass, taking the starting terminus of
ing table :—

	ELEVATION.	MILES.
.....	220	
.....	192	
.....	350	
.....	170	
.....	110	
.....	450	
.....	1492	

	MILES.
.....	220
.....	150
.....	350
.....	170
.....	65
.....	170
.....	60
.....	140
.....	220
.....	1545

not learn that
ence, other than
made along the
and the River
discoveries of
in 1793. Our
vague, and the
cades mountains

from the east, to any one of the many other Inlets which indent the coast, in the absence of all reliable information, can be nothing more than a mere conjecture.

"So little knowledge of this part of the coast has been recently acquired, that the latest Admiralty chart that I have been able to procure appears in all essential particulars to be an exact copy of the chart made by Capt. Vancouver 80 years ago."

It were well, however, if this ignorance were removed.

Mr. Fleming's summing up is well worthy of all consideration, for it candidly admits the more or less incomplete state of every section of the survey, acknowledges that a feasible route has not yet been discovered, and that, therefore, the eligible line we have been three years looking for remains yet to be found :

CONCLUSION.

In submitting this report with the voluminous appendices, I respectfully consider that I am justified in thus summarizing its conclusions :—

1. That although the information respecting the Rocky Mountain zone is not yet sufficiently complete to establish the line to the Pacific, several routes have, however, been found, on which the obstacles met with, although formidable, are not insuperable.
2. That there are reasonable grounds for the belief that the explorations in progress in British Columbia will result in the discovery of a line through the Rocky Mountain region, which, taking everything into consideration, will be more eligible than any yet surveyed.
3. That it is now established beyond doubt that a favourable and comparatively easy route, considering the line as a whole, has been found from Ottawa to the northerly side of Lake Superior. This result is the more satisfactory, as unfavourable impressions have been created regarding this portion of the country, many having considered it even impracticable for railway construction.
4. That it will be possible to locate the line direct from the northerly side of Lake Superior to the prairie region without unusually expensive works of construction, at the same time with remarkably light gradients, in the direction of heavy traffic.

5. That the main line from Ottawa to Manitoba can be located in such a way as to render unnecessary the construction of a branch to reach the navigable waters of Lake Superior.
6. There will be no difficulty in finding a comparatively easy route across the prairie region ; and that the bridging of the large rivers, with proper care in location, will form no great proportion of the cost of the whole extent of the railway.
7. That the lakes and rivers of the prairie region may be advantageously used in the introduction of settlers and in the construction of the railway.
8. That with respect to operating the railway in winter, the chief difficulties will be found on the western slopes of the two great mountain chains in British Columbia ; but, except in these localities, the Canadian Pacific Railway will have, on an average, considerably less snow than existing railways have to contend with.
9. That the practicability of establishing railway communication across the Continent, wholly within the limits of the Dominion, is no longer a matter of doubt. It may, indeed, be now accepted as a certainty that a route has been found generally possessing favourable engineering features, with the exception of a short section approaching the Pacific coast ; which route, taking its entire length, including the exceptional section alluded to, will, on the average, show lighter work and will require less costly structures, than have been necessary on many of the railways now in operation in the Dominion."

Our own summing up would be :

1. That, seeing that within the Rocky Mountain zone, whatever route be chosen, the line must be most costly in construction, and that no section of the main land of British Columbia is so thickly settled, or likely soon to be so, as to require railroad facilities, ample time should be taken in selecting a route which, while it will benefit British Columbia, will issue from the mountains on the plains where fertile lands will attract population, and at same time offer the greatest advantages and through traffic.
2. That, as little is known with certainty of the plains north of the north branch of the Saskatchewan, and as it is stated on reliable testimony that for 200 miles north of that latitude there stretches land more fertile than that through which the railroad

would pass between Fort Garry and Yellow Head Pass, with a climate not more severe, and covered in winter with even less snow, a thorough exploration of the North-West should at once be set on foot.

3. That as the rivers of the North-West can, at little expense, be rendered navigable, this should be done; and they should be used as channels of transport, not only while exhausting surveys and explorations are under way, but while the experiment of the settling of the Territory is being made.

4. That when there is a certainty that

what will be produced there will supply with freight a line to Lake Superior, then that division of the woodland or eastern section should be built.

5. That as the road is to be built as a national undertaking, for purposes of domestic improvement, and not primarily as a through freight road, although in the hope of obtaining a share in the Asiatic trade, every effort should be made to curtail the distance from terminus to terminus as much as possible. This should be regarded as of secondary importance.

THREE ANGELS.

THEY say this life is barren, drear, and cold,
Ever the same sad song was sung of old,
Ever the same long weary tale is told,
And to our lips is held the cup of strife;
And yet—a little love can sweeten life.

They say our hands may grasp but joys destroyed,
Youth has but dreams, and age an aching void
Which Dead-Sea fruit, long, long ago has cloyed,
Whose night with wild tempestuous storms is rife;
And yet—a little hope can brighten life.

They say we fling ourselves in wild despair
Amidst the broken treasures scattered there
Where all is wrecked, where all once promised fair,
And stab ourselves with sorrow's two-edged knife;
And yet—a little patience strengthens life.

Is it then true, this tale of bitter grief,
Of mortal anguish finding no relief?
Lo! midst the winter shines the laurel's leaf:
Three Angels share the lot of human strife,
Three Angels glorify the path of life—

Love, Hope, and Patience cheer us on our way;
Love, Hope, and Patience form our spirits' stay;
Love, Hope, and Patience watch us day by day,
And bid the desert bloom with beauty vernal
Until the earthly fades in the eternal.

P

TENA
pun
far
CAPIT
MECH
be

Of Land
under 14
100 AC
incurred
EXEMPT

Emig
of Ontar

THE
LABOU
and payin
stg), on th

1st.
furnished
the Provin

2nd.
be produc

3rd.
the Agric
keepers, C

4th.
the endorse
will again

5th.
intended a
where emp

6th.
and upon
person or
settler in t
of six doll

7th.
or to bring

8th.
Sydney Ro
Street, Liv
Murphy, C
of Immigr

DEPARTM

IMMIGRATION
TO THE
PROVINCE OF ONTARIO,
CANADA.

TENANT FARMERS—Improved Farms, with Dwellings and Farm Buildings, can be purchased at from £4 to £10 stig. per Acre, or for the amount required to carry on a leased farm in Great Britain.

CAPITALISTS—Eight per cent. can easily be obtained for money, on first-class security.
MECHANICS, FARM LABOURERS, SERVANT GIRLS—Employment can readily be obtained at good wages.

FREE GRANT OF 200 ACRES

Of Land can be obtained, on condition of settlement, by every head of a family having children under 18 years of age; and any person over 18 years of age can obtain a **FREE GRANT OF 100 ACRES** on condition of settlement. These lands are protected from seizure for any debt incurred before the issue of the Patent, and for 20 years after its issue, by a "HOMESTEAD EXEMPTION ACT."

Emigrants, on their arrival at Quebec, should communicate with the Agent for the Province of Ontario, Mr. H. A. MACLAURIN, who attends all Vessels coming into port.

ASSISTED PASSAGES.

THE GOVERNMENT OF ONTARIO will pay to every Adult, **AGRICULTURAL OR FARM LABOURER, OR FEMALE DOMESTIC SERVANT**, emigrating to the Province of Ontario, and paying his or her own passage, or the passage of his or her family, the sum of Six Dollars (£1.4s. 8d stig), on the following conditions:—

1st. Each such Emigrant must be approved by an Ontario Government Emigration Agent, and furnished by such Agent with a certificate entitling such Emigrant at the end of three months residence in the Province, to the Refund Bonus of Six Dollars.

2nd. Before such Refund Certificate is delivered to an Emigrant, the passenger warrant or ticket must be produced for the endorsement thereon of the issuing of such Certificate, by the Agent issuing it.

3rd. The Agent issuing the Certificate must be satisfied that the Emigrant is of good character, and of the Agricultural or Farm Labouring Class, or a Female Domestic Servant. Of Professional men, Book keepers, Clerks and Shopmen, the Province has enough already and to spare.

4th. The Immigrant, or the party in charge of assisted Immigrants, on landing at Quebec, must present the endorsed certificate to the Immigration Agent for the Province of Ontario, at his Office at Quebec, who will again indorse the certificate, and give the Emigrant such advice and instruction as may be required.

5th. The Immigrant having reached the Agency in the Province of Ontario nearest to his or her intended destination, will then be provided for by the Local Agent, and sent by free pass or otherwise where employment is to be had.

6th. At any time after three months from the date of the endorsement of the certificate at Quebec, and upon proof being furnished and endorsed upon such certificate (which certificate must be presented in person or sent by mail to this Department), that the Immigrant has, during the interval, been and still is a settler in the Province, the Government of Ontario will pay to the individual entitled to the same, the sum of six dollars per statute adult (12 years).

7th. Parties in Ontario desiring to send money home to bring out or assist their friends to immigrate, or to bring other persons as Immigrants to Ontario, can do so through this Department without danger of loss.

8th. Full information can be had on the subject of Immigration to Ontario, on application to Sydney Robjohns, 120 Salisbury Square, Fleet Street, London; C. W. Colter, Alexander Buildings, James Street, Liverpool; Peter Byrne, 54 York Street, Glasgow; C. J. Sheil, 19 Eden Quay, Dublin; Jeremiah Murphy, Cork; T. A. Pearse, Stonehouse, Plymouth; and David Spence, Secretary of the Department of Immigration, Toronto.

BY ORDER.

DAVID SPENCE,

Secretary.

DEPARTMENT OF IMMIGRATION, ONTARIO,
Toronto, September, 1874.

THE Toronto Fur Manufacturing Company

Will no doubt be a welcome addition to the industries of the City; and will supply a want long felt by WESTERN MERCHANTS. Every department in the Fur line will be embraced in its operation; dressing, dyeing, plucking, &c., hitherto only attempted on a small scale.

We are now in a position to execute all orders, however extensive, either in **SKINS** or **TRIMMINGS**, or of **MANUFACTURED FURS**, from the commonest grade to the very finest. Our representative is at present in the North-West Fur bearing regions making our collection of skins from the Hunters and Trappers direct. We shall be in a position to offer

BUFFALO ROBES

at lower rates than the Hudson's Bay Co. usually realize at Public Sale, and we feel sure those who bought early will bear us out in stating we succeeded in doing this last year, thus proving the assertion that Toronto, being nearest the Fur bearing section, should be headquarters for Furs.

Particular attention will be given to

Fancy Robes, Bear, Wolf, Fox, Coon, &c.,

and we call special attention to our new and important substitute for Buffalo Robes, and closely resembling them, handsomely trimmed and lined, well adapted where a warm but lighter Robe is required. We are offering two qualities, and at such extraordinarily low figures as will at once insure large sales.

We are extending our premises to over double their present capacity in order to afford every facility for increased business.

Friends in places out of the usual route of our travellers will please reserve a share of their orders till they visit the market and make a personal inspection of our stock.

Orders by letter receive careful attention.

TORONTO, July, 1874.

J. GILLESPIE & CO.

Referring to the annexed article from the *Mail* of the 2nd June, we feel sure the Western merchants will appreciate and second our efforts to ensure for **Toronto** the position in the **Fur Market** to which it is now justly entitled.

AN IMPORTANT TRADE MOVEMENT.

"Various changes of a commercial nature are going on, in great part at our own doors, as consequences of Confederation and the acquisition of the North-west, the great importance of which may not appear to the public for years yet to come, but which will some day be universally acknowledged. Among these may be mentioned the extensive change in the fur trade, which is now in course of shifting its headquarters from Montreal to Toronto.

In taking advantage of the new and favorable conditions of the fur trade of the great North-west, the pioneer firm appears to be that of Messrs. J. Gillespie & Co., of this city, who are making such extensive use of their already well-established business as promise to make Toronto the centre and emporium of the fur trade on this continent. Toronto, being nearer than any city of equal commercial importance to the fur-producing territories, has unequalled advantages as a warehousing and manufacturing depot, also as a market to which buyers will resort. Messrs. Gillespie & Co. now send their agents to the farthest fur-producing districts to collect furs and buffalo robes, a business which has been heretofore monopolized in these regions by the Hudson's Bay Company.

During the last two or three years the fur trade of this city has vastly increased, and new a fresh impetus will be given to it by the organization of the **TORONTO FUR MANUFACTURING COMPANY**, chartered by Act of Parliament, with a capital of \$50,000. The new Company will be composed chiefly of members of the firm of Gillespie & Co., and will engage extensively in fur manufacturing in all its branches. A large building on King Street West has been purchased, with another large building suitable for a factory attached to it, in which the manufacture of fur goods of all kinds will be carried on. Messrs. Gillespie & Co., as the leading members of the Company, will conduct the sales, and during the coming season will be prepared to offer to the trade the Company's goods in their various lines. Western dealers will now find that there is no need of their going so far as formerly to purchase, seeing that they can be supplied here, at the heart of the trade. They may consider, too, the advantage of buying near home from the actual manufacturers, by which direct responsibility for the goods purchased is secured—something which it is well known cannot be secured when buying in distant markets, or from third parties. A want long felt by western dealers will now be supplied; and, to show what Toronto can do in the fur trade, it may be mentioned that at the Hudson's Bay Company's annual sale of buffalo robes last year the prices asked were higher than what Toronto was selling at all through the season. Messrs. Gillespie & Co. have greatly enlarged their premises on Yonge Street, the capacity of their warehouses now being doubled, making theirs probably the most extensive fur house in the Dominion."

any

by a want
embraced
all scale.
SKINS or
st. Our
collection
r

feel sure
last year,
should be

bes, and
warm but
narily low

to afford
share of

CO.

merchants
which it is

of Confedera-
yet to come,
ge in the fur

loncer firm
l-established
being nearer
warehousing
agents to the
ized in these
During the
to it by the
l of \$50,000,
xtensively in
rge building
ars, Gillespie
prepared to
eed of their
ay consider,
e goods pur-
hird parties.
e, it may be
er than what
ongre Street,
Dominion."

