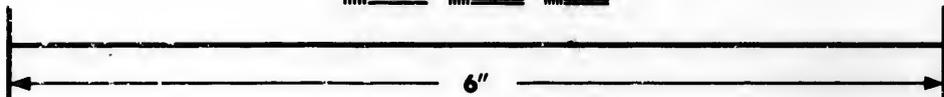
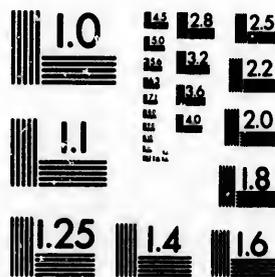


**IMAGE EVALUATION  
TEST TARGET (MT-3)**



**Photographic  
Sciences  
Corporation**

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

**CIHM/ICMH  
Microfiche  
Series.**

**CIHM/ICMH  
Collection de  
microfiches.**



**Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques**

**© 1984**

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 distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments:  
Commentaires supplémentaires:

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

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

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

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

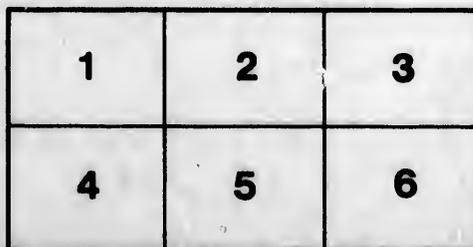
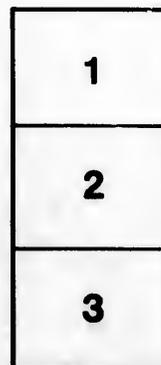
Library of the Public  
Archives of Canada

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

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

The last recorded frame on each microfiche shall contain the symbol  $\rightarrow$  (meaning "CONTINUED"), or the symbol  $\nabla$  (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:

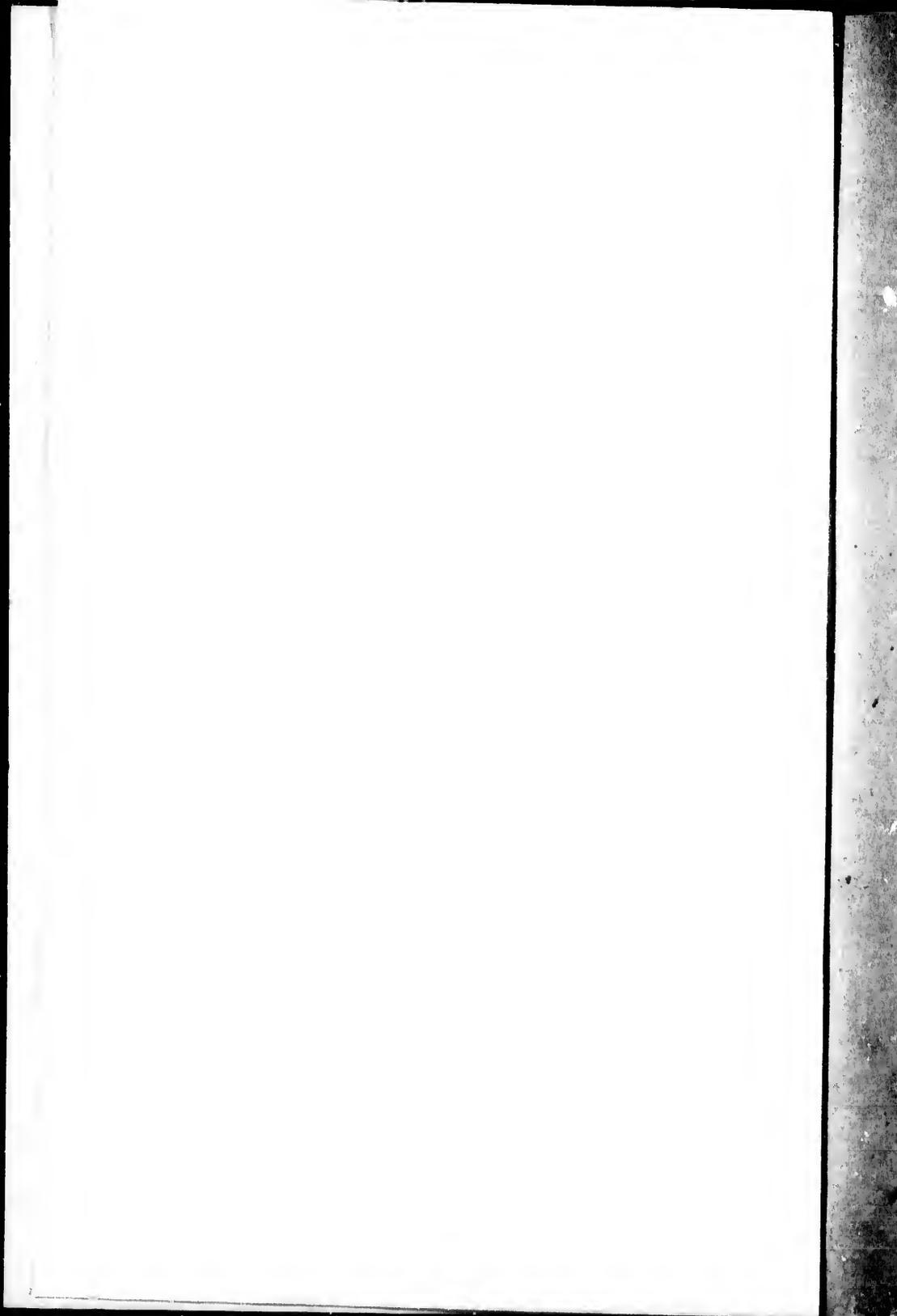
La bibliothèque des Archives  
publiques du Canada

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

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

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole  $\rightarrow$  signifie "A SUIVRE", le symbole  $\nabla$  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.



RAILWAYS IN NEW BRUNSWICK. 2-11

*Henry W. Pearson*

TRACTS

ISSUED BY THE COUNCIL

OF THE  
RAILWAY LEAGUE.

SAINT JOHN, N. B.

PRINTED BY J. & A. McMILLAN, PRINCE WILLIAM STREET.

1949.

*22 pp 800.*

# THE RAILWAY LEAGUE.

---

## OFFICE BEARERS.

---

ROBERT BAYARD, M. D., CHAIRMAN.

WILLIAM WRIGHT, TREASURER.

M. H. PERLEY, CORRESPONDING SECRETARY.

CHARLES L. STREET, RECORDING SECRETARY.

# TRACT No. 1.

---

SAINT JOHN, N. B., APRIL, 1849.

---

## ADDRESS OF THE COMMITTEE FOR ORGANIZING THE RAILWAY LEAGUE.

At a Public Meeting held at the Court House in the City of Saint John, on the 2d day of April, 1849, the Undersigned were appointed a Committee to organize a RAILWAY LEAGUE, and its branches, throughout New Brunswick.

In fulfilment of the duty confided to them, the Undersigned offer to the public an explanation of the object and intentions of the League, and its proposed action with reference to Railways.

It is now an established principle, that no country can properly develop its resources, or keep pace with the progress of the age, without the aid of railways; and it will be the great object of the League, to promote their introduction into New Brunswick, upon a regular plan or system.

It has been truly said—"that the Locomotive Railway system has become the great necessity of man—the great instrument of civilization and progress—the great idea of modern times; and that it has done more to relieve the burthens of labour—to minister to man's wants and necessities—and to elevate him in the scale of being, than any other agency that has ever been exerted."

It has also been eloquently stated that—"the Locomotive Steam Engine may be regarded as the greatest achievement of man, and the most extraordinary instrument for good the world has yet reached—that it traverses the earth with a speed outstripping the swiftest bird upon the wing, carrying, not thought or language alone, but man—living, breathing, sensitive man—instinct with new life, new energy, new powers—conscious almost of new faculties, and a new creation. Without danger and without fatigue, it enables man to transfer himself to distant regions of space, and participate in the enjoyments, the physical gratifications, and the various pleasures of social existence, in a manner heretofore unknown. It gives to every

community, the productions of every other, disclosing, or creating, new sources of enjoyment, and multiplying to an infinite degree, every susceptibility to pleasurable emotion."

Whoever labours for the introduction of Railways has, therefore, more than ordinary rewards for exertion. He is working for humanity—for progress, and for the highest good of his race.

New Brunswick possesses within its limits, millions of acres of the finest land, in the highest degree fitted for agricultural pursuits. Its mineral wealth is most extensive, varied, and abundant. The fisheries in its vicinity, near its shores, and within its rivers, are unequalled in the world. But all these bounteous gifts which have been so lavishly bestowed upon this favored land, remain to be developed, and rendered profitable, by the energy, the industry, and the intelligence of man. By no means can that development so fully, or so successfully take place, as by the construction of Railways throughout the length and breadth of the land, bringing distant and important points in close connection, and promoting that ready intercourse and easy conveyance for men and commodities, which are so eminently calculated to increase the physical comforts of the people, elevate their social condition, and render the country great and prosperous.

Impressed with these views, and under the deep conviction that the time has arrived when a strong and united effort should be made to introduce Railways into New Brunswick, as well to develop its manifold resources, as to promote a more ready and perfect communication with the neighbouring Colonies, thus enabling it to keep pace with the march of modern improvement, instead of relapsing into its primitive state of wilderness and barbarism, the Undersigned call upon all residents of New Brunswick who feel an interest, either in the land of their birth, or the land of their adoption, or who desire to see it rise from its present state of depression to become a prosperous and glorious land, to lend their aid to the promotion of undertakings which will tend more than any other to elevate this Colony to the highest pitch of prosperity.

They trust that every man who has the welfare of New Brunswick at heart, will enrol himself a member of the League, and thus countenance and support the object for which it is instituted.

The fee on enrolment will be a British shilling; but donations will be thankfully received from those, whose ability, or whose inclination, may incline them to aid the cause by their liberality.

The funds thus collected will be expended in collecting and publishing full and particular information, with reference to railways; their cost in other countries, the expense of working

them, the actual profits they have yielded, and the incidental benefits and advantages which have been gained by every country, both in Europe and America, where they have been introduced; with such other useful or interesting matter in connection with the subject, as may be worthy of notice.

This information will be furnished to the public in Tracts, and through the columns of the newspaper press; while delegates, lecturers, and friends to the cause, will visit every part of the Province, and diffuse knowledge in its plainest and simplest form, with the view to its practical application to the construction of railways, and the immediate commencement of those important works in New Brunswick.

The organization of the Railway League will be as follows:

The Council of the League will consist of thirty members, and its meetings will be held at the City of St. John. The Officers of the League will be—a Chairman, a Treasurer, a Corresponding Secretary, and a Recording Secretary; these Officers, with eight members of the council, will form an executive committee of twelve, upon which committee (five being a quorum) will devolve the transaction of the active and daily business of the League, for the management of which they will meet as often as necessary.

The general council will meet on the first Monday in every month, for the consideration and transaction of all important business, which may affect the League, or the interest of Railways generally. The executive committee will then report their doings during the preceding month.

The Chairman or the Secretary of any branch of the League, or any delegate appointed by such branch, shall be *ex officio*, an honorary member of the Council of the League, and be at liberty to attend any of its meetings.

The accounts of the League will be audited and published quarterly, in order that every member may know, and fully understand, in what manner, and for what purpose, the funds have been expended.

The present Committee (with those they have added to their number) will remain in office until the 2d day of April next, being one year from the day of their appointment; at that time the members of the League will meet to elect a new Council.

When the object of the League has been accomplished, it will be dissolved; and any funds which then remain, will be at the disposal of the members, or be devoted to some charitable purpose.

It will be the duty of the Executive Committee to encourage and promote the formation of Branches of the League throughout New Brunswick; also to correspond with the several

Branches, and with such persons, or associations in the adjoining Colonies, or in the United Kingdom, or elsewhere, as may be favorable to the cause, with a view to perfect organization and combined action upon every question that may arise, or that may in any way affect the great object of the League, which should ever be kept steadily in view.

All communications on the business of the League may be addressed to the Corresponding Secretary at St. John.

By virtue of the power to add to their number, the Committee have nominated the following gentlemen, who with themselves, will form the first Council of the League:

Thomas Allan, Robertson Bayard, Wm. J. Berton, George Carvill, L. H. Deveber, Joseph Fairweather, Thomas R. Gordon, Thomas Hanford, Gustavus R. Jarvis, Robert Keltie, Joseph W. Lawrence, John C. Littlehale, John R. Marshall, Charles J. Melick, Wm. J. Ritchie, James Robertson, Charles C. Stewart, Wm. H. Scovil, Charles L. Street, James Travis, Wm. Thomson, S. L. Tilley, John E. Turnbull, Robert D. Wilmot.

In concluding their address, the Undersigned express their confident hope and expectation, that the great and important object for which the League has been formed, will secure for it the most hearty and unanimous support throughout the Province; as by its means, a strong and determined effort may be made, to obtain for New Brunswick the means of advancement, by the introduction of Railways, and a participation in those benefits and advantages, which in other countries have tended so much to forward the interests of the people, and promote general prosperity.

ROBERT BAYARD, M. D.,  
J. H. GRAY,  
JAMES WHITNEY,  
WM. WRIGHT,  
EDWARD ALLISON,  
M. H. PERLEY,

*Committee.*

St. John, 10th April, 1849.

# THE GRAND TRUNK RAILWAY

FROM  
HALIFAX TO QUEBEC.

THE Colonies of Nova Scotia, New Brunswick, and Canada, having requested Her Majesty's Government to ascertain by exploration and survey, the practicability of constructing a Trunk Railway from the eastern coast of Nova Scotia to Quebec, traversing New Brunswick, some very intelligent officers of the Royal Engineers were appointed to that duty, and commenced their labours in the summer of 1846. The necessary explorations were completed at the end of the year 1847, and the Report of Major Robinson, R. E., the principal Commissioner, dated Halifax, 31st August, 1848, has been submitted to H. M. Government, and transmitted to the several colonies interested.

It is here proposed to give a digest of that Report, in concise form, for general information.

The Report commences by stating, that three principal lines or routes for a Trunk line of Railway, present themselves for consideration; and that by combining portions of two of these lines, two other routes may be formed.

The route No. 1, is designated "the mixed route," by railway and steamboat—and is thus described:

1st. Commencing at Halifax and crossing the Province of Nova Scotia to a port in the Bay of Fundy, from thence by a steamer to St. John, in New Brunswick, and then by Fredericton along the St. John River, to the Grand Falls.

From the Grand Falls by the best practicable route across to the mouth of the Riviere du Loup, on the St. Lawrence, and by the right bank of the St. Lawrence, to Quebec.

The distance by this route would be as follows:

	Miles.
Halifax to Windsor,	45
Windsor to Annapolis,	65
Annapolis to entrance Bay Fundy,	11
Across Bay Fundy to St. John, (by Sea)	45
St. John to Fredericton,	65
Fredericton to Woodstock,	62
Woodstock to the Grand Falls,	71
The Grand Falls to the mouth of the Riviere du Loup,	106
Riviere du Loup to Quebec,	110

Total distance Halifax by the St. John River to Quebec, 600

The route No. 2, to which a decided preference has been given, is called the "Eastern, or Bay Chaleur route," and is thus described:

2nd. Commencing at Halifax and running to Truro at the head of the Bay of Fundy, thence over the Cumberland Mountains to Amherst, then along the coast from Bay Verte to Shediac, thence by a north-westerly course, crossing the Rivers Richibucto and Miramichi above the flow of the tide, so as not to interfere with the navigation.

Then by the valley of the north-western Miramichi to Bathurst, on the Bay Chaleur, along the coast of this Bay to the Restigouche River, and by it and the valley of the River Matapediac to the St. Lawrence, and by the right bank of the St. Lawrence to Quebec.

The distance by this route would be as follows :

	Miles.
Halifax to Truro,	55
Truro to Amherst and Bay Verte,	69
Bay Verte to Shediac,	26
Shediac to Miramichi River,	74
Miramichi River to Bathurst,	56
Bathurst to Eel River, near Dalhousie,	48
Dalhousie to the mouth of the Matapediac River,	30
Matapediac River to the mouth of the Naget River, near the St. Lawrence,	86
Along the St. Lawrence from this point to Quebec,	191
	<hr/>
Total distance by this route,	635

The route No. 3, is termed the "direct route," and is thus described :

3rd. Commencing at the harbour of Whitehaven, near Canso, at the northeastern extremity of Nova Scotia, thence along the Atlantic coast to Country Harbour and valley of the River of St. Mary, thence by or near to Pictou and along the northern shore to Bay Verte.

From Bay Verte to or near to the Bend of Petitcodiac, thence across to Boiestown, and northerly to the Restigouche River, crossing it several miles to the east of the Grand Falls.

From thence by the most direct and practicable course to the Trois Pistoles River, and along the right bank of the St. Lawrence to Quebec.

The distance by this route would be nearly as follows :

	Miles.
Whitehaven to Country Harbour,	40
Country Harbour to St. Mary's Valley and Pictou,	64
Pictou and along the coast to Bay Verte,	77
Bay Verte to Bend of Petitcodiac,	40
Petitcodiac to Boiestown,	80
Boiestown to the crossing of the Restigouche River,	115
Restigouche River to Trois Pistoles, by the Kedgwick and Rimouaki Vallies,	105
Along the St. Lawrence to Quebec,	131
	<hr/>
Total distance from Whitehaven by Boiestown to Quebec,	652

The 4th route is formed by combining the Halifax route through Nova Scotia, with the direct route through New

Brunswick, by the Bend and Boiestown to Quebec; total estimated distance, 595 miles.

The 5th route combines the Whitehaven route through Nova Scotia, with the Eastern, or Bay Chaleur route through New Brunswick, to Quebec; distance 692 miles.

The first line, route No. 1, is said to fail in the most essential object contemplated by the proposed railway, viz: a free and uninterrupted communication, at all times and seasons of the year, from the port of arrival at the Atlantic terminus in Nova Scotia, to Quebec. Other serious objections are also made to this route, such as the inconvenience, loss of time, and additional expense of transshipping goods and passengers; the obstructions and difficulties to which the navigation of the Bay of Fundy is liable in the winter season; the risk in the conveyance of troops, artillery, and munitions of war, across the Bay, when suddenly required in critical times; and the inability to compete commercially with the route by the Gulf of St. Lawrence, or with rival lines in the United States.

Other objections are offered to this route, which are also deemed serious. It is considered that, passing through New Brunswick, as it must, on the right bank of the river St. John, and, for a considerable distance, close to the frontier of the United States, it would, when most needed, be most sure to fail; and that the passage across the Bay of Fundy, so close to Maine, would invite aggression, and require a large naval force for its protection. To these objections, it is added, that the engineering difficulties, as the line approaches the Grand Falls from Woodstock, would not be easily overcome; and that from the Grand Falls to the St. Lawrence, a distance of more than one hundred miles, there is very difficult and unfavourable ground to be encountered.

In comparing the routes No. 2 and No. 3, the advantages are stated to be greatly in favor of No. 2, the "Eastern, or Bay Chaleur route." To No. 3, or the "direct route," it is objected that an extensive range of highlands in the centre of New Brunswick, occupies nearly the whole space from the Miramichi river north to the Restigouche. The Tobique river runs through this range, forming a deep valley, or trough; the lowest point of the ridge overlooking the Tobique river, which any line of railway must pass, is 1216 feet above the sea, while the opposite ridge, or crest, is 920 feet above the sea, or a rise of 500 feet above the point of crossing the Tobique water. But the great obstacle in this route is, the mountain range running the whole course of the river St. Lawrence, the exploring parties having failed in finding a line through this range to connect with the "direct line" through New Brunswick. It is further objected, that from the Bend of Petitcodiac to the St. Lawrence,

uro at the  
umberland  
Bay Verte  
ossing the  
the tide,  
chi to Ba-  
Bay to the  
River Ma-  
of the St.

Miles.

55  
69  
26  
74  
56  
48  
30  
awrence, 86  
191  
635

nd is thus  
aven, near  
otia, thence  
alley of the  
d along the

Petitcodiac,  
Restigouche  
Grand Falls.  
ourse to the  
he St. Law-

llows :

Miles.

40  
64  
77  
40  
80  
115  
Vallies, 105  
131  
652

alifax route  
rough New

upwards of 300 miles, the "direct line" would pass through a perfect wilderness, without a single settler, except a few at or near Boiestown; and that, leaving engineering difficulties out of the question, the cost of construction would be materially increased by the extra expense attendant on the transport of necessary materials, and supplies of food for laborers and workmen.

The route No. 4, commencing at Whitehaven, is rejected by the Commissioners for a variety of reasons, in addition to great engineering difficulties, such as expensive cuttings, long tunnels, viaducts, and lofty ridges not easily crossed.

The advantages and facilities of route No. 2, the "Eastern, or Bay Chaleur line," are fully stated in the Report, and may be thus briefly noticed:

It is set forth, that one most important object to be attained by the construction of the railroad is the settlement of the public lands, by the encouragement of emigration from the Mother country. The great agricultural capabilities of the Northern and Eastern counties of New Brunswick are pointed out; and reference is made by the Commissioner to the Reports of Mr. Perley, the Emigration Officer, presented to the Legislature, and ordered to be printed in February, 1847, for more particular description.

The geological systems which prevail from the banks of Gay's River (twenty miles from Halifax,) up to the mountain ranges north of the Restigouche River, are the carboniferous and new red sand-stone. These include large deposits of red marl, limestone, gypsum, freestone of excellent quality, and extensive beds of coal. Wherever these systems and minerals are found, a strong and productive soil, favorable for agricultural pursuits, is sure to accompany them. The surface of such a country too, is generally low and moderately undulated, thus offering the greatest facility for railway construction.

This formation occupies the northern section of Nova Scotia, and extends over all the northern and eastern parts of New Brunswick, thus giving a decided advantage to route No. 2, the "Eastern, or Bay Chaleur line." This route can be approached in numerous places along the Gulf Shore, by means of bays and navigable rivers.

The facility for *external* as well as *internal* communication, and other advantages arising from commerce and the fisheries, which will be developed by the "Eastern line," (and which are entirely wanting on the "direct route,") it is fully expected, will make its vicinity eagerly sought for by settlers. There is now what may be termed a long-continued village of 200 miles, between Quebec and Metis, containing 75,000 inhabitants; and it is believed, that in no very great length of time

after the construction of a railway, this village would be extended from the south bank of the St. Lawrence to the Atlantic Ocean.

The present distribution of the population in New Brunswick and Nova Scotia is considered as having an important bearing upon the consideration of the best route; and the question is thus discussed:

"It must be premised that a branch railway from the city of St. John is contemplated to pass up the valley of the Kennebecasis, and connect with the main trunk at the Bay of Shediac.

The survey of this line, ordered by the Provincial Government, is in progress; and from the latest information received, the line promises most favorably.

The total population of New Brunswick has been estimated to amount, at the beginning of 1848, to 208,012, distributed in the proportions as under:

County of Restigouche,	4,214	
Gloucester,	10,334	
Northumberland,	19,493	
Kent,	9,769	
	<hr/>	43,810
Westmorland and Albert,	23,581	
Kings,	19,285	
St. John,	43,942	
	<hr/>	86,808
Queens,	10,976	
Sunbury,	5,680	
	<hr/>	16,656
York,	18,660	
Carleton,	17,841	
	<hr/>	36,501
Charlotte,		24,237
	<hr/>	
Total,		208,012

Of these, the first four, amounting to 43,810, are on the line of the proposed route No. 2, and will be entirely thrown out by the adoption of the other.

Campbellton, Dalhousie, Bathurst, Chatham on the Miramichi, and Richibucto,—seaports and shipping places of consequence on the Gulf Shore; all of them susceptible of the greatest developement, will be isolated and cut off. These ports are ice-bound during the winter months; and railway communication will be to them of the greatest importance.

It will affect most materially the interests of the city of St. John, and the receipts upon their branch railway.

It will affect also sensibly the receipts of the main trunk line."

In summing up a particular description of each of the several routes mentioned, the Commissioner thus gives his final opinion and decision:

"Whitehaven, with its larger and more expensive line of

railway, full of engineering difficulties, passing for miles through a tract of country, rocky, barren, and unfavorable for agriculture, is decidedly recommended to be rejected.

The harbour of Halifax, one of the finest in the world, is recommended to be selected as the Atlantic terminus of the Grand Trunk Railway.

The line from the Bend of Petitcodiac by Boiestown to the St. Lawrence, crossing the Tobique mountains, with two summit levels of 1216 and 920 feet, causing heavy grades which will materially increase the cost of transport; passing through a totally unsettled and wilderness country; excluding the towns and settlements on the Gulf Shore, and so preventing the development of the vast resources of the fisheries; also inflicting a serious loss to the interests of the main line, as well as the intended branch from St. John to Shediac,—notwithstanding its shorter length, is most strongly recommended to be rejected.

The route No. 2, along the eastern coast of New Brunswick and the Bay of Chaleur, is recommended as 'the best direction' for the proposed line of railway, from an eastern port in Nova Scotia through New Brunswick to Quebec, as combining in the greatest degree, the following important points:

1. The immediate prospect of direct remuneration, as well as the greatest amount of returns for the expenditure to be incurred; the opening up a large field for Provincial improvements, by the settlement of emigrants; and, in addition to internal and external communication by the Gulf of St. Lawrence and the Bay of Chaleur, the development in the highest degree of the commerce and fisheries of the Province of New Brunswick.

2. As the line passes along the coast for a great distance, and may be approached at several points, by bays and navigable rivers, it possesses the greatest facilities for construction at the least expense; and by its more favorable grades will reduce the cost of construction, and subsequent maintenance.

3. By passing over a less elevated country, and at the least distance from the sea, there will be less interruption to be apprehended from climate; while the more favorable grades will increase the efficiency and rapidity of intercourse.

4. Passing at the greatest possible distance from the United States, it possesses in the highest degree the advantages of security from attack in case of hostilities.

It is expected that vessels entering Halifax harbor will be able to unload at the railway premises, or probably into the railway cars; and an equally good terminus is to be had at Point Levi, opposite Quebec. The same railway cars, loaded from ships in Halifax harbour, after running an *uninterrupted* course of 635 miles, will be delivered of their contents into boats, if not

into the holds of vessels, in the river St. Lawrence. The same can, of course, be done from the river St. Lawrence, with vessels waiting in Halifax harbour.

Such an uninterrupted length of railway, with such facilities at its termini, it is believed, will be unequalled in the world."

The following synopsis shows approximately, the quantities of ungranted land in those counties of Nova Scotia, New Brunswick, and Canada, through which the "Eastern, or Bay Chaleur line," will pass:

<i>In Nova Scotia.</i>	
	Acres.
Halifax County .....	780,000
Colchester .....	120,000
Cumberland .....	180,000
	<hr/> 1,080,000
<i>In New Brunswick.</i>	
Westmorland County .....	301,000
Kent .....	640,000
Northumberland .....	1,993,000
Gloucester .....	704,000
Restigouche .....	1,109,000
	<hr/> 4,747,000
<i>In Canada.</i>	
Bonaventure .....	2,000,000
Rimouski .....	5,000,000
Kamouraska .....	500,000
L'Islet .....	600,000
Bellechasse .....	500,000
	<hr/> 8,600,000
General Total .....	14,427,000

The Report next enters into a very elaborate statement of the various modes of constructing railways in the United States and their relative cost, the average of which appears to be £7,950 per mile, for a single track, with rails of 56lbs. to the yard.

It must be borne in mind, that owing to the high duty on importation, railroad iron is very much dearer in the United States, than in England, or what it could be procured for in the Colonies; and that when the lines mentioned were constructed, labour was in great demand, and wages much higher than at the present day.

"The Halifax and Quebec line will have also many advantages which the American lines have not.

The land for the greater portion of the road will not have to be purchased. Timber and stone will be had nearly along the whole line for the labour of cutting and quarrying.

Judging then from the analogy afforded by similar, or nearly similar lines in the neighbouring States, giving due weight to the considerations which have a tendency to modify the cost in the particular case of the Halifax and Quebec line, and form-

ing the best estimate to be derived from the data obtained upon the exploratory survey, which, under the circumstances of a perfectly new country, only recently explored, and still covered with a dense forest, is all that can in the first instance be done; it is considered that if the sum of £7000 sterling per mile be assumed as the probable cost of the proposed line, it will not be far from the correct amount.

The total distance from Halifax to Quebec will be about 635 miles.

635 miles at £7000 per mile will be	£4,445,000
Add one-tenth for contingencies	444,500
	<hr/> £4,889,500

Or, in round numbers, five millions.

It is estimated, therefore, that the cost for construction and equipment of the proposed trunk line from Halifax, through New Brunswick to Quebec, will amount to £5,000,000 sterling."

This estimate is upon the assumption, that wherever the line passes through granted lands, the "breadth of way," as well as land for stations, will require to be purchased, and that the sums thus expended will form part of the cost of construction.

The Report next enters upon the consideration of the very important question of the probable returns for such an expenditure. A great amount of statistical information is brought forward and ably discussed in all its bearings. The Commissioner thus sums up his observations under this head:

"From the foregoing remarks, it will appear then, that although no very good or precise estimate of the returns for the expenditure of five millions sterling can be given, yet that there are very good general grounds upon which to form an opinion, that ultimately, if not at once, the line will, in a commercial point of view, be a very productive one."

"The Montreal and Portland, which will be the great competitor with the Quebec and Halifax line, is an enterprise of a purely commercial and *local* nature. As such, it is not likely shareholders will be contented, unless they receive what they have every right to expect—a high rate of interest for the expenditure they have incurred, and the risk they have encountered in the undertaking.

But with the Quebec and Halifax, it is very different. The enterprise is of *general interest*. It concerns the prosperity and welfare of each of the three Provinces, and the honour as well as the interests of the whole British Empire may be affected by it. It is the *one* great means by which alone the power of the mother country can be brought to bear on this side of the Atlantic, and restore the balance of power now fast turning to the side of the United States.

Every new line of railway made in that country, adds to their power, enabling them to concentrate their forces almost wherever they please, and by the lines, of which there are already some and their will soon be more, reaching to their northern frontier, they can choose at their own time any one point of attack on the long extended Canadian frontier, and direct their whole strength against it.

The provinces, therefore, and the empire having such interest in the formation of the Halifax and Quebec Line, it should be undertaken by them in common as a great public work for the public weal.

If so undertaken, the provinces supported by the credit of the mother country, could raise capital at a rate of interest which could not be done by any company of shareholders. And if to this advantage be added, the disposal for the exclusive benefit of the railway, of a portion of the wild lands along the line, and in the immediate country which it would be the means of opening to settlement and cultivation, then it is highly probable that it would be constructed for three millions sterling.

In a former part of this Report it has been estimated that there are in the counties through which this line will pass fourteen millions of acres of land yet ungranted, and therefore remaining at the disposal of the Provincial Governments.

The ordinary price of an acre of wild or uncleared land, is about 2s. 6d. to 3s. per acre. But where public roads are made through them the value immediately increases, and it will not be considered an extravagant estimate, to suppose that the land along or in the immediate vicinity of the railway, will be worth £1 per acre.

For the construction of the great St. Lawrence Canal, by which Canada has now the prospect of reaping such immense advantages from the trade of the western country, the Imperial Government guaranteed the interest on a loan of two millions sterling and upwards, at 4 per cent. This loan was easily raised, and a large premium per cent. was received in addition for it.

There can be little doubt that another loan of three millions sterling at the same rate of 4 per cent. interest, could be raised upon the credit of the provincial revenues if guaranteed by the mother country. With this amount of capital and two millions of acres to be reserved, and sold from time to time, it is conceived the railway may be made.

Upon the loan of three millions, the interest at 4 per cent. would amount to £120,000 per annum.

Of this sum, it may be fairly assumed, that for the conveyance of the mails between Halifax and Quebec, the Post Office department would be willing to pay annually an equal amount

to what is now paid for the same service. This has not been officially obtained, but there are good grounds for supposing that it is nearly £20,000.

In the case, then, that beyond this the railway only paid its own working expenses, the sum of £100,000 would have to be made good out of the revenues of the provinces.

The proportion of this, or of whatever sum might be deficient to pay the interest on the loan, would have to be arranged; and it may, for the sake of illustration, be supposed to be as follows:

		Proportion.
Nova Scotia,	20,000	.2
New Brunswick,	20,000	.2
Canada,	30,000	.3
The Imperial Government,	30,000	.3
	<hr/>	
Total,	£100,000	1.0

For the proportion guaranteed by the provinces, they would receive the benefits conferred by the railway in developing their resources, increasing the value of all property, promoting the sale and settlement of their wild lands, increased population and increased revenue.

For the proportion guaranteed by the Imperial Government, officers, civil or military, troops, munitions of war, supplies, &c. for the public service, and *emigrants*, should be transported over the line at the cost price."

The following remarks are highly important, and fully and completely develop those principles which, in their operation, have so largely contributed to the "unrivalled prosperity" of the United States. They are well worthy of attentive perusal and deep consideration:

"But to look at this great work only as a commercial speculation, and as yielding mere interest for the expenditure incurred, would be to take a very limited view of the objects it is capable of achieving.

In the United States they are well aware of the increased value which internal improvements and communications give to property of every kind.

In those countries works have been undertaken for that object alone, not for the mere return which the work, whether railway, road, or canal, would make of itself.

The indebtedness of the several States has been incurred almost entirely in making great internal improvements. And in the bold and unhesitating way in which they have incurred debts and responsibilities for the purpose of developing their resources may be seen the secret of their unrivalled prosperity.

The State is in debt, but its citizens have been enriched beyond all proportion.

Most unfavorable comparisons are made by travellers who

visit the British Provinces and the United States. And some have gone so far as to state, that travelling along where the boundary is a mere conventional line, they could at once tell whether they were in the States or not.

On the one side, the States Governments become shareholders to a large amount in great public works, *lead* the way, and do not hesitate to incur debt, for making what has been termed "war upon the wilderness;" employment is given, and by the time the improvement is completed property has been created, and the *employed* become proprietors.

On the other side, the Provincial Governments do not take the initiative in the same manner, and hence in the settlements and in the Provinces generally, may be seen this marked difference in the progress of people, who are identically the same in every respect.

Until the British Provinces boldly imitate the policy of the States in this regard, and make war upon their "wilderness," their progress will continue to present the same unfavourable contrast.

The creative or productive power of canals, railways, &c., is traced in the progress of the State of *New York*.

The Erie Canal was commenced in 1817 and completed in 1825, at a cost of £1,400,000 Sterling.

In 1817 the value of real and personal property in the City of New York was, from official documents, estimated at

£16,436,000 Sterling.

In 1825, it was estimated at 21,075,000 "

In 1835, " " 45,567,000 "

Being an increase of 2½ times in 18 years.

The population of the State of New York, in 1810, was 959,949. In 1845, it was 2,604,495.

The public debt of *Massachusetts*, Jan. 1, 1847, was \$999,654

The credit of the State lent to rail roads, was 5,049,555

Total liabilities of the State, \$6,049,209

As security for the redemption of the Scrip lent to rail-roads, the Commonwealth holds a mortgage on all the roads; also 3000 shares in the Norwich and Worcester, and 1000 in the Andover and Haverhill.

The canals and rail-roads of *Pennsylvania*, which are public property, cost 28,657,432 dollars.

The debt of *Ohio*, contracted for the sole purpose of constructing Public Works within the State, is \$19,246,000

828 miles of Canals, cost 15,122,503

Net receipts in 1846, after paying repairs and expenses, 408,916

In 1810, the population of Ohio was	45,865 souls.
In 1820, " "	581,434 "
In 1840, " "	1,519,467 "

In twenty years, during which the canals were in progress, the population of the State nearly tripled.

The debt of *Michigan*, November 30, 1845, was \$4,394,000. The length of rail-roads finished, and belonging to the State, at the same time, was 222 miles.

This State was authorized to raise a loan of five millions of dollars, for internal improvements; and Congress at the same time granted to the State 500,000 acres of land for the same purpose.

In 1840, the population of Michigan was	212,267 souls.
In 1845, " "	304,274 "

being an increase of nearly 50 per cent. in five years.

The public debt of *Indiana*, Jan. 1, 1847, was \$14,394,000

The population of *Indiana*, in 1830, was 343,031 souls.

" " 1840, was 685,086 "

Owing to public works, the population doubled in ten years.

The internal improvement debt of *Illinois*, in

1847, was \$8,165,081

The Canal debt in 1847, was 6,009,187

Total State debt, \$14,174,268

The population in 1830, was 157,455 souls.

" 1840, was 476,283 "

In ten years of internal improvement the population tripled.

To show the effect produced by a canal or railway passing through property, among other instances it is stated, that Congress granted to the State of *Michigan* 461,000 acres of land for the endowment of a University. Up to 30th Nov., 1845, the quantity sold was 17,142, acres, at an average price of £2 9s. Sterling, per acre. Of the land devoted to schools, 69,000 acres had been sold, at the average of £1 7s. Sterling, per acre. In 1845, the average of land sales in the United States was 5s. 7d. Sterling, per acre.

These are some of the results of making "war upon the wilderness!"

With reference to the effects of internal improvements and public works in advancing the prosperity, and increasing the population of a country, possessing natural resources and capabilities, the Province of *New-Brunswick* is prominently noticed in this Report.

It appears that *Ireland*, with seventeen millions of acres of ground fit for cultivation, has a population of eight millions to support. In *New Brunswick*, there is an equal amount of

land fit for settlement and cultivation, with a population of only 208,000.

If the land uncleared and fit for cultivation in New Brunswick, be added to what remains in the northern section of Nova Scotia, and also between the eastern boundary of New Brunswick and the southern shore of the St. Lawrence, east of Quebec, there would be a quantity nearly equal to the area of England, but supporting a population of only 400,000 souls.

On this the Commissioner remarks, "It is not too much to say, that between the Bay of Fundy and the River St. Lawrence, there is abundant room for all the surplus population of the mother country."

Of the Province of New Brunswick, the following description is given:

"Of the climate, soil, and capabilities of New Brunswick, it is impossible to speak too highly.

There is not a country in the world so beautifully wooded and watered.

An inspection of the map will show that there is scarcely a section of it without its streams, from the running brook up to the navigable river. Two-thirds of its boundary are washed by the sea; the remainder is embraced by the large rivers—the St. John and Restigouche.

For beauty and richness of scenery this latter river and its branches are not surpassed by any thing in Great Britain.

The lakes of New Brunswick are numerous and most beautiful. Its surface is undulating, hill and dale, varying up to mountain and valley. It is everywhere, except a few peaks of the highest mountains, covered with a dense forest of the finest growth.

The country can everywhere be penetrated by its streams.

In some parts of the interior, by a portage of three or four miles, a canoe can float away either to the Bay Chaleurs and Gulf of St. Lawrence, or down to St. John in the Bay of Fundy.

Its agricultural capabilities, its climate, &c., are described in Bouchette's Works, in Martin's British Colonies, and other authors. The country is by them, and most deservedly so, highly praised.

There may be mentioned, however, two drawbacks to it, and only two.

The winter is long and severe; and in summer there is the plague of flies.

The latter yield and disappear as the forest is cleared; how far the former may be modified by it experience only can show.

For any great plan of emigration or colonization, there is not another British Colony which presents such a favourable field for the trial as New Brunswick.

To 17,000,000 of productive acres there are only 208,000 inhabitants.

Of these 11,000,000 are still public property.

On the surface is an abundant stock of the finest timber, which in the markets of England realize large sums annually, and afford an unlimited supply of fuel to the settlers.

If these should ever become exhausted, there are the coal fields underneath.

The rivers, lakes, and sea coasts abound with fish.

Along the Bay Chaleurs it is so abundant that the land smells of it; it is used as manure, and while the olfactory senses of the traveller are offended by it on the land, he sees out at sea immense shoals darkening the surface of the water.

For about the same expense five emigrants could be landed in New Brunswick for one in the Antipodes. Being within a fortnight by steam from London, any great plan of colonization could be directed and controlled by the Home Government."

In concluding this very able Report, the Commissioner states, that he deems it unnecessary to recapitulate all the good effects produced upon every country, where railways have been established; but some of them are mentioned. He says, "They have become necessary to the age, and that country which has them not, must fall behind in the onward march of improvement, and in the developement of its resources. And the longer it is suffered so to do, the greater and more unfavourable will be the contrast it presents to the world.

"Already in this respect the British Provinces of New Brunswick and Nova Scotia are far behind their enterprising neighbours. One of the immediate effects of making this Railway would be to place them in a position of equality. They are now dependent upon the United States for food."

"If at the close of the navigation of the St. Lawrence, the United States should prohibit the export of provisions from their own ports, the consequences would be serious to New Brunswick and Nova Scotia, as Canada could not supply them."

"Surprise has sometimes been expressed, that out of so many who yearly land in the Provinces, so many pass on, and become settlers in the United States. To the poor man, his labour is his capital, and he must transfer himself to the place where employment is to be found.

The proposed railway would engage thousands in its construction; while the stimulus and new spirit it would infuse into the whole community, now cribbed and confined as it were to their own locations, would give rise to branch railways, and other works which would employ additional thousands.

It has been shown that the population of some of the Western States has doubled and even tripled in the course of ten years. The population of New Brunswick is now only 208,000; the annual revenue is equal to ten shillings per head. There is no apparent reason why, if the same facilities for employment, and land for settlement were afforded, that her progress should not also be very great.

Every emigrant induced to settle and remain in the country, may be calculated as producing ten shillings annual income to the Province. If the formation of the railway increased the population of New Brunswick by 40,000 persons only, then her proportion of the guaranteed interest would be covered from that cause alone."

The effect of the railway in enhancing almost immediately the value of all real and personal property is set forth; and the influence of the Erie Canal in doubling and nearly tripling that of the city of New York, is given as an example. It is also stated, that villages and towns would no doubt spring up on the line of the railway, the same as on the Canal—the railway would give them birth, while agriculture and external commerce would support and enrich them.

In a political and military point of view, the proposed railway is stated as having become *a work of necessity*. The increasing population and wealth of the United States, and the diffusion of railways over their whole territory, especially towards the Canadian frontier, render it absolutely necessary to counterbalance, by some corresponding means, their otherwise preponderating power. It is most essential that the mother country should be able to keep up her communication with the Canadas, at all seasons of the year. However powerful England may be at sea, no navy could save Canada from a land force. The expenses of one year's war, would pay for a railway two or three times over; and its construction might be the means of preventing a war at no very distant period."

Finally, the Commissioner says, "And if for great political objects it ever became necessary or advisable to unite all the British Provinces under one Legislative Government, then there will be found, on this side of the Atlantic, one powerful British State, which, supported by the power of the mother country, may bid defiance to all the United States of America."

"The means to the end—the first great step to its accomplishment—is the construction of the HALIFAX AND QUEBEC RAILWAY."

## THE ST. JOHN AND SHEDIAC RAILWAY.

THE importance of a line of Railway from the City of St. John to the harbour of Shediac, either as an independent line, or as an important branch of the great Trunk Line from Halifax to Quebec, was brought under the notice of the Provincial Government, and the Legislature, early in the year 1847, by the Emigration Officer at St. John, who was appointed to make certain inquiries in connection with the Trunk Line.

In the session of 1848, the Hon. R. L. Hazen introduced a bill into the Assembly, to authorize the survey of the proposed Line by the Executive Government, and appropriating the sum of £1000 to defray the necessary expenses. This bill having passed, Mr. John Wilkinson, of the Crown Land Department, a Civil Engineer who has had great experience in conducting surveys in these Colonies, especially in connection with the Boundary, and on whose skill and judgment much reliance has been placed by H. M. Government, was appointed to conduct the survey. This duty was performed during the summer of 1848, and Mr. Wilkinson's preliminary Report was submitted to the Legislature, and ordered to be printed 13th March, 1849. The most interesting portion of this Report is now presented:

*“ Fredericton, 3d March, 1849.*

SIR,—Since the close of the Exploration and Survey of the proposed Line of Railway between Saint John and Shediac, the construction of the plans and sections in a manner to be practically available for definitely laying out the work, has been proceeding with all diligence, with a view to complete the same during the present Session of the Legislature. But the extent of labour involved renders doubtful the possibility of accomplishing this object.

In the mean time it is less difficult to supply for the information of His Excellency the Lieutenant Governor, such general description of the character and merits of the Line as may be necessary to satisfy the immediate interest of the Legislature and the Public.

Section 1. Commencing at the head of the Mill Pond in the City of Saint John, the first portion of the Line, for a distance of upwards of 4 miles, presents no material obstacle. At Lawler's Lake, near the fifth mile, the route is crossed by a barrier of solid limestone of upwards of a mile in width. This may be surmounted by a rise eastward of 30 feet per mile for about 1½ miles, and a fall of 20 feet per mile for about 2 miles. To attain these gradients a mean depth of 12 to 15 feet of rock

cutting for a mile in extent will be necessary. The maximum depth will be about 35 feet for 7 or 8 chains only.

§ 2. From hence following the shore of Kennebecasis Bay, the chief obstacles are Davidson's, Henderson's, Harris', and Forrester's Coves, until we reach the head of the last, at a distance of 15½ miles from Saint John. The intersection of these in a favourable manner will require due consideration. The cost of this portion of the Line must necessarily exceed the average expense of the remainder; but the result will be the attainment of gradients varying very slightly from a level. It was supposed that a shorter, less expensive, and sufficiently favourable route might be found through Lakefield, by the Valley of Salmon Creek. But the result of a careful exploration and section proved that the summit could not be overcome by a less favourable maximum gradient than 136 feet per mile, descending into the Valley of Hammond River. It is exceedingly doubtful that any other descent into the Valley of this River would prove more favourable.

§ 3. From the head of Forrester's Cove the Line will intersect Hammond River nearly a mile below the present Bridge, and continue by a straight line through the Marsh until it touches the south Shore of Darling's Lake. Following the latter by easy curves, and nearly on a level, until it intersects Groom's Cove; it proceeds thence with slight deviation from a direct course, to the head of Acicack Marsh, near Hampton Ferry, and at 23 miles 24 chains from Saint John. From thence it continues by a direct and level line along the Marsh, intersecting the Kennebecasis at a favourable point a little below Mr. Wright's Farm; and thence with a slight change of direction to the northern end of the old Toll Bridge, at 28 miles from Saint John.

§ 4. From hence it was supposed that the line might avoid the immediate bed of the Valley, by following a lateral valley running nearly parallel, and to the north westward of the Post Road. A comparative survey and section proved that there would be no saving in distance, and most probably a heavier expense of construction, whilst the gradients, though very favourable, would be greatly inferior, involving for a mile and a half in distance a maximum of 25 feet per mile, against a nearly uniform level by the River route.

§ 5. Following the latter from the Toll Bridge, to the left of Norton Upper Church, by a direct Line crossing Hayes' and Barbarie's Meadows, and the River to the foot of the high ground on the left or southern bank, nearly opposite to the Roman Catholic Chapel, and thence following this bank by a course nearly straight, the line recrosses the River near the Finger Board, at a distance of 34 miles from Saint John.

§ 6. From hence the Line will most favorably follow the right or northerly bank of the River, varying from level to the maximum rise of seven feet per mile, until it approaches Studholm's Mill Stream at 42 miles 32 chains from Saint John. A little below this Stream it will again cross the main River, and thence keeping as close as practicable to the left or southerly shore, it will recross the River twice within the distance of half a mile, a little below the situation of Fox Hill, and will continue thence nearly straight, gradually leaving the River widely to the left and rising at nearly the uniform rate of seven feet per mile, to the Race Course, on the property of A. C. Evan-son, Esquire, Sussex Vale, at the distance of 45 miles 61 chains from Saint John.

On reaching this situation, the traveller is scarcely conscious that he has yet not attained so high an elevation above the level of the Sea as some parts of the City of Saint John.

The following is the relative height of this point in Sussex Vale:

Above the highest Freshet level of Kennebecasis Bay,	51 Feet
“ High water, Spring tides, at Saint John,	56 “
“ “ “ at Bend of Petitcodiac,	53 “
“ “ “ at Shediac,	76 “

§ 7. From hence, passing a slight rise and again descending by a fall of 12 feet per mile into the Valley of Salmon River, (the principal branch of the Kennebecasis,) the course of the Line will be nearly direct, with an uniform rise of seven feet per mile, to the mouth of Stone's Brook, distant 52 miles 28 chains from Saint John.

§ 8. From hence the choice of two routes is offered, of each of which a careful survey and section has been made. The first is by the Valley of Stone's Brook to the immediate source of the Annagance. The second continues by the Valley of the Salmon River to the "Portage," and thence, after twice intersecting the Post Road, descends and meets the former route at a lower point in the Valley of the Annagance.

The distance by each route will be nearly the same; but by the first the summit is crossed by a maximum rise of 22 feet per mile, and the same rate of fall for a short distance into the Valley of the Annagance.

By the second an equally favourable rise can be obtained only by a heavier proportion of cutting and embankment, and it will not be easy to obtain a more favourable descent into the Valley of the Annagance than at the rate of 40 feet per mile.

As the intersection of this summit will determine the maximum gradient eastward, between the Bend of Petitcodiac and Saint John, the route by Stone's Brook is therefore obviously to be preferred.

By this route the summit is passed at a distance of 56 miles 13 chains from Saint John, and at an elevation of 150 feet above high water.

§ 9. For a short distance, as already observed, the descent is thence at a rate of 22 feet per mile, and afterwards at the uniform rate of 5 feet per mile, to opposite Hayward's Mills, distant 63 miles 56 chains from Saint John. From thence by a nearly uniform descent of 6 feet per mile, the Line passes Steves' Mill at 66 miles 62 chains, and Steves' Tavern at 69 miles from Saint John.

§ 10. After first touching the Petitcodiac River, the course of the Line will require mature consideration, and will be governed by the result of the Survey of the River. It was a prevailing opinion among the more intelligent inhabitants, that the Table Land on the north side of the Petitcodiac would prove to be favourable. Its general appearance so far sustained this opinion that the fact could be determined only by actual examination.

The chief advantage of this route would be to avoid contact with the Petitcodiac River. A thorough exploration and section were therefore made, the general results of which are as follow :

From Steves' the section presents a series of ascending and descending inclinations, varying from 5 to 25 feet per mile to the Fredericton Road near Pitfield's, at a distance of 77 miles 21 chains from Saint John.

From thence the inclinations vary from 12 to 78 feet per mile, to Hall's Stream, at the distance of 90 miles 22 chains from Saint John; and from thence by inclinations varying from 4 feet to 53 feet per mile, to Milne's Point, Shediac Harbour, distant 105 miles 20 chains from Saint John.

These unfavourable gradients proved not only the necessity of a survey of the immediate Valley of the Petitcodiac River, but also of a thorough re-exploration of the ground between the Bend and Shediac.

§ 11. Two other variations of route between the latter were therefore surveyed and levelled; and thus a comparison of three routes was obtained, each terminating near the mouth of Hall's Stream, at the Bend, and at Milne's Point at Shediac. The courses of these routes will be more easily understood by a glance at the Map than by much description.

The following is a brief summary of their respective merits:

	Distance from Bend to Shediac.	Maximum Gradient.	
		Eastward.	Westward.
1. Mill Stream and direct Route	15 m. 30 c.	38 ft. per m.	53 ft. per m.
2. Babineau Marsh and Scadouck Route, 16 miles.	16 miles.	26 "	30 "
3. Mill Stream and Scadouck Route,	16 m. 54 c.	23 "	30 "

It is probable that a fourth route by way of the Valley of

the Shediac River, with a still more favourable maximum gradient than the last, might be found, but only by materially increasing the distance, and with an unfavourable approach to the Harbour.

§ 12. It remains only to compare the merits of the immediate Valley of the Petitcodiac, and of the Table Land northward, for the object of the Railway.

The latter route would present alternate rises and falls which at some points could be reduced to bare practicability, only by heavy cuttings and embankments; whilst the only advantage proposed would be to avoid contact with the tortuous channel, tides, floating ice, and soft banks of the Petitcodiac.

It does not appear however that it is really necessary to come in contact with these in any manner involving material difficulty; whilst the working character of the Line, when constructed, would be of unsurpassed excellence.

From Steves' to Pitfield's the mean inclination would scarcely be 7 feet per mile, and from thence the remaining distance to the Bend, about 14 miles, would be level.

The increase in the whole distance from Saint John to Shediac by this route will be about three miles, but with the advantage of touching the Harbour at the Bend, which is not approached within two miles by the direct route.

By adopting the immediate Valley of the Petitcodiac we have therefore a Line of Railway of 108 miles in extent; connecting three of the most important Harbours in the Province by a ruling gradient between level and 7 feet per mile, and two maximum gradients each of only 30 feet per mile. It is most probable that the latter, favourable as they are, may be still further reduced.

§ 13. It will be proper, for instance, that a thorough examination of the vicinity of Lawler's Lake and Portage Cove, near Saint John, should be made in order to determine the practicability of preserving an uninterrupted level at that point within a warrantable limit of expense. It is scarcely doubtful that by a slight variation of the Line and some increase of expense, the rise of 30 feet per mile from Shediac, might also be reduced to the same limit as that at Stone's Brook, say 22 feet per mile, which would then become the heaviest gradient of the Line.

This rise is very little greater than what is termed the angle of repose; or that inclination upon which the friction of a Train of Carriages at rest is just sufficient to prevent their being set in motion by the force of gravity.

§ 14. A system of gradients so favourable, will place this Road in the first class of working Lines.

It is true that advanced knowledge and experience have proved the practicability of ascending steeper inclinations than

at an earlier period of Railway construction were deemed to be within the capacity of unassisted Locomotive Engines on smooth Rails, and that therefore, in a difficult country, the necessity of heavy cuttings and embankments is much diminished.

But the economical value of easy gradients is not consequently reduced, where natural facilities admit, as in this instance, of their being obtained at a moderate first cost; for, however adequate may be the mechanical skill necessary to meet the difficulty, the working expenses must be proportionally increased by the steepness of the inclinations to be overcome.

A few words in explanation of this fact may not be misapplied.

A difference of experimental results exists as to the force of traction necessary to set in motion a given load upon a level rail. They vary from seven to nine pounds per ton, giving a mean of about 8 lbs or 1-280th part of the load. It is known, therefore that 1 in 280, or 19 feet nearly per mile, is that degree of inclination which has just been explained as the angle of repose, and is the datum from which to compute the increase of force necessary to overcome any given increase of inclination.

Hence the power which would be sufficient to draw upon a level,	100 Tons
Would ascend an inclination of 19 feet with only	50
“ “ “ 38 “ “	33
“ “ “ 57 “ “	25
“ “ “ 76 “ “	20

It is yet doubtful whether the effects of this law can be conveniently mitigated by mechanical skill in the adaptation of Locomotive Engines.

It is therefore of importance to devote due pains to the discovery of that line of ground between the extreme points to be connected, which will afford the most favourable maximum gradient at the least warrantable expense.

This object will be more readily appreciated by a view of the working capacities of a few existing or projected Lines in America, the maximum gradients of which are known as compared with the same capacity of a Line perfectly level.

	Max. Gradient in ft. per mile.	Load equal to the tractive force of 800 pounds.
Western Rail Road, Massachusetts,	83	18 6-10ths Tons.
New York and Erie Rail Road,	68	21 8-10ths
Montreal and Portland,	50	27 5-10ths
Saint Andrews and Woodstock,	35	35 2-10ths
Saint John and Shediac,	22	46 3-10ths
A Level Line,	0	100

To the above may be added that portion of the projected Trunk Line of Railway between Quebec and Halifax, which would intervene between Shediac and the latter Port. The most favourable maximum gradient by which the Cobequid

Hills can be crossed, according to the Report of Major Robinson, is 1 in 79 or 66 feet per mile. The same tractive force, therefore, which would transport 46 tons to Saint John, would convey only 22½ tons to Halifax.

If to this important advantage be added that of a saving of at least 42 miles in distance to the Port of Saint John, which is as open and accessible at all seasons of the year as Halifax, it may safely be inferred that the diversion of any portion of the trade which may fairly belong to this Province by the proposed route of the Trunk Line is exceedingly improbable. It may rather be anticipated with confidence that, in cases of emergency excepted, nearly the whole of the import and export business that may be created by any such connection with the Saint Lawrence, will incline to the open Harbours of the Bay of Fundy.

For these, besides the recommendation of much greater proximity to the Saint Lawrence, have the natural advantage of a high flow of tide, favourable to the prompt examination, repair and equipment of the larger class of vessels, and which is not possessed by Halifax.

§ 15. The curvature of the Saint John and Shediac Railway will on the whole be very favourable. In one or two instances only is it probable that curves of so limited a radius as 2000 feet will be necessary.

§ 16. With the exception of that at Lawler's Lake, the rock-cutting will be insignificant. The earth-work generally will be light, of a quality suitable for a firm road-bed, and easy of execution at common slopes. That between the Bend and Shediac will probably be the heaviest in amount. The largest amount of bridging will fall between Saint John and Hampton Ferry, but with many facilities for its effective and economical construction. There will be no other expensive Bridges on the Line. The number or extent of these structures cannot at present be stated.

§ 17. The foundation of more than one half of the Line may be constructed by piling, a method which has been proved in the United States to be thoroughly effective in securing the all important quality of a Railway, stability of foundation, especially where the ground is liable to be periodically overflowed, and where the transportation of any other material proper for the road-bed would be too expensive as well as more liable to disturbance and injury. This method is not more remarkable for its efficiency than for the lightness of the cost as compared with other methods, and has many advantages. The chief objection to its employment is the perishable quality of the material. But if any effective and sufficiently economical preservative process could be applied, that objection would vanish.

§ 18. [This section refers to the relative durability of the wood generally used for piles in the United States, and the larch of New Brunswick, posts of which of 40 years standing, are still sound.]

§ 19. The present occasion does not permit of reference to the details of construction. It will be sufficient to say that local circumstances and facilities hold out the assurance that the road may be completed within the limit of the average cost of similar works in the State of New York; to some of which it will have more resemblance than to those of New England.

From authentic Tabular Statements which have been published, the average cost of some of the principal Lines of Railway in the States of New York and Massachusetts respectively, appears to be £5,649 currency per mile in the former, and £9,788 currency per mile in the latter, in each case for a single track.

The method of construction, and the conveniences to be provided, would require mature consideration. They ought to be as perfect as the circumstances and reasonable prospects of the Line will warrant.

The daily accumulating knowledge and experience on the subject elsewhere, should be amply consulted, and above all, it is desirable that no expenditure should be commenced until the necessary means are secure for completing such divisions of the Line as may be profitably opened with the least possible delay; nor until a system for the control and management of such expenditure shall be so devised and arranged as may best ensure efficiency and a true economy.

§ 20. The division of this Line most obviously indicated as the portion which may first be constructed and opened with the surest prospect of an immediate return, is that connecting the Harbour of the Bend with the terminus at Shediac.

§ 21. The convenience and sufficiency of Shediac as an entrepot for the object in view is not questioned. It is within 60 hours communication by steam from Quebec. It nearly equally divides the great arch of coast which forms the western boundary of the Gulf of Saint Lawrence, extending from Cape North to Cape Gaspé, a distance of about 450 miles, embracing in that extent a soil of acknowledged excellence; and fisheries, the ultimate commercial value of which, to these Provinces, would perhaps be dearly exchanged for the more dazzling treasures of other coasts. The fertile Island of Prince Edward lies almost in view of the Harbour, and the coal mines of Pictou within a few hours sail. Indications of coal also every where surround this important locality; and from Saint John to Shediac, in addition to lumber and most descriptions of farm pro-

duce, limestone, freestone, gypsum, salt, and iron, in abundance, will eventually become tributary to the traffic of the line.

Independently of these considerations, the intrinsic importance of the Harbour of Shediac to Shipping frequenting the Gulf, is thus stated by Captain Bayfield :

“Shediac Harbour is the easiest of access and egress on this part of the Coast, being the only one which a vessel in distress can safely run for as a Harbour of Refuge. The space in which shipping may be moored, in from 12 to 17 feet at low water, is three quarters of a mile long and from 170 to 300 fathoms wide. The depth that can be carried in by a good Pilot is 14 feet at low water, and 18 feet at high water in ordinary Spring Tides, and the bottom of the channel is of mud, as is also the Harbour within. Although a slight swell may be felt in this Harbour at high water, in a north east gale, yet it is never sufficient to endanger in the slightest degree a vessel with good anchors and cables; even in the Bay outside the Bar, a vessel would ride safely in any gale not unusually strong for the Summer months.”

§ 22. The extent of navigation which would be saved by this communication between the Ports of Saint John and Quebec, would generally be from 500 to 600 nautical miles.

§ 23. It has been a cherished scheme almost coeval with the first settlement of the Province, to intersect the Isthmus separating the Bay of Fundy and the Gulf of Saint Lawrence, by a Canal. The absence of such an advantage has doubtless been very unfavourable to Inter-Colonial intercourse. But now that this enterprize remains in abeyance, it may be no cause of regret that the desired communication is not dependent upon a work of questionable expediency, as well as very doubtful practicability. Besides being more costly and liable to damage, a Canal sealed up for several months in the year, could not be equal in commercial value to a Railway.

§ 24. In touching upon the question of the probable cost of this Railway it seems proper to remark, that in the cost of those to which reference has been made, an expenditure equal to about £2,000 currency per mile is included for the heavy iron Rail and its necessary appurtenances and fastenings. The Plate Rail now generally abandoned as insufficient, might probably cost half that sum. It is true that Iron Rails could be procured by this Province from England at a lower rate than they can be obtained in the United States; but it is doubtful that the difference would exceed about £500 per mile in our favour, even at the present low rate of the material. By the adoption of an efficient iron Rail, a charge of about £1,500 currency per mile would therefore be necessary, amounting upon the whole Line, for a single track only, to the large sum

of £162,000, of which £24,000 would fall upon the Bend and Shediac Division.

Now if by any method of construction all the essential qualities of a good Railway can be obtained, without at least the immediate necessity of this heavy charge, it will be agreed that in the present circumstances of the Province, it is desirable that such method should be fairly tried.

The saving in the item of iron alone would go a great way towards constructing a branch extension of this Railway through the most populous and fertile part of the Province to Fredericton, within a distance of 55 miles.

If on the assumed dispensability of the Iron Rail, we therefore deduct the sum of £1,000 from the average cost of Railways in the State of New York, (the light plate Rail only until recently having been used on these Roads,) we have the probable sum of £4,650, as the extreme cost per mile. This, taking into consideration the difference in value of Timber in favor of this Province, may be regarded as a safe limit for present guidance. It is in fact, exclusive of the iron, equal to the cost of some of the best Lines of Railway in Massachusetts, not perhaps more easy of construction than the greater part of that between Saint John and Shediac.

§ 25. Upon this basis the cost of the division between the Bend and Shediac, for the distance of 16½ miles nearly, would be £74,400.

The successful opening of this portion of the Line would be a sure augury of the rapid construction of the remainder to Saint John. It is perhaps the shortest and most desirable experimental line that could be constructed in the Province, and holds out the best assurance of success.

§ 26. Upon this point we are not left altogether to conjecture. By direction of the Government, during the past Autumn, the travelling at six different stations in the Province, was registered during three months by persons appointed for that purpose.

The Autumn, however, is considered the least favourable season during which to form an estimate of the aggregate of the year, as the rural population are then more restricted to the business of their farms. At other periods the highways frequently exhibit long unbroken lines of vehicles, demonstrating by the numbers, circumstances, and travelling disposition of the people, that the period has arrived for the introduction of the rail.

§ 27. But in almost every instance the immediate consequence of the opening of a Railway is a vast increase of the number of travellers, varying from 100 to even 1,400 per cent.

Assuming, therefore, on the evidence of experience wher-

over Railways have been established, that the increase of the ordinary travelling on the Saint John and Shediac Line will not fall short of at least 100 per cent. over that already in existence, and admitting that portion of the travelling at the Bend which inclines towards Dorchester, as not forming a part of that which would belong to the division between the Bend and Shediac, we have  $(21, 925 - 5, 045 \div 8) = 127, 832$ , as the lowest number of passengers which may be counted upon during the first year's operation of the Railway.

Estimating the gross revenue to be derived from these at 1½d. each per mile, or 2s. for the fare through, the amount would be	£12,789
Add for freight of merchandise and goods of all kinds at the assumed equivalent of 200,000 barrels at 6d.,	5,000
Total gross revenue,	£17,789
If we take the working expenses of the Line at the average of 38 per cent. of the gross receipts, according to experience in the State of New York, then from the gross revenue of	£17,789
Deducting 38 per cent.,	6,700
The net revenue will be	£11,089

Or 14 8-10ths per cent. net return upon the whole cost of £74,400 for the first year, and which, as in other instances, may be expected steadily to augment in succeeding years. But of this say three per cent. should, with a view to safe management, be carried to a reserve fund against depreciation and renewals, leaving a clear dividend of 11 8-10ths per cent.

If to the first cost be added £24,000 for the supply of Iron Rails sufficient for heavy traffic, then upon the total cost of £98,400, the net return would be only 11 2-10ths per cent., from which deducting a reserve of three per cent. as before, a clear dividend of 8 8-10ths per cent. would remain.

I have the honor to be Sir, your most obedient servant,

J. WILKINSON.

To the Honorable John R. Partelow, Provincial Secretary.



