THE

CANADIAN PACIFIC RAILWAY.

AN APPEAL

TO

PUBLIC OPINION

AGAINST THE RAILWAY BEING CARRIED ACROSS THE SELKIRK RANGE, THAT ROUTE BEING OBJECTIONABLE

FROM

THE DANGER OF FALLS FROM GLACIERS AND FROM AVALANCHES,

ALSO,

GENERALLY ON OTHER MATTERS.

By PHILO. VERITAS.

ACCOMPANIED BY A MAP.

PRICE 25c.

MONTREAL:

WM. DRYSDALE & CO., 232 ST. JAMES STREET.

1885.

Entered according to Act of Parliament in the year one thousand eight hundred and eighty-five, by WILLIAM DRYSDALE & Co., in the office of the Minister of Agriculture and Statistics at Ottawa.

A SECTION OF THE MAP
OF THE
NORTH WEST
SHOWING PRESENT LOCATION
OF C.P.R.R. OVER THE
SELKIRK RANGE

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"Quandoquidem populus decipi vult decipiatur."—*Cardinal Caraffa.*

["Seeing that people are willing to be deceived, let them be deceived."]

"Après moi le deluge."

["When I am gone, the deluge may come again."]

"Ay, to the proof; as mountains are for winds,
That shake not, though *they blow continually.*"

Taming of the Shrew.—Act II, sc. 1.

AN APPEAL TO PUBLIC OPINION.

CHAPTER I.

Every statement made with regard to the Canadian Pacific Railway not meeting the views of the Syndicate; every effort to penetrate the mystery of its condition, and to weigh the justice with which it asked for the extraordinary additional assistance it obtained in the last Parliament; every criticism which tends to establish its precise relation with the country, is met by the outcry, that an attempt is being made to depreciate the resources of the Dominion, and to vilify and blacken the character of the Directory who rule the fortunes of the Company.

Nothing can be so unwarrantable as this outcry. That line of conduct which is just, fair and honest cannot be affected permanently by calumny. Especially when the project considered has a powerful and almost unanimous support in the public press. Moreover, which is defended by a close phalanx of individuals who, identifying the cause of the Railway as their own, step forward on the least occasion, with all the violence of partizanship, and often with its want of judgment, when the most temperate doubt is expressed on the expediency of some measure under discussion.

It is true that a false statement, a malicious attempt to cause injury, may lead to temporary misunderstanding, and may create an unfair impression of the resources and competence of the parties who are directing a scheme of magnitude. But, if not based on truth, the injury can only last for the time that the falsehood remains uncontradicted. In a few hours or days the truth becomes known, and, irrefutably established, there is a perfect revulsion of opinion in favour of the interests which have been assailed, and the unwarrantable, dishonest attack recoils on its author.

Even if there be unjust attacks against the Syndicate, they have themselves to thank that such is the case. Nothing was plainer than the policy which they ought to have followed towards the public. It was each year to have presented to the monetary world a straightforward statement of their affairs, and specially to have addressed the Canadian Public in the form of an Annual Report. The line itself claims to partake of a national character. Indeed, it is

a marked violation of the law that such has not been done. The relations of the Company with the Government exact a full report of their affairs to the Minister of Railways and Canals, to be included in his Report submitted to Parliament, and authenticated or commented upon by the Government Engineer of Railways. The Railway authorities have followed precisely the opposite course. They have made a mystery where none should exist. With few exceptions all who in any way endeavoured to understand what statements have been made to Parliament have been forced to abandon the examination as a puzzle impossible to disentangle ; or, if within the reach of ultimate mastership that it exacted so much time that the effort to obtain the information had to be abandoned. All the documents which we possess are those which have been obtained through Parliament on the application for the thirty millions of dollars. They seem gathered together with the desire to create confusion. Matters of no account are given page after page. Several documents add to the bulk without increasing our information. We have given in full, an application for a payment by the Company, the report of the Engineer on the application and the Order-in-council granting the money; all of which simply swells out the matter profitlessly. When we come to the figures themselves they are hopelessly complicated ; classed in single lines of immense amounts, unexplained and full of intricacy and confusion. It does not want much law for a man to act towards his neighbour honestly and decorously. It requires little of the technical knowledge of the accountant to follow a clear statement which shews the condition of a project and its claim to public confidence. In such a case, however, we require the appeal to our understanding to be clear, distinct and intelligible. But the statements presented to Parliament by the Canadian Pacific Railway may be classed among the most remarkable on record. A single line involving millions is unaccompanied by the slightest item of explanation. The very word voucher, seems to have no place in their vocabulary. Men who, in their own affairs, do not pay a single account without full detail, without the clear specification of each item, expect the world to accept an unsustained statement of an expenditure from its magnitude, and the known circumstances under which it is made, we are not prepared to accept without close investigation. It looks as if we are asked to believe on no other ground but the one urged by the old schoolmen why the miracle should be credited, because it was impossi-

ble : *quia impossibile est.* It is the only pretension on which credence can be claimed for the Syndicate statements.

I use the word Syndicate because I believe from my heart there is none other to represent the control exercised over the affairs of the Railway. The Syndicate is now represented by Mr. Stephen, Mr. Angus and Mr. Van Horne. Mr. McIntyre in the early stages of its history was an active agent ; but he has retired from the position he held. At all events it is so stated in the press, and no contradiction has been given. Moreover, his place on the Board of Directors has been filled up. Mr. Donald Smith's known resources and his admitted great wealth have led his name to be prominently identified with the Railway. To what extent he has been an active member is not known. Public opinion, right or wrong, assigns to him the position of having acquiesced in the policy of the Company, rather than to have actively interfered beyond the matter of finance. His high unquestioned credit and his known wealth made him indispensable, especially when the assistance of the Montreal Bank was appealed to, as the public papers shew.

It is useless considering the extent to which Mr. McIntyre has influenced the policy of the Syndicate, for, if the published relationship can be relied on, he has ceased in any way to influence their proceedings, especially in the crisis of the hour.

The reason that the word Syndicate is adhered to in these pages, although the Company has been formed four years, and a nominal list of Directors appears as presiding over the fortunes of the Company, is that the list of Directors is evidently simply a legal compliance with the necessities of the case. The holders of stock are given in the Parliamentary papers. The reader must form the opinion that, excepting with those directly connected with the Syndicate, it consists of men who have purchased it for speculation, and not as an investment. As you read through the 590 names which appear in the list of those holding 550,000 shares, you discover that no shares are held in Toronto, or western Canada ; 57 are held in Ottawa, with 500 by Mr. Sandford Fleming ; about 1000 in Montreal, including 370 by McDougall Bros., and 375 by H. C. Scott. Independently of this amount, Mr. John Cassils appears as the holder of 2925 shares, Charles Cassils 500 shares. Both gentlemen, I believe, are connections of Mr. McIntyre.

The Syndicate list of shares is :

Mr. R. B. Angus,	15,000	shares.
Mr. George Stephen,	31,222	"
Mr. D. McIntyre,	20,260	"
Mr. Van Horne,	4,705	"
Mr. Donald Smith,	23,290	"
Total,	94,477	"

In connection with them we may include the name of Mr. Harry Abbott, the holder of 1000 shares.

It is not possible to pronounce any opinion with regard to the shareholders as they are set forth in the list of ten pages. Many well-known names appear for limited holdings. The larger number of shares seem to have been taken up by banking firms. As a list, the names suggest few points of criticism. It may, however, be said that the shareholders have taken no interest in the proceedings of the Company as such. It would appear that the stock has been mostly bought, or held in trust, on the theory that on the price paid for it, it was an investment which might prove profitable, or that there would be a rise on the stock, at the period purchased. I can find no trace of any desire to interfere in the operations of the management.

The leading persons who now stand before the public as the active members of the syndicate are, Mr. Stephen, Mr. Angus, Mr. Van Horne.

Mr. Stephen is known for many years in Montreal as the enterprising head of a large dry goods firm, and as a Director and President of the Montreal Bank. In the construction of a Railway he is entirely inexperienced. He is altogether unacquainted with the details and principles of construction. He has brought from his original profession his knowledge of finance, and his general knowledge of business, necessarily of a wide character. With Mr. Angus, his attention has evidently been given to the finance of the Company. He has, also, appeared as the exponent and defender of the policy of the Company, a duty entailed upon him as the President, and in all extraordinary emergencies, the letters of explanation, of remonstrance, and of application to the Government have borne his signature.

Mr. Angus is equally well-known. Without family interest, or extraordinary influence, he worked himself to be the Head General

Manager of the Montreal Bank. A record in all respects creditable to himself. His peculiar duties evidently have been in the way of finance.

It is not the first time that Mr. Stephens and Mr. Angus have worked together in matters of finance. Mr. Stephens was President, while Mr. Angus was General Manager of the Montreal Bank. Public opinion in money circles, and in commercial life in Montreal, has criticised their operations with some sternness with regard to the Saint Paul, Minneapolis and Manitoba Railway. The results turned out prosperously, but reports of their non-success unfavorably affected the stock of the Montreal Bank, which on one occasion dropped as low as 120.

But I will not enter upon that matter here.

Mr. Van Horne, the third of the triumvirate, has no Montreal antecedents. He has had some experience in Railway life; when and to what extent is not known in our community. Report states that he was introduced to the Syndicate by a Mr. Hill, of Saint Paul, as a man of great energy and force of character, capable of pushing on the work rapidly. No one who knows Mr. Van Horne can fail to recognise these qualities pre-eminently. Whatever his experience, and in what capacity obtained, it may be said that he is strongly marked by those qualities, which we hold to be the attributes of the Western man. Mr. Van Horne is in no way an engineer in the sense in which we speak of the educated, thoughtful men we meet in Boston, in New York, and in the Central United States; equally in our own country of Canada. He habitually expresses his contempt for all the rules, habits and mode of action which mark this school of educated men, from whom he dissents, which they carefully observe, With Mr. Stephen and Mr. Angus to deal with, Mr. Van Horne's force of character and quickness of perception pass for a high order of trained ability.

No one but Mr. Van Horne is responsible for the Canadian Pacific line as it is located and constructed. If there be merit in the extraordinary rate at which the track was pushed along the level prairie, a course of action which with the unthinking has been so extolled, it is his. If there be blame in the choice of route, in the multitude of curves, in the heavy grades in the Kicking Horse Pass, in the prospect of the Railway being periodically crushed and rendered inoperative by the descent of immence masses of snow and

ice from the glaciers of the Ille-celle-waet, or by land slips between Bow River Summit and Kamloops, the fault is his, and he must be held responsible for praise or blame, with regard to the published statements, which from time to time have been published, descriptive of the line, and have now to be criticised and examined by the test of fact.

Mr. Van Horne has had the whole unchallenged direction of the resources of the Company. It is he who at this moment has the full and undisputed control of the expenditure of the thirty millions now being obtained from the Government, and of the twelve millions of additional subsidy obtainable.

No Canadian, be he of the English-speaking race, or one who is actively interested in the theory of creating a distinct French-Canadian nationality, as an individual, can have the least elation at Mr. Van Horne's success, or feel sympathy with his downfall and failure. From the commencement, Mr. Van Horne has ignored Canadian ability, energy, education and experience. Himself from the Western States, he has as little faith in our genius as a people, as he has respect for the trained and educated Engineer, whether he be found at New York or Montreal. He has shown this, fully, in the choice of his agents. The combinations under which he worked has forced assistants upon him which he has accepted unwillingly, or removed as occasion offered. His principal assistants and officers are from the United States, and if not as he is—Western men—they follow their mode of action, and claim recognition as having an experience like his own. His construction agents are individuals who work after his school. His deputies are of the same class. Some offices he found filled when he came amongst us. When he could make change he has done so. Some of the incumbents remain as he found them. Different explanations are given why such is the ease, and it is believed that few of the holders of such positions find favour in his eyes.

Report assigns to him the receipt of a large stipend. It is variously named from $40,000 to $60,000 annually. Mr. Stephen, the President, is looked upon as recipient of a salary of $20,000. Mr. Angus, as Vice-President, is said to receive $15,000,

Such are the Directing Agents constituting the Syndicate.

The old system of a line carefully located, and elaborately revised so that no unnecessary curve has been admitted ; in which every step

has been calculated before action is taken, has been set at defiance by Mr. Van Horne. The traveller, as he passes from Winnipeg to the West, looks on the curves of the line behind him, to wonder at their meaningless and causeless existence. The route followed is equally a matter of surprise.

That, however, is a subject specially to be considered.

When criticism is made on any one point of the Canadian Pacific, it is considered a reply in full to state that so many hundred miles on the flat land plain—for with its gradual ascent, the rising grade is not noticeable—in so many months were fully and entirely constructed. Every objection raised, every query made, is considered to be answered by this one fact. You are asked to look upon this movement of rapidity as one of rare merit and ability. You are called upon to admire this wonderful genius and energy thus displayed in the North-west, as a marvellous effort of power without parallel in modern times. It is held to be a fact so important as to set all criticism at defiance, and one that should make complaint and dissatisfaction impossible. It has not even the slender merit of novelty. The same proceedings were followed in the Union Pacific.

CHAPTER II.

It appears to me, at this juncture, pertinent to inquire into two points. First, as to the character of the location which has been followed, especially in its projected passage over the Selkirk Range; secondly, what amount has been expended by the Syndicate between Winnipeg and the first Rocky Mountain summit. With regard to the line between Sudbury and 67 miles east of Port Arthur, we have only the reports of those who have visited it. It is only during this summer that active steps have been taken in the way of construction. No information has been published regarding it. Steps, however, should be taken at the next meeting of Parliament to obtain definite and clear information concerning this division; especially in the matter of curves and grades.

It is currently reported, and believed, that some scheme is being perfected by which additional aid will be asked from Parliament. It can hardly take the form of "reasonable temporary assistance!" It has been surmised that Parliament will be asked to guarantee a loan from twenty to twenty-five years, so that sufficient means will be obtained for the full completion of the work! The future only will show what foundation there is for this surmise.

Before entering into this examination, let me remark that if there be misconception on these points, the fault is not that of the public. The blame lies with the Syndicate, and reducing matters to a fine point, with the one man in power, Mr. Van Horne. If full and clear annual reports had been published, there would be no misconception to-day. Such statements would admit of criticism and examination, and any claim which the Canadian Pacific would advance, would in its justice or injustice be made manifest. But in the extraordinary accounts submitted to Parliament their very insufficiency is without a parallel in the forty years of modern political life. Nothing is easier than to show the cost of a Railway, if the accounts be kept in the usual straight-forward and systemic method by which an educated Engineer makes a record of the work.

It is as well in this place to explain how such accounts are kept, and how clearly they establish the truth of any statement based upon

such vouchers. Indeed, it is only by such a report that any claim as to cost can be established.

In order properly to carry on the construction of a Railway, a line is laid out in lengths of one hundred feet, a stake being placed firmly in the ground at the end of such distance. The first stake is named Station 0, the second Station 1, and so the numbering goes on to the end of the division. For convenience a Railway is divided into divisions, especially when several parties are in the field. Thus any given number of a station determines its locality in a particular division; and by reference to the section, the extent and character of the work is shewn, whether it be cutting or filling; and on the profile or section the grades are marked shewing their height at each station; and the progress of the work is described, according to the sections reached.

It is then according to these stations that the final estimate shewing the cost of the work, and setting forth the amount due to the contractor is made out. Every station presents the record of the amount of cutting or filling of each one hundred feet, the detail of it being made, so that the work can be compared with the original sections, which gives the level on the centre line. And with an Engineer in Chief of experience, and who observes proper discipline, fraud on the part of his subordinates is impossible.

The division for convenience sake is subdivided into sections, and at the end of each section there is a recapitulation of the whole work, according to the detail given for each hundred feet, the length of the station.

The final estimate shews the amount of

Acres Grubbing and Clearing.
Cubic Yards Rock Cutting.
" " Earth "
" " Embankment from borrowing pits, that is, filling obtained from without the prism of the Railway work.
" " Masonry in Culverts, allotted to the stations where they are constructed.
" " Bridge Abutment Piers.
" feet lineal Bridge Superstructure,—or in lbs. of iron, as the case may be.
" " Board Measure. Timber in Road Bridges.
Cattle Guards.
Crossings (Road). Per contract.

and all matters soever in short bearing upon the construction of a Railway, so that the cost is unmistakeable.

In all lines carefully and conscientiously recorded as to the work executed, where the Engineer-in-Chief is competent and up to his work, this proceeding is followed; where it is not followed the absence of this essential and admitted necessity can only be affiliated to the ignorance of the Chief Officer reeponsible to the Directors, or to the desire of the Directors themselves to misrepresent the cost of the work.

There can be no other explanation,—ignorance or fraud.

Equally there is invariably a report of the curves and grades. As the locomotive has grown in importance and in power, there is a tendency to abandon the old principles which regulated their limits. The early Engineers considered a curve of about a mile radius the normal condition to be observed. On this continent what is known as a 1° curve, 5730 feet radius was held, and is held to be a limit by the school of Engineers, who work with a sense of responsibility and a knowledge of cause and effect. On the other hand, it is remorselessly set at defiance by such persons, who, without education, fate has pitchforked into prominent positions. Ignoring all past experience, without any rule but that of expediency, and their own mere opinion, in their arrogance they set at nought all those principles which men carefully trained never violate. Hence the many unfortunately located Railway lines on which public money is wasted.

I recollect a comic song in fashion a few years back, for even in Music Halls taste changes, and the serio-comic business of to-day is a different matter to the then witty, cheerful ditties, interspersed with monologues. Carefully written, under their levity they often conveyed the best of philosophic teaching and moral suggestiveness; and even now in many instances are more than readable. The particular melody which rises to my mind, had the *refrain* of "Push along, keep moving." With many men of the hour, who have obtained marked prominence, it is this doctrine which seems to be the be all, and end all of their efforts. With such as these the time in which the work is constructed is shewn as the proof of its excellence, as if it were a match against time—such as walking one hundred miles in one hundred hours. Prodigious! Wonderful! cry the irreflecting, for they take no note of the character of the work thus rapidly

completed. And if the work be a Railway they never stop to enquire what are its characteristics.

One of the first essentials of a high-class Railway is that it possess public confidence; first by its solid and careful construction, and secondly, by the character of its curves and grades. Accordingly, the publication of such a table should never be omitted. It states what is the rise in the one, and the opposite direction; the extent the curves are blended with the grades, and what these curves are. Indeed, such a statement is no little guarantee to the public mind with regard to the Railway they are dependent on.

No Chief Engineer with a sense of responsibility admits a curve unnecessarily in the work. When the location is sent in to him by the Division Engineer, he goes carefully through it. But a class of men have found their way amongst us who in no way look to the alignment. They unroll the profile and judge the location according to the lightness of the work. The Bank Manager when a note is placed in his hand for discount considers the character of the endorser equally with that of the principal. One who is experienced turns to the location map to note at what cost the condition of the work is attained. He can see at once what the weak points of the location are. Where sharp curves can be thrown out, where the transfer of the line to some little distance with a modified direction gives promise of a more satisfactory alignment. The work is revised throughout, and all concerned are satisfied that no better line can be obtained. Those who have not taken this course can form little idea of what important results can be obtained.

On the other hand it is mere pedantry to ignore the cost of work to obtain curves of large radius.

I have mentioned that on high-class roads in the United States and Canada, that the one degree is the normal curve. It is so called because an angle of 1° subtending a base of 100 feet in an isosceles triangle has its sides of 5730 feet. In a circle of this radius, the chord and the arc in the length of 100 feet are almost identical. For practical purposes they are so, and hence the choice of this curve. There are occasions, however, when it cannot be introduced without great cost. The question then arises how to fit to the ground, a curve which the amount of work the Engineer is prepared to admit at this spot will justify.

There are many young men engaged on the work of location who are useful in the subordinate position of putting a line on the ground, but who are deficient in the judgment and experience necessary to determine its direction. Under the control of an accomplished Chief Engineer they trace out a line, subject to his criticism, and brought up in a good school, they themselves finally attain the knowledge and experience to conduct important operations. But subordinate to men of the driving school, their very faults and errors become magnified. They think only of the progress they make. They cast no thought on the value of the progress. It appears to them a loss of time to revise work. Winding through a valley that requires judgment in the choice of ground, knowing that no criticism will be given as to the form and composition of their line, only that their work be light, the result which they obtain is often a series of curves, one running into the other, reversing and connecting with varied sharpness of curvature, forming on paper such a series of crooks that the competent engineer can only explain its appearance by his belief in the utter incompetence of those who directed the proceedings.

In the working of Railways, curves are most objectionable, even in the best of climates, owing to shutting out of the view of the engine driver all of the line before him, but a limiied length of it. For in sharp curves there is but little of the track to be seen in front of the locomotive; hence, the more constant fear of accidents, especially in dull weather, when the sense of sound is more obtuse. If the curve be in any way out of order, especially with regard to the height of the outer rail, there is the greater risk of the engine by its centrifugal force jumping the track. In Railways where great speed is to be observed, such curves are highly objectionable. At a low rate of speed, a locomotive can pass round any curve, it is astonishing how small the radius. But when we give the locomotive the impetus of a high rate of speed, the greater the danger. Many of those I have described speak of the improvement of the locomotive in the last twenty years, and with some look of derision tell us it is no longer what it was a few years back. The improvements have been in power of traction and in the ascent of heavy grades, within a certain limit, not in the power to run round sharp curves at a high rate of speed. The danger of the engine leaving the track is as great as ever. With its increased weight and impetus the danger is greater.

I have entered into these points in the matter of locating Railway lines, not that it is necessary to bring it under the notice of all who may read these pages, but from the consideration that there are many who are unacquainted with them. Frequently, when stating facts, it is necessary to lay down principles by which they must be considered, otherwise the force of what you may advance is lost. This is particularly the case, when I show how simply the true cost of construction can be proved. No one can deny the correctness of the view I have expressed. It is essentially necessary that the principles which I have set forth be borne in mind, as the remarks which I make are read and considered, for they cannot be explained away.

Myself, since the days of the Syndicate, I have never seen a table of curves and grades. I have made diligent inquiry; I cannot learn that any has been published.

I will proceed now to consider the location of the Railway in the distance from Winnipeg to connect with the Government line at Savonna Ferry.

CHAPTER III.

Previous to entering upon any examination of the present location it is necessary to refer to the antecedent circumstances which will throw light upon it. They have so far a bearing upon the proceedings of the Syndicate, that they will either fully justify them, or, on the other hand, they will attach to them the extent of reprehension under which they should suffer. Be the result what it may, it will have the effect of bringing clearly before the public mind the several points at issue, and there will be the first condition of getting at the truth : a straightforward, fair relation of the facts.

It is important to know that for many years, certainly for half a century before the Syndicate commenced their operations, no portion of British Columbia was so well known as the River Columbia. A glance at the Skeleton May I append will make the matter more clear. The Hudson Bay Company entered the main land from the Pacific by this river, and previous to the establishment of the present Oregon Boundary, not a single citizen of the United States was to be found on the north side of the river ; or, if any such were there it was by accident, as the servants of the Company. They ascended to the Boat Encampment, and thence continued their ascent south to its source, to take the Howse, or Kicking Horse Pass. At the Boat Encampment the River Athabasca was followed to its tributary, the Miette, leading by the chain of lakes and streams to the Yellow Head Pass, called also the Leather Pass. As the Canoe River was taken, which led the *voyageurs* by a small portage to Alfreda Lake. The trail, however, generally followed, I am told, was by Cranberry Lake through the Yellow Head Pass to Alfreda Lake, whence the descent was made to the Clearwater to its junction with the north branch of the Thompson, to Kamloops, and thence following the Thompson to its junction with the Fraser at the present town of Lytton. Consequently there was nothing to be learned of this part of the country. One fact was especially known that the Yellow Head Pass was the lowest of the Passes, that its approaches, east and west, were better than any other, particularly in respect of climatal condition and the excellent character of the land.

The Kicking Horse was also known. Certainly, since the days of the Palliser Expedition, Dr. Hector having been kicked by a horse there; hence, its name. It was also a fact, well ascertained, that from its summit you descend by the Bow River to the plains. Mr. Trutch's map of 1871 shews the Eagle River running to Shuswap Lake with the Eagle Pass descending by the Skon Konchon, having its mouth opposite the Ille-celle-waet. The latter has its sources among the glaciers of the Selkirk range. Equally a nameless stream, since called the Beaver, is shewn descending the eastern slopes of the latter.

Mr. Fleming's operations commenced in 1871. He was engaged upon them for ten years, when, to use the euphemism of the Order-in-Council of the 22nd May, 1880, he was "relieved from the duties and responsibilities connected with the office of the Engineer-in-Chief of the Pacific Railway;" and this was the reward of ten years' arduous service and devotion to duty in directing the surveys of the Canadian Pacific.

When Mr. Fleming took up the examination of the country from Lake Superior to the Pacific Ocean, he entered upon the examination of an immense territory almost unknown. Some of the better known localities had attracted attention, but the truth of the claim preferred concerning them had to be tested and considered. There were many important points involved in the determination of the Terminus. There was one fact only which was a matter of common faith: the value of the Yellow Head Pass. It was recognized indisputably as the best. At the public dinner to Mr. Trutch in Ottawa, 10th April, 1871, that gentleman pointed out that the line would certainly pass between Leather (Yellow Head) Pass, or Howse Pass. He, himself, drew no comparison of routes. He spoke, however, of one feasible in his own experience, much of which he had passed over. From the mouth of the Fraser, following up that river to one of its tributaries, the Thompson, to the south branch of that river to Shuswap Lake; thence through the Eagle Pass, across to the summit of the Gold Range, and ascend from the Columbia by the Blackberry River to the summit of the Rocky Mountains by the Howse Pass.

All that Mr. Trutch knew of this route, was what he had passed over on horseback or on foot; and it is precisely the ground over

which it was physically impossible for him to pass the Selkirk range, that there is any question to-day.

These remarks are valuable in this respect that they establish that at the very inception of the undertaking the route of the Selkirk range attracted attention. Howse Pass figured prominently in Mr. Fleming's first report, 10th April, 1872. As a possible pass it was mentioned in common with the Yellow Head, and thus the route by Shuswap Lake is brought into prominence.

In this report, page 2, the following significant words appear, which, read by the light of present events, must have marked weight:

"Finding that Kamloops could be easier reached from the eastern slope of the Rocky Mountains by the Yellow Head than by the Howse Pass, there was no longer any object in continuing operations east of Kamloops on the latter route. This led to the adoption by the Government, on the 2nd inst., of the Yellow Head Pass or the *gate* (sic) to British Columbia from the East."

In the same report, page 36, Mr. Walter Moberly reports that the Selkirk range, "I consider quite impracticable for a railway."

Even on the commencement of operations there was much general information as to the leading passes across the mountains. Except the Selkirk range their features were known. The two leading passes, however, were those above named.

Yellow Head Pass was known to be the lowest, but it likewise possessed the marked excellence of being free from climatal objections. It presented no risk of the fall of glaciers, or of being impeded by avalanches and land slides. The approaches, east and west, were believed to admit of the usual maximum grates used on first-class railways, 53 feet to the mile; 1 in the 100. It offered fair directness of route without extremely sharp curves, while its geographical position directed the line from the east through the best land in the North-west.

On the 2nd April, 1872, the Yellow Head Pass was established by Order-in-Council. Its selection remained unchanged until 1882, when a special clause was included in the Act of that year, to the effect that, with the approval of the Governor-in-Council, some other pass may be taken, provided that it be not less than one hundred miles from the boundary line. One can almost read in this enactment the pre-determination to change the location regardless of cause and result.

The question of location westwardly from the Yellow Head was complicated at an early stage by one of those mischievous acts of interference which lead to political pressure on a Government which, without convictions of its own, seeks by compromise to satisfy the most opposite interests. Such was the project of connecting the railway with Vancouver Island by a bridge over Valdez Island. Those who, with little idea of distance on a map, saw on Trutch's map of 25 miles to the inch Valdez Island in the centre of the Straits of Georgia, at once concluded that the interval could be bridged. Of seven spans, six were more than 1000 feet, the least opening being 1100 feet, the widest 1350 feet; the exception below 1000 reached 640 feet. The depths to be overcome, I never learned. It is not of importance to waste time in search of the precise figures to-day, but the report tells us "the channels are of great depth, with a tide from four to nine miles an hour." (Report, 1874.) Nevertheless, this bridging found advocates. The public took little trouble in examining into its magnitude, and, however blatant the utterer of an absurdity, he generally finds listeners. Consequently, Bute Inlet as the terminus came to be generally considered by an active clique of men, who made themselves heard. For a short period, also, the Peace River route to the north was seriously considered for the time to come out at the Skeena. But on this latter point there was not general assent, and there were many proposed modifications of the line.

In fact there was a simple principle by which the location only should be governed. The acute intellect of Lord Dufferin early saw it, as did many Engineers who studied the subject. It was to reach the sea as soon as possible. In other words to gain a commodious harbour in the least distance. In this point of view Burrard Inlet was recommended by Mr. Fleming, and adopted by Mr Mackenzie, the present terminus, Port Moody, being acquiesced in.

This decision was thus made by Mr. Mackenzie. It is now universally accepted as the wisest which could have been made. On that point at least no effort has been made to defame Mr. Mackenzie's reputation.

I have set chronology somewhat at defiance in not dealing with the Eastern Terminus. But it was necessary, before doing so, to make plain what the Western objective points were. The governing point of location from the East was the Yellow Head Pass. The first

question on starting from Lake Superior, was to determine whence the line should take its origin. Two localities claimed consideration. Port Arthur and River Kaministiquia. Port Arthur is exposed to Southern gales. It would require an expenditure of many hundred thousand dollars to secure shipping against them. The second locality was the River Kaministiquia. The bar leading to its entrance is 3,500 feet across, which requires dredging, and some work of this character is necessary in the river. But the river offered the advantages nowhere attainable, with deep water, where a fleet of steamers can lie, whence they can with ease enter and depart, and where, wharves the most commodious can be inexpensively constructed. So manifest are these advantages that the Canadian Pacific Syndicate have made this river the harbor for their boats, and the Public Works Department are improving the approaches over the shoal. An improvement commenced, and most satisfactorily carried on, under Mr. Mackenize; on his resignation to be summarily abandoned, now once again to be undertaken.

Therefore the claim of Mr. McKenzie to public consideration for having wisely chosen the River Kaministiquia as the Lake Superior Harbor for the Canadian Pacific terminus, has been fully vindicated. It was from this locality the starting point of the line commenced. Under the direction of the Syndicate, the railway connection with Lake Superior has returned to it after four years of intrigue, misdirected effort and misrepresentation.

The survey of the line was commenced in 1871, and in 1873 came before the world what will hereafter be known as the first Pacific Scandal. Sir John Macdonald saw that the vote of Parliament would be adverse to him, and in preference to the facts coming fully to light in the debate, and so placed on record against him, he resigned. The new administration of Mr. Mackenzie was announced on the 7th November, as having been formed.

The great argument relative to the first Pacific contract urged against Sir John Macdonald, was that he awarded it to the late Sir Hugh Allan, with the design of obtaining money to influence the elections. To my mind, there was the greater crime of *lèse majesté*, high treason against the people of Canada, on the part of Sir John Macdonald,in the fact itself of taking the contract out of the direction of the Government, and placing it in private hands. It was precisely

the work of which the Government should have kept full control, and have carried on by subordinate agents, sectional contractors.

Admitting that the contract had been awarded on no other plea but that of policy, and that it was a matter of faith, that it was essential to the well-being of the community that the work should be taken out of the hands of the Government, and that it was advisable to place the work in private hands, the proceeding was mischevious and dangerous in every respect. Even Sir John Macdonald, appearing as the guardian of public virtue and morality, his policy on the score of expediency had not a shadow of merit to commend it, and called on all sides for condemnation.

Nothing was known concerning the line, either of the extent of work, or the direction it should take. One fact only was established in reality; the Order in council of the 2nd April, 1880, which made the Yellow Head Pass the locality at which the Mountain Range should be crossed. A decision which this Government, in a few years, was so pointedly to ignore. The cost of the work, even at a most general approximation, was unknown. The very point at which it was to strike the Pacific Ocean was undetermined. But, even in those wild days of legislation, Sir George Cartier's Act of 1872, limited the subsidy to thirty millions of money and fifty millions acres of land. But to give a contract on the knowledge then possessed by the Executive officers of the Government was a crime as serious as the threatened vote of the House of Commons would have stamped on Sir J. Macdonald; that of having entered into an arangement for the disposal of the contract for corrupt purposes, having even received money on account. A vote before which the chief actor quailed and resigned his Premiership.

Those political supporters who still sustain Sir J. Macdonald, continue to lay down the principle that such a gigantic work can never profitably be performed by a Government for it brings with itself the elements of demoralization and corruption. It is one of those convenient doctrines by whieh men fight round a dilemma rather than meet it. I believe that all thinking men must be of the opinion, no error is greater than that contained in the proposition. The proof is shown in the very condition of the work itself to-day. The really difficult portions of the line which have been completed; the heavy, massive work exacting, expenditure of money with engineering skill; all these portions have been undertaken and have

been completed, or are nearly so by the Department of Railways. The distance in Mr. Fleming's line from Fort William to Pacific waters was 1946 miles. The extent of the heavy and difficult work lay at the two extreme ends.

From Lake Superior to Selkirk	408
From Kamloops to Port Moody	215
	623 miles.

Something less than one-third of the whole on Mr. Fleming's line embracing all the heavy work. Of the 1300 miles, 900 were light in character. The remaining 400 miles had some heavy cutting, but offered little difficulty to men of experience. Even on the present line, 964 miles, from Winnipeg to the summit, have proved to be of the slightest possible description of work. It has been carried on with perfect ease by an ordinary organization, and very little effort. It did not present the slightest difficulty of construction.

Thus, on the Canadian Pacific Railway, as it was first located, the really difficult work was done by the country. The extreme work, and the objectionable features of the route from the summit of the first range on the Syndicate route did not come into calculation on the Mackenzie line. They did not exist.

What I am desirous of showing is that the true principle by which the Railway should have been constructed was to keep it under the control of the Government. It was the Department of Public Works which constructed the Canals in 1841-42. It is the same Department which has since consummated the enlargement of the Welland and the Lachine Canals, and which is now engaged in the completion of the remaining links. It was the Government which constructed the Intercolonial Railway. Any faults and blemishes in its location such as that which is known as the "Grecian Bend" in Nova Scotia, and the diverted location at Moncton, New Brunswick, with other blots on the work, are doubtless attributable to the greed of politicians, and the weak compliance of the Executive. But to the end the Department held control of the Railway, and it was finished as a Government work. The whole history of the country is against the theory that public works are best performed by a Company.

No one at all accustomed to public life, looks for ideal virtue in any form of popular Government. Living on popular support, an Executive has to do much to retain that support which many of its members and the best of its supporters would wish undone. A

claim for service is preferred, and it depends by whom it is enforced if it be recognized. In a country with a strong healthy public opinion, as in England, there is a limit to the extent of compliance. A Minister with the great body of the people to sustain him can take decided ground, and really make the common interest a governing principle. With us in the Dominion public opinion is more difficult to awaken. Generally it is faint, timidly expressed, and wanting in concreteness and form. In public questions men are often taken by surprise, and with the truest desire to do right, do not see their way to do so. They are often bewildered by the boldness of the assertions of those preferring a claim. They have no facts before them, assured and undoubted, by which their judgment can be guided and directed. In my humble judgment, they fail in this respect as much as on any other ground.

In the advances of the Canadian Pacific Railway of last session, thirty-two millions of dollars, all the real facts of the case were carefully suppressed. I repeat the word deliberately, suppressed. And when exacted by Parliament dishonestly, given, as I will prove, before I complete these pages. The case itself was met by all sorts of special pleading. In what was the difficulty with regard to the Syndicate of the Canadian Pacific different to that of any other contractors? In the event of a firm appearing before the Minister of Railways, and producing what he calls his expenditure to show his solvency, and claiming that he could not carry on his work without an advance, and demand an additional payment of money in excess of that he agreed to receive, the work would at once have been taken out of his hands and measures adopted to carry it on otherwise. But there was such a cloud of bewilderment created about the Syndicate, their resources, the work accomplished by them, their wonderful energy; the whole being made subservient to party ethics and political fidelity that men did not know where the truth lay. Hence the vote of the last session of Parliament according the terms of relief granted, without a precedent in history and entirely at variance with every principle of right, expediency and good Government: in itself an outrage to public morality.

CHAPTER IV.

Mr. Mackenzie entered upon power amid all the political chaos which lately disclosed events created. There were no assured details to suggest what should be undertaken, and there was no policy generally accepted as one to be followed. The future was one of uncertainty. The one great project of the construction of the Canadian Pacific Railway lay before him, with the Order-in Council of the 2nd April, in which the Yellow Head Pass was affirmed as the line of crossing the mountain range.

It was not to be expected that this project, so important, and involving such immense interests, should be kept free from the complications of theory which are observable on all such occasions. They arose on all sides, as to the starting point, the direction of the Rail way, the Terminus, the mode of carrying on the work. In reality, the fortunes of every Railway lie in its own future development, and they can be foretold with little precision. But there are cardinal principles to be observed in determining a project, never safely to be abandoned. From the beginning we were called upon to expect too much from the completion of this Railway, and most unwisely. The appeal has been made to our fancy, our imagination rather than to our knowledge, our judgment, our sober second thoughts. Moreover, as a rule the minds of men are sanguine. The majority look generally to the bright side of things, and those who hesitate to admit all the glowing results, so passionately foretold, are stamped as they have been from the days of Greek tragedy as prophets of evil. But at this date the confidence in the Railway seemed universal, so far as faith extended, to its promised influence. We are now beginning to recoil from the bright estimate of the future. We see the population in the North-West and in British Columbia but slowly increasing. There is no particular advance in any of the interests which we were led to think possessed so much life. And we have been taught to bring to our anticipations of the future that calm consideration, that well balanced calculation of the chances of what we may look for, which mark the operations of really able men when they embark in enterprises of pith and moment.

Mr. Mackenzie's duty was plain ; to direct the most full explorations of the country to be made, and its resources to be studied. We have the result of his six years' government in the valuable reports of his Engineer-in-Chief, and in his adoption of the two terminal points, and the line of Railway between them passing through the best land and crossing the pass in all respects the most eligible for the purpose.

I have alluded to the circumstance of the outcry against all who call in question the policy and the proceedings of the Syndicate. But surely the fortunes of our common country demand that every operation by them should be keenly and severely examined. At the same time, the criticism must be fair and just. One of the future sources of revenue, from the day of the Trutch dinner down to this hour, is the assumed trade with China and Japan and the East Indies. In the early days of the Railway it was much dwelt upon, possibly believed in by many. Certainly few of us had the courage to dispute the fact. Long rows of figures and tables of statistics were given to show what the trade is with England. Nobody disputes the extent of the trade. But even were it ten times what it is, what we ask to-day is, what is there to show, beyond merely fanciful supposition, that any of this trade will pass over the Canadian Pacific Railway ? What is there at present of this trade which follows the two lines of Railway, the Northern and Central Pacific ? I cannot learn that there is any of any account. In plain words, no such trade exists, and what is there to show that the Canadian Pacific can call it into being. Were there an United States trade, with San Francisco at one terminus, and New York the Banking emporium of the continent at the other, we cannot hope in any way to interfere with it.

It may be urged that it is not the American trade which will take this line ; it is the commerce of Europe, especially that of Great Britain, on which it bases its hope. All reasoning is against this possible eventuality. For had there been any British trade, it would long ago have sought the United States lines.

With peoples of enlightenment, trade has no nationality. If it had been found profitable for the United States route to be followed by Japan and China merchants, they would not have stopped to ask under what flag the traverse of this continent was to be made. Were such a trade possible during the years that the United States Railways have been in operation there would now be an established relationship easily adducible as a fact, and if it do not exist to-day

on the present trans-continental lines, the inference is against the probability that it will be called into being by the Canadian Pacific.

I never could recognize any reason for the extension of the line to British Columbia and the Pacific Ocean, beyond the fact that that Province being a part of the Dominion, it was expedient to establish a Railway connection with it ; the more especially as the fertility of the intervening country and its agricultural capability required such connection, as the means of settlement reaching it. The line was an act of necessity, under the latter aspect ; it became even to be regarded as an act of justice to the settlers on the fertile plains of the central territory between the Red River and the Rocky Mountains. It was due to them to give them access equally to Lake Superior and the Pacific.

So recognized as a necessity, it was wise and prudent to complete it with despatch, with more than ordinary despatch. But the claim that its immediate completion at all cost, as a strong commercial necessity, is entirely unsustained by any circumstance. It was never more than an assertion, and to vouch it there is no proof. It was merely one of the many generalities advanced on the occasion.

Any calculation based on theories other than those above stated must lead to failure and disappointment. The only legitimate trade to be looked for is that which is connected with the population of the country traversed by the line. To the east there is access to Lake Superior and the Canadian markets. The branch line to Emerson opens a communication with the southern markets of the United States, and the third connection with the Pacific opened the West to the agriculturist of the plans.

We have been ten years studying the problem and we are able to form some conception of what was our true policy. There were three courses open to us.

1. The Railway could be forced through from Pembroke to Burrard Inlet.
2. The line could have been constructed from Lake Superior to the Pacific ; the intermediate section around Lake Superior being completed by yearly increments from each end.
3. The connection between Lake Superior could have been pushed on and the line carried across the plains in advance of settlement. Branches wisely selected would have followed. The line also to be commenced and carried on for three hundred miles in British Columbia.

The north shore of Lake Superior also to be proceeded with year by year.

In the latter case the progress of the line from Winnipeg would have depended on settlement, and in good time with population sufficient to warrant the expenditure the connection would have been carried across the mountains.

In the meantime such an extent of Railway should have been constructed in British Columbia as would have satisfied the wants and requirements of that Province.

By the last named policy, the resources of the Dominion would have been husbanded, and the increase to our debt avoided. Who, free from political entanglements, and having only the welfare of the Dominion at heart, will hesitate to declare his faith in this policy? Our first attempt was called for to obtain settlement. The land ought never to have been regarded as a field for speculation, and to be given as a prey to desperate gamblers. I believe myself that we would have been wise to have given the land to actual settlers;, subject to laws and regulations, which would have prevented it falling into the gripe of the sharks who are always floating in the waters of enterprize.

Had the Railway been constructed without rush and hurry as emergency dictated, and facility given to settlement, we should not have required foreign contractors, nor have seen the migratory bands of workmen staying for a few days in one place and then disappearing for ever. The money expended would have been kept in the country. The effect of this course having been followed in 1827 and in subsequent years during the construction of the Welland Canal, is yet visible in the counties of York, Peel and Halton. As money was earned on the Welland Canal settlers flowed into the townships of Toronto, Chinguacousy and Caledon, all of which received an extraordinary impetus, at this date. The money earned enabled settlers to locate themselves, to construct their buildings, and extend their husbandry.

We should have seen a repetition of these consequences in the North West, had a wiser policy been followed, and the Railway more deliberately constructed. Above all the work would have been performed by the settlers in the neighbourhood, or those who would have become settlers, and how different would have been our debt.

It was with this idea that Mr. Mackenzie proposed the statesman-like view of using the water stretches, and what a shout arose from the hopeful supporters of the last defeated administration. Who cannot recollect the infamous attempts to blacken Mr. Mackenzie's fair fame? The repeated vilification of his personal honour and honesty? Who utters these charges to-day? Who comes forward to assail the policy of improving the water stretches, when this very Government is engaged in the work of their improvement; as they are spending large sums in deepening the channel to enter the Kaministiqua River, completing the Mackenzie Channel. Although only 22 feet in width, the cut remained open never having filled in, so that the coal steamers from Ohio drawing 10 feet chartered by the Canadian Pacific could ascend the river to deposit coal on the wharves.

We can recollect also the exaggerated language in the Senate relative to the Fort Frances Lock. In a few years we shall see this lock in operation, with general assent.

As I have said Mr. Mackenzie's attention was directed to the exploration of the country. And from the hour of his assuming office to the unfavourable verdicts of the elections in 1878, the surveys were unremittingly pushed on by Mr. Fleming. They established without a doubt that the true location was by Yellow Head Pass: that the Railway would pass through the best land in the North-West. No grade was in excess of 1 in 100. No curve less than a 1433 feet radius was introduced, and the effort on all occasions was to use the larger radius curve. The location was an admirable one. Across the rugged belt of territory between Lake Superior and Selkirk, although the work was heavy, no gradient ascending eastward in 406 miles exceeded 26.40 to the mile. [Report 1877, p. 45].

Mr. Fleming's estimate for the work was as follows:

Fort William to Selkirk.....	406 miles		$17,000,000
Selkirk to Jasper	1,000 "		13,000,000
Jasper to Kamloops Lake....	385 "	at $43,660	15,500,000
Lake Kamloops to Yale.....	125 "	at 80,000	10,000,000
Yale to Port Moody.... ...	90 "	at 38,888	3,500,000
Add additional...			1,000,000
			$60,000,000

Putting out of sight the work executed by the Government, viz., from Lake Superior to Selkirk, and from Kamloops to the Pacific, we

have the following sections on Mr. Mackenzie's line, with Mr. Fleming's estimates :

From Selkirk to Jasper.....	1,000 miles	13,000,000
Jasper to Kamloops Kake.....	385 "	15,500,000
		$

This was the total amount estimated for the completion of the line within the distance included in the contract of the Canadian Pacific, with light equipment.

Mr. Stephen claims that he expended on 1131 miles of line of completed road as follows :

Construction.	$23,078,929
Materials, Railroad Supplies	4,364,839
Rolling Stock.	6,130,792
Plant, Tools, and Outfit for Construction....	187,002
	$33,761,562

All this is for the Canadian Pacific proper, for the 1131 miles, for the construction of the work and the equipment of the line. For we have equally an estimate of expenditure on the extension from Callender to Montreal and Brockville.

These lines consist of the old Canada Central, and the North Shore Railway from Ottawa to Montreal constructed by the Quebec Government.

The Canada Central is as follows :

	Miles.	Miles.
Brockville to Ottawa.....	75	
Smith's Falls to Perth	12	
Carleton Junction to Pembroke.....	76	
	—	163
There remains on the above line a Mortgage of $1,823,333 —$11,130 per mile.		
To the above distance has to be added the line from Pembroke to Callender.....		120
The North Shore line is 120 miles in length, there remains a mortgage upon it of $3,500,000 equal to $29,166$\frac{66}{100}$ per mile		120

The expenditure as set forth by Mr. Stephen stands as follows :

Extension from Callender to Montreal and Brockville..	$3,270,351
Rolling Stock for above.	900,000
Shops.....	516,032
Tools and Machinery	352.230
Real Estate for Terminus.....	390,790
Total.....	$5,469,403

No account is taken of the allowance of the Dominion Government as a bonus towards constructing the line from Pembroke to Callender, — 120 miles at $12,000 per mile		1,440,000
Add Mortgages	$1,823,333	
" "	3,500,000	
		5,323,333
Total		$12,232,736

For 283 and 120=03 miles with equipment at a cost per mile of $33,541.

Turning to the expenditure of the lines west of Callender, the figures of Mr. Stephen establish that the total amount, with equipment and provision for future work is $33,761,562.

Of the completed 1131 miles, I infer from the subsidy paid that they consist of

110	Miles from Callender to Sudbury Junction		
67	" East of Prince Arthur		
177	" at per mile	$15,384.61	
900	" from Winnipeg towards the summit	10,000.00	9,000,000
54	" " " " " "	13,333.00	719,982

These figures, if not correct, are practically so.

On the Land Grant Bonds the amount received is	9,029,012	
Deduct one-fifth pro rata, for lines East of Lake Superior	1,805,802	
There remains then to charge against the Western Work from Winnipeg		6,223,200

Subsidy paid on line West Prince Arthur, $15,943,192

Such is the amount received for the work west of Winnipeg, about $16,000 per mile

This was the district estimated by Mr. Fleming at $13,000.

The cost of construction alone, is stated by Mr. Stephen at $20,405 per mile.

The examination of this asserted cost I leave for another place.

I bring these figures side by side, to show that the change of location was not dictated by any theory of economy. For the line of Mr. Mackenzie would have cost less money.

I have described Mr. Mackenzie's line, how it went over the lowest pass, with no climatal objections, with grades and curves under the circumstances unexceptionable, certainly immensely better than those met on the constructed line, and above all passing through the best land. I cannot meet any where a record of a fair and just objection which was urged against it. The length was 1946 miles.

CHAPTER V.

The present contract legalized, the Syndicate entered upon power. It is yet to be shown what control has been exercised over their proceedings by the Government, and on what principle, and for what cause the change of line was dictated. Whether this policy arose with the Syndicate, or whether it was suggested by the Executive to throw discredit on Mr. Mackenzie's administration; whether it originated from a conviction of its wisdom, or from mere arbitrariness, will ever be one of the minor debatable points hereafter to be discussed. For I prophesy that the history of this Railway will long hold a place in the public mind when the actors who are figuring in it have passed from the scene, and the heritage they have left to the country is known and felt.

One would imagine that so momentous and important an undertaking would have been entered into only on deliberation, and after serious investigation; that those responsible for it would have placed on record their views after the most careful inquiry, and would have embodied in an argumentative report the causes, the necessities, the advantages which had dictated the change, and which they felt would fully justify it. If any such document exists, it has never been published. Among the many laudatory notices which, from time to time, appear in that portion of the public press which has taken the well-being of the Canadian Pacific in charge, and which is at the beck of its henchmen and hangers-on, no announcement has ever been made of the causes which have led to the change.

I can find only two allusions, which bear upon the matter.

Mr. Schreiber, the Government Engineer of Railways reports: (Vide Par. Papers 31, pp. 31-36):

"The obtaining of a route through the Rocky Mountains by a pass other than the Yellow Head, that contemplated in the original location, has long been an object with the Company, (why ?) and they have selected a line *via* the Kicking Horse Pass; this route they consider admitting of the construction of a road which will compare favorably with existing lines to the Pacific Coast, while in comparison with the Yellow Head route, it *will shorten the distance to Port*

Moody by at least 100 miles. The maximum gra lient it will be found necessary to employ is 116 feet to the mile."

Mr. Schreiber refers to the Report of Mr. A. B. Rogers, Chief Engineer in charge of Surveys, Mountain Sections (page 39.)

We learn in this report, that this maximum grade of 116 feet extends for a distance of 17 miles in the Kicking Horse Pass, and again for a distance of 2 miles in the lower Kicking Horse Pass, for 16 miles in the ascent of the Selkirks, and 20 miles down the west slope, making a total of 49 miles of this grade.

When Mr. Schreiber speaks of the length of the line, a simple process would have shown that the saving, as claimed by the Canadian Pacific, is not sustained by the figures he himself gives :

Mr. Fleming's Line, length.....	1946
Length reported by Mr. Schreiber (page 31)...	1900
Difference.....	46

Thus, then, according to the Report of the Engineer-in-Chief, the main advantage spoken of is saving in distance.

The second allusion is by Mr. Fleming, in his lately published volume "England and Canada," pp. 410.

The problem which the company had to solve was the location between Winnipeg and Kamloops. They have considered it on the principle of obtaining the *shortest trans-continental route*, and in these few words they explain the theory of their selection. They claim that this reason is in itself all powerful to determine the location by the more southern route which they follow, and one in itself sufficient to meet any objection against it.

What is this directness of route? Mr. Schreiber shows it to be 46 miles.

With grades of an equal character, with no special advantage, without the least miscalculation of any mischance, this difference is in time from one hour and a half to one hour and three-quarters. To show precisely what this difference is, if the time required to pass over the Fleming location were 78 hours, it would take 76½ hours to pass over the Canadian Pacific, as located.

But what have we to say of the admitted heavy grades on the latter and the sharper curves? Mr. Rogers mentions 49 miles of 116 feet to mile, whereas it is a matter of notoriety that for some miles the grades run from 200 to 250 per mile.

There is everything to show, that, with all the boasted directness of route, the disadvantage is manifestly against the present location.

From the want of reports, and the absence of a straightforward statement of figures, it is not easy to reach the precise length of the line. But there are sufficient data scattered here and there by which we can work out what it is.

The proper comparison of the two lines is from Lake Superior to the Pacific Terminus. The line on the north shore of Lake Superior from Callender to Port Arthur does not affect the question canvassed in these pages. What is known of the section is that the line is in operation to Sudbury Junction, 120 miles, and those who pass over this line are struck by its extent of curve. On the remaining portion of the line many thousand men are at work, a fact mentioned to mark how the line is being pushed through.

Mr. Mackenzie's line has been stated at 1,946 miles. The Canadian Pacific distances, as I can understand them, are :

	Miles.
Port Arthur to Winnipeg	429
Winnipeg to the summit of the Rocky Mountains	964
From summit Rocky Mountains westward, *vide* Report Mr. Rogers—given Railways Canals Report, 1883, p. 115 :	
	Miles.
From summit Rocky Mountains to foot Kicking Horse Pass, River Columbia	45
Along River Columbia	30
Up Valley, Beaver River	20
East Fork, Ille-celle-waet	20
Main Stream	24
	— 139
Reported by Mr. Schreiber Sess. Pap. 31. p. 42 :	
From North of the Eagle Pass to Kamloops	161
From Kamloops to Pacific, constructed by Government	215
Total	1,908

With these figures there is a saving of 38 miles only.

It is difficult to determine what the exact length of the line is. I have turned to what sources are available to learn the precise detail, in addition to what I have given. The following distances appear in the Report of a Mr. Reed, lately published :

	Miles.
From Winnipeg to summit first range Rocky Mountains	1,393
From summit to the second line of the Columbia, as above stated	139

	Miles.	Miles.
Brought forward		1,532
From the River Columbia to Griffin Lake, summit Eagle Pass	Not given	
From Griffin Lake to Sicamous Narrows	30	
" Sicamous Narrows to Little Shuswap Lake	45	
" Little Shuswap Lake to Kamloops	38	
" Kamloops to Savonna Ferry	25	
	—	138
" Savonna Ferry to the Pacific		215
		1,885
According to Mr. Schreiber's figures, the distances not given (161—138) would be equal to 23 miles		
Adding these		23
We obtain a total of		1,908

which, until we have more positive figures, may be assumed to be the length of the line, with the promised 100 miles of distance saved reduced to 38, and this is the extent of the gain.

And what is our loss? The more the question is studied and considered the more does every known fact establish that the Railway is in the wrong place, and if the route over the Selkirks be persevered in, it will be carried over ground for fifty miles where the Railway cannot be relied upon as being workable.

I must revert to the fact that from the commencement of this work, the public have been kept entirely unacquainted with the proceedings of the Company. It is one of the most difficult tasks to obtain any correct knowledge of their operations. The imperfect report I am only able to give, is a proof of this want of information. What reports are given are contradictory and misleading. I have mentioned that of Mr. Rogers, setting forth that the maximum grade was 116 feet to the mile. In the Kicking Horse Pass the grades are from 200 to 250 to the mile.

Mr. Van Horne's statement of a year back, 27th November, 1883, was as follows: "Beyond this section (the first summit of the Rocky Mountains) to the point of connection with the section under construction by the Government, no engineering difficulties exist; on the contrary, the work is light and may be quickly done."

And yet, a few months after these statements, so positive, so clear, and so bold, we hear of all the difficulties in the Kicking Horse Pass where the extreme grades, extending over nine miles, are introduced and the work itself reported so exacting that a "temporary" line is suggested.

If, when the Canadian Pacific Syndicate assumed the contract, and dissatisfied with the location, which was the result of ten years' severe labor and much personal privation, they desired to obtain a better and a more direct line, they had every opportunity to gather all the information necessary to their doing so. Had they desired to deal fairly with the people of Canada, and honestly locate a line which would justify their preference of direction, probably no conditions ever existed more favorable for an exploration of the country, so that all its features could be known and its climatal conditions thoroughly investigated.

From the Pacific Coast, Kamloops is most accessible; and it was a mere matter of organization to push parties eastwardly from that location. Why, however, such a course should be considered necessary, after a study of Mr. Fleming's reports, is by no means plain.

I have mentioned, in a former part of these pages, that access was formerly had by the Hudson's Bay Company territory by the Columbia River. Acting on this suggestion, the Syndicate should have seen that it was by this river that they should enter the territory to commence their explorations. Their base of operations should have been in Washington Territory and Oregon. No little of the distance was traversed by the Northern Pacific, and when the railway did not exist the lines of communication were open. The present point of communication is Sand Point station on the railway furnishing the most convenient spot, where the depot of provisions would have been established, where parties would have taken to canoes to ascend the Columbia past Fort Colville to the Eagle Pass. On the River Columbia, at the Eagle Pass, a temporary building—a log shanty, such as we Canadians can put up in a few hours—could have been constructed. It would have housed the party as long as requirement exacted. Here should have been established the first station from which the exploration parties should have been started.

On the theory that one had already been started from Kamloops west; the second would proceed easterly through the Eagle Pass from the Columbia, so that the distance of 160 miles to Savonna Ferry could have been thoroughly examined.

One party would have been sent up the river to examine its banks to the Boat Encampment.

A fourth party would have started from the Columbia eastwardly across the Selkirk Range, ascending the Ille Celle waet.

Passing up the Columbia by the bend of the Boat Encampment, and following the southerly course of the river, a second log hut barrack would have been established at the foot of the Kicking Horse Pass.

The knowledge of the geography of the Rocky Mountains, even at this early date, was quite sufficient to let the fact be known that if it was determined to take what Mr. Van Horne calls the more direct and southerly route, and which to-day he affects to justify "in the strongest terms," the Bow River had to be ascended, and the Kicking Horse or the Howse Pass had to be followed.

It remained therefore necessary at the Eastern line of the Columbia, to examine the river itself, and to make *reconnaissances* of the two passes.

I recapitulate the examinations, which, to my mind, ought to have been undertaken :

1. From Kamloops Eastward towards Eagle Pass.
2. " the Columbia Westward through "
3. By the river Columbia to the Boat Encampment along the West line of the River.
4. By the river Columbia East line.
5. The Western declivity of the Selkirks up the Valley of the Ille Celle waet.
6. The Eastern declivity of the Selkirks up the Valley of the Beaver, from the East line of the Columbia.
7. An examination of the Howse Pass — East from the Columbia.
8. An examination of Kicking Horse Pass to Bow River.

To judge by all we know of what has been done by the Syndicate no such systematic proceedings as these were undertaken. The whole of their operations as we can judge them, suggest, that in their desire to depart from the deliberately selected route of Mr. Mackenzie after the elaborate and careful surveys conducted by Mr. Fleming, to repeat the common phrase which has been applied to others, "They went it blind," "They trusted to luck." They are in a position of a countryman who has gone into a gambling booth in a fair, who has put his money on black, and red has come up *la couleur gagne.* As to the country, the Dominion, so for the Syndicate, in this emergency the outlook will indeed be black, unless public opinion can intervene to prevent the consummation of the mischievous folly of carrying the Railway across the Selkirks.

I have alluded to the well-ordered grades and curves on Mr. Fleming's line. The Syndicate have never published a table of curves and grades. I trust, at the next meeting of Parliament, it will be called for and insisted upon. I must here enter my protest against the dishonest language of Mr. Reed in his lately published report. Speaking of the line in the vicinity of Mount Stephen, what he calls "nine miles of temporary track built around a tunnel." "This part of the road has 4 per cent grades and curves of 10°." Anyone reading this expression casually would fail altogether to take in his meaning. The majority of newspaper readers would imagine it to mean 4 per cent of grades. In other words, $\frac{1}{25}$ of the whole was on a grade, and the remaining $\frac{24}{25}$ not on a grade. This unusual mode of stating a common fact can only be meant to mislead. What Mr. Reed should say is, that on this section the grades are 4 ft. to the 100, extending over 9 miles, with 10° curves, 573 radius.

The Railway is very much belied if it has not 13° and 14° curves, 440 feet radius and 409 radius with this maximum grade. And this is precisely the portion Mr. Van Horne described a year ago as having 116 feet to the mile, 2 to the 100 and that the work could be quickly done.

One of the marked features of the location, leaving Winnipeg, is the number of curves. People by no means observing ask why they exist. What explanation can be given for their introduction? Some attempt has been made to justify them, by the remark, that a previous chief engineer had purchased land here and there on the several lots, and in order, dishonestly, to place stations on them, had curved about to suit his own interest. One can conceive such a state of things existing for 20 or 25 miles before it escaped observation, when it would have been summarily dealt with by the Managing Director, and a different order of location established. But these curves run for many miles.

I repeat that the country must exact a statement of these curves and grades throughout. Surely, there is patriotism sufficient even in the ranks of the supporters of the Government to admit of their production There is not a doubt but some member will rise in the House of Commons and demand them.

We shall see how such curves run along the plains, how they increase as the line ascends the valley of the Bow River, and how the Railway in the Kicking Horse Pass is mostly curves of small radius, and for some miles of immense grades.

Is this the result on which Mr. Van Horne is so boastful of his satisfaction? I will tell him, that he will fail to communicate such a feeling to the people of the Dominion. The gigantic blunder made in the change of the location, will, in a few months, come to be known and to be understood, and there will arise in the country an outcry of discontent, which no political dexterity can deaden, and before which, incompetence, meanness, and the service of the hired defender will quail and sink abashed.

CHAPTER VI.

On the27th September last, the report of Mr. Reed, to which I have alluded, appeared in the *Montreal Herald*. It was preceded by a commendatory report of Mr. Van Horne. To show that I do not misrepresent these papers, I give them in the appendix, so that the views of the Canadian Pacific are set forth in the language of their chosen agents, and the criticism that I make upon it can be fairly tested. They are introduced as being published by order of the Board.

I do not know of any parallel in engineering literature to such reports. With detail floating on the mere surface of the work described, they deal with assertions which startle us. But, first it is asked, who is Mr. Reed? I cannot learn that he has ever been heard of in Canada. I cannot learn that he has any reputation in the United States. What little is known of him is that he was brought here by Mr. Van Horne. Why his report should be held to have weight on Canadian opinion, there is nothing in his antecedents to justify. To my mind, it is a gross insult to Canada to foist this unknown man upon us, with his report dated from Joliette, Illinois. Are there no engineers of credit in the dominion? There are many. Why did the Canadian Pacific Railway select this stranger? Because he was plastic and ductile, Mr. Fleming was telegraphed to from England to examine this line. It is a matter of notoriety that he did so. Why is his report not published? It has never yet seen the light, in the view of its public use.

Mr. Van Horne from the commencement has ignored Canadian experience and capacity, and in the crisis of the hour public confidence has passed away before the recklessness of the contradictory statements which, from time to time, have been made. Could he hope that such a report as that of Mr. Reed can have the slightest influence in reinstating it? Had Mr. Van Horne really desired to influence public opinion, and not as if feeling he had a strength above it, cynically set it at defiance, he would have appointed two Canadian Engineers to have examined the extent of the line in question, and have made a fair and genuine appeal to public confidence. Mr. Van

Horne's own assertions are being tested in these pages, and since the last session of Parliament, the current of public feeling does not run with them. Their principal feature is to show the poor opinion he has of our intelligence, and our capacity for judging the situation which he misrepresents.

"There are no difficult problems," he tells us, "to be met; the work is simple and the cost easily calculated." What is the history of this easily calculated work? Last year his Agents furnished a set of estimates, which, in a few months, a new special examination reduces to the extent of four millions. This four million reduction is on the 300 miles from Savonna Ferry to the Summit.

Mr. Reed's estimate runs :

	Miles.	Average Cost.	
West Kamloops Lake to Griffin Lake.....	138	$21,565	$2,975,970
From summit of Gold Range to summit of Rocky Mountains.....	150	33,000	4,950,000
			$7,925,970

I cannot deny myself the remark that I admire the nicety with which the odd five dollars in the first estimate is so precisely specified.

Thus we have work which last winter was valued at twelve millions is now only to cost eight. There must have been strange recklessness in one examination or the other. What are we to think of the operations which have led to such changes of calculations in the same work. If the original estimates were so far wrong what guarantee is there that the present figures are correct. They may be amended to go back to their original figures, or to double them. It cannot be said that the saving will be effected by throwing out the tunnel on the Rocky Mountain summit, for the cost of that work would be from ten to twelve millions as I will shortly shew.

Mr. Van Horne proceeds to say that the doubts he felt are removed. He speaks of the magnificent forests which are to furnish a large and remunerative traffic. As usual, he is careful to give no statistics of profit. We will supply the figures. He will have to carry his timber from 1400 to 1600 miles before it reaches Lake Superior. Does he really mean that there is profit for the lumberer in operations of this character? So that the Railway will have constant employment. He tells us that the supply is inexhaustible. It is so in many parts of British Columbia, and in no way peculiar to the location through which he has so madly rushed. Will any lumberer of credit and standing say that it is a field for present

operations. There are so many limits, so much more favourably situated which will last for a century that we cannot hope for such operations being commenced for three or four generations.

A few figures will shew the shallowness of such calculations: A car load of lumber consists of 12 tons, equal in plank to 10,000 feet broad measure of square timber 833 feet lineal, say 28 sticks, 12 inches × 12 inches, 30 feet long. The ordinarily estimated tariff is three-quarters of a cent a ton a mile, that is 9 cents a car. The cost to New York from Ottawa, between 400 and 500 miles, according to route, to Portland 417 miles, to Boston 436 miles, is alike $40 a car, and this price is low.

It is well known that there are mills at Rat Portage, 132 miles from Winnipeg, and that it is from this source that that city and generally the Province of Manitoba will be supplied. Consequently, Mr. Van Horne's timber must be exported.

The freight per car, accordingly, will be from the summit to

Winnipeg.	960	miles,	$ 86	per car.	Per 1,000 feet	B.M.	$ 8.64.
Lake Superior...	1389	"	125	"	"	"	12.50.
Ottawa.....	2269	"	204	"	"	"	20.42.
Montreal.....	2389	"	215	"	"	"	21.50.

These figures shew the utter absurdity of the idea.

In the case of British Columbia, lumbering operations may be commenced, but will be best carried on in the districts near the sea, and not till those fields are exhausted will the operators advance to the interior. Where, then, is Mr. Van Horne's revenue?

From the magnificent timber trade of the future, he turns to the "magnificent harbours" of British Columbia, and its exceptionably favourable situation for commanding the trade of the North Pacific Coast, and of Japan and China.

This rhetorical flourish of the Pacific Ports is placed at its right value when it is remembered that the Canadian Pacific Railway is interested in one only, Port Moody, Burrard Inlet. Again, we have to ask, what is the Japan and China trade which is to come over land? There are three Railways to battle for it, be it what it may. But it is in reality a myth. There is no China trade in the sense of its being a prize worth struggling for. The freight from San Francisco, east, is the production of the fruitful soil of California. Let Mr. Van Horne show facts and figures that such a Railway movement exists.

Again, I repeat, the only theory of establishing a Railway connection with the Pacific was the political necessity of blending British Columbia with the rest of the Dominion, and to find an outlet to the Western Ocean for the produce of the dwellers on the plains.

To talk of the Timber trade, of China and Japan, of the harbors of the coast, is to deal with mere generalities, which come like shadows, so depart.

What a positive trade is, we can see when we consider the passage of wheat. Ten barrels of flour are reckoned as a ton of freight, so the car of twelve tons carries 120 barrels. Take any point on the line. Medicine Hat, which is 1083 miles from the River Kaministiquia, and 660 from Winnipeg. The estimated cost of a car to the former at $\frac{3}{4}$ cents per ton per mile, equal to 9 cents, the car would be $97.47, so the freight of a barrel of flour would be 81 cents; to the latter the car would be $59.40. So the cost of a barrel of flour would be 60 cents. One hundred barrels of flour being equal to 3666 bushels of wheat, the 120 barrels of flour are equal to 4,400 bushels shipped.

I do not enter into any examination of the question of land. It is a disputed point to-day, what is good and what is bad. It really does not come into my argument. When all the good land is taken up we shall learn the truth of the eligibility of the land from Moose Jaw to Calgarry. Any comparison which is made, is not to be considered with the lines south of us in the United States Territory. Whether the land south of us be good or bad, the temperature dry and arid, or genial, the climatal conditions free from trouble and threatened difficulty, these considerations come no way into the character of the Canadian line. The only comparison allowable is to place it as a whole with its advantages and disadvantages, in opposition to those of the line adopted by Mr. Mackenzie, on the route of which to the mountains all the land was good, where the mountain pass was low and free from glaciers. But with all these advantages it was abandoned.

When we read the shallow grounds assigned by Mr. Van Horne for the change, and see plainly his failure to establish the fact of directness of route, we can only read with contempt the expression of satisfaction on which he plumes himself.

I have somewhat dealt with the report of his lieutenant, Mr. Reed, in connection with his own assertions. I have some other

remarks to make on its contents. Is Mr. Reed aware of the claim of Mr. Stephen as to the cost of constructing the line on the plains? He would have done well to have made himself acquainted with it. Mr. Stephen's average is $20,406 per mile. Mr. Reed tells us that the section to Griffin Lake, at the summit of Eagle Pass, 113 miles, is estimated, through the mountains, not to cost more than $16,000 per mile. Little experience in railway construction will inform us that if this estimate be correct, the country through the mountains must be almost level.

The figures themselves suggest a problem to solve. Given the cost over the plains at $20,406 per mile, what will be the probable cost through the Eagle Pass: who would not reply $30,000 or $40,000 per mile.

Given the cost through the Eagle Pass range at $16,000, what would be the cost across the plains: the reply would follow, some $9,000 or $10,000.

There is only one form of estimate to be accepted, that based on known quantities, taken out in detail, with the incidental work. And what is specially needed, is a table of grades and curves to show what the line is. For, in the desire to hurry the work to completion, it may skim the surface only. To use the expressive technical word of the Engineer's Dictionary, he "scamped."

The narrative description of Mr. Reed is valueless. It is unintelligible, a mere statement of generalities. He gives us his views and orders us to accept them without examination. There is no table of curves, or information as to the length of the grades. We are told that in the distance of 390 miles, the grade does not exceed 66 feet to the mile, but not the extent which this grade of 66 feet embraces. He can speak plainly of grades when within this figure. How different and how covertly he sets forth grades of 200 feet to the mile as 4 per cent. Speaking of the above named grades, and in order to explain the necessity of some heavy work which finds itself among them, he tells us "that it would not be sound railroad policy to introduce heavier grades near the center of a long section," implying that this principle has been the dominant one observed, and that there is no break in the continuity of the normal grade.

What a comment do these words of this chosen scribe of the Canadian Pacific make on their own policy? They have carried out

the very policy he condemns. In the head of the Rocky Mountains there is a stretch of nine miles down the Kicking Horse Pass of excessive grades.

I have before remarked, that to read Mr. Reed's report the fact has no existence. Here is the passage in which conveys a most false impression :

"The alignment is good, and the gradients, with the exception of the west slope of the Rocky Mountains and over the Selkirks, in no place on the Mountain section exceeds 60 feet to the mile."

He proceed to say that on the west slope of the Rocky Mountains, and parts of both slopes of the Selkirk Range, grades of 116 feet per mile exist, but they occur *within a comparatively short distance, and can be easily and economically operated* by the use of special locomotives such as are used on similar gradients elsewhere.

Mr. Rogers tells us that 116 feet grades extend for 49 miles.

We have heard a great deal of the temporary track in the columns of the press, devoted to the interests of the Canadian Pacific ; Mr. Reed tells us that it is built round "the tunnel of nine miles. The temporary line will answer all purposes of traffic for years to come." It is here that Mr. Reed speaks of his four per cent curves.

Does Mr. Van Horne or Mr. Reed know what a tunnel of nine miles in the Mountains is, that they speak so glibly of it? There have been several tunnels of world-wide renown. On our own continent the Hoosac, so admirably brought to completeness by the Messrs. Shanly ; except for whose genius and patient labour it is doubtful if it would ever have been finished, as there was a strong party in the State of Massachusetts who were hopeful that their operations would break down. Anyone at all familiar with the United States stage must recollect that one of the jokes of the burlesque of that date was the improbable completion of the work. The funny men classed it with the Greek Kalends. It was regarded as an "impossibility ;" and as one reads the reports of the proceedings of the State Engineers, it looks as if they did their best to make it so.* But it has been carried through by the Messrs. Shanly with

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* Even the gentle minded Oliver Wendell Holmes found a pleasant simile of the impossible in the Hoosac Tunnel. It appears in the lines known as "Latter day warnings" in the Autocrat of the Breakfast Table.

When you that hath a horse on sale
Shall bring his merit to the proof,

masterly ability. It is considered one of the most difficult of the four works; the remaining three being Mount Cenis, the St. Gothard, and the Arlsberg in Austria. In the Hoosac, shaft workings were required, the source of great expense in hoisting rock and pumping water. There was also no water power available to work the machinery. For the difference between water power and steam power represents a large cost. Its length is 4.8 miles; the deepest shaft upwards of 1000 feet. It cost not far from a million and a quarter dollars a mile, of fair construction. But the State of Massachusetts, before the Shanlys took it in charge, wasted an immense amount of money from the incompetency of its Agents and other causes.

The Mount Cenis Tunnel and the Hoosac furnished the conductors of the Saint Gothard Tunnel with the means of improving the machinery, and they had unlimitable water-power to work it. It was completed in 1882, after 3,330 days of actual work having been given to it, say 11 years. The distance is 9 miles, 564 yards. The cost eleven millons of dollars.

The latest great tunnel work is the Arlsberg. The progress made has been an advance on the St. Gothard. There is, also, the advantage of water power of full extent, with every improvement on the machinery known.

Giving every advantage to the Rocky Mountain Tunnel, although I fear that there would be little or no water for the machinery, it is a most formidable undertaking. Moreover, if the late event as

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Without a lie for every nail
That holds the iron on the hoof.
. . . .
When publishers no longer steal
And beg for what they stole before.
When the first locomotive wheel
Rolls through the Hoosac Tunnel's bore.
Then let Cumming blaze away,
And Miller's saints blow up the globe,
But *when* you see that blessed day,
Then order your Ascension robe.

No doubt the poet in his next edition will tell his readers that the impossible has been accomplished, dwelling on all that the State of Massachussetts owes to the Shanlys. Will it not be something to appear in the pages of an undying writer? The Ascension robe, Dr. Holmes, however, I fear, must still include with the *difficilia quae pulchra.*

recorded in the newspapers be correct, of the fall of the crown of a short tunnel, from which several visitors of the British Association narrowly escaped with their lives, the rock, though hard, will not stand without being lined, such a work, at random, may be estimated as costing eleven or twelve millions, and taking eleven years to execute.

It is a work of this character so pleasantly promised in the future. To hide the excess of grade 200 feet and 250 feet to the mile, over the deliberate statement that the maximum grade was but 116 feet to the mile, the present work is called a "temporary line." But call it what they may, it is clearly intended as the permanent line. What is the promise of the future? Coming events casts their shadows before. *Loquitur*, Mr. Reed. The paragraph is one of the beauties of his report.

"I gave some attention to the *nine miles of temporary track* that has been built around, a tunnel, and some heavy work in the vicinity of Mount Stephen *for the purpose of saving a year's time* in completing the road through to the Pacific. This part of the road *has four per cent grades*, and curves of ten degrees. *As far as I examined* this *temporary* line, I found it thoroughly built, when [*Sic?* with] seventy pound rails, per yard and first-class fastenings. It will answer all purposes for traffic for years to come, without material increase in the cost of operating. The Atcheson, Topeka and Santa Fe, &c., and other roads have grades equal to, or exceeding this one. . . . The temporary line around this place is so well built, and promises to answer present purposes so well, I should think it unwise to expend any money on *the intended permanent line*, until the traffic really demanded it."

I will not stop to criticise the slip-slop English, or disingenuousness of the statement. Who can read it and doubt its motive? Written to bewilder the general public, its feeble effort at deception fails entirely to mislead any one having the slightest knowledge of the subject.

This "temporary track" to save a year's time, if it means anything is the statement that the nine miles of tunnel, which with Engineers of the highest skill and power would exact ten years of constant labour to complete, can be built in as many months by Mr. Van Horne. At the same time *cui bono* engaging in this trifle! Gentlemen you have an excellent line quite equal to that which satisfies the

meridian of Topeka. Accept the blessing you possess. You have rails 70 lbs. to the yard, you see I am particular in stating this fact, even if your grades are "four per cent," and I think I have given you a riddle to solve when describing this admirable location. And then you gain a year to receive the immense revenue coming from the trade of the Orient, such a puzzle to our fathers, and you have all the profit of bringing lumber from the Columbia, to the St. Lawrence at Montreal, with the vast acquisitions to be derived from the working of the mines, and the development of the fisheries : and you will at once have a rush of immigrants to British Columbia, all of whom will make large fortunes, and send for their relatives, including their sisters, their cousins, and their aunts, to increase the population.

It is difficult to write seriously of such a paragraph. Its consummate impudence brings us back to some chapter of fiction. But to Canada it is a serious matter. A line of the importance of the Pacific connection with the other Provinces, deliberately given out of the control of the Government, for the ten years' examination, establishing the choice of route, and its carefully considered location to be rejected. This line, with its reduced grades, its curves kept to a fixed standard, passing through the recognized best land of the country, over the lowest pass, free from every climatal objection, to be rejected : to give place to a reckless change of location, made without principle, without knowledge, without forethought. To pass over these extreme grades and these sharp curves ; alone it is a national misfortune.

Mr. Van Horne's letter, enclosing Mr. Roger's statement of the grades of 116 feet to the mile, was written the end of November, 1883. At the beginning of September, Mr. Fleming made his passage through the Kicking Horse Pass. He describes the fall in 50 miles, of 2700 feet ; the first six miles giving a descent of 200 feet per mile. Could this detail have been unknown to Mr. Van Horne, when he stated that the maximum grade was 116 feet? Possibly he had in view the the tunnel of 9 miles, for which, as Mr. Reed explains, he substituted the temporary track "for the purpose of saving a year's time."

CHAPTER VII.

The line of the Canadian Pacific from the plains, ascends the valley of Bow River, and passing the crest of the mountains descends the valley of the Kicking Horse to the River Columbia. The line follows the bank of the river for 30 miles, whence it commences to cross the Selkirk Range, ascending by the Beaver Valley, and descending by that of the Ille-celle-waet.

The distances are as follows. They have been given before, but on an examination of this character, figures have to be repeated.

	Miles.
From the summit, down the Kicking Horse to the Columbia	45
Along the River Columbia	30
Ascending Beaver Valley	20
Descending the Ille-cette-waet	44
	139

The second line of the Columbia is here reached, whence the Eagle Pass is followed.

What is the climatal condition of the mountain range, the Selkirks, between these two lines of the River Columbia?

The height of the first summit, the Kicking Horse Pass is 5,300 feet above the sea; the second summit, between the waters of the Beaver and the Ille-cette-waet, is 4,600 feet.

The rejected Yellow Head Pass is 3,646 feet above the sea, free from every trace of difficulty of snow, ice or avalanches. Such is its history of half a century.

Mr. Fleming's valuable work throws especial light on the climatal condition of the mountains traversed by the Railway. In his expedition to examine this very ground, he described the phenomena which attracted his attention. That he has done so may yet save the country from the perpetration of an act of rashness which may cost millions to rectify. Mr. Fleming's contribution to Canadian literature at this juncture, is particularly valuable, because having the assurance of his character, we know that it is honest and reliable.

The description given by him is not a picture of winter and desolation. It was in the early days of September, when we are yet in summer, with our green Canadian foliage, untinged by the autumn,

with the warm nights of that season. His graphic description of the scenery must suggest to every thoughtful mind, not blinded by political partizanship, and in whom patriotism, and duty to the country are not dead, that the line is being taken through a district where it is in constant danger of being crushed by land slips, avalanches, aud snow and ice slides, to make it impassable. I will give these extracts in the form at which they are met.

I will premise by saying that Mr. Fleming has ascended Bow River from Calgary and is gaining the summit.

"We ascended for a few miles, when we turned to the West of Summit Creek a small glacier bed stream [? glacier fed] which we followed till we arrived at the Engineer's Camp at the summit, 5,300 above sea level."—p. 235.

"Mountains of great height in groups tower above it (a bold rocky bluff) to the right and left. Some of them have crater-shaped peaks filled with snow."—p. 238.

"We cross the path of a great snow slide, an avalanche divided into two forks, one *about fifty yards* wide and the other *about one hundred and fifty yards* wide. Thousands of trees, two and three feet in diameter, have been broken into shreds by it, and roots, trunks and branches have been swept away, and with a multitude of boulders of all dimensions hurled into the lake to form a promontory, of which three or four hundred feet still remain. To the south, beyond the lake, the eye rests upon a mighty mountain, streaked with snow-filled crevices."—p. 238.

"As we ascend the steeper and southern bank, we obtain a grand view of the lofty river mountains, seen from our last camp, and it struck me that it was from the lower heights that the avalanches must have descended."—p. 239.

"Looking upwards to the south, at about an angle of sixty degrees, we can see high in the clear air a mountain peak, which, lighted up by the sun, presents in its horizontal strata various colors, and assumes the form of a natural crown. Separated from this height, by a great depression, rises a sister peak singularly striking both, undoubtedly, rising to a vertical mile above the river. A great glacier on the second mountain overhangs a precipice with a face of hundreds of feet in thickness. At the base *débris* lie gathered for countless centuries to form an immense deposit sloping down the mountain."—p. 240.

Mr. Fleming, on the 1st September, reached the first crossing of the Columbia.

"The sun lights up the whole valley of the Columbia. The great Selkirk range lies in front of us. * * * * * A glacier is visible to the south, and large areas of snow, possibly the accumulation of centuries, rest between the peaks."—p. 255.

"We were now no longer by Beaver River. We had followed it for fifteen miles, and had ascended a branch named Bear Creek. * * * * We reached a rugged mountain defile leading up to the summit which we are to cross. * * * * We crossed many old avalanche slides. On the southern side of the mountain, as we wend our way, great scaurs, banked with snow, are seen two hundred or three hundred feet above the bottom of the narrow valley through which Bear Creek flows. To the north we observe a glacier, possibly fifty yards thick, at its overhanging termination. It takes its origin at some remote lofty source, far beyond the reach of our view. Below the glacier, on the mountain side, there are traces of a heavy avalanche, where trees have been broken and crushed in all directions. Judging from the age of the timber, the movement must have taken place a considerable time back, and was probably caused by the breaking off of a huge mass of the glacier. What could have been more majestic than the fall of one of those great glaciers, in its descent driving everything before it as stubble in the field. (p. 265.)

Mr. Fleming reaches the summit of the Selkirk. 'We are now 4,600 feet above the sea, surrounded by mountains of all forms. . . . Between them the everlasting glaciers present the most remarkable variety of appearance. . . . The valley is, to all appearance, completely enclosed by what seemed to be impenetratable mountains. . . . Towering high near the crest there is a series of glaciers extending for half a mile or more from north to south.'—p. 266.

Mr. Moberly ascended the Ille-cette-wait, a distance which he estimated at fifty miles to the forks, one of which, the most northern, he traced some thirty miles further. This branch terminated in a *cul de sac* among snowy mountains. (p. 267).

'I (Mr. Moberly) tried to induce the Indians to accompany me all the way across the Selkirk Range. . . . All my efforts were unavailing, as they affirmed that if we went in we should be caught in the snow, and never get out of the mountains. Mr. Moberly's report, 18th December, 1865.'—Note p. 268.

'To the west there is a remarkable glacier, whence issues one of sources of the Ille-cette-wait. We descend slowly enough, but with increased rapidity of actual descent, crossing a series of avalanche slides. . . . The flat in the valley of the Ille-cette-wait in some parts may be a quarter of a mile in width, but it is exceedingly irregular in that respect.'—p. 272.

'We soon find ourselves five hundred feet below the summit. The adjoining mountains are steep, and tracks of avalanches are frequent.' —p. 272.

'Our course has been westerly through a valley flanked on both sides by high mountains of all forms with interlying glaciers.'—p. 273.

'We continued through the valley, walled in by mountains, the height of which must be counted by thousands of feet. After a progress of fourteen miles we come upon two large masses of frozen snow, one on each side of the river, and fifty feet back from it. We learn that, three years ago, when first seen, they were much larger and higher, forming a great natural bridge across the stream. The water, which is here of considerable volume and impetuosity passed through the opening which it had forced in the centre. It is the remains of an avalanche from one of the glaciers, at which date no one can tell, and, as I have said, it was first seen three years ago. The bridge has disappeared, and only the abutments of hard frozen snow or ice are left, and they are gradually melting away. It is to be inferred that it was of no late occurrence, and that the mass must have been precipitated from a neighbouring glacier, evidently not an uncommon occurrence in this district. Mr. Moberly mentions in his journal, 26 Sept., 1865, having seen further up the Ille-cette-wact a snow bridge, on which his party crossed the stream which flowed two hundred and fifty feet beneath without being seen.'—p. 274.

The nights are now cold, and before morning we are chilled, although we wrap ourselves in our blankets without being undressed. It could hardly be otherwise in the neighbourhood of so many glaciers. (p. 277).

I will close my extracts here. After reading them the question may well be asked, will the Government permit the line to be taken across the Selkirks. It is the domain of glaciers. As Mr. Fleming tersely puts it "an avalanche is evidently not an uncommon occurrence here." A most searching investigation should be made into the character of the district. I do not hesitate to say that it will be a

public scandal if the line be permitted to be taken in the threatened direction. There will be perpetual risk of the stoppage of traffic, and, at an immense cost, the line will have eventually to be changed round the River Columbia.

In the meantime let us see how Mr. Reed, of Joliette, Illinois, deals with this subject.

"While traversing the line remaining to be built through the *wooded section, (!) evidence of snow slides* were seen at and near Rogers Pass, in the Selkirk Range, also, near the summit of the main range of the Rocky Mountains. But *the aggregated distances in which these occur do not exceed fifteen miles. A number of snow sheds* will probably be required for the protection of the track, but nearly forty miles of these are in successful use on the Central Pacific Road."

We do not in Canada require to be told what a snow-shed is. They are to be met constantly on the Intercolonial Railway, where they are in legitimate use. It is to protect the track from a heavy snow fall, and from the drifts, which, in localities, often collect in masses of some feet in depth. I have no knowledge of the use of them on the Central Pacific, so I shall say nothing on the subject. But anyone reading the description of the climatal conditions of the Selkirk Range, must at once recognize that it is not protection from an ordinary heavy fall of snow, or from snow drifts, however serious and deep they may be found, which is called for. What must be looked for is the fall of an avalanche, the constant dread of an overhanging portion of the glaciers casting itself down in the narrow valley. Mr. Reed seems to think fifteen miles of such risk a small matter. Even if it were confined to that limit, the danger would be sufficient for a conscientious, honest and competent engineer to report in the strongest language against any such location. As I read Mr. Fleming's record of his observations, the distance extends on the Selkirks over forty or fifty miles.

And then Mr. Reed's remedy. Equally it is that of Mr. Van Horne. "From personal observation," says the latter, "I can vouch for the correctness of his statement." The counteraction is among the curiosities of modern literature! A snow-shed to stop an avalanche, to retain the track intact from a land slide, which often engulfs whole villages, to preserve the road-bed free from an influence which changes the face of a district, and which is classed among the

convulsions of nature. The only parallel I know is Sydney Smith's* accounts of the respectable Mrs. Partington, endeavouring to mop out the Atlantic Ocean in the great storm of Sidmouth, when the waves entered above the level of her modest dwelling. It is not improbable that both Mr. Van Horne and Mr. Reed will be remembered as the Dioscuri Mrs. Partington of the Selkirk Range.

The remedy does not lie in a snowshed, or in any such fragile house of cards, in view of the forces against which the railway would have to contend. It is to be found in the recognition that the Selkirk Range is perfectly unfit for the construction of a railway.

Even of the line, as it is located, we are in perfect ignorance. There is no statement of curves or grades. There is, however, internal evidence to show that both are extreme. In the trumpery report to which Mr. Van Horne invites our credence, there is a suppression of all the marked facts which should obtain prominence. The few words I quote are all the attention given to this important subject.

The remedy is plain. The Railway should at once be diverted round the Columbia River following the eastern line to the Boat Encampment, and descending by the western line of this river to the Eagle Pass. Have the Canadian Pacific authorities never considered this course? The impenetrable mystery which hangs about every item of their interior economy is now more than doubled. Whispers, however, have come from the west, that doubt, even in their ranks, has arisen that the Selkirk Range was unfit for the location. The traveller, as he looked across them, with the mountains covered with snow, cannot understand the madness which would place a railway amid the influence of glaciers.

The possible diversion by the river has accordingly been looked for. If ever it had been seriously entertained, the report of Mr. Reed

*In the year of 1824, there set in a great flood upon that town, the tide rose to an incredible height, the waves rushed in upon the houses, and everything was threatened with destructisn. In the midst of this sublime and terrible storm Dame Partington, who lived upon the beach, was seen at the door of her house with mop and patterns, trundling her mop, squeezing out the sea-water, and vigorously pushing away the Atlantic Ocean. The Atlantic was roused. Mrs. Partington's spirit was up; but need I not tell you the contest was unequal. The Atlantic Ocean beat Mrs. Partington. She was excellent at a slop, or a puddle, but she should not have meddled with a tempest. Gentlemen, be at your ease—be quiet and steady, you will beat Mrs. Partington.—*Sydney Smith's Speech at Taunton, October 12th, 1831.*

shews that it has been definitely abandoned. It is easy to understand why such should be the case with the policy which marks the Company, all push and dash. First, it would delay the completion of the line, of which so much has been said, and there appears some desire to push the line to completion, regardless of all other facts, excepting that it is completed. They have justified the change of location by the one claim of directness of route, in view of obtaining that myth the China and Japan trade. Half-a-dozen freight trains in the year would bring all the China and Japan silks and teas, and curiosities and china, and idols, which would satisfy years of trade. As to such trade passing in transit, tested by current events and commercial analogies, it is a theory based more on hope than certainty. The one positive fact on which stress is laid, and I have shewn its absurdity, is directness of route, a saving of 38 miles in the distance of 2000.

To take the line round the River Columbia, would destroy even the prestige of these figures. Measuring by the map the line would be prolonged 86 miles, that is to say, following the east line to the Boat Encampment to the mouth of the Eagle Pass is 150 miles; deducting the distance across the Selkirks, 64 miles, we have 86 remaining. Therefore, with this line $86 - 38 = 48$. The present line would then be 48 miles longer than Mr. Mackenzie's line.

Had ordinary precaution been taken no such difficulty would now painfully agitate the minds of those who have studied and understand the question. Who can doubt that we are about placing a Railway across a range of mountains where glaciers abound; where there are indications of avalanches, many of them of a formidable character, and that at every hour there is a risk that the same action may take place, and the line be cumbered with immense masses of snow, ice, and shattered trees which may take weeks, even months, to remove. We run this risk even on the summit of the Kicking Horse Pass. For such a calamity there is now no remedy. But with regard to the Selkirk Range there lies the plain duty of avoiding it, and taking the line round by the Boat Encampment on the Columbia.

The authorities guiding the policy of the Canadian Pacific Railway know well the facts I adduce. They even attempt to meet them and explain them away in the feeble sentences of Mr. Reed. Does Mr. Van Horne believe that when the public mind is awakened to

the true situation, that it will be calmed by any such paltry assurance of protection against an avalanche by a snow shed. It would seem that the Syndicate shrink from the one remedy open to them, the prolongation of their line. Had they conducted their operations with the skill and system which mark the policy of trained and competent engineers, had they, as prudence pointed out, availed themselves of the River Columbia, and started the explorations I have given in detail, in a few months the facts of the situation would have been known.

The heavy grades, the short curves, the repelling climatal conditions would have been established as such marked features of the line, that the Government, if it performed its duty, would never have recognized the location. Had the Executive shown compliance, inquiry in Parliament would have exacted the production of the papers and reports; and public opinion, so aroused, would have sternly intervened to have demanded a more wisely selected and better location.

It is not too late to save the passage of the line across the Selkirk Range. The question, which is one which must come before the next session of Parliament must rise above the claims of party, political expediency, the interested adherence of personal greed, and the influences which, in such cases, invariably arise to intercept the true view of what is right, expedient, necessary and indispensable.

CHAPTER VIII.

In Sir Charles Tupper's celebrated speech, of the 5th February, of last year, given with his usual ability and power, he made the following remark. "I trust, under these circumstances, we have heard the last, either in this house or out of it, of the unfounded statement, as I have proved it to be, from the figures which I have submitted to the house, that this Company has taken the money received under this contract from the Government, for the purpose of building a line of Railway from Callender to Kamloops, and expended it on outside enterprises apart from it, without any reference to the Canadian Pacific Railway."

The last remark is, as the French say, *hasardé*. According to one theory, the Perth and Toronto is an integral part of the system necessary to its development. Three millions and three-quarters have been avowedly expended on 269 miles of completed road. —"Branch lines west of Callender." Four millions, "on advances and accounts receivable for extension to the sea-board." But the question must not be complicated by these considerations. To the public mind, the Canadian Pacific Railway, constructed by bonuses from the Government, must ever be the line from Callender to Savonna Ferry.

A statement has been made to Parliament of the expenditure on this line. If it be proved that such expenditure is impossible, then if the amount has been expended, it must have been on the work undertaken by the Syndicate outside the Canadian Pacific system, and on lines constructed in opposition to existing lines.

Mr. Stephen claims that the company have expended on the main line, west of Callender, embracing 1131 miles of railway for construction $23,078,929, the average cost per mile being $20,406.

The cash subsidy was	12,289,212
Land grant bonds	9,029,012
Sale of town lots	477,775
	$21,795,999

I have looked through the Public Returns to find the data by which this amount has been paid. It is not given exactly; the best reference I can find is the estimate of the 5th December, when 120 miles are returned at $15,384.64, evidently the line from Callender to Sudbury, with

900	miles on the central section	@	$10,000
54	" " " "	@	$13,333
954			

The distance from Winnipeg to the summit.

The total estimate on this occasion is $12,002,120
Mr. Stephen's reported receipts are $12,289,212

Possibly the balance was on account of work east of Prince Arthur to the Nepigon, 67 miles, recognized in another report given in these returns. But in the large figures we are dealing with the explanation of the balance is not important. We are enabled by these figures approximately to describe the work subsidised.

		Subsidy per mile.
120	miles from Callender to Sudbury Junction	$15,384.61
900	" " Winnipeg toward summit	10,000.00
54	" " "	13,333.00
57	" on account Prince Arthur east to Nepegon	15.384.61

I have stated in an earlier chapter how Railway engineers, who know their work and act with a sense of responsibility, keep their accounts so that the cost of every mile is known. If such accounts have been kept on the Canadian Pacific Railway, they will at once establish the cost as stated by Mr. Stephen. Moreover, their verification will be complete. The original section has been deposited in the Department of Railways and Canals, and the amount of work can be established beyond cavil. The advocates of the Company may say that it is a perfectly private matter for the Company, as to the manner in which they keep their accounts. It may be so if the remark be addressed by an individual. To no single person, in his private capacity, are the Syndicate called upon to give a reply. It is different with regard to Parliament. I presume that it will be conceded that the House of Commons can demand the fullest information, especially when the Syndicate is a claimant for assistance. Sir Charles Tupper may argue as he sees fit, that the security offered to the Government by the Company for what he called the temporary advance, as if it had been a few thousand dollars, instead of being in reality $22,000,000, is ample, and that the reason assigned for the loan

to enable the Company to complete "this great national work" is incontrovertible. Mr. Blake, the leader of the Opposition, thought the security anything but satisfactory, and he moved, accordingly, that the remaining Railway lines owned by the Syndicate, should be included in the mortgage. Further, he held that the reasons given for making the loan were paltry and insufficient. The Government majority summarily ruled down the proposition.

But, however, phrases may cover the true character of the application, the Syndicate came to Parliament in *forma pauperis* and demanded aid. One of the grounds was that they had expended $23,078,929 on construction. They backed up this assertion with no evidence whatever, and none has been produced during the nine months' criticism in the reported expenditure, and the inference is that none exists.

If injustice be done them in this supposition, nothing will be easier than to confound the assertions of the writer by producing the final estimates, showing what the cost has been. In the meantime the extravagance of the outlay must be considered impossible. Through the plains there is only the embankment to be thrown up. There are spots where there is some cutting, but the character of the work is easy to the summit. Hence, it is not a matter of difficulty to form some approximate estimate as to the cost per mile.

Purchase of land	0	
Grubbing and clearing	0	
Average 10,000 cubic yards excavation @ 25	2500	
Ordinary masonary for culverts	600	
Cattle guards	200	3300
1 mile of track—complete		5000
		8300

Additional on the whole line :—

Bridging and additional excavation, fencing where in place, say		1,000,000	
100 ordinary stations, each say	$6000	600,000	
6 principal stations additional	$25,000	150,000	
		$1,750,000	
On the 954 miles, per mile			1835
Superintendence			400
Estimated cost per mile			$10,535

Turning to the line from Prince Arthur to Nepigon, the work is known to be light, except the important bridge at Nepigon, not then constructed; and, if at all considered, it was possibly included among

the materials. From all I have heard, the 67 miles accepted by the Government, as it would appear from a report in another place did not exceed $15,000 per mile.

Equally so, the line 120 miles from Callender to Sudbury, is marked by no difficulty. It may not be possible to generalize this work, as that on the plains may be described, where the work for hundreds of miles is of the same character. On leaving Callender there may be places here and there where the work is heavy, but it is not representative of the whole; there is also some bridging. As a whole, the work is possibly of a more expensive character throughout than the line west of Winnipeg. But generally the work is light, and it is believed by men capable of judging and having the opportunity of doing so, that its cost was within the subsidy, $15,384, or that that amount was little exceeded. Mr. Hickson, it is true, not a friendly critic, nevertheless possessing the best sources of information, thus addreesed the Premier, Sir. J. Macdonald, on the subject:—"It is manifest from a perusal of the papers which have been presented to Parliament, that the money subsidy and the lands granted by the Government to the Canadian Pacific Railway, on the basis of the Government's and the Company's estimate of their value, were sufficient to pay for all the work which has been done up to this time upon the Pacific line proper."

In order to reduce the work of construction to a minimum, much of the location is marked by curves. If this assertion be an exaggeration, the cost, in the first place, can be established by the final estimates; in the second, a publication of the table of curves and grades will show the character of the line.

The branch lines west of Callender are reported to have cost $3,759,793—$13,977 per mile.

Whence this difference of cost between the branches and the main line? the latter amounting to $20,406. I have endeavored to learn what distinctive excess of cost is apparent in the main line. I have been unable to obtain any explanation.

When we speak of Branch lines, we come to that extraordinary creation, the Algoma branch of 95 miles, on which it is reported $1,877,324 has been expended at a cost of $19,761 per mile.

This line was completed in 1883 and abandoned. The ties are rotting in the ground; the embankments are being washed away; the whole, from neglect, falling into ruin.

Why it was at all constructed with the insufficient means of the Company is inexplicable, except on the ground that the Syndicate desired to extend their control over the lake navigation of Lake Superior. With this view, during last year, three vessels were constructed in Scotland, and fine vessels they are. They are marked by the extraordinary feature, however, that they are unable to pass through the enlarged St. Lawrence Locks, for they are 275 feet in length. The enlarged St. Lawrence Lock is only 270 feet. But a report incorrectly assigned the length of the chamber to be 275 feet, Owing to the necessity of opening and shutting the hinder pair of gates, about twelve feet is exacted from the length of the chamber, so no vessel longer than about 258 feet or so can pass through. Why the additional feet were added to this length for boats on the Lake Superior and lake trade, I cannot learn on any principle of naval architecture. That they had to be cut in two, to pass through the St. Lawrence Canals, was anticipated owing to the incomplete condition of the Beauharnois and Cornwall Canals. But it was not anticipated, as it was said at the time, that they would have difficulty in passing through the enlarged locks of the Lachine Canal. It was only by removing some of the work from the bow that it could be effected. Cut in half and floated on pontoons, they were taken to the lakes, there again to be riveted together. But from their size, being unable to pass the St. Lawrence locks, they can never proceed east of Buffalo, whereas, with their length adapted to the new locks, they would have been fitted for the main line of communication of Canadian waters, and would be as available at Montreal, as at Lake Superior.

These lake steamers appear in the expenditure under the head of $552,251. With a private company there might be an impropriety in canvassing the policy of incurring it. But the Canadian Pacific can no longer be so considered. Even in different circumstances, the establishment of a line of steamboats would have been held to be a somewhat arbitrary interference with the enterprise of the ship-owners in the Lake Superior trade. It may be urged that the belief existed that the boats engaged on the line did not extend the necessary accommodation and that the anticipated rush of emigration to the North-West demanded their establishment. Even if such an argument were admissable, there was no immediate necessity for their being placed on the route at this early date, By all the reports of

the extent of the business they command, it is possible that had their establishment been somewhat delayed, it would have been further postponed.

In connection with these boats, arose the necessity, rather the supposed necessity, of the branch to Algoma Mills, 95 miles, since abandoned. It appears to me that even if this branch come to be considered an established necessity, it was premature at the time it was commenced. It opened up only a connection with Montreal; west of Brockvillle there is no railway connection with the line of the Canadian Pacific. The branch to Algoma Mills had not the slightest relationship with Ontario above Brockville. To obtain the Ontario trade, the boats had still to leave Collingwood or Owen Sound, or Sarnia. Hence, the negotiations to obtain control of the Toronto, Grey and Bruce Railway. Even if the Grand Trunk Railway had retained control of the latter, even if that company had favored another line of vessels, and impeded all traffic with the Canadian Pacific Boats, the Northern Railway was free from embarrassing alliances, and the wharves at Collingwood would doubtless gladly have received the Canadian Pacific steamships.

It seems difficult to justify either the expenditure of the steamships or of the Algoma Branch. One explanation has been given. The exacting determination of the Syndicate to control the whole trade, and to make all Railway interests of the Dominion subordinate to their own.

It was this spirit which recklessly awoke the hostility of the Grand Trunk Railway, for it forced that line to the attitude of self-defence. The Canadian Pacific have constructed an antagonistic line from Perth to Toronto. They have obtained control of the Credit Valley to St. Thomas. They propose constructing a line from London to Detroit.

Thus, through the whole breadth of Canada, they have created an opposition to the Grand Trunk, and the most zealous advocate of the Canadian Pacific must fail to see how such a line can be in the least identified with the legitimate operations of the Syndicate.

It was felt, therefore, the greater hardship that public money should be given to a company engaged in creating opposition lines of railways and steamships, using public money in competition against private enterprise.

The Grand Trunk Company expressed this view as may be well remembered. Indeed, it may be asked what are the several expenditures set forth, in view of the relationship of the Syndicate to the Dominion of Canada. Their contract was to construct the unfinished portion of the line between Callender and Kamloops. The subsidy in money and land would have gone far to do it. And if there had been exercised a healthy influence in relation to the stock, it is not improbable that it would have commanded confidence in any market.

Again: What has the Canadian Pacific Railway, as such, to do with the South-Eastern Railway, the Saint Lawrence and Ottawa Railway, the Atlantic and North Western, except in opposition to the Grand Trunk.

The Atlantic and North-Western includes a bridge over the St. Lawrence at Lachine, with a connection west of the Mountain to Mile End Station. Seven miles of track are laid, unused, going to destruction. There was little grading. If the line cost $75,000, it is as much as it could have done. Possibly some $10,000 has been expended on surveys. The curve can be seen entering near the Mile End Station. Yet it is claimed that $156,646 has been expended on this line. What is there to show for it?

If there be any one fact that the Dominion of Canada should remember, it is that the Victoria Bridge cost nearly eight millions of dollars; that it is a work which was only the result of great financial effort, and that those who advanced the money on its construction in the hour of difficulty and trial, have a clear claim on the forbearance and gratitude of the Dominion. How is the latter shown? At this stage in our history there is no requirement for a second bridge. The one condition of its being, is opposition to the Grand Trunk. Those who control our public policy have closed their ears to all memory of the past, and they are as little guided by the necessities of the future, or they would not countenance this unprofitable use of capital. The construction of a second bridge at Lachine is a moral, commercial and political act of wickedness.

The lines constructed by the Canadian Pacific establish the true relationship of this bridge.

They have constructed the line from Perth to Toronto, 195 miles, to connect with the Credit Valley, which they propose to extend to Detroit. They control the South-Eastern, and, last season, surveys and examinations have been made to obtain a new direct connection with the Atlantic.

Over these lines the lien given to the Government in no way stands.

What has the Government to do with this consideration of an Atlantic terminus? It is purely a private matter of the Canadian Pacific.

Supposing, for the sake of argument, the Company give back to the Government the Canadian Pacific line proper, with the extensions of the line from Callender to Brockville and Montreal. They have the system they have built up as a rival to it to take the traffic through the United States.

And what is to prevent this policy? When the Company have constructed the line to Savonna Ferry, across the formidable Selkirks, they can claim, technically, that they have completed their contract. Should any loss arise in working it, they can throw themselves upon a friendly Government and claim to be released. There is nothing at all to stay them giving up the line, or to force them to work it longer than they see fit. They have only to hand it over to the Government with a certain extent of plant, and plead inability to continue it.

They can let all go, even the extensions to Brockville and Montreal, on which there is a mortgage of five millions and a half.

Leaving the Government to deal with the Bond Holders they can reorganize under another name, parting with the Montreal connection. They can construct another branch from Montreal to Smith's Falls and with a new station at Montreal they have a fixed system to Detroit to carry freight through the United States to the Province line of Manitoba.

Nor is this the only rival with which the Canadian Pacific proper is threatened.

The most careless observer who has seen the Canadian Pacific maps issued this summer, must have remarked that the line is shown prolonged from Algoma Mills to Sault Saint Mary, that the river is crossed, and the line carried to Saint Paul. The distance from Algoma Mills to Sault Saint Mary is 95 miles by water, about 100 by land.

There is every probability that the House of Commons will be called upon to subsidize 200 miles of Railway from Sudbury Junction to Sault St. Mary. I presume at the current rate, $15,333 per mile; so the amount will be another grant of $3,066,606.

There is every indication that such a demand is coming. One of the strange arguments to be used is, that it will offer the most direct connection from Montreal to St. Paul.

The distances will then be :

	Miles.
Montreal to Sudbury Junction	441
Sudbury Junction to Algoma Mills	95
To Sault St. Mary, say	100
Sault St. Mary to St. Paul	440
	1076
If the distance to New York come into calculation, we must add	386
Distance by this route from St. Paul to New York	1462

On the other hand from New York to Saint Paul, through the United States, is :

	Miles.
New York to Suspension Bridge	440
Suspension Bridge to Chicago	511
Chicago to St. Paul	409
	1360

What claim, it may well be asked, has such a scheme as this to demand the support of the Dominion, that it should be subsidized to the amount of upwards of three millions, except as a further concession to the Canadian Pacific ?

It should be uncompromisingly opposed, even if the refusal to grant it, establish the blunder of the very conception of the Algoma branch, and cause the total loss to the Company for this needless expenditure.

CHAPTER IX.

I have given an estimate of what, from all I have heard, the work may be valued across the plains. It is, in round figures, $10,000 a mile less than Mr. Stephen claimed as the expenditure made by the Syndicate. If, of 1131 miles completed, the theory be applied to one thousand miles, the amount, in excess, claimed above what I conceive to be the proper cost of the work, reaches ten millions.

I revert to the fact that my estimate should be easy of disproof, if, in any respect, it be unwarrantable. By producing the final estimates, the refutation can be decisively given.

There is a greater reason for the supposition of such a record if we consider the terms of the published sub-contract as given in the Sess. Pap., No. 31, pp. 51-59.

As I read it, this contract, dated 21st October. 1880, extended from a point 40 miles west of Callender, to the eastern end of Lake Superior, Port Arthur. This was the eastern section. The central section extended from a point 45 miles east of the Saskatchewan. As I understand the railway map, Medicine Hat is the Station on the Saskatchewan; 45 miles east will be about Forres, 615 miles from Winnipeg. The contract extended to Savonna Ferry, (pages 52-55.)

The Payment for	the	Eastern	Section was—	Cash.....	$14,099.979
"	"	"	"	Stock.....	20,000,000
"	"	Central	"	Cash.....	17,800,000
"	"	"	"	Stock.....	25,000,000

On the 21st November, 1883, the contract was cancelled and annulled.

Here is precisely a case in point to reach a just idea of value. An incomplete contract set aside by consent. It has not gone into the Courts of Law; so all parties are satisfied. What was the base of settlement? There could only have been one principle. The work must have been paid for, for what it was worth, *quantum valuit.* There, then, must have been final measurements and a record of work. Let them be produced. It will sustain or confute me, and I bow to the ordeal.

Mr. Fleming's estimate for this distance was $13,000 a mile.

I do not hide from myself the outcry which will arise from those who have become defenders of the Syndicate or are dependent upon it, when what I am writing appears in type. I have endeavoured to state the truth alone; when I fail, the fault is rather in the effort, not in the desire to attain it. I have given authority for every statement I advance, and where *data* establishing such statement are wanting, I have endeavored to show the reasoning by which I have arrived at my conclusions; that my inferences are not fanciful. What need is there for mystery in the operations of the Canadian Pacific that so many incomprehensible events in its history should be shrouded in doubt? In honest and straightforward dealings none is required. Hence so many speculations of the resources of the Syndicate. Anyone who mixes in the money world in Montreal, will hear the assertion, that for the last season, they have been dependent, as a Company, on the money they have been receiving from the Government. Doubtless when Parliament meets, a return will be asked for setting forth these payments, and under what condition they have been made. Generally such returns are so cumbered by formality and peculiarity of expression; so mixed up with matters unconnected with the main facts, that it is difficult to get at the truth. Still, with diligence, some meaning can be extracted from them.

But the fact and the condition of each payment will be a plain matter to state. What is necessary to set forth is the total amount of work which has been executed, the prices allowed for each item of claim, and what the total sum paid on the execution of the work. If given in a mere list of sums paid, in line after line of type, it will be indeed difficult to penetrate.

To be comprehensible it should be divided into sections; first the 1131 miles reported as completed, being clearly specified, so that we may know where the Station 0 is of each section of work on which advances have been made.

The sections should be as follows:

1. From Sudbury West.
2. Port Arthur East—less 67 miles (?) already accepted.
3. From the summit, 954 miles (?) from Winnipeg, or what the distance may be, westerly.
4. From Savonna Ferry, the terminus of the Government work, easterly.

Full detail should be given of rock excavation, earth excavation, tunnel work, bridging and track, with the amounts paid on each.

And this important principle must be known. Will the Syndicate be first paid for the work as it is performed, according to the schedule, and then be again paid according to the length, the price of the section, mile by mile, out of the subsidy in the hands of the Government.

Any other return will be waste paper, and even harassing to all who refer to it.

Parliament, likewise, should call for the final measurement on the 1131 miles of line to verify the statements submitted.

There is, undoubtedly, great dissatisfaction in the present position of affairs, which the constant report of some extraordinary work to be executed, or some remarkable step to be taken, in no way tends to quiet. Public confidence is not given to the proceedings of the Syndicate. The very reasons assigned for the advance, granted last Session, of the $32,000,000, cannot be accepted as sufficient.

These advances were as follows:

Security deposit held by Government, to be released	$1,000,000
" of Land Grant Bonds held for the efficient completion of the road	5,000,000
Payment of the Company of the sum to be deposited as security for dividend deferred to November, 1888	2,000,000
Temporary advance	22,500,000
	$32,353,912

At the same time the remaining cash subsidy, $12,710,788 be paid as the work proceeds. Mr. Schreiber, the Government Engineer, pointed out there were mortgages on the railways between Callender and Montreal and Brockville, amounting to $5,333,333, he proceeds to say. No. 31, page 9. No. 2.

" With regard to the proposal as a whole, I beg leave to say that, in my opinion, too great importance cannot be attached to the early completion of the railway which is to connect the Atlantic and Pacific Oceans by way of British Territory. It is an absolute necessity for the developement of the country in every respect. It is the only means whereby the North-west can be peopled. By its means the Rocky Mountains would be filled with a mining and lumbering population. The fisheries of the Pacific Ocean would be developed. The trade of China and Japan, which now finds its way into and

through the United States, would no doubt follow our line as the shortest and most favourable to the East. In view of these facts, I am prepared to recommend any reasonable temporary assistance to the Company, provided the Government be secured against loss."

No one will deny the proposition that it is advisable that the Railway should be completed. But the above shallow statements to affirm that such completion is immediately called for, are simply impotent to sustain that pretention. In the view of the sacrifice the country is called upon to make, payment of thirty-two millions of dollars, the generation succeeding will wonder that a Canadian House of Commons should have been impressed by such arguments, or rather the want of them, to make such a sacrifice. What population does Mr. Schreider suppose will be located between the summit of the first range and Savonna Ferry? What is there, to-day, to delay settlement to Stephen? Access is equally easy by the Northern Pacific to British Columbia. What is this population to be engaged in? In agricultural pursuits east of the Rocky Mountains, and we have the old story of a lumbering, mining and fishery population in British Columbia,

Have our lumberers waited hitherto for a railway to reach limits? Do they do so to-day? If lumbering in the Rocky Mountains and British Columbia were the prosperous fields of enterprise they are claimed to be, the desired avenues are now open to reach them. By Stephen, which can be reached by railway, access can be had to many a mile in its neighbourhood. What is to show that they will be affected by this completion of the route?

What is the history of mining on the Pacific? Let Mr. Schreiber refer to the mining operations of British Columbia which commenced in 1856, when gold was discovered, and which proved to be a turning point in the history of the Province, In 1857 the country was full of adventurers. Twenty thousand people were gathered there. They went through difficulties of no small magnitude to reach the spot where gold was to be found. Since that date, roads have been opened and access to the gold fields is comparatively easy. There is now no extraordinary prize to be obtained in this search for gold. The truth is known that life here offers no lottery; that while industry and perseverance meet their reward, that there is little encouragement to feverish and broken effort. Every fact connected with the history of mining, that is, as the mines were known when Mr. Schreiber

wrote, is against the supposition that the completion of the railway will bring another rush of miners to the Fraser. If the Province has to rise in the scale of communities, it can only be by sober industry, by thrift and by industry.

So with the fisheries. A steamer will take their produce to the North Pacific Railway. No new impulse can be given to them as they exist to-day.

Mr. Schreiber is of opinion that the trade of China and Japan which now finds its way into and through the United States, would no doubt follow our line. Doubtless, a portion of it, such as it is, might do so. But what is there of it? and what part even of this limited trade could we obtain? Enough of it that our effort to gain it should lead us to pay Thirty-two millions to obtain it?

All these aggregated expectations are phrases. Even in British Columbia proper, the railway can have no influence on the lumbering operations. What is manufactured must be exported by shipping, and no more facilities will be given for that branch of commerce when the railway is completed that it enjoys at present.

There are already two modes of communication with British Columbia, leaving Montreal almost daily. I question if at any time freight will range at a lower rate than it is to-day. There is certainly nothing in the serious grades of the Kicking Horse Valley to suggest that it will be so on the Canadian Pacific Railway. One route is by the Grand Trunk by its own system to Chicago, thence to St. Paul, thence northward to connect with the Northern Pacific.

The second line is the Canadian Pacific itself. The line from Perth to Toronto has really become a branch of the Michigan Central. What was called, in old days, the Canadian Southern has ceased to be known by that name. It is now the Canadian branch of the Michigan Central. The Canadian Pacific line from Perth to St. Thomas is an extension of this route. It has become a portion of the Michigan Central system, in so far it is devoted entirely to United States' interests in antagonism to Canadian interests. A connection is also obtained with this route with the Northern Pacific. The completion of the Canadian Pacific will have the one recommendation that passengers and freight will be carried from Montreal, through British Territory.

But what is to be the freight from British Columbia?

There is only one *raison d'être* for the construction of the railway By the admission of British Columbia, it became a political necessity. Further, it is essential to the dwellers in the plains to obtain for their produce a market on the Pacific.

What a fallacy it is to speak of this rapid completion as leading to rapid settlement. It might have been fortunate in increasing the number of settlers had the country wisely kept the control of the land; but in this respect it has bartered away its birthright, and, moreover, without receiving the traditional mess of pottage. The population to-day in Manitoba and the North-west is not 130,000, including 25,000 in the City of Winnipeg. Of the thousand miles of railway constructed, settlement has followed it only to a limited extent.

I have alluded to the stress laid on the rapidity with which the track was carried across the plains, so many miles a day. The one difficulty was to have money to pay the men. There was little grading. The ties and iron deposited at the end of the track as they were distributed, were laid and spiked, and so the engine proceeded onwards with further distribution, and the ballast trains followed. It was, after all, a poor *tour de force*, intended to attract attention, and to obtain a reputation for energy. I think that the application of February of this year, which coming events had taught them, of a necessity, had to be made, had no little to do with the effort. As a policy, it was adverse to settlement, and has left no trace behind it in any form.

My object in writing these few chapters is primarily to protest against the line being carried across the Selkirk Range, the domain of glaciers, at the risk of being often inoperative for weeks, and to insist that it is a national duty to carry the line round the River Columbia to the Boat Encampment, and entirely to avoid the Selkirk Range.

I have given what I believe to be a fair estimate of the cost of the Railway across the plains. Until Mr. Stephen produces the final measurement establishing the cost of each section, the public are justified in thinking that the Railway on the 1131 miles constructed has cost ten millions less than the figures show.

I have drawn attention to the possibility of a subsidy being asked for a line from Sudbury to the Sault St. Mary, 200 miles : the amount

will exceed three millions of dollars. Such a demand can have no justification beyond recouping the expenditure of the Canadian Pacific incurred on the Algoma branch; in itself, a bungle arising from work being undertaken without careful consideration. The line has not the slightest regard to Canadian interests in any one respect. If it be of the importance, which it will doubtless be asserted it possesses, it should be constructed by the United States representatives of the interests which it is intended to serve.

I have brought to notice the statements and figures of Mr. Reed, with his assertions sustained by Mr. Van Horne, excepting that the latter considers the estimates are two liberal. I have pointed out, that Mr. Reed is an unknown stranger, and that mere assertion on his part can have no weight.

I have drawn attention to the positive and deliberate assurance of Mr. Van Horne, that no grade would exceed 116 feet to the mile. This grade extends, a matter serious enough, for forty-nine miles! The work, however, for nine miles, is marked by the embarrassing grades from 200 feet to 250 feet to the mile, accompanied by sharp curves.

I bring to notice the remarkable assertion that it is possible to complete the exacting work of nine miles of tunnel through the mountains in a few months, an assertion so audacious that it can only be made by men ignorant of what such a tunnel is, or that in Canada, like Sir Andrew Aguecheek, they believe that "they have fools in hand."

Hence the so-called "temporary track with its unusually heavy grades has been designated 'temporary,'" without warrant; that it is a permanent track and was never intended for anything else, and that the whole proceeding is as insulting to our intelligence, as it is hurtful to the future operation of the line.

That the line has been located on the site it now follows in a haphazard way, without examination, without scientific inquiry, conveying the impression that the location has been directed by men ignorant of what is required in such circumstances. Moreover, with a perfect disregard of the public interest, and equally as injurious to the interest of the Syndicate.

That the line has been located in the wrong place; that the true and proper location was through the Yellow Head Pass, as surveyed and selected by Mr. Fleming, and adopted by Mr. Mackenzie.

Earnestly, I record the opinion, I believe, almost universally entertained, that in respect to this Railway, the country is passing through a crisis of no slight character. It is yet to be known how much of the thirty-two millions granted last session remains unexpended; in cash amounting to twenty-three millions and a half. Further, if there be ground for the painful surmise that additional assistance will be asked in the coming session of Parliament.

Already the amounts paid are

Subsidy	$12,289,212
Advances of last Session	32,353,000
	44,642,212
Subsidy available on the 1st March last	12,710,788
	$57,353,000

It will be recollected that Sir George Cartier's act limited the expenditure to thirty millions on the whole line.

Mr. Fleming's estimate from Selkirk to Kamloops was $28,500,000. Deducting this amount from what the Syndicate has been paid and will secure, there remains the sum of $28,833,000.

The distance from Port Arthur to Callender is 650 miles, this balance $28,833,000 would allow $44,358 per mile for the line between Port Arthur to Callender.

What will be the next phase in the chapter of money advances?

With all these present complications, the policy of the country was plain at the commencement, and it was much as Mr. Mackenzie mapped it out.

To have placed the railway on the right location.

Rapidly to have completed the line from Lake Superior to Winnipeg. Simultaneously to have constructed two hundred miles in British Columbia, to satisfy the requirements of that Province.

To have pushed the railway across the plains, as settlement was made, and in advance of it, with the construction of wisely located branches.

To develop the water channels of the country, such being, as the history of the continent has shewn, the true means of communication for the settlement of the territory.

Under proper regulations to have given the land to the settler, and have kept it from the domain of speculation.

To have constructed the railway from Callender to the neighbourhood of Lake Nipissing.

To have commenced the line at Port Arthur, and year by year, east and west, the line to be carried on to completion on the north shore of Lake Superior.

When population warranted the completion of the scheme to have carried the line across the Rocky Mountains.

How different would have been the situation in every respect? how much greater the population in the Northwest? how much less our debt? and how utterly free the Dominion would have been from the discontent, which so broods over the whole population?

CHAPTER X.

During the period these pages were being prepared for the press, a political convention was held at Toronto, on Wednesday the 17th December. A speech was made by Sir John Macdonald, the present Premier, to a crowded audience of his supporters, with several members of his administration ranged around him in moral support. I have no desire to touch on the political features of his oration. It is not my object to add to the bitterness and rancour of Canadian public life. His allusions, however, to the Canadian Pacific Railway I venture to consider; indeed, I feel it a duty to do so. For if what I have written lays claim to be free from party colouring, it is in itself an investigation of the proceedings of the national work in question; and I approach the subject rather with the view of disintegrating party associations, than by one sentence strengthen or confirm them.

The paragraph I extract is the following. It is the only one which I will consider. I will, however, make bold to say that much dwelt upon by the First Minister in his long address, has been answered in these pages; that its utterance in many respects has been met by anticipation.

"Now, gentlemen, I shall read this short memorandum: 'The Canadian Pacific Railway is rapidly approaching completion. Through trains will be running from Montreal to the Pacific Coast next autumn. The distance from Montreal to the Pacific ocean is 2,900 miles, or 430 miles less than from New York to San Francisco. From Montreal to Yokohama in Japan via the C. P. R. the distance is 10,977 miles, or 1,013 miles shorter than via New York and San Francisco. When the C. P. R. has been extended eastward to the Maritime provinces with a direct line to Louisbourg, C. B., the ocean voyage from England to America may be accomplished easily in five days, and the railway journey from Louisbourg to the Pacific ocean may be done in five days more. This will be ten days from London to the new city of Vancouver on the Pacific coast. The run across the Pacific to Yokohama may be made in fourteen days; the whole trip will thus be made in twenty-four days from London to Yoko-

hama, a saving in time of at least twenty days over the route via Gibraltar and the Suez Canal. The English colony of Hong Kong may be reached by the C. P. R. in less than thirty days from England, or sixteen days less than by Gibraltar or the Suez Canal. During all that time the traveller will never be out of the sound of the British drum, and may always have his eyes resting on the Union Jack.'" [Tremendous cheering.]

We have here the old mystifying argument of distance, than which nothing is more fallacious. It is so far convenient that it sets out of sight the fact admitted by all engaged in the duty of studying the movement of Freight, that there is no Eastern trade from China, Japan or Pacific Waters obtainable, to be passed over the Canadian Pacific. I raise a distient issue. If I be incorrect, Sir John Macdonald, in his place in Parliament, can establish the contrary. There is either a well established trade finding its way across the United States or there is not. If such trade has not been hitherto created and established, the proof is plain against the possibility of its creation; that in spite of the expectations expressed, and the assertions persevered in, there is no present trade to be competed for. In the wide sense of the word, no Eastern railway trade exists. It passes by water through the Suez Canal at one-third the cost.* I avoid all allusion to the Panama Canal for I believe that the conditions of that work are such, that its completion is scarcely attainable; that, at least, a century must pass before it is in operation, The difficulties to be overcome and the amount of work to be executed, are Titanic. I class it with the projected tunnel under the English Channel between Dover and Calais.

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* Mr. T. W. Hellyer, of Yokohama, Japan, arrived in this city on Tuesday evening on his way to England. Mr. Hellyer has lived in Japan nearly fifteen years. He said that if the Canadian Pacific line was not blockaded by snow during the winter, some of the trade would likely go this way to Europe. Forty-nine fiftieths (49-50) of the amount of tea exported from Japan is sent to America, and when the C.P.R. is completed, it is likely that the tea used by Canadians will come from Japan via that road, if the rates were not too high. At present tea can be shipped from Yokohama to New York, via the Suez Canal for 30 shillings per ton, or less than one cent per lb. While it costs 2½ cents per lb. to ship to New York, via the overland route from San Francisco. Mr. Hellyer says the latter way of shipment is preferable, as it is not a good thing to allow the tea to pass through the tropics. Five million pounds of tea are imported annually into Canada.

Toronto Globe.

Tea must be carried by special Freight Trains, to avoid pulverization, caused by unnecessary shunting. In such case its value is decreased.

Sir J. Macdonald, like the Duke of Newcastle, of George the Second's reign, to whom he has himself been compared, is required to be told that Cape Breton is an island. The Gut of Canso, which separates it from Nova Scotia, is about 2½ miles wide, requiring a viaduct longer than the Victoria Bridge, but infinitely more costly to construct from the greater depth of water, and the rapid current experienced at ebb and flow, if it be at all practicable.

So far as can be judged by naval charts, the voyage from Europe is increased about 150 miles by going to Halifax in preference to Louisbourg; in ordinary cases, a matter of from twelve to fourteen hours. Surely a poor argument to explain the expenditure of twelve or thirteen millions of dollars, independently of the construction of an eastern Victoria Bridge to connect the island with the main land.

Why, indeed, it may be asked, is the country called upon to entertain any project of this "short line" to the seaboard. Let us examine its requirements. It is advocated purely in the interests of the Canadian Pacific Railway. The terminus of that line is now Montreal. Why complicate the obligations of the Syndicate to the Government? We learn from Sir J. Macdonald the terminus of the future is Louisburg, and its historical associations have made it well-known. Those acquainted with the events of this Continent have little to learn of its locality, and capabilities. Be they what they may, Louisbourg must be considered, to-day, as it was by the able men who judged it as a place of utility at the date of its second conquest, 1758. They recommended its abandonment and destruction on the ground that it was unnecessary to maintain it as a naval station, by the side of Halifax. It was demolished in 1764. Halifax is 29 hours from Point Levis, 35 from Montreal. In the winter months of travel, passengers will arrive at their eastward destination in this time. Freight exacts a longer period of transit. In the seven months of summer, of open water, passengers take the Railway at Quebec. Freight only is carried to Montreal.

Why should the Government build up a rival to the national line, the Intercolonial Railway. If ever there was an expression of public opinion necessary, it is at this moment called for against more waste of public money on this monstrous, I use the word advisedly, eastern extension. There is not a shadow of reason to explain it, except the claim of the Canadian Pacific Company to build up a line to connect with their Railways unpledged to the Dominion, those

forming a link in opposition to the Canadian Pacific Railway itself; lines west of Ottawa which have become a part of the Michigan Central system. The Railways included in the thirty-two million mortgage, they can throw up at any time. Retaining the connection with the Michigan Central from St. Thomas to Ottawa, they have but to build a branch to Montreal to establish a full independent connection with the West. With the Eastern extension constructed with Government money, to what extent it is not possible to say, the Syndicate will possess a system in the most direct and positive opposition to the Canadian Pacific Railway. Their natural connections will lie with the Michigan Central to the United States' Pacific lines.

This scheme of extension is to run a line from Montreal, starting at the bridge projected at the head of the Lachine Rapids, eastward to Louisbourg, 800 miles estimated. Few out of the circle of the influence of the Syndicate can see the necessity of this second bridge in view of its cost. Nor can its construction be advocated except in connection with this eastern extension. Disconnected from this association, in which it is considered, the project can only be looked upon as an unwarrantable misapplication of capital.

The distances so far as they can be estimated are as follow :

	Lines constructed and in operation.	Not yet constructed distances estimated.
	Miles.	Miles.
From the Lachine Bridge to Lennoxville.....		95
From Lennoxville by the International line in operation, Lake Megantic.....	66	
From Lake Megantic across the State of Maine to Houlton to connect with the Canada and New Brunswick Railway through foreign territory...		170
From Houlton to Woodstock, thence to Fredericton by the Canada and New Brunswick Railway, and New Brunswick Railway	81	
Thence by newly projected route to Moncton and parallel to the Intercolonial Railway to Painsec.		118
Thence by projected Railway to New Glasgow.....		115
Thence following the present line of the Halifax and Cape Breton Railway to the Gut of Canso	81	
Across Gut of Canso.....		2½
Thence by projected line to Louisbourg, Cape Breton		75½
	228	576

By the above figures, the total distance from Lachine Bridge to Louisbourg is 804 miles, 584 miles of construction being required.

The present distance from Montreal by the Grand Trunk Railway and the Intercolonial to Halifax is

Montreal to Quebec.	164
Quebec to Halifax	679
	—— 843

Difference 39 miles estimated.

Thus in the short route from Louisbourg to Montreal, to connect with the Lachine Bridge, there will be a distance saved of 39 miles, by the above figures. But, with the Gut of Canso, often made of difficult passage by the ice carried up and down by its rapid current, the loss of time required for the transit would more than compensate for any saving of distance. I do not hesitate to express an opinion that the line from Halifax would prove much the shortest in matter of time. The ocean voyage may, theoretically, be 12 hours longer, and to save these twelve hours we are called upon to expend twelve millions.

What is one of the strange features of this project is that the line should be taken for so great an extent through a foreign country, the State of Maine. One of the main arguments for constructing the line on the north of Lake Superior, was the determination to keep the location entirely in British territory. Indeed it was the chief reason assigned for the prosecution of the work. How can this principle be recognised in the present projected extension, which entirely disregards the theory.

Is the Government of Sir John Macdonald, when the First Minister extolls this route, forgetful of the obligations which, by tacit inference, they assume. They are pledging themselves to an expenditure, in round numbers, of 600 miles, at $20,000 a mile. Twelve millions to create an opposition to the national line of the Dominion, without one beneficial resulting consequence; to build up a seaport, which our sires, a century and a quarter back, in the national flush and pride of conquest, deliberately abandoned as unnecessary, and in view of our possession of Halifax held of secondary importance.

Is there one grain of patriotism left in Canada which will not revolt at this abuse of power, and this wilful, senseless abandonment of every dictate of reason and prudence. It is time that constituencies should know the merit of the question submitted to Parliament, and that the wealthy Province of Ontario should understand the

threatened profligacy of expenditure of money, in no small degree gathered from the hardy toil and thrift of her children. I have said that Halifax is in every way preferable as a harbour to Louisbourg, and that the extra distance may prolong the sea voyage some 12 hours. Experience has established that although Halifax as a starting point for steam-ship travel to Europe offers the geographical advantage of shortening the voyage, it has not been favourably considered by the travelling community. New York, on the contrary, has increased its centralizing influence to become the starting point for Europe. The one interest to be benefitted in the choice of Louisbourg is that of the Canadian Pacific Railway. I may be told that I am unpatriotic in stating that there will be but a very limited Pacific traffic. I hold that it is true patriotism to avoid misrepresentation, and to set forth at their just value these visionary schemes, these fanciful projects, which if they be recklessly accepted, can only lead to hopes to be wrecked, and expectations never to be realized. We have the best of teaching in the past, if we but profit by it. Halifax has been known as an Atlantic steam-ship station for forty years. It was the head-quarters of the Cunard line, but from the force of circumstances, New York has become the point of departure of this Company's vessels. Although Railways have been constructed to bring Halifax in direct connection with the centres of the United States, every effort to regain this traffic has failed. To judge the future by the past, a similar result will be experienced by the creation of this new eastern port. It is a mere rhetorical flourish to speak of Louisbourg.

Sir John Macdonald draws a comparison between the distance from New York to San Francisco and from Montreal to the new terminus, Vancouver. Quebec, however, must be spoken of as the starting point in Canadian waters, for it is here that passengers leave the steamers seven months in the year. So far as can be made out the distance from Montreal to the Pacific is 2,900 miles; from Quebec, 3,058 miles. From New York to San Francisco, is estimated at 3,270 miles. A difference of 212 miles during seven months in the year. For the remaining five months, when Halifax will be the port, the disadvantage is against the Canadian Pacific. All mere comparison of mileage is of little value: with the extreme grades of 200 to the mile on the Canadian Pacific, which the Government are allowing to be introduced, there cannot be a doubt but via New York will prove the shortest in time.

Can Sir. John Macdonald be in earnest in naming Hong Kong as being nearer across this continent to Europe, than by the Suez Canal? The extent of this Colony is 23 square miles. Its population about 100,000! What traffic in this direction can be hoped for?

The figures furnished to Sir John Macdonald for his statistics are not those generally accepted.

They are, across the Continent..... 5 days.
From London to the Pacific..... 5 "
To Yokohoma..... 14 "
—— 24 days.

I would extend them as follows:

From London to the Pacific, from 15 to 19, say average..... 17 days.
From the Pacific to Yokohama, Japan is 4288 miles, at 12 miles an hour the journey can be performed in 360 hours, or..... 15 "
—— 32 days.

From Southampton to Yokohama via the Suez Canal is 11,586 miles, which, at 12 miles at hour, gives a time of 967 hours, or about..... 40 days and some hours.

These calculations are based on the theory of the common employment of steamships.

The statistics furnished to the Premier make these figures 24 days across the Continent, and 44 days through the Suez Canal.

When I give the figures of eight days' saving of actual time travelled, with the transhipment at the future Louisbourg, to the railway, and at the Pacific to the steamer, I do not think any shipping agent will see any extraordinary advance in favour of the overland route as to time. The cost of freight is known to be by railway travel to water travel as nearly 4 to 1, certainly 3 to 1.

Indeed, the days are gone when there need be speculation as to Eastern traffic across this continent, either from Hong Kong or Japan or China. If the transcontinental route could have been successfully established it would have been long ago in operation. The flourish of the traveller never being out of sound of the British drum with his eye resting on the British flag, is not new. Certainly it is untrue because we will be passing, according to Sir John Macdonald, through the State of Maine, nearly two hundred miles, a foreign country where the flag certainly will not be found. The

drum, however, is not a national instrument. But in any case the martial music of England found a better exponent in Daniel Webster. Mr. Fleming, in his lately published book, has anticipated the first Minister in the matter of the second.*

I ask every considerate person to examine into the character of these promised advantages.

When the length of the line is thus dilated upon, nothing is said of the character of the line itself. All information concerning it is suppressed. But reports of its condition creep out of the charmed circle in which information, it is hoped, can be retained. What is reported of the line between Sudbury Junction and the Neepigon, some 500 miles is, that three-quarters of the distance consists of curves with few curves of large radius. Half of the curves are 4°, 1433 feet radius. The remaining curves are 700 feet, 800′ and 900′ radius, 8°, 7° and 6° curves. When there is filling above 15 feet in depth, trestle work is constructed. Some of it 95 feet in height, much of it on sharp curves. The bridges are of wood. What is this wood? Newly cut unseasoned timber? If so, its life is not worth seven years. Seven thousand men are reported as being engaged pushing on the work with wonderful rapidity. If the description given of it be true, it could scarcely be otherwise.

Should the condition of the line be misrepresented in these reports, Mr. Van Horne must understand that it is owing to the system he follows. I mention his name thus prominently, because it is a matter of notoriety that he is the one directing power of the operations on the ground. The Company has no chief engineer, no

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* "The construction of a system of submarine Telegraphs will also follow at an early day They will be established across the ocean to Japan, and connect with China. They will be extended to India, to Australia, to New Zealand. Great Britain may then be in close relations with her possessions in every quarter of the globe, by lines of communication under the protection of her flag without passing through an acre of foreign soil."

England and Canada, p. 432, by Sandford Fleming.

* "On the question of principle, while actual suffering was as yet afar off, they (the Colonies) raised their flag against a power for the purposes of foreign conquest and subjugation, Rome in the height of her glory is not to be compared; a power which has dotted over the surface of the whole globe with her possessions and military posts, whose morning drum beat following the sun and keeping company with the hours, circles the earth with one continuous and unbroken strain of the martial airs of England."

Speech of Daniel Webster, 7th May, 1834.

man of recognized authority in whom all responsibility is centered. There are many in Canada of this class of thirty or forty years standing. The word of one of them would be accepted in most unfavourable surmises. It is invidious to adduce names. But they suggest themselves to the Railway world, and in this emergency, the declaration of one of them would suffice to silence the most inimical criticism. Mr. Van Horne's career in the United States is now known to the public. If it be untrue what I am about to state, I will make him the most humble of apologies. Like all men who obtain a marked position, Mr. Van Horne's early relationships have been discussed. His experience on the Chicago, Milwaukie and St. Paul Railway has been that of telegraph operator, freight clerk, conductor, assistant superintendent, District Superintendent, I believe, General Superintendent. He has never had the slightest experience in engineering duties, even in the humblest capacity. It is in Canada that his first essay has been made. No one can affirm that his career, since he left the State of Minnesota, has been deficient in boldness and novelty.

Whatever natural abilities and energy any one of us may possess, it is no light matter to assume responsible duties which are new to us. Especially those appertaining to a profession in which the student of half a century feels that daily he has something to learn; and in which, in critical and difficult emergencies, the best trained man acts with reserve, caution, and with a thorough investigation of all the influences which he has to consider. No one need be told that in the determination of the scientific problems by which inventions have been advanced and our comforts multiplied that it is only by these qualities and this mode of proceedure that we have reached our present horizon of comparative excellence.

It is by the non-observance of this mode of procedure that the Canadian Pacific line has been put on the ground in a haphazard way, and the wrong location selected. It is by the nonobservance of these rules, that we have throughout the line the formidable curvature, which will make it so difficult to work; the unnecessary heavy grades which would have been entirely avoided on Mr. Fleming's location; the reckless expenditure incurred to push on work, to make the world talk of the speed with which it was carried on, as something to be admired; the Lake Huron steamers made of such dimensions that they cannot pass through the enlarged canals, and so

must remain forever imprisoned west of Buffalo ; the construction of 95 miles of the Algoma Branch, abandoned, and now going to ruin, without a train having passed over it; the seven miles of the Atlantic and North-west Railway curving near Mile End into the line, unused, and the ties rotting ; the purchase of property for a tunnel from St. Catherine Street, Montreal, to the Canadian Pacific line to Ottawa commenced without reflection or forethought, and as impulsively abandoned, fortunately with wisdom. Follies for which no explanation can be attempted.

I have now to enter upon what I hold equally to be a marked departure from the rules of prudence, never to be neglected in great undertakings.

It is reported that the gradients follow the level of the ground as much as possible in order to reduce the work to a minimum. What these grades are I cannot say. But it is to be feared that these sharp curves and heavy grades, in the season of snow and ice, present difficulties in working the line which may prove insuperable. The introduction of trestling and wooden bridges will create a permanent way, the duration of which cannot be lookod for longer than ten years or so. The parliamentary papers shew that nearly a million dollars has been paid to bring up to grade with earth embankments, the trestle work of the line between Fort Arthur and the Lake of the Woods. Here the charge was legitimate. It was a schedule contract, the only good and true mode by which work can be carried on and paid for. The theory of Mr. Fleming, then Chief Engineer, was to open out the communication in the most rapid way. Trestling was accordingly introduced to admit the passage of ballast trains by which the depressions could be filled. The theory was correct in that case. It was advisable to complete the track by these means, so that as rapidly as possible, railway communication could be obtained between Lake Superior and Winnipeg.

There is no such requirement for haste on the north shore of Lake Superior. The connection calls for no such sacrifice, no substitution of temporary expedients. What is required is that the road bed be firmly and substantially formed. And if the principle of construction which I describe has been followed, such is not the case. On the contrary, unless the Railway be made perfect, by iron bridges and firm earth embankments, the road bed will not last above twelve years.

I have also to allude to a new feature which has been introduced in bridge building on this division. Before entering upon its description, I must avail myself of a homely illustration to shew the force of the criticism I make. If any of us desire to remove a nail or some projection included in a clutch which we cannot open, we move it backwards and forwards to loosen it. Such is the action of a train of cars over a pier, the impulsion being given on the surface of it, continually contrariwise. This constant influence, like the working of the ever recurring drop of water, has the tendency to disintegrate the masses of which the pier is composed, to destroy its unity; so that in extreme frost, and with great loads it can be disadvantageously acted upon. The superstructure, however, will keep each pier in position, if it itself be secured and immovable. For the movement is then longitudinally distributed. In properly constructed bridges the superstructure is carefully maintained in equilibrium by the abutments; heavy massive piers with side walls to secure them against any lateral thrust conveyed by the passage of the train, so it may be said that the massiveness of the abutment, regulated by circumstance, is the key to the safety of the bridge.

I never knew a capable Engineer who neglected a careful consideration of this matter.

Mr. Van Horne, however, who rises superior to rule and ancient practice has abandoned this principle. To his bridges there is no abutment. There is but a simple pier in its place. Hence according to the old theory there is not sufficient resistance to the influence I have described; and it may be expected that in a few years the continuous passage of trains will tell on these slight structures.

It may be answered that these abutments will last as long as the trestling and the wood bridges, and that it is the intention to strengthen them in the renovation of the line in 1894.

In the absence of published reports, the condition and character of the work, can only be known by the narratives of those who have passed over it. It is these statements, coming from the most varied sources, which form a concrete whole. Clause 39 of the Act sets forth "that the company shall, from time time, furnish such reports of the progress of the work, with such details as the Government may require." Has this requisition been made? Is there any default of compliance? In any case, the public, the outer world have been

ignored. None such have been published as having been submitted to the House of Commons, the one channel through which all reports should pass.

I claim in no way to exaggerate the reports I have given. They are, however, simply reports. I have no means of obtaining special information. I only write what many besides myself have heard. A few pages of information, which the offices of the Company, if properly managed, should prepare in a few hours, would furnish all the facts involved in the description, viz.: a table of curves and grades, the amount of trestling, the extent of wooden bridges, the extent of solid embankments, under and above 15 feet in height. The return could be verified in a short time by the engineers of the Department.

From all I hear, I do not think that the facts will be disputed. My theory is that they will be justified. Clause 3, of the Contract lays down these extraordinary provisions :

> "In order to establish an approximate standard whereby the "quality and the character of the railway, and of the materials "used in the construction therefore, and the equipment "thereof may be regulated. The Union Pacific Railway of "the United States as the same was *when first constructed* is "hereby selected and fixed as such standard." *

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* The acceptance of the Union Pacific Railway as a standard was first objected to in the Debate on the 15th December, 1880, (Hansard vol. X, pp. 87-89). During the whole consideration of the contract the most marked opposition was made to the proceeding. In asking the Government to give some information so that the standard could be judged, Mr. Blake pointed out that this Railway was first commenced in 1863, and not completed until 1869, when the early portions of the road were worn out. Sir Charles Tupper argued that as the Union Pacific is a road on which a speed of 40 miles an hour can be obtained, and is capable of carrying a vast amount of traffic at a very considerable profit, and *as a completely constructed railroad would necessarily obtain the best gradients and curves, and best description of road*, for the reason that being obliged to operate the road after its construction, it is a matter of the utmost importance to the Company in a financial and commercial point of view *that they should make the road of as good a standard as possible to their means*. . . . . "*We have*," he added, "*a tolerable strong assurance that the character of the Canadian Pacific Railway will be all that we can desire*. On Sir C. Tupper stating that the Union Pacific Railway had been used as a standard on the Allan Contract, Mr. Blake forcibly pointed out the marked distinction between the mode in which it was named in the present and in the Allan contract.

In the present contract, the standard is as the same as first constructed.

In the Allan contract, the railway is selected as a standard, "But in a general way only, and not with respect to any minor details in its construction or working

The clause provides that any difference of view as to these provisions shall be referred to arbitration.

Are we to read by the above that any temporary work first constructed may be admitted as the type for final acceptance? The proceedings of the Department in the section of the line west of Lake Superior, through the rough country by the Lake of the Woods furnish a negative reply. The Government are expending one million of dollars for filling up the trestle work on this section. Conveying the idea, that throughout the line they are enforcing the principle of careful, thorough, solid work.

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which may be found to be objectionable in respect of alignment and curves which shall be as favourable as the nature of the country will admit without undue expenditure."

Mr. Charlton remarked, the circumstances attending the construction of the Union Pacific are briefly these. Two great Companies were chartered for the construction of a line from Omaha to Sacramento. These Companies received subsidies from Government in money and lands. The Companies built a road without paying the slightest attention to the quality of the materials, or the mode of construction, caring nothing but to get a line, over which they could run a locomotive. *Two or three miles of road* were laid down every day. The ties were of pine and cotton wood, which was even less suitable than box wood, and the road was in place (*sic*) during the winter months ballasted with blocks of frozen earth. The grades at first were as high as 116 feet to the mile, though they were afterwards reduced to 90 feet to the mile. The road had curves of small radius, and its condition at that time was such that even a construction train could not be run upon it with safety. This was the standard of comparison.

In answer to Mr. Blake's application for information, Sir C. Tupper had no papers to bring down. The Union Pacific was a matter of history.

It was this standard which the Government majority sustained against all protest and criticism—a protest continued throughout the whole debate.

Those who desire to read more on this subject may refer to the Commons Debates in 1881, pp. 87-89, pp. 108-111, also to page 385, to the speech of Mr. Mackenzie. The latter is remarkable as it gives the purport of the letter laid on the table by Sir C. Tupper, "written by three gentlemen belonging to the Syndicate," dated 16th December, 1880. The contents are not given. Mr. Mackenzie tells us that it intimated their willingness to have the condition of the Union Pacific in 1878 substituted. Mr. Mackenzie remarked: "I look upon the standard of the Union Pacific Railway as wholly unsuitable, and one that it will be a great calamity to adopt. . . . With the good sense which distinguishes him he hit upon the absurd proposition of arbitration shewing that it was perfectly inoperative. "This provision" he said "is an absurd and unpractical one, and we cannot help thinking that it was designed by the cunning contriver of the Bill. I do not know whether he is present, but I believe that he is not far from the sound of my voice, as a very efficient preventive against the Government having any interference in the construction of the road." It was on this occasion Mr. Mackenzie said, p. 397. "The evidence accumulates as this discussion goes on, that the character of the road is to be even worse than any one supposed it would be."

The clause itself is a national shame and disgrace. Why was it not distinctly stated what the road-bed, structures and bridges should be? We had nothing to learn on the matter of railways. Why seek a foreign standard? It is but a few years back that there was an attempt to construct the bridges on the Intercolonial Railway of wood. The published correspondence shows a thorough examination of the question, Surely it could not have been forgotten. It is well known that in the dark days of the early difficulties of the Grand Trunk, that it was the iron bridges alone which kept the road in operation. Had they been of timber and perishable, the opinion has long been held that the railway would have succumbed. The obvious duty of the Government was to have made a clear and distinct specification, so that both the Dominion and the Company knew what was to be expected and what performed.

It is almost impossible for an Enginneer to make an inspection of the line. What is the legal standard by which the work can be judged? Clearly not the moral abstract theory that a certain class of work should be performed in a certain manner. There can be no complaint of positive inferiority or unfitness. Any such objection may be met that is in accordance with the contract standard. The wording of the contract could only have had in view the protection of the Company in a crisis of difficult criticism.

The question of bridges came up during the debate (pp. 396-7). In the powerful speech of Mr. Mackenzie, one of the most powerful he ever uttered, his remarks disclosed the theory that the bridges should be of iron. He was interrupted by Sir Charles Tupper, with the query if he intended that the contractors should build a better line than the Government had constructed west of Port Arthur, on which the structures were of wood. Mr. Mackenzie pointed out, that the erection was necessarily of a temporary character, that the effort of the Government had been to complete the connection as rapidly as possible with the design to replace such temporary work with iron bridges. He made the marked distinction between a Government so acting, and the like course being permitted in the contracts with the Syndicate; and it is preposterous to establish any such comparison.

Mr. Mackenzie at once drew the conclusion that the bridges were to be of timber. Sir Charles Tupper remained silent; consequently, the question of material in one sense could be called an open question. To some extent, it has been resolved by the Syndicate.

The Company commenced their work with iron bridges. So long as they were but little distant from Ottawa, or on the plains, where they were talked about, or in the neighbourhood of Port Arthur, the newspapers tell us the bridges are of iron. This principle is completely departed from. North of Lake Superior and down the Kicking Horse Pass and on to Savonna Ferry, the report is general that wooden bridges only are constructed. If this statement should be true, the line will scarcely survive the ten years which the Government have to take security that the Company work it. They have parted with every vestige of security to enforce this duty. Where then lies our protection? It seems all the law gives us, is a perishable railway, with a narrow limit of life and the country has not the slightest power to enforce a single right it possesses.

It may be asked why the statement is made; why these pages are written. Many argue honestly from the opinion that the Canadian Pacific is *un fait accompli*, which we must help right or wrong to a conclusion. That whatever its inception and the conduct of its directors, it appeals to public support as a national undertaking.

I will not say that this argument would be inadmissible if the Company had confined its operations to the territory included in the contract with the Government, to the construction of the line between Callender and Savonna Ferry. Most of us might then have felt that it was an undertaking appealing to our sympathies and sentiment and hence we would have been led to strain a point to foster and safeguard its interests. It is very different to-day. The Company aims at the establishment of a line through the length of the Dominion to the extreme Eastern harbour of Louisbourg, to the exclusion and injury of every existent interest, and from their earliest formation they have been marked by an arrogant and insolent aggressiveness.

As a private Company they are only responsible to their own members for their conduct. They have the same freedom of action as any other kind of individuals to extend their operations as they see fit. They possess the common right of self assertion which under our happily formed Constitution, every British subject enjoys. But, when they are able to influence the Government of the country to identify the national credit with their operations, they challenge inquiry into every item of their expenditure, and every phase of their policy. When they came as suppliants to Parliament, and received the immense amount of assistance of thirty-two millions they cease to

be a private Company, they make themselves amenable to criticism in every form. It will be recollected that this money payment was voted on the ground that $26,353,912 loan was the amount required to complete the line. Since this date we are told that the work between the first crossing of the Columbia and Savonna Ferry has turned out much less difficult than was anticipated, and that the cost would fall below the first estimate four million dollars. It has, therefore, been a matter of speculation if Mr. Van Horne will decline to receive these four millions as there is no ground for their employment. Whether this money be retained by the Government, or received by the Company, basing their opinion on these facts, the public ought to feel satisfaction to this extent, that they have a guarantee that there is more than enough money to complete the line fully, thoroughly; consequently that the House of Commons will not be asked for a further subsidy. There is, however, the feeling that some application is hovering over us. Coming events cast their shadows before, and there is much to lead to anxiety for the future.

When this money was asked for, it was clearly understood that the maximum grade was 116 feet to the mile. Mr. Reed's report for the first time disclosed the fact that there are several consecutive miles of a grade of 200 feet and 250 feet to the mile on the western slope of the Kicking Horse Pass. This distance, Mr. Reed's "temporary track," is merely to be used until nine miles of tunnel are constructed. It cannot be too seriously brought to recollection that when the money was obtained, a limit of grade of 116 feet was promised. Is this saving of time to be thus attained by the introduction of these heavy grades? Not only the five years spoken of as saved, but another five years on their back are required to push the tunnel through the mountains. The actual result is that the character of the line has been depreciated. Had proper engineering information been laid before Parliament when the money was obtained, it would have been shewn at what cost the saving of time is to be effected by the introduction of grades, not only never anticipated, but never even mentioned, conclusively establishing the blunder which has been made in following the present route, and ruthlessly disregarding the line located by Mr. Fleming.

There may be many who conceive that it is too late to take any steps in what I hold to be the great error, which throughout has been committed. What is required is that the facts be known. A Com-

mission should be chosen from both political parties of men of eminence and of high reputation, to embrace three Engineers of standing, in no way connected with the Dominion or the Provincial Governments. The Committee to have full power to institute what examination they see fit, and themselves to appoint their Secretary.

The issues raised by me are distinct :

1. That no countenance or aid should be given to any new system of railways east of Montreal, with the view of creating further Eastern Extensions other than those now in use. Certainly, that the expressed intention of making an Eastern Port other than Halifax, should be opposed.

2. That an examination should be made of the line between Callender and Port Arthur; especially that portion between Sudbury Junction and Nepigon, with the view of examining the character of the curves and grades; likewise the manner in which the work of construction is being performed, establishing the extent of trestling and wooden bridges, and the character of the abutments.

3. That an examination he made into the questions involved by the construction of Mr. Reed's temporary line, with the heavy grades in the western slope of the Kicking Horse Pass, and especially into the threatened danger of the line being impeded by the avalanches, from the glaciers, and by slides of earth and timber.

4. That an examination be made into the threatened danger of avalanches, from glaciers in the Selkirk Range, and from slides of timber, earth and frozen snow ; and of the remedy proposed to prevent the line being periodically impeded by this *debris*, by locating the line round the River Columbia to the Boat Encampment.

The examination of the line to Savonna Ferry, to learn the grades, curves, and system of construction.

6. An investigation of the trade in Pacific waters, to trace what overland eastern traffic is possible to be obtained, especially as supported by its present condition over the United States' Railways, and what actual ground exists for supposing that a large passenger and freight traffic will pass across this Continent. Particularly in the view of determining the expediency of granting a large subsidy for the establishment of a line of steamships from the Terminus of the Canadian Pacific Railway to Yokohama, or to the East, or whether the line should not entirely be left to private enterprize.

There may be other delicate questions to be submitted to the Committee. They are not fanciful. Many of them already loom in the distance, daily to become more distinct, and it is the surmises to which they have given rise, which have created the opinion that there will be an application to Parliament for further aid.

The first condition for judging any such application is to possess a thorough knowledge of the facts; to know the character of the line which is being hurried on, its guarantee for durability, and the condition that in all seasons it can be worked. No object can be attained by the increased rate of construction, by shortening the period within which the work should be finished. The arguments advanced to support this view are puerile and unsustained by reason or facts. They are entirely without force or sound argument.

An opinion has crept into public life that the attempt is being made rapidly to complete the line, so it can be claimed that the work is finished. We shall hear then the *Io paean* of success. The work is consummated. Trains are running. The first locomotive, wreathed with flowers, will have crossed the continent to the Pacific shore. All will then be well. Some classical friend may say the Company have triumphed. The line is opened. All this babble against them is mere jealousy; your envious man is always a calumniator. He sees everything with eyes turned aside in hate. It is just as Cicero tells us *lividi limis occulis semper aspiciunt aliorum commoda.*

It may all sound magnificent enough. But if this boasted result shall have been attained by a sacrifice of those principles, and of that careful mode of construction, by which permanent works are established, so that the line, humanly speaking, can be claimed to be free from chance of accident, and that it can be worked in the most rigorous season. If these have all been sacrificed, and we have only a line of extreme grades and curves, with no promise of durability, we have scarcely the shadow of the requirements of the Dominion, and but a sorry return for our national sacrifices.

No information of the proceedings of the Canadian Pacific have been published. The fault is entirely that of the Minister of Railways. So far as that railway is concerned, he has not fulfilled his functions. The law exacts a different course of proceeding. It will be a difficult question to answer in the House of Commons, why

this information has not been periodically published. We know nothing of the grades and curves except what we hear by report. Their character was certainly misrepresented in the last session of Parliament. Constituencies should hold their members to stern account for their votes in the coming session. In spite of the efforts to make the railway a political question, it is no longer so to-day. It has become a consideration of commercial account. The whole relations of the railway are matters of practical economy, which Parliament should investigate.

The effort in these pages has been to awaken public attention to the condition of the railway; to point out that which, if sustained by fact, is reprehensible; to demand a calm examination of the whole subject; and to exact, that while the Syndicate are treated considerately and justly, they be held to the performance of their obligations, and that the country is not called upon to accept any inferior or ill-conditioned work.

The Dominion has acted with great generosity. The country has the right to expect full satisfaction in the results attained. As I have set forth matters, and I have done so from the papers at my disposal and what knowledge I could elsewhere obtain, I conceive that the interests of Canada have been sacrificed in the unwise change of location; in the features which the work presents; in the extraordinary payments Parliament consented to make. That any additional claim should be made upon the public purse with the present condition of our information, appears unwarrantable; in no wise countenanced by the terms of the contract; in no way supported by the proceedings of the Syndicate; in no form called for by meritorious and faithful service; in no degree sustained by any law of justice or the slightest whisper of reason.

We have to sift the true from the false, the metal from the earth. We have to get rid of the mystery in which the operations of the railway have been shrouded. We have to learn what the country has obtained for its money. We have to know what remedy lies for any deficiency which may be felt, in testing the full efficiency of the railway.

We cannot permit the railway when finished to be made subservient to private profit, and its usefulness engulfed in schemes of extension and speculation, which, the more they are examined by

calm inquiry, the more visionary and valueless they appear. In such circumstances we are, as it were, at the mercy of the Syndicate.

The public voice must be heard, the public sentiment respected equally as the public purse has been drawn upon. We can claim legitimately that the interests of Canada must alone be considered. We must not pause in enforcing our demand that they be held pre-eminent. We must oppose all further subsidies. It has been declared that more than enough has already been given to complete the Canadian Pacific proper. Indeed there is a surplus of four million dollars above its necessities. What we have specially to resist is the talked of Eastern extensions, costly, unnecessary, of no public utility.

The country has a higher duty than the consideration of the schemes of a clique of men. The Railway department was created for something more than their furtherance. The Government is called upon so to act that the interests of the Dominion are in no way sacrificed. They can only be consulted by prudence, and by the observance of an enlarged policy, based upon justice, reason, and right-doing. A policy which, in a work of the magnitude of this Railway, while carried out generously and with liberality, will avoid unnecessary and unwarrantable expenditure, and so command respect and confidence. On the other hand, it must assert the right to claim that the works of recognized public requirement be fully and efficiently constructed; that I must add, in the present emergency as far as possible.

THE END.

APPENDIX.

[*From the Montreal Herald, Sept. 27th, 1884.*]

THE CANADIAN PACIFIC RAILWAY.

The Work Remaining to be Done.

Important Reports from Mr. Van Horne and Mr. S. B. Reed, C.E.

Canadian Pacific Railway,
Montreal, 17th September, 1884.

The within reports relating to the work remaining to be done by the Company, and to the character of the country on the western section of the line, are considered by the Directors of sufficient interest to warrant their publication and distribution among the shareholders.

By order of the Board,

Charles Drinkwater,
Secretary.

The Canadian Pacific Railway.

To the Directors :

I returned last month from Victoria, British Columbia, over the line of the Canadian Pacific Railway, and had an opportunity to examine every part of the work remaining to be done by the Company on the mountain section.

Wishing to give all the time possible to our own work, I did not examine in detail the Government work between Port Moody and Savonna Ferry, and as to this, I can only report that it is proceeding rapidly, the track having reached, at the time of my visit, a point near Spence's Bridge, about 160 miles from Port Moody, and the grading from there being so far advanced as to justify the belief that the track will be laid to Savonna Ferry before many weeks.

The completion of the track to Savonna Ferry will be of the greatest advantage to the Company's work, which commences at that point and is directly accessible from there by steamboats, on the South Thompson River and the Shuswap Lakes for a distance of one hundred and eight miles.

Mr. S. B. Reed, an engineer of many years' experience, and under whose supervision the Union Pacific Railroad was built, accompanied me across the mountains, from Savonna Ferry ; and as I am able to submit his report herewith, I need not speak in detail of the engineering features of the line. Mr. Reed's large experience in railroad location and construction, both in the mountain and the prairie sections of the West, makes his report especially valuable. From personal observation, I can vouch for the accuracy of his statements. and I am confident that the cost of the work remaining to be done will fall considerably below his estimates, which were intended to be entirely safe. Indeed, the greater part of the work for more than one hundred miles, eastward from Savona Ferry, has been let at a price below those upon which his estimates were based, and the cost of the large amount of work already done westward from the summit of the Rocky Mountains is also within his figures.

From the favorable character of the work and the progress already made, I think there will be no difficulty in completing the mountain section within a year from this date, and for four million dollars less than the estimates of last winter. Within the same time the eastern section will also be completed, so that by September next a through rail connection between Montreal and the Pacific Coast will be established. There are no difficult engineering problems to be met; the work is simple, and the cost easily calculated.

I am happy to state, as one result of my trip, that my doubts about the value of the mountain section of the railway have been entirely removed. In addition to the agricultural possibilities of the many valleys of British Columbia and its great mineral wealth, its magnificent forests alone will furnish a large and remunerative traffic for the railway. From the mouth of the Kicking Horse River, forty-four miles west from the summit of the Rocky Mountains, to the Salmon Arm of the Shuswap Lakes, a distance of one hundred and fifty miles, the line passes through a continuous belt of gigantic trees, which increase in size going westward until they reach their maximum in Eagle Pass where trees eight and even nine feet in diameter, measured seven feet above the ground, are common. The timber is mostly cedar, Douglas fir, hemlock, white pine, spruce and tamarac. Other varieties of more or less value also occur. All of the valleys near the line of the railway through the Gold Range and the Selkirk mountains seem to be filled with valuable timber, and I have no doubt that the supply is practically inexhaustible. About the Pacific terminus there are also great forests of gigantic trees, even larger than those described, and the export trade in timber is already of considerable magnitude. There are many other sources of traffic and of wealth, the chief among them being the coals and the fisheries. The coals are the most valuable on the Pacific Coast, and are largely mined for shipment to San Francisco and elsewhere. The richness of the fisheries is almost beyond belief.

The magnificent harbors of British Columbia, its exceptionally favorable situation for commanding the trade of the North Pacific Coast, and of Japan and China, its abundant natural resources and matchless climate, must surely bring a large and rapid increase in wealth and population immediately upon the completion of the railway.

Having now seen all of the line between Winnipeg and the Pacific, and having studied the prairie section with great care, I feel justified in expressing my opinion in the strongest terms, that no mistake was made by the Company in adopting the more direct and southerly route instead of that by way of the Yellow Head Pass. The land along the northern route is undoubtedly good, but that along the constructed line is as good as land can well be, and the worst of it would be rated as first-class in almost any other country. Reports about alkali districts and sandy stretches have been circulated by parties ignorant of the country. These reports have in some cases originated in malice, and in others from superficial observation. There is no more alkili in the land on the prairie section of the line, than on any other prairie section of the same extent in North America. There is no more of it in the prairie soil along the line than is required for the perfect growth of cereals. There is not one mile of the country where good water cannot be obtained, and, as three years' experience leads me to believe, where there is not sufficient rain-fall for the growth of the crops. There is a notable absence of sand between Brandon and the mountains. It occurs in very few places, and it so happens that nearly all of the sandy spots have been taken up by settlers. The yellow clay sub-soil, so common west of Moosejaw, has doubtless been frequently mistaken for sand by parties looking at it from passing trains.

I do not hesitate to say that the Canadian Pacific Railway has more good agricultural land, more coal and more timber between Winnipeg and the Pacific Coast than all the other Pacific Railways combined, and that every part of the line, from Montreal to the Pacific, will pay.

Since writing the above, I have received the following telegram from Mr. Collingwood Schreiber, Chief Engineer of the Government Railways, who has just made a trip over the mountain section of the line :—

COLUMBIA, B. C., September 15th.

"Reached here this afternoon. Most satisfactory trip through the mountains. "Should have been very much astonished at the character of the work, had you "not previously given me a description of it."

I have the honor to be, gentlemen,

Respectfully yours,

W. C. VAN HORNE,

Vice-President.

MONTREAL, September 16th, 1884.

JOLIETE, Ill., September 9th, 1884.

SIR,—Upon your request, and on receipt of your letter of instructions, dated Montreal, May 17th, 1884, to go to British Columbia and examine the location on the Kamloops section of the Canadian Pacific Railway, I proceeded at once, via San Francisco and Victoria, B. C., to Savonna Ferry, at the west end of Kamloops Lake, where the Government contract for building east from the Pacific coast ends and the work of the Company commences.

At Savonna Ferry I met Mr. Cambie, in charge of construction, and Major Rogers, in charge of location, who walked with me over the proposed line to Kamloops village, a distance of twenty-five miles. At this time (June 6th) Major Rogers had his locating parties organized and at work, and had located the line from Savonna Ferry, about ten miles to the vicinity of the Cherry Creek Bluffs, where the expensive rock work of the Kamloops section occurs. After carefully examining the proposed line, I telegraphed you my opinion that the low grade shore line, on the south side of Kamloops Lake, should be adopted in preference to all other lines on the south side, in which opinion Mr. Cambie and Major Rogers fully concurred.

In locating the line along the face of the Cherry Creek Bluffs, every foot of the distance was carefully examined, and the best possible location selected. The work on this part of the section (six miles) is expensive but cannot be avoided. The grades on the lake section are favorable, in no case exceeding one per cent., and are compensated for curvature.

During the location to Kamloops, I examined thoroughly the high grade line located by the Government Engineers, some years ago, along the Cherry Creek Bluffs, which I think would be impracticable to build and maintain. Embankments more than fifty feet high occur, the slopes of which would extend into the lake, where, in sounding with a line one hundred and ten feet in length, no bottom was reached. Neither is there room to build retaining walls, or trestle bridging without extending into very deep water.

The rock excavation on the new line will be much less than on the old, and the tunnelling is reduced more than one-half. The maximum gradients are the same on the new line as on the old, but the curvature is increased—curves of ten degrees having been found necessary at the Cherry Creek Bluffs.

I also examined carefully a line run by Major Rogers over the hills south of the Bluffs, which would avoid part of the heavy work, and cost less to build, but to construct this line, grades of one hundred and sixteen feet per mile cannot be avoided, and as there is no grade between the Selkirk Mountains and the Pacific coast (about 390 miles), exceeding sixty-six feet per mile, it would not be sound railroad policy to introduce heavier grades near the centre of this long section, if they could be avoided without excessive expense.

I also thoroughly examined the country outside of the above specified lines, and was fully satisfied that the low grade shore line was the best that could be selected on or near the south shore of Kamloops Lake.

I submit herewith an estimate of the total quantities of earth and rock excavation and tunnelling, based upon the prices at which I understand the work to be let, also of bridging, as estimated from the located line, with the estimated cost of ties, rails, fastenings, track-laying, ballasting, buildings, right of way and engineering, making the total estimated cost of this section of twenty-five miles, one million one hundred thousand one hundred and fifty-four dollars ($1,100,144), or about $44,006 per mile.

After the location of the above-described section was finally completed, I passed over the remaining portion of the mountain section of the Canadian Pacific Railway yet to be built from Kamloops Village, in British Columbia, to the end of track near the summit of the Rocky Mountains, a distance of 263 miles. Having seen the plans and profiles covering nearly all the heaviest work, and having examined the character of the materials to be moved, and the bridges to be built, I am able to speak of the cost of the line remaining for construction with reasonable accuracy.

From Kamloops Village to the Little Shuswap Lake, thirty-eight miles, the line runs near the shore of the South Thompson River, crossing the farms that are located in the valley, where the small streams tributary to the river furnish water for irrigation. The grading and bridging on this portion of the line is very light, and the material is mostly sand and gravel. The trees are few and scattered, and the clearing and grubbing will be very light.

From Little Shuswap Lake to Sicamous Narrows, (forty-five miles) the line will be somewhat more expensive. The Shuswap Lakes are of irregular shape, and their arms, extending out between the mountains, distort the railway line and cause a loss in distance of about eight miles. The line leaves the South Thompson River at the head of the Little Shuswap Lake, crosses a "divide" to the Salmon arm of the Shuswap Lakes, and passes around on the south shore to Sicamous Narrows.

From the west end of the Little Shuswap Lake, going eastward, the excavation, on the first six miles will average nearly 30,000 cubic yards per mile, about one-half of which will be rock. On the next fourteen miles the work will average 16,000 cubic yards per mile - all earth and gravel. The next thirteen miles will average 16,000 yards per mile, 1,000 yards of which will be rock, and the rest earth, gravel and sand. The remaining twelve miles to Sicamous Narrows will average only about 10,000 cubic yards to the mile, 40 per cent. of which will be rock. On this section there will be two short tunnels—one of 240 feet and one of 300.

From Savonna Ferry to Sicamous Narrows, a distance of 108 miles, the entire line is contiguous to navigable water, and is therefore most favorably situated for cheap and rapid construction.

From Little Shuswap Lake eastward there is a marked change in the climate. Instead of the dry and almost rainless section extending eastward from the Cascade or Coast Range to the Shuswap Lakes, rain falls here in abundance, and a dense growth of timber covers the country eastward to the summit of the Rocky Mountains; hemlock, white pine, Douglass fir, spruce and some other verieties of timber growing to an enormous size. Cross-ties, bridge-timber, telegraph poles and lumber can be obtained at any place between Kamloops Lake and the main range of the Rocky Mountains at small cost. For example, responsible parties propose to deliver at Savonna Ferry bridge timber of all lengths at $15 per thousand feet, B.M., cross-ties on the line at 25 cents each, and piles at four cents per lineal foot; and I think all such materials can be furnished at less cost.

From Sicamous Narrows to Griffin Lake, near the summit of Eagle Pass, in the Gold Range (thirty miles). the line follows the valley of the Eagle River. But little if any rock excavation occurs, and the earth work is very light. Some pile bridging, and a short pivot bridge at Sicamous Narrows will be required. The country is densely wooded, and clearing and grubbing will cost about one thousand dollars per mile over the remaining portion of the line, east to the Rocky Mountains.

The Kamloops section (twenty-five miles), over which the line is definitely located and the work under contract, will cost, as before stated, one million one hundred thousand one hundred and forty-four ($1,100,144) dollars. The section to Griffin Lake, at the summit of Eagle Pass (113 miles), is estimated to cost not more than an average of sixteen thousand six hundred ($16,600) dollars per mile, making the average cost per mile from the west end of Kamloops Lake to Griffin Lake, a distance of 138 miles, twenty-one thousand five hundred and sixty-five ($21,565) dollars per mile.

This estimate, I am satisfied, will cover the cost of this road, including station buildings, water service, etc.

From Eagle Pass the line follows down the east slope of the Gold Range by way of the narrow valley of Tumwater Creek, to the west crossing of the Columbia River. The excavation is mostly in earth, but few rock cuttings occurring. As the Columbia is approached, some heavy embankments are required. The Columbia River is 800 feet wide, with a strong rapid current, and should be crossed by an* iron truss bridge, with a timber trestle approach, 2,800 feet long, averaging thirty to thirty-five feet in height. The cost of this bridge can be reduced materially by using two per cent. grades on the east slope of the Gold Range, but as no grade exceeding sixty feet per mile occurs between the Selkirk Range and the Pacific Coast, as before stated, it is best not to change here.

Eastward from the west crossing of the Columbia River, the line follows the west crossing of the Ille-Celle-waet to the summit of the Selkirk Range (Roger's Pass); thence down the valley of the Beaver to the East Columbia, thence up the Columbia River Valley to the mouth of the Kicking Horse River, and up that stream to the summit of the main range of the Rocky Mountains.

The line over the Selkirk Mountains, a distance of sixty-three miles, is remarkably easy to constrrct, there being comparatively little rock excavation, and but one short tunnel. The great bulk of the work will be in earth and loose rock. Two truss bridges of one span each will be required at the crossings of the

* Report states that these bridges are of wood.

Ille-Celle-waet and the Beaver, and one or two short truss bridges across small mountain streams, and a moderate number of short pile and trestle bridges across gullies on the mountain slopes.

At the east crossing of the Columbia, a deck truss bridge, 350 feet in length, will be required. In the valley of the Columbia, for a distance of thirty-five miles, with the exception of the canyon (four miles), where there are two short tunnels and some heavy work, now being done, the line is a remarkably easy one to build, the work being mostly in gravel and sand, and the rock, where it occurrs consisting of slate and shale.

From the mouth of the Kicking Horse River to the summit of the Rocky Mountains, a distance of forty-four miles, the grading is nearly completed, and I can see no reason why the track cannot be laid to the mouth of the Beaves, (seventy-nine miles from the Rocky Mountain summit) before winter sets in.

While traversing the line remaining to be built through the wooded section, evidences of snow slides were seen at and near Roger's Pass in the Selkirk Range, also near the summit of the main range of the Rocky Mountains, but the aggregate distance on which these occur does not exceed fifteen miles. A number of snow sheds will probably be required for the protection of the track, but nearly fifty miles of these are in successful use on the Central Pacific road.

From careful inspection of the country through which the line passes, and an examination of the plans and profiles so far as the line is finally located, between the summit of the Gold Range and the summit of the Rocky Mountains, one hundred and fifty miles, I am satisfied that this section of the road can be constructed at an average cost not exceeding thirty-three thousand dollars ($33,000) per mile, including station buildings, etc.

In view of the rugged mountain country, through which the line passes, from Savonna Ferry to the summit on the main range of the Rocky Mountains, a distance of two hundred and ninety miles, and the dense timber obstructing the successful exploration of the country over most of the distance, you have an exceedingly cheap line to build, costing far less per mile than the mountain work of the Union and Central Pacific roads.

The alignment is good, and the gradients, with the exception of the west slope of the Rocky Mountains, and over the Selkirk Range, in no place on the mountain secti n exceed sixty-six feet per mile.

On a portion of the west slope of the Rocky Mountains, and parts of both slopes of the Selkirk Range, grades of one hundred and sixteen feet per mile exist, but they occur within a comparatively short distance and can be easily and economically operated by the use of special locomotives, such as are used on similar gradients elsewhere.

I gave some attention to the nine miles of temporary track that has been built around a tunnel, and some heavy work in the vicinity of Mount Stephen, for the purpose of saving a year's time in completing the road through to the Pacific. This part of the road has four per cent. grades, and curves of ten degrees. As far as I examined this temporary line, I found it thoroughly built, with seventy pound rails (per yard), and first-class fastenings. It will answer all purposes for traffic for years to come, without material increase in the cost of operating. The Atchison, Topeka & Santa Fe, and other roads crossing the Rocky Mountains have grades equal to or exceeding this one.

I also examined the section of the proposed permanent line around which the temporary line has been built, and especially as you suggested, the large rock

slide immediately east of the long tunnel through a spur of Mount Stephen. All of the slide, except about one hundred and fifty feet in width, seems to have been formed from gradual accretions, as the face of the solid rock forming the cliffs south of the line has weathered and worn away. There is so evidence of any recent movement that could not be guarded against. Bushes of various kinds grow on the old and gradually accreted (*sic*) portion. The one hundred and fifty feet of the slide above referred to, is the track of a small stream that comes out from under a glacier about one thousand feet above the grade line. This glacier extends up Mount Stephen nearly, or quite to the summit, the upper portion being hidden from view by a projecting spur of the mountain. This small stream is gradually accumulating debris from the glacier, and in times of extreme summer heat, when the largest amount of snow and ice is being melted, a flood of water rushes down this slide, carrying with it the accumulated debris, into the valley below, with great force. A truss bridge, one hundred and fifty feet in length, can be built over this slide through which these accumulations can be passed with safety.

But the temporary line around this place is so well built, and promises to answer present purposes so well, I should think it unwise to expend any money on the intended permanent line until the traffic really demands it.

From the summit of the Rocky Mountains I went by rail to Winnipeg, and had an opportunity to see the entire line by daylight.

The track is in most excellent condition. Many of the temporary bridges across the larger streams have been replaced by substantial masonry and iron structures, and others of this description are now being erected.

The country through which the road passes appears to be rapidly filling up with a farming population, and evidences of thrift and prosperity are seen in all settled parts. This country yields abundantly wheat, oats, barley, rye, potatoes, etc., and will soon become the great wheat-growing country of America.

I know of no country in the United States of the same area that equals this for the growth of wheat and other grains adapted to the climate. By comparison of samples taken from fields of standing grain, ready for the harvest, six hundred, and eight hundred miles west of Winnipeg, with like samples from the Red River country in Minnesota, the merit was largely in favor of the former, and, judging from appearances, the yield will be much greater.

(Signed), S. B. Reed, C.E.

W. C. Van Horne, Esq.,
Vice-President Canadian Pacific Railway,
Montreal.

$175.00