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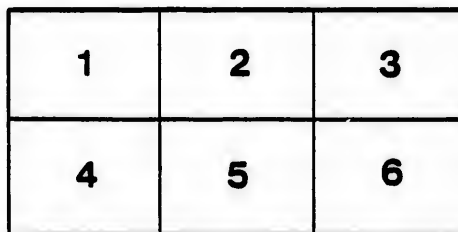
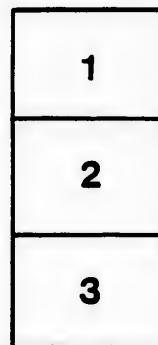
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REPORT

— OF AN —

EXAMINATION OF THE COUNTRY

— FROM —

HULL TO PEMBROKE AND THE DEEP RIVER,

— MADE BY —

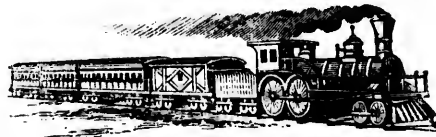
WILLIAM KINGSFORD, ESQ.,
ENGINEER,

— FOR THE —

St. Lawrence and Ottawa Railway Company's

EXTENSION TO PEMBROKE,

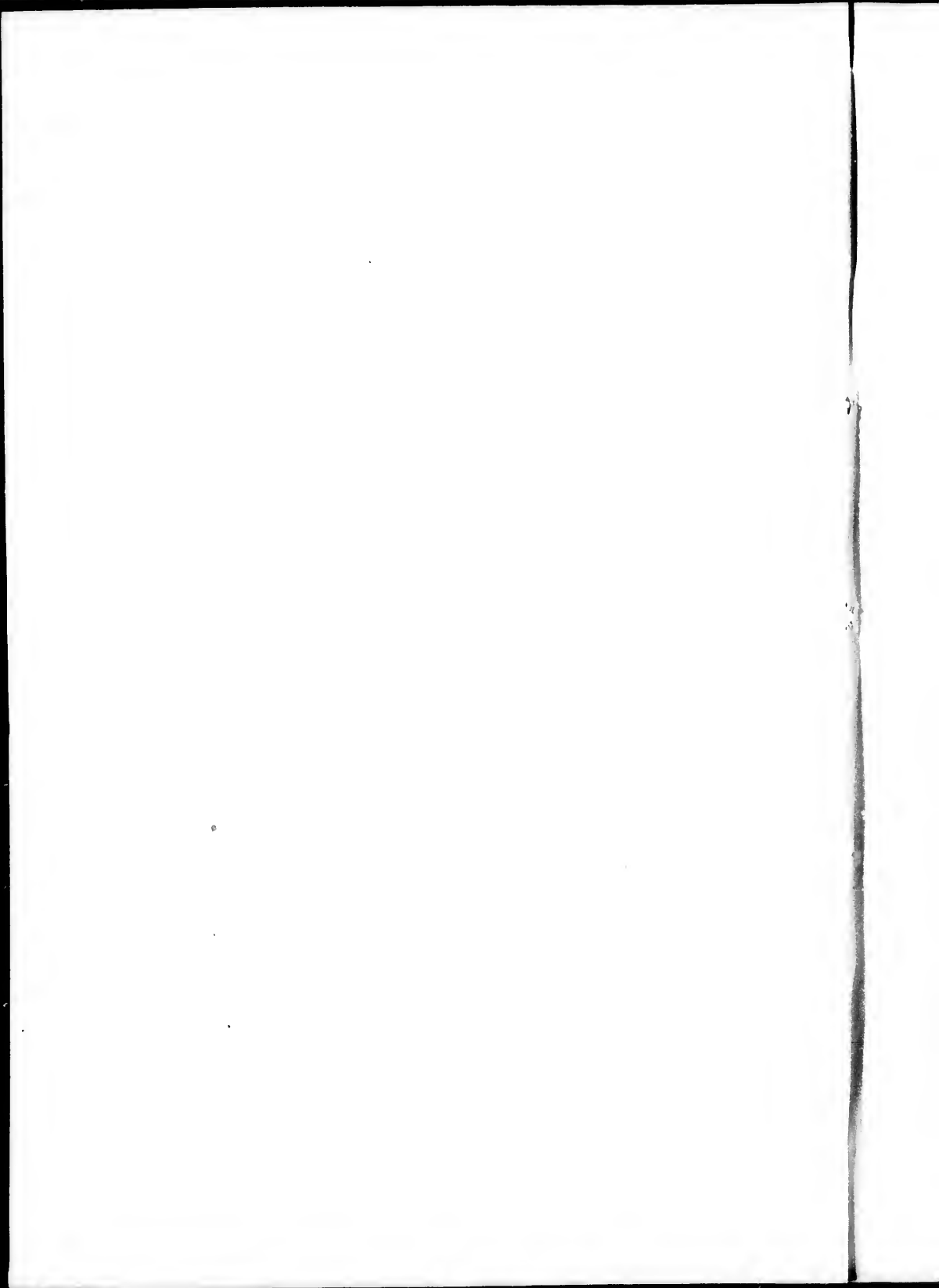
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OTTAWA:

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1872.



REPORT

Of a Reconnaissance of the country in the Province of Quebec, from Hull, opposite Ottawa, to Pembroke and the Deep River, made with a view to examine its capabilities for Railway purposes.

This district, consisting of the Counties of Pontiac and the Western half of Ottawa, has long suffered from the want of communication with the markets of the Dominion, and hence its settlement has been somewhat retarded, and its progress impeded. It mainly consists of the front Townships of Hull, Bristol, Onslow, Clarendon, Litchfield, Mansfield, Chichester and Sheen. As a rule, the land at the base of the trend of the Laurentian range of hills is of excellent description, and is in general in good state of cultivation. The hills in question run at the rear of these Townships, strike the North bank of the Deep River, a reach of the Ottawa seventeen miles above Pembroke, and they continue along the stream with some ruggedness. Settlement, however, has gone back among them Northwards, in varied extent, some twenty-five miles. West of the Conlonge the distance settled is somewhat less. It is anticipated that as the inducements of a larger market and better prices are given to the settler, the many fertile valleys of the range where the crystalline limestones or marble deposits are to be met, will doubtless be populated with the same rapidity with which the lower townships have filled up, notwithstanding the small and unimportant outaid hitherto given to further their progress. In the spring and fall, as this district is now circumstanced, the general mass of the population are confined to the locality in which they live. The roads of winter, however, afford them some assistance. In summer, a steamboat leaves Aylmer daily and runs to the foot of the Chats Rapids, a distance of twenty-four and a half miles. Three miles of a horse railway carry the passengers and freight to an upper navigation of a further twenty-eight miles to Portage du Fort, between which place and Aylmer the return daily connection is likewise made. The rapids which intervene both to the North and South of Calumet Island, cause another break in the navigation. On the Ontario shore the Ottawa is entirely abandoned to Pembroke, a distance of about thirty miles. The stage takes the passengers to Mud Lake, whence a steamer carries them to Pembroke. On the Quebec shore there is an unnavigable distance of seven miles, from Portage du Fort to Havelock, a small town opposite Ile Calumet, whence a steamer runs to the Chapeau Village, on Ile

Allumette, forty miles from Havelock. Ile Allumette is opposite Pembroke, and the latter town is reached by a road, five miles in length, across Allumette Island, and thence by ferry across Pembroke Lake.

At Pembroke the navigation is resumed, continuing to the Joachim, forty-five miles. The Joachim rapids intervene; and the two smaller reaches beyond the Joachim, viz.: from the Upper Joachim to the Roche Capitaine, a length of sixteen and a half miles, and from Roche Capitaine through Godin's Lake, within one mile of the Matawan River, will this year be served by steam navigation.

This assistance is all that has been given to the district, which has, nevertheless, increased in population and production, and the lumber trade has been particularly flourishing. The principal rivers which are the scene of these operations on the Quebec shore, between Hull and the Deep River, are the Quio, the Coulonge, and the Black River. The former is not of the same extent as the two latter, but it nevertheless contains a quantity of timber. The latter streams, however, offer great inducements for the manufacture both of square timber and of saw logs. The Coulonge is estimated at 160 miles in length. The Black River at 130 miles. But in view of the supplies which would be forwarded by railway to sustain the winter lumbering operations, it is not simply this limit which has to be considered, but the whole extent of country west of this point must be taken into account. The flour and pork required for this district is now delivered at Sand Point, and forwarded by teams across the river on the ice, to the required position. The whole of the freight would certainly cease to follow the route it now takes if a shorter and more satisfactory channel for its transport be found on the North shore. While equally it may be assumed from this shortness of route that freight of this character finding its way to Pembroke for distribution, would also take the shortest line; and it is at Pembroke that the supplies of the Western timber ground would be delivered.

From the peculiar bend of the river, this district has the advantage of offering the shortest route to the North West Territories. Crossing at Ottawa to Hull, and following a route along the North shore, to cross at Portage du Fort or at La Passe, proximately the distance is twenty-five miles shorter than by taking the route by the Canada Central Railway, on the South shore.

The distance by the Canada Central Railway, from Ottawa to Pembroke, is about 103½ miles.

In an official letter to the Ontario Government, dated 29th January,

1872, the distance is thus given by Hon. John Abbott, M.P., President of the Company :—

From Ottawa to Carleton Place	28.5 miles.
Carleton Place to Sand Point	30 "
Sand Point to Pembroke	45 "
	103.5 "

The estimated distance by the North shore to enter Pembroke crossing at—

1. Portage du Fort, is	78.5 miles.
2. Crossing at La Passe	80.3 "

It follows that the latter route is one and four-fifths of a mile the longer, and that the saving of distance by Portage du Fort is twenty-five miles on the whole distance between Ottawa and Pembroke.

Much misconception exists with regard to the Deep River, on two points. First: of presenting an advantageous crossing for a bridge. Secondly: it has been assumed that a line passing in that direction, from Montreal to the South shore of the Upper Ottawa, would be shorter than by any other route. An examination of the ground has shewn that neither of these advantages can be admitted. There are, in reality, only two routes on the ~~South~~^{North} shore for a line having in view a connection between Ottawa and the town of Pembroke, viz.:—the route crossing by Portage du Fort, and the route crossing by La Passe.

Dealing first with the several crossings of the Ottawa, which rumour has brought into prominence as sites for a bridge, comparison will establish at once the limit within which a prudent selection can be made.

NO. 1.—THE DEEP RIVER.

A line crossing at Mackie's Point has been suggested. The distance is 3,130 feet, with 1,600 feet of water, from twenty-five feet to fifty-three feet in depth.

But the main point brought forward as most conspicuously advantageous from its geographical position, and the contracted water-way of the stream, is the point to the East of Dooney's Bay. The measured distance across is 1,270 feet, with a small river channel of 150 feet. It is true that the water-way at the point of the island is but fifty feet, but the configuration of the ground is such that no location could bring the line within this limit of bridging. On 650 feet of this length the water ranges from forty feet to sixty feet deep. The remaining 600 feet runs into thirty feet of water, with a descent to fifteen feet of water, and within seventy feet of the bank there is a depth of eleven feet. The approaches will also call for a large outlay.

No. 2.—ACROSS ALLUMETTE ISLAND.

A line at this point will require—

1. A crossing from the Quebec shore to Allumette Island..... 500 feet.

Where a draw is required.

2. The crossing from Allumette Island to Morrison's Island, about1200 feet.

However in the centre of the stream an island of about 150 feet in width intervenes. It is in this locality where the Allumette rapids run. It is not frozen over in winter, consequently the depths could not be obtained.

- 3 The so-called lost channel, about 400 feet across.
4. Beckett's Channel, about 150 feet.
5. The crossing at Hazely's Bay, about..... 300 feet.

The work, too, will generally be heavy at the approaches and at the intermediate points.

No. 3.—LA PASSE

Is approached by level banks about eighteen feet in height above low water. The stream rises about ten feet. The total length is 1,069 feet; 400 feet of this distance has less than eight feet depth of water. The remaining distance runs from eighteen feet on either side to a maximum depth of twenty-eight feet, which greater depth extends over about 150 feet.

A draw is here required, as the site lies within the limit of navigation between Havelock and the Chapeau. Four or six times in the twenty-four hours, however, may be considered the extent of its possible requirement.

No. 4.—PORTAGE DU FORT,

Is approached by a bridge of 100 feet in width, and the Railway line crosses an island of extremely irregular surface of metamorphic rock. The main bridge may be set down at 820 feet, the two centre spans being each 150 feet, with five spans of 100 feet. The water in the centre channel is from fifteen feet to twenty-three feet in depth. The remaining distance is somewhat shallow, rocks protruding at intervals, some of which can be made serviceable. No draw is here required.

Hence, it can be inferred that on the question of Bridging the choice entirely lies between Portage du Fort and La Passe.

2. On the point of distance the theory has been promulgated that the connection between Montreal and Quebec and the future Pacific Railway will be considerably lessened by a line running direct to Dooney's Bay.

What a direct line from Quebec may be, crossing through the North half-explored country amid the hills, so marked as to furnish a term in Canadian geological nomenclature, no one can pretend to speak with any authority. Assuredly there is little to be presumed in its favour, and beyond the theoretical shortness of distance no single argument appears on the surface to sustain it.

This view, however, in no way applies to the Montreal connection, for such a line starting on the lower ground on which that city and its environs stand, as a consequence must avoid passing to a higher level. Moreover, its natural direction will run to the foot of the spurs of the Laurentides, which approach in a prominent form the river Ottawa, at Grenville. Accordingly any line from Montreal to Ottawa, through the Province of Quebec, generally speaking must pass in the vicinity of the river; and, proceeding to Hull, would in its Western prolongation to the Deep River, follow the course traced in the reconnaissance of the writer.

Placing the most favourable construction on the policy which lays down the Deep River as a locality of primary importance, it must be conceded that no one commercial argument lies in favour of taking the line to Dooney's Bay as a governing point, with the exception that the Bay is an extremely convenient place to receive any square timber or plank which may take to the Rail. Dooney's Bay is seventeen miles West of Pembroke, and any argument of that character may be met by the remark, that if the Railway Station be at Pembroke, the timber in question will have only to descend some seventeen miles further, on a navigation unimpeded by any one difficulty, in order to obtain the accommodation, which it is contended is so essential to establish at the mouth of the Deep River. Pembroke, although by no means a large and populous town at present, is marked by a great deal of enterprise, and promises to form one of the thriving centres to be looked for in this part of Canada, as settlement leads to more populated districts.

Accordingly it forms a governing point in the location of a line, such as that now under consideration, and one of the objections to the Deep River Crossing, is that it carries the line beyond Pembroke, with which, in the writer's view, it is essential to connect. Waiving, however this theory altogether, and accepting the proposition that the necessities of trade create their own depot, and that a large and prosperous town would grow up at the shore opposite to Dooney's Bay, if the Bridge were placed there, easily to be brought in connection with the Districts commanded by Pembroke, viz.: by a few miles of railway line. All this reasoning must be predicated on one important hypothesis, viz.:—that the location of the railway connecting Montreal and Ottawa by the way of Pembroke,

with the Government Pacific Railway must run close to the River's edge at Deep River.

Even with this supposition, the advantage claimed for the Deep River crossing, over the routes by Portage du Fort and by La Passe, entirely disappears. For the distance to a common point in Ontario, south of the shore at Dooney's Bay, at which place the water line curves so as to form a quasi peninsula—a point where the line must pass—the distance to this point by the La Passe line—the longer of the two routes in Quebec—is about a third of a mile shorter than it is by a line crossing at Dooney's Point.

On the other hand, if as inquiry suggests, the location be otherwise made, and the line run somewhat back from the river, the comparison is greatly against Dooney's Bay. The general opinion seems to prevail that such a line will be located south of the River Petawawa. If so, the line passing by Portage du Fort, or by La Passe, will make the connection in a total distance, infinitely shorter than by crossing at Deep River.

It may be said accordingly, that the choice of location lies between the two lines above named.

1. The Crossing by Portage du Fort.
2. The Crossing by La Passe.

To a certain extent, owing to the trend of the hills, and the configuration of the river bank, whichever crossing be taken, the location will be identical in the Townships of Hull and Eardley.

On leaving Hull, two theories of location present themselves.

- a. Whether the low ground shall be followed, and the line made to pass by Aylmer and the river front.
- b. Whether the route will keep the high ground, and gain the point to be attained in as short a distance as possible.

There is no commercial reason why the line should follow the low ground. There is no one place in the front which would justify any diversion in its favor. Aylmer has long ceased to have the importance it possessed twenty years back, from the development of the country to the west of it, and the fact whether the line will run directly to this place, or four miles to the rear of it, would not have influence on the travel visiting Aylmer—the seat of the Law Courts of the District. It must be remembered, that in this respect it has no connection with the City of Ottawa, situated in a different Province. The Quio, or Onslow

Village, as it is sometimes called, will be from three to four miles south of the proposed line, and would be well served by it. On the other hand, by passing to the north, the line is brought within reach of the flourishing village of Clarendon Centre, the supply point of the most extensive and richest district in its course.

On leaving the Ottawa, the line would run from the bridge around the Mamelon, on which the Aylmer Road Gate is situated, keeping to the north of the road. In the 3rd range, it will cross the stream known as Haworth's Creek. This stream descends from the range of hills in a south-easterly course, amid some broken ground. It is advisable to pass to the west of it, so as to gain the higher *plateau* as easily as possible. The ground at this point commences to rise, and gains an elevation from 50 feet to 60 feet in two terraces, the higher level being met at the rear of Mr. Wright's place. Some work will be exacted in this ascending grade, but the transition is in no way abrupt, and no expensive excavation is to be looked for. The soil is a sandy loam. Probably from four to six small streams may be met. Haworth's Creek, before mentioned, is in itself unimportant, and will need a 20 feet or 25 feet span.

The same level is met through Eardley. Owing to the broken ground in the front, called Breckenridge's Hill, the line must be carried within half a mile of the mountain, and for some distance continues at short intervals from it. It would run transversely across the Township, entering in the 5th, and leaving in the 12th Range. The ground is almost perfectly level. The one drawback, however, is the number of gullies, some of them of considerable depth; and the one difficulty will be to make the work which they necessitate as light as possible. But the narrow limit of the choice of ground, makes it not probable that much of the work can be thrown out, as these gullies run from north to south, and the line going from east to west, they must be faced.

This characteristic continues through the adjoining townships of Bristol and Clarendon. Onslow is but little affected by it.

In Eardley the gullies may be set down as follows:—

1. Breckenridge. Small run of water.
2. West of House. Stream 20 feet wide, gully not large.
3. Ingley's Bridge. Gully 50 feet wide, about 40 feet deep. Small stream.
4. Muddy Creek. East Fork.
5. Muddy Creek. West Fork.
6. Small Creek.
7. ditto.

8. McAllister's Gully. 200 feet across. Small stream, say 50 feet deep.
9. McMullin's Ravine. 120 feet, say 40 feet deep.
10. McLane's Gully. Not important.
11. West of Moore's. 500 feet across, 50 feet deep.
12. Small stream and gully.
13. ditto.

So far the location of about 23 miles is common to the two lines. But on entering Onslow, we meet the divergence which arises, as the alternative crossings of the Ottawa have to be considered; and it is from this point that comparison must be made of the two routes proposed.

Following the line to the most easterly crossing—Portage du Fort, I proceed to describe the country examined with the view of passing the Ottawa at that point.

The line continues across Onslow, entering to the south of the 6th range. A good crossing of the Quio River presents itself on Lot 2, at the north of the 5th Range. The depth of the valley is 50 feet, and the water can be taken by a span of 100 feet; the remaining narrow interval being met by embankment. The ground on both sides of the Quio descends towards the valley in which it runs, and some cutting and embankment will be called for on both sides of it, but to a limited extent only. In this Township the gullies are few, and will exact but a trifling amount of work.

The ground is level in the Township of Bristol, where the line is taken. It is, however, forced somewhat out of the direct course by a spur of high land, which extends from the Ragged Shoot of the Quio, to the 5th Range. The gullies again appear. The line will cross the south corner of the 6th Range, and will then run diagonally, to come out between the 6th and 5th Range, near to the line between the two Ranges, and it will run in this direction until it turns slightly to the south, to enter Clarendon.

The gullies are as follows:—

1. Lot 10, Dugald and McGillop's. 500 feet across, 60 feet deep.
2. Lot 11, Smith's. Small.
3. Lots 5 and 6, Shirley's Gully. 500 feet across, 50 feet deep.
4. Lots 3 and 4. Town Hall. 1000 feet across, 60 feet deep.

In all cases the gully streams are of no account.

The ground continues level for some short distance, and then gradually descends towards the river. We have here again the same difficulty of gullies, and the line must be somewhat kept up in the Township, so that

they can be crossed advantageously. The line entering the Township in the 5th Range would pass diagonally across the first nine lots, and then follow along the extreme south of the 5th Range, till about lot 17, and would thence run with moderate directness to Portage du Fort.

The gullies to be encountered are as follows:—

1. Captain's Creek, East Fork, 400 feet width, 20 feet deep.
2. ditto West Fork, 300 feet width, 20 feet deep.
3. Mill Creek, 1000 feet width, 60 feet deep.

Between the further interval to Portage du Fort, we may count—

- 2 large gullies.
- 2 of some extent.
- 3 small.
- 3 to 6 streams.

The land, although it has a tendency to fall between the 3rd and 4th Range, descends by two terraces to Portage du Fort, gaining the table land, which is to be met immediately above the town. It may be held that this high ground is from 80 feet to 90 feet above the summer level of the river.

Wherever the bridge be placed in Portage du Fort, it will be a matter of expense. Allusion has been previously made to this crossing; a more detailed description is, however, called for. The height of land by which the village is approached descends rapidly to the river, and there is no means of avoiding its inequalities. The town itself is traversed in the centre of its site by a ravine, by the side of which arises a mamelon of Metamorphic rock, falling down to the water's edge. The main stream is separated from the town by an island of some extent, and Portage du Fort, which is the head of this reach of navigation, is approached by the boat passing round its easternmost point. A channel of 100 feet separates it from the town. Both in the main stream and this smaller channel, rapids are met with. The name Portage du Fort is suggestive of their extent. The phrase would seem to imply that a fort, a strong place stood on this spot. No evidence, however, can be found consonant with this supposition. The true explanation of the words is apparently the Portage of the strong man, inasmuch as this Portage was a severe tax upon strength; being about seven miles in length, up an ascending road. A bridge of 100 feet is needed to reach the island, before dealing with the main stream. The island is exceedingly rugged. It consists of hills of Metamorphic rock, extending transversely for upwards of a quarter of a mile, which it is the writer's opinion, cannot be avoided. The extent of excavation they will exact, can be determined only by instrumental examination.

Assuming the water to rise.....	17 feet.
The Clear to Soffit of Bridge.....	12 feet.
Height of Truss.....	20 feet.
	—
Total.....	49 feet.

We shall have the grade line, say 50 feet above the present level of water, and assuming the height of land to be 85 feet, there would be a grade of 35 feet to overcome in the distance of a mile and an eighth. But it must be remembered that the bridge must be approached by 4° curves, 1,432 feet radius. The bridge is estimated to be about 820 feet in length, which distance could be advantageously distributed in two centre spans of 150 feet, with five spans of 100 feet. The water in the centre channel is from 15 feet to 23 feet in depth. The remaining portion is somewhat shallow, rocks protruding at intervals, some of which can be made serviceable. The bottom is of rock. Owing to the rapids extending some distance above the site, the ice is broken up in Spring, and there is little to fear from its force in the early thaw and consequent freshets.

Crossing to the Ontario side, the line must overcome a rise from the water of from 50 feet to 60 feet from the travelled road, being between 20 feet to 30 feet above the grade of the bridge; the distance being about half a mile, when we gain the table land in the Township of Ross. The line must diagonally pass across the 7th Range, turning northwards to about Lot 20, to avoid the stone hills which crop out in the 7th Range. It then turns southward to the 6th Range, on which it crosses Lots 7, 8, and 9, and enters the 3rd Range adjoining Westmeath, across which it passes to enter Westmeath in the 2nd Range. The land is almost level until meeting the town line between Ross and Westmeath, where some stone hills are to be found, but a good line can be obtained between them.

We have in the Township of Ross—

- 9 small gullies.
- 5 moderately large.
- 3 small streams.

In Westmeath, the line would pass in the 2nd Range, to avoid the rolling land north of Muskrat Lake, being about three quarters of a mile from Yankee Brown's Tavern. It must run between the lake and travelled road, at a distance from the latter, from a quarter of a mile to one mile being kept on the higher ground. Passing into the Township of Pembroke, it would run south to the River Range, and cross the Muskrat Lake River near the mill, and likewise the Indian Creek, and run on to the west of the town, avoiding the low land of Central Pembroke. At this point it would be in a condition to make a connection with the water, or to join any line going westwardly.

Returning to the Township of Onslow, near its junction with Eardley, at the point above named, about 23 miles from Ottawa, where the line, in order to run northerly to La Passe must diverge from the Portage du Fort location, the features of the country may be described as follows:—

The line will run on the level plateau, which is found at the head of the 6th Range of Onslow, where the ground is free from deep gullies, and small culverts only are required. At the road leading to North Onslow—lots 7 and 8—the line passes into the 7th Range, along the upper margin of the valley of the Quio River. On the left bank of the river the ground is unbroken, rising in a series of terraces; while on the opposite bank it is rugged and hilly, terminating in several spurs, some of which extend to the 5th concession, Bristol, previously alluded to.

The line enters Bristol, continuing in the valley of the Quio, following a level lower than the ground on which the travelled road passes, to turn into the 9th Range, about lot 12. Running diagonally across the 9th Range to lot 8, it would meet the centre of the Range, which it would follow to the end of the township, crossing the Quio on lot 3. The ground here and there is marked by some slight ascent, but its general character is even and regular.

The following gullies are met :

1. Young's Creek. Height of bank, 40 feet. Width of gully, 150 feet. Stream 8 feet.
2. Ben Moore's Creek, about 200 feet across—about 35 feet in depth. Small rill of water.

The Quio River has in winter a width of 40 feet. Its summer level is 6 feet higher. It is approached by low banks 10 feet high, with a small flat on the western side of about 350 feet in extent.

The bridge required may be set down at about 80 feet, perhaps less.

Within Bristol are situated the Falls known as the Ragged Shoot. They extend from lot 10 for 2 miles, and consist of six different rapids, four of which occur within a quarter of a mile. The whole terminates in the High Falls. The proximity of a railway would confer value on this water power for manufacturing purposes.

Entering Clarendon on the 10th concession, the line passes over a flat to the Pickanoch Road, which ascends from Clarendon Centre; the line described being some four miles to the rear of it. In the 9th concession, the two lakes, Stanley and Green are met, and the hills around them extend two thirds on the 10th Range, on George Hopkins

lot, No. 14, forming a spur, which will throw the line a trifle to the north. From this point in the 10th Range, it runs to about the centre of lot 18, Kennedy, when the valley of Stevenson's Creek is taken. Some irregularity, but in no way of a serious character is met here. The line is forced northward, owing to a projecting spur, which comes out on lot 24. There is, moreover, a sufficient terrace on the side of the Creek to admit both the travelled roadway and the proposed railway. At some points adjustment of the former is called for, and some filling will be required to establish the latter. The point is now gained where the descent must be made to the lower ground, viz.: where the two Townships, Clarendon and Litchfield join.

In the Portage-du-Fort line we must follow a series of descending grades in the northern five miles before entering the village, and an additional descent is found on approaching the water. On the other hand the bridge would require to be thrown up as high as possible, with the rail laid on the upper chord, in order to facilitate the ascent to the high ground on the opposite shore in Ontario. The descent is somewhat lessened in Litchfield, as the water of Coulonge Lake, which may be held to be representative of the levels at La Passe, is about 80 feet higher than at Portage-du-Fort. One descent only is needed to approach the lower ground at this spot; and the ground, with the slight exception of the approach to Campbell's Lake, is almost level until the bridge site at La Passe is reached.

I am informed by gentlemen of the neighborhood that the hill is of clay and sand. Three or four feet of snow prevented any personal examination on my part. So far as a *reconnaissance* on snow shoes, with the heights gauged by the eye, enable me to judge, I should say that the amount of material to be placed in embankment would be from 50,000 to 60,000 cubic yards, and that the maximum grade of 52.80 to the mile would extend for 7,000 feet, (about $1\frac{1}{3}$ miles.) The total height to be overcome is about 60 feet; but the 3,000 feet of cutting will occur on a gradual descent, so that the cutting in no place would exceed 13 ft. or 14 ft. This spot is the only place where work of any magnitude is met, and must be placed in contrast with the work on the several descents to the Portage-du-Fort Bridge.

Having gained the lower level on lot 4, Range 1, Litchfield, the course of the line would run diagonally to the mouth of a bay, surrounded by hills, at the commencement of Range 4, Litchfield, called Campbell's Lake. Stevenson's Creek must be crossed in this interval. It will be about 100 feet in width, with abutments about 20 feet high. Some irregular ground must be looked for in the transfer from the ^{level} bed of this

plateau to the somewhat lower flat in Litchfield, but facilities for the change are found east of Campbell's Lake. The mouth of the lake is about 350 or 400 feet across, with a moderate depth; and entering between ridges of rock through a small valley, the flat is gained which carries the line to La Passe. It may be recollected that the travelled road passes on high ground, ascending a hill at Ferrigan's lot, which it again leaves in Mansfield by the Grand Marais. The proposed Railway must keep entirely south of it, entering the 5th Range in about lot 19; and in order to avoid the hills, on the lots of Quin, Keys, Cole and Flynn, will enter the 6th Range in lot 11, crossing the 6th Range to take Bernor's Creek, in lot 3, and then following to the front of the swamp known as the Grand Marais.

Bernor's Creek is about 100 feet in width with low banks, and the line accordingly passes on the narrow plateau contained between the hill and the River Ottawa in the last lots in Litchfield and the adjoining lots in Mansfield, the Grand Marais being on lot 4 in the latter.

The Grand Marais, in summer an unmistakeable swamp, I am told, is about 600 feet across. At its mouth, however, there is a hard spot used as the present road, and the Railway would follow naturally on this site. An embankment must be carried across this short piece of low ground, and possibly it may be necessary to use fascines to float over the lighter mass of swamp beside it. A culvert of moderate size is needed to allow the passage of a creek by which it is traversed.

From this point the line runs directly across to La Passe.

Little additional need be said beyond what has already been remarked of this crossing. That it is 1060 feet across with a bank of about 18 feet in height requiring the ordinary abutment only, that the water rises 10 feet, that there is but a moderate current in high water. That 400 feet of this length has less than 8 feet of water, that the remaining distance has a maximum depth of 28 feet running up on either side to a depth of 18 feet.

This bridge occurring however on the line of navigation will require a draw.

On entering Ontario, the line passes into the Township of Westmeath, running diagonally across an almost perfectly level Country until it joins the line already described within five miles of Pembroke.

It will be seen by comparison of these two lines, the one by Portage du Fort, the other by La Passe, that so far as Maps enable an Engineer to judge, and from such examination as that lately made, that the advan-

tages, and disadvantages are so equally balanced that the question of choice of line must be determined by some principle other than that of the calculation of cost and distance.

1. If the Portage du Fort line be the shorter, (1½ miles less distance,) the La Passe line will have somewhat lighter grades, and there is fair reason to expect that it can be constructed at no greater cost. It is not however possible to speak with positiveness on this subject, without instrumental examination.

2. Undoubtedly the La Passe line would better suit the general requirements of the County of Pontiac, but on the other hand the Portage du Fort line would satisfy a district which the other line leaves to some extent on one side.

3. Again the Portage du Fort bridge requires no draw. Whereas the La Passe line will exact a draw, never a pleasing responsibility for Railway Superintendents.

4. The County of Ottawa in no way comes into the consideration, for the line will run in that County as it is here described, whatever course it may take in Pontiac.

5. In Pontiac, however, if the La Passe line passes somewhat to the rear in the Townships of Bristol and Clarendon, it accommodates Calumet Island, Litchfield and Mansfield, bringing the crossing point within a short distance of the mouth of the Coulonge [4 miles] and within 14 miles of the Black River.

Accordingly the determination of the point of crossing, embraces many considerations and the direction which the line should follow on leaving the County of Ottawa, requires special and close examination, before the final location be made.

The main proposition of the general character of the whole line, is less attended with difficulty. Indeed the results which it promises are clear and easily pointed out.

The Pontiac extension Railway, will bring the district in question in direct communication with the Railway system of the Dominion. To Montreal and the City of Ottawa it offers the shortest and most direct connection with the great Railway line, which the political necessities of the hour call for to Manitoba, and if not immediately to the Pacific, at least to connect with one of the American lines, which now cross the Continent. It has been shewn that Pembroke will be reached by the proposed line in 25 miles less distance than by the lines on the Southern Shore of the Ottawa: in itself a matter of the highest importance.

The advancement of this locality, even in spite of the neglect in which it has been left is something remarkable. But the condition of isolation in which it is placed is everywhere felt, and it is a sense of this condition which has led the prominent men of the district to foster the project with the zeal which so honorably distinguishes them. The whole County of Pontiac is in a ferment of excitement from the hopes raised of the ultimate completion of this line. A fact suggestive to the importer and the dealer in produce of the market it will open, and the enterprise it will create. Of all the questions which have arisen as to the necessity of a direct route between Montreal and Ottawa none to the mind of the writer is so paramount, as that the connection should embrace the country to the north-west in the Province of Quebec.

The prominent anticipated results of the projected line may thus be summarised.

1. The healthy development of an important district of the Province of Quebec, which hitherto has received but little fostering assistance; the projected railway establishing direct connection with the markets of the Dominion and the United States.

2. Opening a new market to the enterprise of Montreal, and similarly increasing the facilities of intercourse between the Counties of Pontiac and Ottawa, and the City of Ottawa and Pembroke.

3. Establishing railway connection between the City of Montreal, and the City of Ottawa on the one hand—and the great Pacific Railway on the other, 25 miles less in length than by any other route.

4. The probability of diverting, to a great extent, the pleasure travel of the Continent to the City of Ottawa, and to the Upper Ottawa.

5. Extending the necessary facilities for the carriage by railway of plank, and such timber as can be economically placed on the rail at a point in the Ottawa navigation, before difficulty arises in the descent of the river by rapids.

The above respectfully submitted.

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&c., &c., &c.,
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OTTAWA, 6th April, 1872.

W. Kingsford

