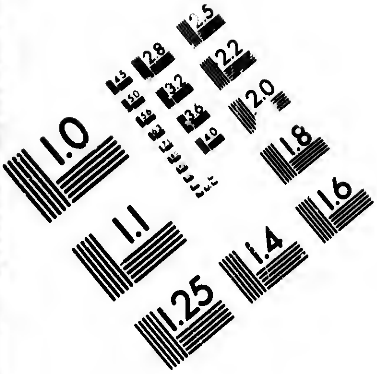

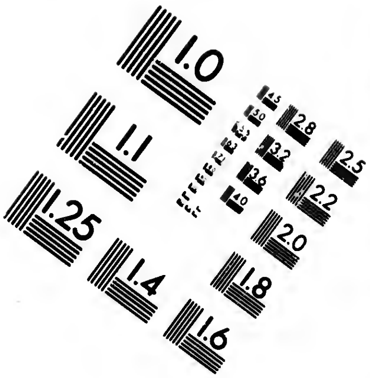

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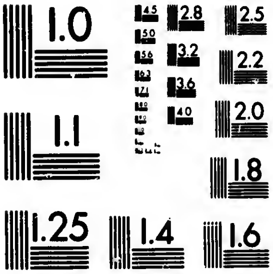

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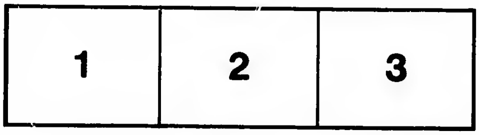

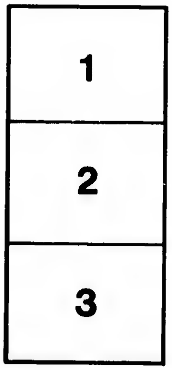

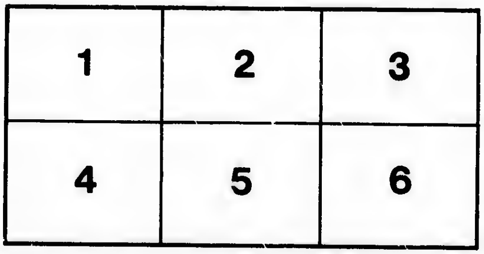

[illegible] 1875

RETURN

To an ADDRESS of the HOUSE OF COMMONS, dated 17th February, 1875; For copy of the Report of L. G. Bell, C.E., on the exploration made of the route of the Huron and Ottawa Railway from Ottawa City to Parry Sound, together with all Maps or Papers accompanying the same.

By Command.

R. W. SCOTT,
Secretary of State

DEPARTMENT OF SECRETARY OF STATE,
OTTAWA, 25th February, 1875.

OTTAWA, February 25th, 1875.

SIR,—I am directed to transmit to you the accompanying return, being the report of L. G. Bell, Esq., on the exploration made by him of the route of the Huron and Ottawa Railway, from Ottawa City to Parry Sound, asked for by an Address from the House of Commons, dated the 17th inst.

I have the honor to be, Sir,
Your obedient servant,
F. BRAUN,
Secretary.

E. J. Langevin, Esq.,
Under Secretary of State,
Ottawa.

OTTAWA, 3rd November, 1874.

DEAR SIR,—Having received through you, on behalf of the Government of Canada, the authority to make, for the information of the Government, an exploratory survey of a route for the projected Huron and Ottawa Railway, and having received your instructions to do the best I could, and having completed the survey as fully as I believe necessary, I now beg leave to present to you the following report.

According to my understanding of the subject, the railway is designed to be the shortest and most direct connecting link between the great lakes (Huron, Michigan and Superior) on the West and the railways now existing or in progress, which would connect it with ocean water on the East. Parry Sound, on the Georgian Bay, is settled on as the Western terminus; and Carleton Place, which is now connected by railway with Ottawa, and which will be connected with Montreal by railways now in progress, has been selected as the Eastern terminus. The survey then was begun at Carleton Place and ended on the shore of the Georgian Bay at Parry Sound.

The survey was made almost entirely on foot, as I desired to see throughout, and as nearly as possible, the exact position in which a line could be placed for construc-

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(22)

tion. I did not of course confine my attention to one line, but in several cases, when circumstances required it, I examined the country for a width of several miles. Although I desired to find the shortest and most direct practicable route between the proposed termini, my attention was rather more given to the selecting of a route on which I could feel sure, without a detailed instrumental survey, a railway could be constructed at the most moderate cost. With this object in view, the line which I have traced has very many sinuosities, which I fully believe a careful instrumental survey would, to a great extent, do away with, and so materially lessen the length of the line.

The only instruments I used were an aneroid, barometer, a compass, and a hand level. I had two barometers, but unfortunately one was found on trial to be worthless. That which I used has been often proved to be trustworthy, but on this survey it met with several petty accidents, which though they were of such a character as not at all to interfere with its giving correct information in observations made after any such accidents, prevented my being able to give satisfactorily a continuous series of heights from one end of the route to another.

All the country through which I walked has been surveyed, and I have been therefore able to trace, with tolerable accuracy, my route on the Government maps, and I have laid down on the accompanying map (traced from that of the Government) the route which I have selected.

On a survey such as I have made I consider it almost impossible to give reliable quantities for an estimate of the cost of construction; but, as walking over the ground, and examining it minutely with a view to construction, would give a tolerably correct idea of comparison between the work to be done on it and other known works that have been executed, I propose to refer you, for an approximate estimate of this railway to works with which you are well acquainted, and which you are aware I also know, namely, some sections on the Intercolonial Railway; and I propose to take as standards of reference Sections 1, 8, 17, 18 and 9. On the Huron and Ottawa Railway there will be very few large bridges, and none of the protection work such as there is along the Metapedia River, on sections 17 and 18 of the Intercolonial Railway. I have, therefore, in the following list, modified the estimates of the sections on the Intercolonial Railway, by deducting the masonry and superstructure of the large bridges, the cost of coffer dams and pumping foundations, the cost of level crossings, and the cost of protection works and special works. With the exception of Contract No. 9, the prices for which were ample, I have on the other hand increased the amount remaining after these deductions by from 20 to 25 per cent., partly because some of these sections were constructed at a low rate of wages for the workmen and horses, and others had scarcely remunerative prices, and partly because on the Huron and Ottawa Railway there may be some sections which may have unusual expense in importing men and provisions. Where large bridges or works of special difficulty may be required on the route, a special estimate will be given in addition to the general one for clearing, grading, culverts, and other such ordinary necessary work. The modified estimates which I have accordingly prepared are as follows:—

For Contract No.	1	$9,100	per mile.
"	8	6,250	"
"	17	17,500	"
"	18	25,000	"
"	9	15,000	"

I do not pretend that the line I have selected is the best to be obtained in the country traversed, but I put it forward as one undoubtedly to be obtained with the characteristics and at the cost which I shall detail, and I fully believe that an instrumental survey will find many points for decided improvement.

The line commences by a junction with the railway from Ottawa to Renfrew, at a point west of the bridge carrying this railway over the Mississippi River, and its general bearing is almost due west. It passes through the townships of Ramsay, Lanark, Darling and Lavant, in the County of Lanark; Canonto and Miller, in the County of Frontenac; Matawatchan, Griffith, Lyndoch and Raglan, in the County of Renfrew; Carlow, Monteagle, Wicklow, McClure and Herschel, in the County of Hastings; Bruton, Harburn, Eyre, Havelock and Sherborne, in the County of Peterborough; Ridout, in the County of Victoria; McLean, Stephenson, Watt and Cardwell, in the Muskoka District and Monteith; Christie, McDougall and Foley, in the Parry Sound District. The total length measured on the map round all the sinuosities is 225 miles.

The first five miles from Carleton Place are on ground nearly level in all directions, but with a few low rocky knolls which can be easily avoided. The rise on these five miles is about fifty feet. On the next five miles there is more undulation, with somewhat heavier work, but the greatest inequality of surface is 80 feet in about 1¼ mile from the bed of the stream to the top of a ridge. The cost of construction up to sub-grade of these ten miles would be that of the modified rate for contract No. 1 of the Intercolonial Railway, that is, about $9,100 per mile.

Between the tenth and sixteenth miles, the ground is for the most part rough and rocky, the curves would be frequent and the earthworks heavy. There would not be any heavy bridging. I estimate the cost of these six miles at something more than the modified average for Contract No. 18, say $30,000 per mile. During the day on which I was on this section there was a thunder storm, and I believe my barometer did not register heights correctly, and I give this very high estimate to cover contingencies. There is no difficulty on the section, but the cuttings will be heavy.

Between the sixteenth and thirtieth miles the works will be comparatively easy, the valley of the Clyde, which extends as far as 27½ miles, giving good ground. Between the seventeenth and eighteenth miles, the line for 300 or 400 yards runs along the face of a steep but not high rocky bank of the river, but the work there will not be either heavy or difficult. At twenty-one miles the line crosses the river, as the ground is more favorable on the south side than on the north. Near the same point a short bold rocky headland strikes the river, but the line passes to the south of this, crossing a very low new neck of headland. In no place, except between seventeenth and eighteenth miles above mentioned, does the line of necessity run close alongside the river. At 27½ miles the line again crosses the Clyde, and at an elevation of about 30 feet. Here it crosses also the line of the Kingston and Pembroke Railway, which is located close along the river. From this crossing the line ascends to the thirtieth mile by a grade of 50 feet per mile along good ground, sloping gently transversely, except for the last half mile, on which it has to cross a few narrow rocky spurs and gullies. I estimate the cost of this section of fourteen miles at the modified rate of Contract No. 9, namely, $15,000 per mile. In addition, I estimate the two bridges over the Clyde, and the one over the Kingston and Pembroke Railway, with first-class masonry and iron superstructure, at $62,200 or say $4,500 per mile for the fourteen miles, making the total estimate for this section $19,500 per mile.

The rise between the eighteenth and twenty-seventh miles is very gentle, as between these points the river Clyde has only two low short rapids, all the rest being nearly still water. I believe a great deal of gravel for ballast will be found on this section. The lumbering district begins on this section, at about the twenty-eighth mile, and continues almost without interruption all the way through to Parry Sound.

The line between the thirtieth and thirty-fifth miles, and again between the thirty-seventh and forty-third miles, is very much like that of contract No. 8, I. C. R., there being much flat ground on it, while that between the thirty-fifth and thirty-seventh miles is more of the general character of contract No. 18, as there would be some steep side-hill work upon it. At about thirty-six and a half miles there would be a bridge of about fifty feet in width across one of the branches of Mudlake Creek, which I estimate at $9,500 I accordingly estimate the average cost of this section of thirteen miles at $10,000 per mile. You will notice on this section that the line runs between the main body of the lake at thirty-four miles and an arm of the lake. The ridge on which the line runs is low and of nearly uniform surface. The strait, connecting the arm with the main body of the lake, is less than 100 yards wide and less than ten feet deep. Only an ordinary culvert would be required here, which could be easily built on the dry land and not in the strait. The grades in all this section would be very easy.

Between the forty-third and fiftieth miles the line runs down a small river called Mackie's Creek, and up the Madawaska. There will be a great many short level portions on this section, with some side-hill end headland. The character of the line is that of Contract No. 17. But at the beginning of the section there will be heavy work for about half a mile, which although I do not think it would raise the average cost of the section above that of Contract No. 17, modified. I think it safest to add $10,000 for, as there will be about 9,000 cubic yards of rock cutting on the face of solid rock, with a slope backward of about ¾ to 1. There will also be a bridge of 50 feet span over Mackies' Creek, on a rock foundation, and without any difficulty in construction. This bridge I estimate at $6,500. I accordingly estimate the average cost of the whole work of the section at about $19,800 per mile.

Between the fiftieth and seventy-fifth miles the line follows the valley of the Madawaska River. A very large proportion of the work will be very easy. There will not be any works of difficulty, though in a few places there will be short rock cuttings with a depth of only a few feet. I estimate the average cost at the modified rate for Contract No. 1, but as the line crosses a few streams (about five) which will require bridges with spans of twenty or thirty feet, which I estimate at $2,000 each, the total average will amount to $9,500 per mile.

The section between the seventy-fifth and eighty-fourth miles is expensive and unsatisfactory, on account of the curves which appear to be necessary. The line at the eightieth mile crosses the Mississippi or Beaver Creek, a branch of the York River, which itself is a branch of the Madawaska. The York River is called in the reports of the Geological Survey, the Shawashkong—the river of marshes. The marshes extend up the Mississippi farther than the point which I have selected for crossing, they are in many places very wide, and particularly so at the junctions of the Shawashkong with the Mississippi and the Madawaska, but at the place which I have selected, which is the second place available, hard ground is got on both sides of the River Mississippi where the banks are about 200 feet apart. As the land lying between the Mississippi and the Shawashkong rises quickly to a kind of plateau 150 or 200 feet higher than the rivers it is necessary after crossing the Mississippi to curve down the stream again to get into the valley of the Shawashkong and Papineau Creek.

From the eighty-fourth mile to the ninety-fifth the work will be very much lighter. The grades on the first five miles will be one in a hundred up and down over a ridge, but on the remaining fifteen miles they will be easy. There will be an expensive bridge across the Mississippi, another with a span of 100 feet across the Shawashkong, and two others with spans of fifty feet over the greater and less Papineau Creeks. These last three will not be expensive as the foundations will be good. I estimate the average cost of the whole section exclusive of the bridges, at the modified average estimate for contract No. 18, $25,000 per mile—and I further estimate the Mississippi bridge at $45,000, Shawashkong at $15,000, and the two Papineau bridges at $21,000—making in all an average for the section of about $29,000 per mile.

I am much inclined to favor a route following the Madawaska River up from the seventy-third mile to the Village of Combermere, about nine miles up, and there turning west and southwest, and joining the line I have laid down near the ninety-fifth mile. The cuttings would be rather lighter on this route, but there would be of necessity a very steep grade for several miles of probably one in eighty up and down. I was informed, and upon reliable authority, I believe, that the line by Combermere would be of considerable benefit to the lumbering interests—and that Combermere is a kind of centre from which lumbering parties disperse. On this route the line would have to cross the Madawaska twice to avoid great marshes at the mouth of the Shawashkong. These bridges would be large but not otherwise expensive. On the whole I consider there would be very little difference either in cost or length between this route and the one I have laid down.

Between the 95th and 110th miles there are several portions of the line of very easy construction—while at the ninety-sixth mile there will be nearly a mile of rather expensive work in the valley of a large stream. There is no difficulty, but as the valley is narrow and rocky there will be either a few sharp curves or heavy cuttings on rocky side hills. The grade up the valley need not be steeper than one in a hundred. About the ninety-ninth mile there will be cutting about thirty feet deep through two narrow ridges, but these ridges are probably all, or nearly all, gravel. Between 101 and 105 miles the line will run by the bases of rocky knoles at some points---but the cuttings will not be heavy---and again at the 108th mile there will be a few rocky spurs to be cut off in the valley of a small stream. There will not be any heavy bridges on the section. I estimate the work to be done at the modified rate for Contract No. 17, namely, $17,500 per mile.

Between the eighty-fourth and ninety-eighth miles I expect a great deal of ballast, the soil being gravelly and sandy.

Between the 110th and 125th miles more than two-thirds of the work will be very easy, while of the remaining one-third no part will be very difficult or expensive. There are miles of meadows on the section. A few headlands of high ground occur, but they will cause little trouble to avoid them almost altogether. I estimate the cost at the modified rate for Contract No. 1, although I believe the cost will be considerably less, as a great proportion of the section will cost as little as the average for Contract No. 8. There will be two bridges, each with a span of sixty feet, and easily constructed, one on a rock foundation, and the other on a hard foundation, probably rock at a little depth below the bed of the stream. The bridges I estimate at $10,500 each, and the average cost of the whole section will accordingly be $10,500 per mile.

Between the 125th and 145th miles the work will be very much of the character of Contract No. 17. The ground is rough, but not difficult, along the north shore of the lake at 126 miles, it is then very easy up to 128 miles through alder flats and beaver meadows---then the line takes side hill on a grade descending one in 100 to 132 miles, after which it passes over moderately rough ground to the 144th mile. The 145 mile is level. There will be one high bridge with two spans of eighty feet at 132 miles, and three others, with spans of sixty feet and low heights, at the 138th, 139th and 141st miles. I estimate the first of these at $12,000, and the other three at $21,600. The average of the total cost of the section of twenty miles is accordingly about $20,700 per mile.

Between the 120th and the 130th miles, I believe the line can be greatly improved by following the straighter line which I have dotted on the map. I have not walked over this line, but I have been on it at what I believe is near a height of land at a little lake abreast of 127th mile, where there is extensive meadow land. And I have seen the lower end of a valley about the 121st mile, which valley runs up in a direction of this lake. If this line should be suitable it will shorten the railway by about a mile, and materially shorten the descending grade at 130 miles, or lessen its rate of fall, as the level of the lake is very much lower than that of the point which it is abreast of at 127 miles.

Of the next twenty miles from the 145th to the 165th, the first five miles are through an easy country, generally flat. At 151 miles there will be a rather heavy cutting across the end of a spur of land, and a long curve. Then for three miles the line is in a valley and comes out on the shore of Trading Lake, at the 155th mile. Then there are two miles of easy work along the shore of the lake and two miles more of rather heavy work. The remainder up to the 165th mile along the Lake of Bays is easy, although at 164 miles there will be a cutting across the neck of a headland that juts out boldly into the lake. There will not be any heavy bridging on this section, ordinary culverts will be sufficient. I estimate the average cost at the modified rate for Contract No. 9, namely, $15,000 per mile.

From 165 miles to 168 miles at the lower end of the Lake of Bays the work will be easy, there will not be any sharp curves required to keep the line on a surface almost level.

From 168 miles to 172 miles the line will be chiefly in beaver meadow and tamarac swamps. From 172 miles to the lower end of Devine's Lake, at 175 miles, the line will pass over rougher country, and there will be some heavy work near the lake. The line crosses the stream out of Devine's Lake, at the foot of the lake, and keeps rather rough, side hill going down a grade, of one in 100 for about three miles to the Village of Port Sydney, on the Muskoka river, at the foot of Mary Lake. There would be one heavy cutting on these three miles at about the middle of them. From Port Sydney to the 185th mile the ground is good not requiring any expensive works. I estimate the cost of this section at rather more than the modified rate for Contract No. 1, and at a mean between the rates for Contracts Nos. 1 and 9, namely, $12,000 per mile. There will be across the east branch of the Muskoka river, at the lower end of the Lake of Bays, a bridge with three spans, each of 100 feet. The bridge will be low, and on a good gravel foundation, if not on rock. I estimate the cost of this bridge at $38,300.

Another bridge of the same spans but of lower height and built on rock without cofferdams or pumping, will be built across the main Muskoka River, at the outlet of Mary Lake—and this I estimate at $26,000. A smaller bridge at the outlet of Devine's Lake, to be built on rock, and another at the outlet of another lake at 182 miles, I estimate together at $10.700. I accordingly estimate the average cost of the whole section of twenty miles at $15,700 per mile.

Of the next section of twenty miles the first five will have light work as there is a great deal of flat land on them, but the sixth mile will have heavy cuttings—then follow four miles of lightly rolling country, and three miles more partly in flat meadow land, and partly on side hill in the valley of a small stream. The remaining seven miles will have easy work, as the line runs for the most part through a long flat valley, partly open meadow, and partly timbered, and then along the straight low shore of a lake. Although the work on the sixth mile of this section is heavier than any on the same length of Contract No. 9, the works on the remainder of the section will be somewhat lighter than the average of that contract, and I therefore estimate the cost of this section at the modified rate for Contract No. 9, namely, $15,000 per mile. But at 190 miles there will be a high bridge, requiring a clear opening of fifty feet, and a height of about fifty feet. This bridge will be built on solid rock without difficulty, and I estimate its cost at $33,500. Another bridge, with the same clear opening, but a much less height, will be required at the crossing of the Rosseau River at 195 miles. This bridge I estimate at $22,200; and I accordingly estimate the average cost of all the work on the section at $17,800 per mile.

From 205 miles to the terminus of the railway at Parry Sound, a distance of twenty miles, there will be at different places very easy work for an aggregate length of eight miles or more, the work will be as easy as the lightest portions of Contract No. 1. But between the 207th and 210th miles there will be some rather heavy side hill work on a grade descending one in 100. Afterwards about the 217th mile, at what is called the Serpent Rapids, there will be a deep cutting and high embankment, but both will be short—not more than 350 yards from the beginning of the cutting to the end of the embankment. The cutting will be about 15,000 cubic yards of rock. Almost immediately after this, the line runs for less than 150 yards along the face of very steep rock, lying in large and comparatively loose masses, easily blasted. This is something like the large rock on the face of Bic Mountain, on Contract No. 5, of the Intercolonial Railway; and the roadway will be made by blasting about thirty feet deep in this rock. On both sides of this rock for a total length of about 500 yards, the line will be an ordinary side hill, sloping transversely about four to one. There will be very little curvature where this heavy work will be, but the grade will be one in 100 for about one and a half miles. This heavy work and steep grade are in consequence of the Serpent Rapid in the Seguin River

which here falls about sixty feet. There will be some rocky points to be cut across about 221 miles, where the line leaves the valley of the Seguin River, and bends round to Mill Lake, and from this point to the terminus of Parry Sound, the ground is rough, and the line will be crooked, but the work will not be very heavy. I estimate this section, leaving out the bridges, at the modified rate for Contract No. 18, namely, $25,000 per mile. There will be a small bridge near the 208th mile, which I estimate at $9,000, and three bridges over the Seguin, which I estimate at $30,500 each. The estimate of the total of the section of twenty miles is accordingly $30,000 per mile.

The estimate of the whole work I therefore sum up as follows:—

	Miles.		Miles.				
From	0	to	10	10	miles at	$ 9,100	$ 91,000
"	10	"	16	6	"	30,000	180,000
"	16	"	30	14	"	19,500	273,000
"	30	"	43	13	"	10,000	130,000
"	43	"	50	7	"	19,800	138,600
"	50	"	75	25	"	9,500	237,500
"	75	"	95	20	"	29,000	580,000
"	95	"	110	15	"	17,500	262,500
"	110	"	125	15	"	10,500	157,500
"	125	"	145	20	"	20,700	414,000
"	145	"	165	20	"	15,000	300,000
"	165	"	185	20	"	15,700	314,000
"	185	"	205	20	"	17,800	356,000
"	205	"	225	20	"	30,000	600,000
Total							$4,034,100
Say for 225 miles at $18,000 per mile							$4,050,000

I believe that in all these estimates I have made very liberal allowances, and that an estimate based on quantities ascertained by careful instrumental survey would be considerably less than what I have given here. In all the bridges, except a very few of the smallest, I have allowed first-class masonry, iron superstructure, and a liberal sum for coffer dams, pumping and excavation.

To complete the estimate of the total cost of the railway, I assume a permanent way similar to that of the Intercolonial Railway, with steel rails weighing sixty pounds per lineal yard, and delivered at Carleton Place for sixty dollars per ton. I make an additional average allowance of $400 per mile for the carriage of rails and fastenings from Carleton Place along the line. I also allow five per cent. of the whole length of railway for sidings, and I allow a high price, fifty cents per cubic yard for ballast, to insure its being a good quality, as I believe there is nothing more valuable in a permanent way than the best of ballast. My estimate for the permanent way is, therefore, $9,500 per mile for 225 miles.

The rolling stock. I assume twelve engines for trains, two for jobbing, and four for reserve; also fifteen passenger and baggage cars, 200 box freight cars, and 100 platform cars, amounting in all, to $2,100 per mile. And for stations, I assume two terminal stations at $10,000 each, one way station at $1,000 for each ten miles of railway, and one workshop at $100,000, amounting in all, to $625 per mile.

The gross estimate I accordingly make as follows:

Earthworks and masonry	$18,000	per mile.
Permanent way	9,500	"
Rolling stock	2,100	"
Stations and workshop	625	"
Total	$30,225	

Amounting to $6,800,625 for the 225 miles; but to this sum has still to be added the cost of surveys and superintendence.

The highest level attained on the survey is at the 127th mile. I cannot for reasons already mentioned, give from my own observations the height of this point over that of the sea, but taking as accurate, the level given in the geological reports of Elephant Lake (called Papineau Lake in the reports) as 1,122, I believe the level of the highest point at the 127th mile is not more than 1400 feet over the sea. Carleton Place is 440 feet above the level of the sea, so that the summit level is 960 feet above that of Carleton Place.

With regard to grades up to the summit level of the railway I would draw your attention to the fact that from the eighteenth to the twenty-eighth mile, the thirty-sixth to the fortieth, the forty-seventh to the seventy-fifth, the eighty-first to the 101st, and the 113th to the 127th, a total length of seventy-six miles, the grades are all ascending the valleys of rivers and streams. Of the remaining fifty-one miles up to the summit a very large proportion has grades ascending in the same direction, there being no portion having descending grades of any consequence except from the sixteenth mile to the eighteenth, the thirty-fifth to the thirty-sixth, to the forty-fourth to the forty-seventh, and the seventy-seventh to the eightieth, in all nine miles. The grades at these places would fall not more than one in 100, if so much.

There is thus probably a height of about 450 feet to be added to the difference of level between Carlton Place and the summit of the railway, making a total rise up to the summit, of 1,410 feet, and giving an average grade of 11 feet per mile.

On the other hand, in descending from the summit to Parry Sound, there will be an ascending grade for about two miles at 133 miles; about one mile at 158 miles; about four miles ascending slowly at different points between 168 and 180 miles—one mile of steep ascent at 190 miles, and a slow ascent from 195 to 198 miles. I have not reliable instrumental observations of these rises, but I believe they do not amount to more than 400 feet. As before stated, I estimate the height of the summit level above the sea at 1,400 feet. The height of the Georgian Bay above sea level is 578 feet. The difference of level between the summit of the railway and Parry Sound is thus 822 feet, and the above sum of 400 feet for rising grades between the summit and Parry Sound gives a total descent of 1,222 feet between these points, giving an average descent of 12 feet per mile. You will notice on the map that from the 135th mile to the 145th, the 150th to the 168th, the 188th to the 190th, and the 198th to the 225th, a total length of fifty-seven miles, the line runs by large lakes and streams.

In this connection I would refer you to what I have stated in regard to the line between the 120th and the 130th miles, to show that it is highly probable a lower summit for the railway can be readily found, by which the total rise and fall would be reduced by between fifty and eighty feet.

On the next half of the line the lakes are very numerous, and they afford most excellent opportunity for concentrating a great amount of local traffic on certain points of the railway, notably at Kenneses Lake, Kahweambijawanagog or Hollow Lake, Lake of Bays, Mary Lake and Skeleton Lake. I am informed that a small steamboat will be put for trade on the Lake of Bays during the coming summer and that a similar one will ply through Peninsula Lake, Fairy Lake, Lake Vernon, and Mary Lake. By means of these lakes and others which I have not mentioned the railway would be of almost immediate accommodation to a very wide district.

The sites for using water power through the country traversed by the line are very numerous, and the power to be obtained is almost unlimited, the lakes affording means for making storage reservoirs of immense capacity, and at very little cost and injury to surrounding lands. The shores of the lakes, though in many cases comparatively low, generally rise quickly from the water, so that a dam of a few feet in height across the outlet of a lake would in most cases flood but a small area of ground.

The surface of the country traversed is generally much broken, except on the first ten miles the unbroken flat land of any considerable width is very little. There are numerous beaver meadows on the line and elsewhere in the neighborhood, but they are generally narrow. But it seemed to me that almost universally, even in the most broken country, though the sides of the hills might be steep and rock frequent on the surface, there are large patches of flattish ground easy of tillage. The soil throughout is generally good, and much of it is most excellent, at least so the settlers have told me of their farms. Only one of all those with whom I have conversed has spoken ill of his farm, and he had certainly very good reason, for it is very rocky, but he could easily have bettered his condition. I have met some settlers from the cities of Glasgow and Edinburgh, one family from the City of London, England, one from Liverpool, some from Oxfordshire, and several from the Lake Ontario front, and all have spoken well of their farms, and are well pleased with their lot. One man near Skeleton Lake, on a farm with a great deal of rock on it, told me that he had come from Lake Ontario, and much preferred his present farm to his former one, stating that his crops at Lake Ontario had been frequently injured by early frost, while in his new farm, during his three or four years occupation, the early frosts had not troubled him. The timber is of mixed kinds, yellow birch (scarcely any white birch), maple, beech, and white pine, are found almost throughout; iron wood, bass wood, elm and balsam, frequently spruce, tamarac and cedar are found in the swamps. There is very little red pine along the route except in the district between the 82nd and 94th miles, and even there not exclusively. At a lake called Red Pine Lake, there are very few if any red pine trees, at least on the side traversed by the line, so that taking the timber as an index to the character of the country, it may be concluded that the soil throughout this route is generally good.

There is a great deal of very good pine through the country, but there is also very much with slight blemishes rendering it unprofitable to transport the logs a long distance, which would give excellent lumber in narrow boards, lathwood, shingles, &c. I am informed by men engaged in lumbering, and I believe that a railway constructed through this district would be the means of saving all this imperfect timber, and turning it to a profitable account, for both lumbermen and the country at large, for in case of the railway being made, all this timber would be sawn on the ground, and then the good parts only transported to market. There are many sites for mills for this purpose, and the lakes afford good facilities for gathering and storing the logs. This imperfect timber is cut down, as it often is before the imperfections are discovered, is left to rot and feed fires in the bush, and so a double loss ensues.

For sleepers there is a good deal of tamarac in various places, and there are large quantities of hemlock, particularly in the district of the Seguin River.

As I have already stated, I did not confine my attention to one particular line. Accordingly, I examined the country between the line laid down and the Mississippi road from the 25th mile to the 65th, but this country was too rough. I also examined a wide district south of the line laid down and extending from the 85th mile to the 115th, but, though on account of what seemed to me most excellent land in the townships of Mayo, Carlow and Dungannon, I was anxious to find a line through that district to suit my purposes, I was not able to find it. Again, to avoid lengthening the line by going round by the valley of the Seguin River, between 195th mile and Parry Sound, I had an examination made for a line going more direct, as it was reported such a line could be had, but I found the report was not true enough. But as the country that I travelled through is of broken surface, almost all wooded, and with extremely few points from which observations of distant places could be made with any degree of satisfaction, I had merely to take up as I went along, some line almost by guess, and follow it as far as it was suitable. I scarcely ever got any correct information about what was ahead of me, a great deal was given with full assurance of its correctness, which I found on trial to be worthless or quite incorrect. You will easily understand from this that though, as I believe, I have found a practicable route with works of easy construction, there may readily be not far off my route a shorter line with easier work.

I found it difficult, if not impracticable, to bring the line into Parry Sound except by the Sequin River and Mill Lake, with this route I preferred making the terminus of the line on the shore of the outer harbour, as I consider a terminus on the inner harbour—though, perhaps more convenient for the existing trade of the place—would be inconvenient and insufficient for the new trade that the railway would probably bring.

Before leaving Parry Sound, I made, according to your instructions, an examination of the harbour and channel. I went out in the tug boat belonging to the Parry Sound Lumber Co., and examined almost as far out as the lighthouse, distant from the village about twenty miles. I found the channel wide and well marked naturally, and of easy navigation. A squall came on which made the sea too rough for the tug, and prevented my going out quite so far as the lighthouse; but I saw very distinctly the rocks about it. Although the waves were too high for the tug boat, there was no sign of breakers near the channel except on the rocks which were visible, and on a shoal where a chart which I held in my hands shows a buoy and seven feet of water. It appeared to me that as far as the channel is concerned the chart is quite correct, except, perhaps, in one particular. The captain of the tug, who is a pilot of many years experience in the Georgian Bay, and who I believe from my experience of him on that day is thoroughly trustworthy, stated that he believes there is a sunken rock covered by about fifteen feet of water about three-quarters of a mile south east of Red rock adjoining the lighthouse rock, and that he believes the marking of this rock, if it exists, is the only thing wanted to make the chart of the channel perfect. He is not sure of the existence of this rock; but he suspects it on account of the colour of the water, one day when he was piloting a vessel over the place. There is abundance of good anchorage in places close to the channel besides those marked on the chart, and at the north end of Parry Island there is a wide bay, or rather a series of bays which give perfectly safe sheltered anchorage for vessels that may, if the railway should be constructed, be waiting for loading and discharging. It seems to me that about $100 spent in renewing the few necessary buoys and beacons would make the channel as safe almost as it is possible for a channel to be. I do not know whether or not it is necessary to mention to you an idea which, I think from my having been spoken to about it, prevails with some people. I have been told that Parry Sound Harbor is most excellent *when one gets into it;* but that the channel to it is so narrow that one could at places jump ashore from the steamers passing through it. Whether this idea is widely prevalent or not, I do not know; but lest it should be, I think it well to take notice of it. The narrow channel which is thus spoken of is called the "Danbuno Channel," it being the one which the Danbuno steamer takes on her trips between Collingwood and Parry Sound; but it is not at all *the* channel that by which vessels from Lake Huron would enter Parry Sound. The Danbuno Channel goes down south, close by the west end of Parry Island, whereas the main channel out to Lake Huron goes out almost directly west.

In conclusion permit me to say that I have given an unbiased report—although I would desire to advocate the construction of the railway, because I believe it would confer on the country at large a great benefit, by opening up a wide district of good land for settlement; by giving an impetus to the growth of varions industries in the country, by means of the water power of the many streams and lakes on its route; by giving facilities for great economy in lumbering, and by giving, by its shortness and consequent cheapness of land transit, greater encouragement to the trade of the west to pass through the country.

Mr. H. J. Hubertus, who projected this railway, took part in the expedition, and a lively interest in the survey, gathering what information he could over a wide district, as to the character and capabilities of the country passed through.

Throughout the survey I was met in a very friendly spirit by all persons on the several routes examined, and they gave me all the assistance and information which they could give, several voluntarily accompanying me to show me through lands with which they are acquainted.

I have the honor to be, Dear Sir,
Yours very sincerely,
(Signed), **Leon G. Bell.**

Sandford Fleming, Esq.,
Chief Engineer,
Canadian Pacific Railway.

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2nd Session, 3rd Parliament, 38 Vic., 1875.

RETURN

To an ADDRESS of the HOUSE OF COMMONS, dated 17th February, 1875; For copies of the Report of L. G. Bell, C. E., on the exploration made of the route of the Huron and Ottawa Railway, from Ottawa City to Parry Sound- together with all Maps or Papers accompanying the same.

Printed by Order of Parliament.

OTTAWA:
Printed by MacLean, Roger & Co., Wellington Street,
1875.