APPENDIX

TABLE of Gross Quantities of the principal kinds of work executed on the whole line.

DESCRIPTION OF WORK	QUANTITIES.	
Forest clearing	5,162	Acres
Earth excavation	14,546,218	Cubic Yards
Rock excavation	1,543,577	Cubic Yards
Total excavation	16,089,795	Cubic Yards
Masonry	200,467	Cubic Yards
Iron pipe culverts, 2,188 lineal feet, equal to substituted Masonry	8,000	Cubic Yards
Tunnels for streams, 4,862 lineal feet, equal to substituted Masonry	25,000	Cubic Yards
Concrete	12,000	Cubic Yards
Iron Bridge superstructure	14,410	Lineal feet
Timber Bridge superstructure	830	Lineal feet
Cross Ties (Sleepers)	1,250,000	
Steel Rails	43,500	Tons.
Iron Rails	4,500	Tons.

TABLE, shewing average quantities of Excavation and Masonry per mile.

DISTRICT	Divis. Letter	Contr. No.	EXCAVATION			Masonry
				Percentage		
			Cu. Yds.	Rock	Earth	Cu. Yds.
St. Lawrence District	A	1	17,685	7	93	295
St. Lawrence District	B	2	36,300	-	100	603
St. Lawrence District	C	5	32,577	15	85	320
St. Lawrence District	D	8	13,665	4	96	179
St. Lawrence District	E	13	81,996	20	80	423
St. Lawrence District	F	14	20,770	8	92	203
Averages, St. Lawrence District			33,361	11	89	332

Restigouche District	G	17	29,768	6	94	435
Restigouche District	H	18	44,654	10	90	445
Restigouche District	I	19	48,954	13	87	1,034
Restigouche District	K	3	25,687	9	91	477
Restigouche District	L	6	25,734	1½	98½	572
Restigouche District	M	9	22,185	14	86	339
Restigouche District	N	15	51,959	1	99	1,061
Averages, Restigouche District			33,000	8	92	557
Miramichi District	O	16	18,594	1½	98½	172
Miramichi District	P	10	47,352	9½	90½	430
Miramichi District	Q	20	47,411	3	97	2,004
Miramichi District	R	21	32,032	19	81	269
Miramichi District	S	22	29,120	7	93	299
Miramichi District	T	23	28,045	5	95	270
Averages, Miramichi District			31,940	7½	92½	376
Nova Scotia District	U	-	20,000	-	100	250
Nova Scotia District	V	-	15,865	5	95	212
Nova Scotia District	W	11	37,750	-	100	290
Nova Scotia District	X	4	25,771	7	93	418
Nova Scotia District	Y	7	45,262	7	93	342
Nova Scotia District	Z	12	43,710	18	82	462
Averages, Nova Scotia District			30,200	10	90	330
Averages for the whole Line			32,210	9	91	401

THE SHORT OCEAN PASSAGE.

EXTRACTS FROM THE CHIEF ENGINEER'S REPORT OF 1865, ON THE EXPLORATORY SURVEY FOR THE INTERCOLONIAL RAILWAY.

"Newfoundland, a large Island off the main land of North America, and Ireland, an Island off the European coast, resemble each other in being similar outlying portions of the Continents to which they respectively belong. Possibly they may have a more important similarity and relationship, through the remarkable geographical position which they hold, the one to the other, and to the great centres of population and commerce in Europe and America.

A glance at the chart of the Atlantic will shew that between Ireland and Newfoundland, the Ocean can be spanned by the shortest line.

Ireland is separated from England and Scotland by the Irish Channel; Newfoundland is separated from New Brunswick and Nova Scotia by the Gulf of St. Lawrence. Already railways have reached the western coast of Ireland and brought it within sixteen hours of the British capital. Were it possible to introduce the Locomotive into Newfoundland and establish steam communication between it and the cities of America, a route would be created from Continent to Continent, having the Ocean Passage reduced to a minimum.

This route would not be open for traffic throughout the whole year; during certain months, the direct course of steamers would be so impeded by floating ice, that it could not with certainty or safety be traversed. It therefore remains to be seen whether the route has sufficient advantages whilst open, to recommend its establishment and use, during probably not more than seven months of the year.

In this respect the Newfoundland route must be viewed precisely in the same light as many other lines of traffic in North America, and possibly it may be found of equal importance. Of these works may be mentioned the Canals of Canada and the United States, which although closed to traffic during winter, have justified the expenditure of enormous sums of money in their original construction, and in repeated enlargements and extensions.

Having alluded to the great objection to a route across Newfoundland, we may now proceed to enquire into its merits.

The track of steamers from the British coast to New York, and to all points north of New York, passes Ireland and Newfoundland, either to the north or to the south; the most usual course, however, is to the south of both Islands. Vessels bound westerly, make for Cape Race on the south-easterly coast of Newfoundland; whilst those bound easterly, make Cape Clear on the south-westerly angle of Ireland. Not far from Cape Race is the Harbour of St. John's, and near Cape Clear is the Harbour of Valentia; the one is the most easterly Port of America, the other is the most westerly Port of Europe. They are distant from each other about 1,640 miles.

The Irish Railways are not yet extended to Valentia, but they have reached Killarney, within about 30 miles of it.

From St. John's across Newfoundland to the Gulf of St. Lawrence, the distance is probably about 300 miles. On the St. Lawrence coast of the Island, the Chart shews two Harbours, either of which may be found available as points of transhipment; the one St. George's Bay, the other, Port au Port; they are situated near each other, and both are equally in a direct line from St. John's westerly to the main land.

On the westerly shore of the Gulf, we find at the entrance to the Bay des Chauleur, the Harbour of Shippigan. From St. Georges Bay to Shippigan, the distance is from 240 to 250 miles. Shippigan may be connected by means of the contemplated Intercolonial Railway with Canada and the United States.

The line of Steam communication from Great Britain across Ireland and Newfoundland, and by the contemplated Intercolonial Railway to the Interior of North America, possesses some important recommendations as will presently be seen. It will, however, first be necessary to allude to the question of speed.

At the present time Ocean Steamers generally carry both freight and passengers, and in this respect they are like what are termed "mixed trains" on Railways. These mixed trains are employed to serve localities where there is not sufficient passenger and freight traffic to justify the running of separate trains.

On railways doing a large business, the traffic is properly classified; fast trains are run to carry passengers and mails only, whilst slow trains are used to convey heavy freight. A similar classification of Ocean traffic may be suggested. Freight will naturally go by the cheapest mode of conveyance, while Passengers and Mails will seek the speediest.

It is well known that the shape of a steamship, other things being equal, governs her speed. The shape again depends on the load she may be constructed to carry: if the ship is required only for mails and passengers and such voyages as need but a small quantity of fuel, she may be constructed on a model both sharp and light, and thus be capable of running more rapidly than if built to carry heavy and bulky loads. A steamship for heavy loads may be compared to a dray horse, whilst one made specially for passengers and rapid transit, may resemble a race horse, and like the latter, the less weight carried the more speed will be made.

If these views are correct, it is clear that the speed of Ocean Steamships might be considerably increased when constructed for a special purpose. The distance between St. John's (Newfoundland) and Valentia, is not much more than half the distance between Liverpool and New York; and hence about half the quantity of coal and supplies would be required for the passage, between the former points.

It is quite obvious, therefore, that a steamship constructed specially to run between St. John's and Valentia, and for the purpose of carrying only passengers and mails, with such light express matter as usually goes by passenger trains, would attain a higher rate of speed than existing ocean steamers.

A rate of 16½ miles per hour is thought to be quite possible: the distance between Valentia and St. John's is 1,640 miles. At this assumed rate therefore the ocean passage might be accomplished in 100 hours.

With regard to the speed on land, it appears from Bradshaw's Railway Guide, that the Irish mails are regularly carried between London and Holyhead at the rate of 40 miles an hour including stoppages, that the Irish Channel is crossed at the rate of 16 miles an hour, including the time required for transhipment at Holyhead and Kingston, and that the mails reach Queenstown some 16 hours after they leave London. Valentia is very little further from Dublin than Queenstown, and on the completion of a railway to Valentia, there is nothing to prevent it

being reached from London in the same time now occupied in carrying the mails to Queenstown.

Galway has been mentioned as a proper point to connect with ocean steamers, it is fully an hour nearer London than Valentia, but probably three hours (in time) further from America.

Although 40 miles an hour is a common rate of speed on the railways in England, it is not usual to run so rapidly on the American side of the Atlantic. On the leading passenger routes in the United States, 30 miles an hour including stoppages is attained. With the rail track and rolling stock in a good condition, there is no difficulty in running at these rates of speed. Therefore, a minimum rate of 30 miles an hour, may reasonably be assumed as that at which the mails might be carried overland, to various points hereafter referred to.

Having fixed upon a practicable rate of speed by land and water, the time necessary for the conveyance of the Mails from London to New York, by the projected route, may now be ascertained;

From London to Valentia at present rate of speed in England ..... 16 hours
From Valentia to St. John's, 1,640 miles at 16½ miles per hour ..... 100 hours
From St. John's to St. Georges ..... 8½ hours
From St. Georges to Shippigan, 250 miles at 16½ miles per hour ..... 15½ hours
From Shippigan to New York, 906 miles at 30 miles per hour ..... 31 hours
Total, ... 171 hours

It is thus apparent, that without assuming rates of speed at all extraordinary, it would be possible to carry the mails from London to New York in 171 hours, or $7/_8$ days, by the route passing over Ireland, Newfoundland, and by the proposed Intercolonial Railway from Shippigan.

In order to compare the route referred to with existing lines, the results of the past year (1864) may now be presented.

PASSAGES BETWEEN LIVERPOOL AND NEW YORK.

Name of Steamship Line.	**Western Passage** d. h. m.	**Eastern Passage** d. h. m.	**Mean** d. h.
Inman Line - Average of 52 Eastern and 52 Western passages	13 19 11	12 18 54	13 7
Shortest passages.	11 5 0	10 5 0	10 17
Cunard Line - Average of 27 Eastern and 25 Western passages	11 12 46	10 11 42	11 0
Shortest passages	9 17 0	9 3 0	9 1

PASSAGES BETWEEN SOUTHAMPTON AND NEW YORK.

Name of Steamship Line.	**Western Passage** d. h. m.	**Eastern Passage** d. h. m.	**Mean** d. h.
Hamburg Line - Average of 23 Western and 25 Eastern passages	13 11 46	12 15 53	13 1
Shortest passages	10 9 0	10 17 0	10 13
Bremen Line - Average of 20 Eastern and 22 Western passages	14 8 27	12 9 42	13 9
Shortest passages	10 17 0	10 19 0	10 18

From the above it will be seen, that while the mean average of all the passages, made between Liverpool or Southampton, and New York, ranges from 11 days up to 13 days 9 hours; it is estimated that by Ireland, Newfoundland, and Shippigan, the passage could be made in 7 days 3 hours, nearly four days less time than the lowest mean average, and two days less than the shortest of 246 passages, if not the *very shortest* passage on record. These advantages alone are sufficient to attract the attention of business men, but the great recommendation of the Newfoundland route to most travellers, would be the shortening of the Ocean passage proper, from 264 hours (the average by the Cunard line) to 100 hours.

The above comparison has been made because the greatest number, and perhaps the best, Ocean Steamship

Lines run to New York. A similar comparison with the Boston, Portland, and Quebec lines, would show a result still more in favour of the Newfoundland route.

The following table, giving the time required between London and various points in North America, will show at a glance the great advantage which would accrue to the people of both hemispheres by the establishment of the *short Ocean passage route*. By this table it will be seen that the Mails from London, could not only be carried to all parts of the British Provinces, and to all points in the Northern States, in a marvellously short space of time by the route herein projected, but that it is quite possible to deliver them on the shores of the Gulf of Mexico *in nine days*, - less time, in fact, than the shortest passages of the Cunard or of any other Steamers between Liverpool and New York.

Time required to carry the Mails by the Proposed Short Ocean Passage, and by the Intercolonial Railway from Shippigan.

From London to St. John's, Newfoundland	4 days 20 hours
From London to Shippigan	5 days 20 hours
From London to Halifax	6 days 5 hours
From London to St. John, New Brunswick	6 days 4 hours
From London to Quebec	6 days 10 hours
From London to Montreal	6 days 16 hours
From London to Toronto	7 days 2 hours
From London to Buffalo	7 days 6 hours
From London to Detroit	7 days 8 hours
From London to Chicago	7 days 20 hours
From London to Albany	7 days 0 hours
From London to New York	7 days 3 hours
From London to Boston	6 days 19 hours
From London to Portland	6 days 15 hours
From London to New Orleans	9 days 0 hours

Having shown that by shortening the ocean passage across the Atlantic to a *minimum*, the time of transit between the great centres of business in Europe and America can be very greatly reduced; so much so indeed, that a reasonable hope may be entertained that the entire Mail matter passing between the two Continents, may eventually be attracted to the new route, it may be well now to enquire what proportion of, passengers may be expected to travel over it.

Before 1838 the only mode of crossing the Atlantic was by sailing ships; the passage commonly occupied from six to ten weeks, until the introduction of a superior class of vessels known as the American Liners; these fine ships made an average homeward passage of 24 days, and an average outward passage of 36 days.

The year 1838 saw the beginning of a New Era in transatlantic communications. Two Steam vessels crossed from shore to shore; one, "*The Sirius*," left Cork on April 4th, another, "*The Great Western*," left Bristol on April 8th, and they both arrived at New York on the same day, the 23rd of April; the average speed of the former was 161 miles per day, that of the latter 208 miles per day.

"*The Great Western*" continued to run from 1838 to 1844, making in all 84 passages; she ran the outward trip in an average time of 15½ days, and the homeward trip in an average time of 13¼ days.

The Cunard Line commenced running in July, 1840, with three steamers, "*The Britannia*," "*The Acadia*," and "*The Caledonia*," under a contract with the British Government to make monthly passages.

In 1846, under a new contract, the Cunard Company undertook to despatch a Mail Steamer once a fortnight from Liverpool to Halifax and Boston, and another Mail Steamer once a fortnight from Liverpool to New York. This service has been maintained with amazing regularity and increasing efficiency to the present day.

These were the pioneers of a system of Ocean Steam Navigation which has already done so much to increase the intercourse between the two continents. By reducing the length and uncertainty of the voyages as well as the inconveniences, in many cases, the miseries, which passengers had previously to endure, a vast deal of good has been accomplished.

The number and tonnage of steamships engaged in carrying passengers and goods between the British Islands and North America, has of late years increased with wonderful rapidity. In 1864 no less than *ten regular lines* of Ocean steamers were employed in running either to New York or to ports north of that city in the United States or in Canada. Of these ten lines, two were weekly and eight fortnightly, equivalent in all to six weekly lines; so that there were on an average six steamships leaving each side weekly, or nearly one every day.

The total number of passengers carried by these various Steam lines during the past year was 135,317, and by far the largest number travelled during the Summer months.

It would not take a very large proportion of Passengers crossing in any one year to give employment to *a daily line of Steamers* on the short Ocean Passage route from St. John's to Valentia or to Galway. A total number of 4,000 each way would give 200 passengers each trip, for seven months in the year.

It is obvious then that there is already abundance of Passenger traffic, if the purely passenger route under discussion, possesses sufficient attractions. To settle this point the advantages and disadvantages of the route must be fairly weighed.

The obstructions offered by floating ice during several months in the year, are insuperable while they last; during this period Halifax or some equally good port, open in winter, will be available.

The frequent transhipments from Railway to Steamship, and vice versa, may be considered by some an objection to the route; for conveyance of Freight they certainly would be objectionable, but most passengers would probably consider the transhipments, agreeable changes, as they would relieve the tedium of the journey.

With regard to the comparative safety of this route, it would seem as if the advantages were greatly in its favour. The portion of a voyage between New York and Liverpool, which seamen least fear, is that from Ireland to Newfoundland. It is well known that the most dangerous part of the whole voyage is along the American coast between New York and Cape Race, where thick fogs so frequently prevail; this coast line is about 1,000 miles in length, and it has been the scene of the larger number of the disasters which have occurred. No less than fourteen or fifteen Ocean Steamships have been lost on this portion of the Atlantic Seaboard.

The route which favours increased security from sea-risks, and which ie the , shortest in point of time, must eventually become the cheapest, and in consequence the most frequented. If then the route proposed across Newfoundland and Ireland avoids many of the dangers of existing routes, and reduces the Ocean passage proper to 100 hours, would not the current of travel naturally seek this route in preference to others, during the open season?

If, as it has been shewn, this route would reduce the time between London and New York some three or four days, and bring Toronto one third nearer Liverpool (in time) than New York is now; if it would give the merchant in Chicago his English letters four or five days earlier than he has ever yet received them; if it be possible by this proposed route to lift the mails in London and lay them down in New Orleans in less time than they have ever yet reached New York, then it surely possesses advantages which must eventually establish it, not simply as an Inter-Colonial, but rather as an Inter-Continental line of communication.

These are purely commercial considerations, and however important they may be as such, the Statesman will readily perceive, in the project, advantages of another kind. It may be of some consequence to extend to Newfoundland, as well as to the other Provinces of British America, the benefits of rapid inter-communication. It will probably accord with Imperial policy to foster the Shipping of the Gulf, and to encourage the building up of such a Fleet of swift Steamers as a Daily Line across the Ocean would require. It must surely be important to the Empire, to secure in perpetuity the control of the great Highway between the two Continents. It must be equally her policy to develop the resources and promote the prosperity of these Colonies - and to bind more closely, by ties of mutual benefit, the friendly relationship which happily exists between the people on both sides of the Atlantic."

THE ENGINEERING STAFF.

1863 to 1876.

Gentlemen engaged with the Engineer-in-Chief in the reconnaissance made during the winter of 1863-64.

Those recorded in italics are now dead.

W. H. TREMAINE, H. J. CAMBIE,

J. Roger Smith, *John Fleming,*
Alex. Fraser, *H. Bradley.*

STAFF OF THE EXPLORATORY SURVEY.

1864.

Those recorded in italics are now dead.

ENGINEERS IN CHARGE.

DAVID STARK, W. H. TREMAINE,
WALTER LAWSON, TOM S. RUBIDGE,
S. HAZLEWOOD.

ASSISTANTS

H. J. CAMBIE, EDWARD LAWSON,
J. F. GAUDET, W. B. LEATHER,
G. McGuire, *A. Williamson,*
W. G. Bellairs.

JUNIOR ASSISTANTS.

C. BLACKWELL, E. H. KEATING,
J. F. Darwell, *J. R. Smith.*

EXPLORERS.

H. Bradley, *Alex. Fraser.*

STAFF ON THE PRELIMINARY SURVEY.

1865.

W. H. TREMAINE,
D. STARK, S. HAZLEWOOD,
H. J. CAMBIE, S. PARKER TUCK,
THOMAS RAMSAY, C. ODELL.

STAFF ON THE PRELIMINARY SURVEY.

1867.

W. H. TREMAINE, S. HAZLEWOOD,
C. ODELL, JAMES ODELL,
H: A. F. MacLEOD, HENRY CARRE,
WM. HAZEN, W. G. BELLAIRS,
E. W. JARVIS, E. H. KEATING,
J. R. SMITH, J. JELLETT,
H. DONKIN, ALEX. SCHURMAN,
W. DALE HARRIS, W. JOHNSTON,
H. A. GRAY, C. H. McLEOD.

STAFF ON THE LOCATION SURVEY.

1868.

CHIEF ENGINEER'S OFFICE.

W. J. FORREST, Assistant, T. R. BURPE, Secretary

DISTRICT ENGINEERS.

C. SCHREIBER, W. H. TREMAINE,

MARCUS SMITH, S. HAZLEWOOD.

ENGINEERS IN CHARGE.

W. H. E. NAPIER, P. A. PETERSON,
R. McLENNAN, HENRY CARRE,
H. A. F. MacLEOD, R. SHANLY,
W. M. BUCK, J. R. HARTLEY,
JOHN LINDSAY, WM. HAZEN,
E. LAWSON.

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L. G. BELL, THOS. REYNOLDS, Junior
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WM. MURDOCH, G. H. GARDEN,
COLIN CARMAN, E. A. HARRIS,
R. CARR HARRIS, W. D. HARRIS,
E. H. KEATING, J. R. SMITH,
A. BRISTOW, JAMES CADMAN,
J. E. MORSE.

JUNIORS.

H. S. LANGTON, H. N. RUTTAN,
G. R. FELLOWES, J. JELLETT,
W. McCARTHY, J. A. DICKEY,
P. S. ABCHIBALD.

STAFF ON LOCATION AND CONSTRUCTION.

1869.

CHIEF ENGINEER'S OFFICE.

W. J. FORREST, Assistant, T. R. BURPE, Secretary.

DISTRICT ENGINEERS.

MARCUS SMITH, A. L. LIGHT,
S. HAZLEWOOD, W. H. TREMAINE.

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L. G. BELL, W. H. E. NAPIER,
W. F. BIGGAR, JOHN LINDSAY,
R. McLENNAN, HENRY CARRE,
P. A. PETERSON, R. SHANLY,
T. S. RUBIDGE, C. ODELL,
E. LAWSON, H. A. F. MacLEOD,
F. J. LYNCH, W. J. CROASDALE,
W. M. BUCK, G. H. HENSHAW.

ASSISTANT ENGINEERS.

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J. R. McDONELL, G. E. McLAUGHLIN,
F. BOLGER, J. C. BROWN,

C. BLACKWELL, R. C. HARRIS,
B. D. McCONNELL, E. A. HARRIS,
A. J. HILL, G. H. GARDEN,
J. B. HEGAN, J. W. ROBERTS,
J. L. P. O'HANLY, P. WOODGATE,
E. A. WILMOT, THOS. RAMSAY,
E. H. KEATING, J. ROYER SMITH,
J. F. DARWALL, E. W. JARVIS,
COLIN CARMAN, H. DONKIN.

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G. R. FELLOWES, J. JELLETT,
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P. S. ARCHIBALD, J. A. DICKEY.

STAFF ON CONSTRUCTION.

1870.

CHIEF ENGINEER'S OFFICE.

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DISTRICT ENGINEERS.

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E. LAWSON, C. ODELL,
W. J. CROASDALE, PETER GRANT,
HENRY CARRE, W. G. THOMPSON,
F. J. LYNCH, W. M. BUCK,
W. J. FITZGERALD, H. A. F. MacLEOD,
W. B. SMELLIE, G. H. HENSHAW.

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L. CHANDLER, G. R. FELLOWES,
J. B. HEGAN, J. W. ROBERTS,
COLIN CARMAN, B. D. McCONNELL,
G. H. GARDEN, H. DONKIN,
L. B. HAMLIN, J. F. DARWALL,
R. C. HARRIS, WM. GOSSIP, Junior
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E. H. KEATING, P. S. ARCHIBALD,

C. BLACKWELL, E. A. WILMOT,
P. WOODGATE, J. L. P. O'HANLY,
H. P. BELL, A. J. HILL.

JUNIORS.

W. McCARTHY, H. N. RUTTAN,
C. MORSE, J. JELLETT,
P. S. ARCHIBALD, J. A. DICKEY.

STAFF ON CONSTRUCTION.

1871.

CHIEF ENGINEER'S OFFICE.

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DISTRICT ENGINEERS.

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MARCUS SMITH, SAMUEL HAZLEWOOD,

ENGINEERS IN CHARGE.

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H. J. CAMBIE, J. R. McDONELL,
JOHN LINDSAY, HENRY CARRE,
W. G. BELLAIRS, PETER GRANT,
W. G. THOMPSON, H. A. F. MacLEOD,
E. LAWSON, W. J. FITZGERALD,
C. ODELL, W. B. SMELLIE,
W. M. BUCK, F. J. LYNCH,
P. A. PETERSON, G. H. HENSHAW,
T. S. RUBIDGE, C. BLACKWELL,
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ASSISTANT ENGINEERS.

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L. B. HAMLIN, G. E. McLAUGHLIN,
F. BOLGER, J. C. BROWN,
G. W. McCREADY, J. J. McGEE,
G. R. FELLOWES, J. B. HEGAN,
R. CARR HARRIS, J. ROYER SMITH,
E. W. JARVIS, WM. GOSSIP, Junior,
E. A. WILMOT, J. A. DICKEY,
H. DONKIN, H. P. BELL,
G. H. GARDEN, A. J. HILL.

JUNIORS.

W. McCARTHY, C. MORSE,
H. N. RUTTAN, J. JELLETT,
P. S. ARCHIBALD.

STAFF ON CONSTRUCTION.

1872.

CHIEF ENGINEER'S OFFICE.

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DISTRICT ENGINEERS.

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W. G. THOMPSON, H. A. F. MacLEOD,
PETER GRANT, W. B. SMELLIE,
W. J. FITZGERALD, F. J. LYNCH,
W. M. BUCK, W. J. CROASDALE,
C. BLACKWELL, P. A. PETERSON,
E. LAWSON, C. ODELL.

ASSISTANT ENGINEERS.

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W. McCARTHY, J. J. McGEE,
G. R. FELLOWES, JAS. CADMAN,
G. W. McCREADY, J. C. BROWN,
G. H. MIDDLETON, J. B. BROPHY,
R. CARR HARRIS, H. N. RUTTAN,
J. JELLETT, G. H. GARDEN,
C. MORSE, H. DONKIN,
WM. GOSSIP, Jr., P. S. ARCHIBALD,
E. A. WILMOT, L. B. HAMLIN,
J. B. HEGAN.

STAFF ON CONSTRUCTION.

1873.

CHIEF ENGINEER'S OFFICE.

W. J. FORREST, Assistant, T. R. BURPE, Secretary.

DISTRICT ENGINEERS.

L. G. BELL, SAMUEL HAZLEWOOD,
A. L. LIGHT, C. SCHREIBER.

ENGINEERS IN CHARGE.

H. J. CAMBIE, J. R. McDONELL,
JOHN LINDSAY, W. G. BELLAIRS,
PETER GRANT, C. ODELL,
W. J. FITZGERALD, W. B. SMELLIE,
W. M. BUCK, F. J. LYNCH,
H. A. F. MacLEOD, W. J. CROASDALE,
C. BLACKWELL.

ASSISTANT ENGINEERS

J. J. McGEE, G. W. McCREADY,
W. McCARTHY, T. D. TAYLOR,

L. B. HAMLIN, H. N. RUTTAN,
J. B. HEGAN, C. MORSE,
H. DONKIN, R. C. HARRIS,
WM. GOSSIP, Jr., H. DONKIN,
G. H. MIDDLETON, J. JELLETT,
E. A. WILMOT, G. R. FELLOWES,
JAMEs CADMAN, G. H. GARDEN.

STAFF ON CONSTRUCTION.

1874.

DISTRICT ENGINEERS.

C. SCHREIBER, SAMUEL HAZLEWOOD,
L. G. BELL, A. L. LIGHT.

ENGINEERS IN CHARGE.

H. J. CAMBIE, J. R. McDONELL,
PETER GRANT, W. J. FITZGERALD,
W. B. SMELLIE, F. J. LYNCH,
W. M. BUCK, C. BLACKWELL,
H. A. F. MacLEOD, C. ODELL.

ASSISTANT ENGINEERS

T. D. TAYLOR, G. H. MIDDLETON,
H. S. LANGTON, G. R. FELLOWES,
W. McCARTHY, H. N. RUTTAN,
L. B. HAMLIN, G. H. GARDEN,
JAMES CADMAN, C. MORSE,
P. S. ARCHIBALD.

STAFF ON CONSTRUCTION.

1875.

SUPERINTENDING ENGINEERS.

C. SCHREIBER.

RESIDENT ENGINEERS.

PETER GRANT, W. B. SMELLIE,
C. BLACKWELL, J. R. McDONELL,
P. S. ARCHIBALD, W. McCARTHY,
A. SINCLAIR, W. MANN.

STAFF ON CONSTRUCTION.

1876.

SUPERINTENDING ENGINEERS.

C. SCHREIBER.

RESIDENT ENGINEERS.

PETER GRANT, W. B. SMELLIE,
C. BLACKWELL, J. R. McDONELL,
P. S. ARCHIBALD, W. McCARTHY,
A. SINCLAIR, W. MANN.